

University of Nevada, Reno

The Doctoral Journey: A Case Study of One Doctoral Student's Experience

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in
Literacy Studies

By

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Abstract

The purpose of this qualitative study was to gain an in-depth understanding of one doctoral student's experience in working toward a Doctor of Philosophy (Ph. D.) with emphasis on the process rather than results. The study grew out of the experience of one doctoral student who was unable to complete a quantitative study on two occasions over a 12-year period. Investigation of this phenomenon provided insights about why events unfolded as they did and provided a possible understanding of similar cases. An intrinsic case study design allowed an in-depth vision of the case employing analytic procedures of detailed explanations, taking into account the context and setting. The paradigm assumption of an interpretive/critical perspective allowed the researcher to make sense of the case events and move on to analyze their place in the doctoral experience. Data analysis was employed through completing interviews, repeated readings of interviews with memo notations, a four step reflectivity inquiry, a literature review of the doctoral process, and an analysis of student paper surveys from the failed quantitative study. The findings from the research identified six noteworthy elements influencing this doctoral experience: study design, active parental consent, change in advisor and committee, collection design, mentoring, and circumstances. Implications from the case study suggest doctoral student attrition is a significant issue; the experiences of this doctoral student were not uncommon; and students have options to avoid some pitfalls involved in the process.

Dedication

To my lion and to prospective doctoral students in search of their lions.

(See *Three Magic Letters: Getting to Ph.D.* by Nettles and Millett)

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Chapter 1

The United States Census Bureau (2011) reported two percent (2%) of the population 25 years or older in the country attained a doctorate degree. There are many reasons for this very small number of individuals who achieve this level of education. At a basic level, a doctorate is the highest educational degree awarded. Only students who possess the capacity and motivation to endure the time involved in taking coursework and completing some sort of dissertation can succeed. However, ability and desire are not the sole determinants. Other confounding and complicating factors can delay and sometimes derail the most capable and motivated doctoral students.

Contemporary doctoral studies in the United States have been shaped throughout the history of the Western World. The roots of higher education reach back into antiquity, and while much has changed, many characteristics of earlier ages remain (Haskins, 2002; Himanka, 2015; Pedersen, 1997). In Ancient Egypt and Ancient Greece, the most complex studies in learning institutions were available to elite groups (Himanka, 2015; Marah, 2012; Pedersen, 1997). Pedersen (1997) reported that the Babylonians and the Egyptians limited education to the privileged classes and taught the skills necessary for officials; the Ancient Greeks augmented the curriculum to train citizens to become adept intellectually, physically, and artistically. The next step in first universities came from Aristotle when he proposed adding training in research to Plato's educational method (Himanka, 2015). Pedersen (1997) explained "he equipped his school as a real research institute with ordered collections of scientific material" (Pedersen, 1997, p.3) much of it collected by his former student, Alexander the Great (Pedersen (1997)).

With the fall of the Roman Empire, much ancient knowledge was lost in the Western World (O'Neill, 2015). Formal learning re-emerged in Western Europe during the Middle Ages, a period from the 5th to the 15th centuries, when the Catholic church dominated the educational landscape. Starting in the eleventh century, the concept of the university began to emerge (Cobban, 2009). The development was influenced by the need for a learned clergy and for the nobility to be able to read and write (Altbach, 2014; Clark, 2006). During the Middle Ages, students passed through different courses of study to attain academic statuses from *scholar* to *bachelor* to *master* to *doctor* (Clark, 2006). However, the term doctor applied only to professions such as law and theology.

The next major change in higher education was the result of the Age of Science and the idea that science could be taught and applied to the needs of the state. The German Polytechnic, as it became known, emerged in the late eighteenth and early nineteenth century (Halsey & Trow, 2006; Loss, 2015; Shugart, 2013). This type of institution promoted research to create new knowledge and technology in order to provide industrial and governmental leaders with practical applications (Shugart, 2013). The German university became the model for research universities in the United States (Loss, 2015). The first such American university was Johns Hopkins in Baltimore, Maryland, established in 1876 (Feldman & Desrochers, 2004). Research universities flourished in the United States, in large part due to public funding and private endowments (Baldwin, 1996).

The rise of research changed the concept of degree attainment. Early in the Middle Ages, the *disputation*, an oral type of debate emerged as a structured academic process. These events took place frequently, and all participants spoke in Latin. Most

disputations prepared students for exams which were routinely given. Gradually, disputations disappeared and written exams, seminars, research papers, and grades entered the university. However, the disputation did not fade away entirely for it influenced the formation of the dissertation (Clark, 2006).

Clark (2006) explained a doctoral student engaged in a defense of his manuscript much in the same way students in the earlier Middle Ages took part in a disputation. The early dissertations emphasized erudition and approached classical works displaying mastery and style. With the growing importance of industrial and governmental influences, research eventually replaced this classical emphasis. The research laboratory became an accepted feature of the university which easily generated research topics. The importance of useful topics overrode the need for artistry in the dissertation.

Glatthorn and Joyner (2005) maintain the contemporary purpose of a dissertation is to uphold tradition and to contribute to the field. Today, a dissertation demonstrates that the candidate is able to conduct and publish research and to enter the rank of scholar. It also contributes and disseminates new knowledge. Currently, the dissertation process requires more focused attention due to the variability of the document regarding the discipline, the department and the committee members' vision of what constitutes an acceptable product (Nettles & Millett, 2006). With the influence of the German university and its emphasis on research, a shift occurred in higher education that placed scientific and technical knowledge in the forefront (Muller & Young, 2014). Because of this, empirical research arose as the preferred form while social science investigations in dissertations diminished in importance.

Doctoral students who select a dissertation topic in the social sciences deal with a complex study environment because people are involved. The problems multiply in school-based research. Alibali and Nathan (2010) supported the value of school samples, but they differ from samples obtained from a laboratory or more controlled environment. Studies conducted in schools are more diverse and representative of the real world; yet, in the era of school accountability, actually conducting research in schools can be challenging. Rice, Bunker, Kang, Howell, and Weaver (2007) maintained the difficult nature of achieving school-based research results from multiple levels of authority required for permission to complete a study and who to contact in what order. The Institutional Review Board (IRB) located in the university, departments within the institutions, school districts, principals, teachers, parents, students, federal laws, and school boards all require attention and an understanding of their concerns.

Obtaining signed parental consent poses a particular problem. Esbensen, Melde, Taylor, and Peterson (2008) experienced success in gaining active parental consent only after expending prolonged periods of time in collection of permission forms, applying multiple strategies involving monetary resources, and spending copious amounts of time in the schools overseeing collection.

Statement of the Problem

Concern over doctoral education has increased over the last two decades (Gardner & Gopaul, 2012). Advanced degrees are required in many fields of study and careers; new social science and educational knowledge is needed to address complex societal issues. The challenge is that doctoral education statistics exhibit high attrition rates and many researchers estimate that doctoral students leave their program at an approximate

rate of fifty percent (50%) (Ehrenberg & Kuh, 2009; Golde, 2015; Lovitts, 2001; Nettles & Millett, 2006). Denecke, Fraiser, and Redd (2009) reported the rate may be higher. Few institutions collect data on graduate attrition or interview students leaving their programs so attaining more precise data is not possible at this time (Gardner, 2009).

Administrators and faculty are unaware of the problem because this data is not available as Lovitts (2001) explained in her landmark study on doctoral attrition. Attrition matters to university administrators because of loss of finances (Smallwood, 2004), the waste of faculty resources and time (Houston, 2014), and the time misspent in research projects when graduate team members leave and replacements need to be trained (Houston, 2014). Attrition matters to students who suffer financial, professional, and emotional setbacks (Rodwell & Newman, 2008). Attrition matters to the members of society because of the loss of capable people to work in the national and global workplace (Larson, 2011); in education (Houston, 2014); and in social structures such as foundations (Larson, 2011).

Titus and Ballou (2013) pointed out that few departments define the standards and expectations for ensuring a consistent experience for doctoral students, and few employ training and a reward structure for successful advising. Gardner (2009) found faculty tended to blame students for attrition; students, in turn blamed faculty. She felt such opposing views indicated a lack of communication between groups.

A number of variables influence doctoral attrition. These variables include: departmental cultures (Titus & Ballou, 2013; West, Gokalp, Peña, Fischer, & Gupton, 2011); advisor/mentor relationships (Gardner & Gopaul, 2012; Tierney, 1997); circumstances (Demb, 2012; Miller, 2013); and student responsibility (Alexlrod &

Windell, 2012; Mullen, 2006). Demographic characteristics that have been studied in relation to attrition rates include: gender (Garibaldi, 2014; Nettles & Millett, 2006); ethnicity (Lechuga, 2011; Jones, Wilder, & Osborne-Lampkin, 2013); international student status (Larson, 2011; Miller, 2013); older students (Gardner, 2008; Stacy, 2006); enrollment status (Gardner & Gopaul, 2012; Rodwell & Neumann, 2008); and availability of assistantships (de Valero, 2001; Miller, 2013).

What appears to be missing from the literature are the complications associated with actually attempting to conduct a dissertation study. This intrinsic case study illustrates the challenges of conducting research in a public school setting. It further explores how dissertation research can go awry with limited faculty oversight.

In my search, there were no research designs using a case study format to explore a doctoral students' experience conducting research in the public schools.

Purpose of the Study

The purpose of this intrinsic case study was to explore the factors that contributed to two failed attempts to collect survey and academic data of secondary students enrolled in public schools. A research study was approved by a doctoral committee; yet, implementation of the study proved to be impossible. This study examines why that happened. The research questions for this intrinsic case study were:

1. Why did this doctoral academic experience contain obstacles?
2. Is it common to experience obstacles?
3. Is it possible to avoid or reduce the obstacles?

Research Design

Qualitative research would provide the appropriate vehicle for an investigation into the factors that contributed to the inability to complete the original study. Qualitative research allows the freedom to explore a complex multidimensional problem in a context such as conducting research in public school settings.

An intrinsic case study design allowed a focus on the events in the case with the understanding that the goal encompassed understanding this particular situation.

Phenomenology, the theoretical orientation, provided a lens to view perceptions as reality in order to understand the behavior, and employed language use as data to uncover essential meanings. The paradigm assumption of *interpretive/critical perspectives* allowed the researcher to examine objectives while moving through the research process.

Limitations

Although researcher bracketing was used to identify and contain biases held by the researcher, the researcher was also the informant. An additional limitation involved the fact that the results of such a study could not be generalized to the whole population. A case study examines only one case and strives to understand that situation. Nevertheless, a case study might provide some understanding regarding similar cases.

Definitions

Advisor – A faculty member who guides students academically through the graduate program and helps prepare them for future jobs.

Assistantships – Paid positions for doctoral students in a university. Research assistantships engage students in labs or research teams. Teaching assistantships place students in charge of teaching undergraduate classes.

Attrition - The term refers to a decrease in numbers by weakening through resistance or friction.

Circumstance – This is a condition, fact, or event that affects the doctoral experience originating either inside or outside the institution.

Completion rates - A demographic variable referring to the length of time required to complete a degree.

Demographic variable – In the study of human population, it refers to the qualities (such as age, sex, and income) of a specific group of people.

Departmental culture – The set of shared attitudes, values, goals, and practices that characterize an institution or academic department.

Doctor of Education (Ed.D.) – A doctoral degree in education that has a practical research focus and prepares the holder for administrative, clinical, or professional positions in education, civil, private organizations or public institutions.

Doctor of Philosophy (Ph.D.) – The highest degree awarded by a graduate school based on at least three years of graduate study and production of a dissertation of original research in any subject except law, medicine, or sometimes theology.

Enrollment status - A demographic variable referring to the number of classes taken in a semester. Commonly referred to as part-time enrollment or full-time attendance.

Race/Ethnicity - A demographic variable referring to an affiliation resulting from racial or cultural ties.

Gender – A demographic variable referring to the behavioral, cultural, or psychological traits associated with one sex.

International student – A demographic variable referring to a student studying in the United States but whose permanent residence is in another country.

Mentors – These individuals, either inside or outside of the university, take on the role of a trusted counselor or guide to help a student personally and academically.

Older student - A demographic variable referring to a student who is 30 years old or older.

Academic Socialization – This is the process of integration in a department to learn the values, attitudes, skills, and norms of a discipline.

Student responsibility – These are steps the graduate student can take to help ensure success in progress toward a degree.

Chapter 2

Literature Review

Chapter 1 introduced the history of higher education and its development from ancient times to the eighteenth century when the German university appeared with an emphasis on research. This type of university served as a model for higher education in the United States where it experienced economic booms and declines. This historic overview included the history of doctoral education, the development of the dissertation, and discussed the influence of natural science research versus social science research in the dissertation. The problem of attrition in higher education was introduced in the statement of the problem, followed by the purpose of the study, and the rationale for an intrinsic case study approach. The chapter concluded with limitations of the study and definition of terms used in the dissertation.

The literature review delves into the history of higher education and the role of attrition in that process. It examines the relationship between attrition and departmental cultures and demographic issues. Demographic subcategories of gender, race/ethnicity, international students, older students, enrollment status (part-time and full-time), assistantships, and completion rates are outlined. Advisor roles, mentor influences, and socialization topics are interrelated and crucial in understanding attrition. Circumstances influence attrition as well and are presented. The last two topics addressed are conducting research in public schools and student responsibility.

To examine the literature regarding doctoral education graduation, the following data bases were consulted: Education Full Text, Education Resource Complete, ERIC, Academic Search Main Edition, Academic Search Premier, Historical Abstracts,

American History Life, PsycARTICLES, PsycCRITIQUES, and PsycINFO. Key words used to narrow the search included attrition, attrition data, attrition research, attrition rates, doctoral completion, doctoral journey, doctoral programs, doctoral education, higher education, history of education, motivation theory, mentoring, socialization, qualitative research, bracketing, reflectivity, social science research, empirical research, school-based research, and case study research.

History of Higher Education

Pedersen (1997) judged that thinking about history may not solve current problems, but understanding historical development may aid in gaining a more lenient and patient attitude toward the issues facing higher education today. Generally Ancient Greece and Rome were considered to be the origins of European and American education, while Egypt was felt to be the beginning of African education (Lefkowitz, 1996; Marah, 2012). However, Bernal (1996) and Marah (2012) suggested Egypt may have had a role in shaping Greek thinking and education. Pedersen (1997) contended that the Egyptians taught children of the elite only the skills necessary for official duties. The Greeks expanded learning to include theoretical and idealistic material for their citizens rather than restricting learning to useful aims. The structure of higher education expanded further when Aristotle created what today would be considered a research institute with collections of scientific material, much of it collected by his former student, Alexander the Great (Pedersen (1997). This model influenced other groups to combine teaching and research (Himanka, 2015; Pedersen, 1997).

While these influences were important, Cobban (2009) expressed doubt that the ancients of Greece and Rome were major contributors to the creation of the university

that appeared in the Middle Ages. He argued the scope changed in the Middle Ages to accommodate the wider need of professional education in a progressively enlarging urban environment. The first institutions were organized on the monastic model where only sons of the wealthy could attend school to learn from priests to be priests and take vows of poverty and chastity (Shugart, 2013). Church leaders soon realized the need for more theologians to reconcile Christian beliefs with classical ideas, as well as the need for more specialists in cannon law, civil law, and medicine (Haskins, 2002). Education expanded to meet the needs.

During the Middle Ages, education was reserved for the nobility. According to Pedersen (1997), students needed to pay for a teacher-sponsor, housing, food, and books. Student misbehavior resulted in fines and schools charged other fees. Anyone could attend school, but financial issues limited access.

The modern university appeared in the late nineteenth and early twentieth centuries in the form of the German Polytechnic with its emphasis on the importance of research rather than religion (Halsey & Trow, 2006; Loss, 2015; Shugart, 2013). Economic and governmental interests exerted influence on institutions to gain new knowledge and technology (Shugart, 2013).

In the United States during the second half of the nineteenth century, two distinct types of institutions arose (Shugart, 2013). One type was private institutions founded by industrialists who had greatly profited during the Second Industrial Age; these include such well known universities as the University of Chicago, Carnegie-Mellon, MIT, and Stanford University. The second type was the publicly funded institutions, most notably

the land-grant institutions established through the Morrill Act of 1862 with a focus on agriculture and later on industrial production, as well as the emergence of other state funded universities. At this time, institutions of higher education included research, teaching, and public service as their missions (Loss, 2015). The role of faculty was defined around research; students became apprentice researchers and were expected to develop their own specialties which eventually became majors (Clark, 2006; Shugart, 2013). Another change occurred with the reduction in the importance of theology and humanistic studies and the increase in the importance of research and research agendas (Loss, 2015; Shugart, 2013). With the rise of a focus on various scientific studies, another change that occurred was the reduced importance of theology and humanistic studies and the increase in the importance of research and research agendas (Loss, 2015; Shugart, 2013).

Higher education in the United States was again altered after World War II when 15 million veterans returned home to an economy shifting from production of war materials to a peacetime market (Shugart, 2013). The Servicemen's Readjustment Act of 1944 provided benefits for 2.2 million veterans to attend colleges or technical schools (Banner, 2006; Shugart, 2013; Strach, 2009). Banner (2006) revealed that American colleges and universities were elitist since they were attended by wealthy, White, Protestant men, and veterans of color found few places accepting them.

Higher education expanded again when Baby Boomers reached college age. Bankston (2011) declared this population helped turn higher education into an industry of mass production, not because of their number so much as the rising expectation that

everyone should go to college and that the federal government should help finance it. The federal government expanded assistance to cover educational costs through the work-study programs, Pell Grants, and the Hope Scholarship (Strach, 2009). Shugart (2013) described the faculty as assembly line workers with students as the raw material. Graduates made it through and those who did not became scrap. This model led to high attrition and the belief that better results emerged from better raw material.

Postsecondary enrollment was high during the Vietnam War for college attendance offered a way to avoid the draft, but after the war, the student population shrank and many, particularly non-state funded institutions closed when expenses overtook income in the late 1970s and early 1980s (Wexler, 2015). Other nations have large national initiatives to support higher education, but leaders in the United States have been reluctant to institute these types of plans (Schejbal, 2012).

Enrollment in United States institutions grew in the early part of the twenty-first century. Between 1988 and 1998 enrollment increased by eleven percent (11%), but expanded faster between 1998 and 2008 to thirty-two percent (32%) (IES, 2009). Because of the increased interest in college education, Hossler (2004) noted that school rankings have become important to the public and enrollment management designed to improve recruitment and retention of students has become prominent in most institutions. The economic discord beginning in 1990s and continuing today has resulted in a gradual reduction in state funding for public higher education so that universities depend more heavily on tuitions and fees. Students are expected to pay an increasingly larger share of the cost of their education (Hossler, 2004; Natale & Doran, 2012). Schejbal (2012) argued that higher education was under pressure to adopt the industrial model and/or find

a new prototype to dispense education because of technological advances and pressure to reduce costs. In the retail model, students become consumers or customers (Natale & Doran, 2012; Schejbal, 2012; Shugart, 2013; Wæraas & Solbakk, 2009) and therefore, universities must develop methods to augment their competitiveness (Wæraas & Solbakk, 2009).

Branding was one technique developed to build the prestige of the university by adding value to the services offered (Chapleo, 2015). Shugart (2013) pointed out that some colleges sell a lifestyle that will be available to students at the institution and beyond after graduation. Many schools develop the brand by creating agreeable student housing, building wellness or entertainment centers, expanding extracurricular activities, and promoting college athletics. Some foster the idea that the university is excellent because it is exclusive and expensive. Natale and Doran (2012) added that institutions, in order to improve their rankings and prestige, offer financial aid based on merit, which can affect efforts to promote social justice and access to excellent education for low income students.

History of Doctoral Education

While academic degrees did not exist in the ancient world (Clark, 2006), Schors (1988/1993) reported that only a few of the best students were accepted into the Egyptian Mystery System. A candidate had to accomplish a number of tasks and tests before going to a higher level. Failing to pass the first test with excellent scores ruined chances of progressing further, and a college of magicians would meet to decide on rejection or acceptance. Bernal (1996) explained the Old Kingdom c. 3000 B.C. could boast a collection of specialized scribes, doctors, and magicians.

Haskins (2002) maintained the first form of an academic degree began in the Middle Ages with the *licentia docendi* or certificate to allow the holder to teach. The idea of a curriculum existed with a specific content and time frame, culminating in an examination and eventually a degree. Bachelor degrees formed the first step, and master degrees followed. Doctor status existed in law, medicine, and theology. The Doctor of Philosophy emerged in Germany after 1789 and slowly spread through Europe and America.

The disputation, a formal debate, popular in the educational institutions of the Early Middle Ages, influenced the later development of the examination, the seminar, the dissertation, and the professional publication (Clark, 2006). The *presider* in the disputation, a master or doctor, established the thesis to be discussed and presided over the event. The *respondent* supported the thesis and responded to any objections raised by the *opponents*. Clark (2006) explained the presider helped the respondent to learn the dialectical arts and how to handle opponents' arguments. The ninety-five theses Martin Luther posted on the Wittenberg court church were meant for disputation.

Clark (2006) noted the disputation, at one point, was part of the graduation ceremony when the student, as respondent and candidate, defended his professor's dissertation. Later this changed, as the student became the author of the dissertation and engaged in a defense of the manuscript much in the same way students in the earlier Middle Ages took part in a disputation.

As the German Polytechnic University with its emphasis on research grew in importance, the dissertation changed. Doctoral candidates developed majors, wrote dissertations and defended them. Subjects of the dissertations included specialty areas or

major fields in the arts or sciences. Industrial and governmental influences placed an emphasis on production of scientific research rather than traditional and classical topics. The idea was to produce new knowledge and technology for industry, warfare, and government (Shugart, 2013).

Importance of doctoral education. Nerad and Heggelund (2008) reported two forces that are producing change in doctoral education; globalization of the economy and the move to a knowledge economy. Graduates must be readied for a global knowledge economy and a worldwide hierarchy of institutions, degrees, and holders of doctorates. Extensive interaction between nations will result in global systems and processes involving the movement of people, practices, and leaders not attached to specific nations. Furthermore, Nerad and Heggelund predicted that doctoral education will play a key role in knowledge production, and those who hold these degrees will be regarded as producers of innovation, research, and development. For this reason, nations are expanding doctoral education and reevaluating their current programs. Doctoral students will become global leaders in academia, supranational organizations, and governments. Therefore, educators must consider how to prepare graduates who can work within a global network both technically and in regard to an awareness of global interconnections.

Larson (2011) expressed concern about the place of the United States in production of individuals with doctoral degrees considering the increase in degree producing institutions across the world. While the United States numbers hold steady in Science, Technology Engineering, and Mathematics (STEM) graduate degrees, an increasing percentage of Ph.D. degrees are earned by international students. Larson (2011) predicted that the United States could be left behind in producing individuals with

doctoral degrees if the U.S. K-12 educational system does not make radical changes. Nerad and Heggelund, (2008) expressed less concern about winning a race to accumulate the most people who hold a Ph.D., but felt the emphasis should be on a global perspective for research to improve the quality of life for everyone.

Natural science research versus social science research. According to Muller and Young (2014), natural scientific research grew in importance as the influence of the humanities diminished when the research university emerged in the late nineteenth and early twentieth centuries. Since that time natural and technological sciences have risen to importance in research based universities to provide workers for what is now called the knowledge based economy. Gutting (2012) explained that physical science generates exact and comprehensive predictions while social science research results are “severely limited” (p.3). He described social science research as unreliable because it is about human beings with their complex behavior and with a huge number of interconnected variables that are difficult to study separately. Examining cause in social science research is conditional with a limited range while the controlled experiments of physical sciences make cause easier to establish. Some peer reviewed journals show a definite preference to publishing articles based on empirical quantitative data (McLafferty, Slate, & Onwuegbuzie, 2010).

In contrast, social science research investigates society and the influence of people’s behavior in the world. It explores how society works and provides essential information for governmental leaders and non-governmental organizations (Economic and Social Research Council, 2016). Both approaches produce important research, but they each have their own sets of assumptions, beliefs, and research approaches. However,

while experimental research takes place in controlled environments, social science occurs in naturalistic, therefore unpredictable environments associated with human interactions.

School-based research. School-based study designs fit into the category of social science research and presents unique problems. Not only is the research environment unpredictable and fluid, but the number of stakeholders complicates efforts to establish an acceptable design and carry out data collection. Leung et al. (2010) illustrated the reasons some researchers find access to schools challenging or impossible. Because of high stakes testing, school administrators fear researchers will find unethical practices or teachers not using best practices. Educators also worry about loss of instructional time and negative descriptions of their efforts to educate their young charges. Scripted curricula often allow no time for research.

Bogdan and Bilken (2007) reported that school systems vary in their requirements, so a researcher must engage in a multi-step process to learn the specifics of the districts or schools available before developing a research plan. To find out the hierarchy and rules of the district, the researcher should contact professors, friends, or school staff to locate someone who knows the operation of the system. Principals, school district committee members, and teachers must be included in planning. Then researchers must develop a research plan agreeable with Institutional Review Boards, university guidelines, federal laws, district requirements, administrators, principals, teachers, students, and parents.

In order to complete research in schools, the researchers must gain consent from the students involved. Gallagher, Haywood, Jones, and Milne (2010) reported that participation must be voluntary, but this process is complicated and presents a problem

not present in other research contexts. Whether the consent is verbal or written, the children's understanding and memory of the information may vary from the researcher's intent. The child might not be listening closely or may make a decision on a desire to please others. Gallagher et al. concluded that gaining student consent is "messy" (p. 479).

Esbensen et al. (2008) reported that obtaining parental consent poses even more complications. Before federal legislation demanded parental consent for minors to participate in research, passive parental consent usually resulted in consent rates of eighty percent (80%) or greater. Non-participation was due to absenteeism or student refusals. With passive parental consent, a notice of the study was sent home and if parents did not want their students to participate, they needed to call the school. This changed when the Family Educational Rights and Privacy Act (FERPA) passed into law, making active parental consent the standard for research assessing change over time or research involving greater than minimal risk. Active parental consent meant printed permission forms must be signed by the parent or guardian and returned to the school before student involvement in a study. The requirement of active parental consent reduced consent rates to a range of forty percent (40%) to sixty-seven percent (67%) (Esbensen et al., 1996). This poses a problem because researchers need a seventy percent (70%) consent rate in order to reduce bias in their studies.

Doctoral Study Attrition

The term attrition refers to a decrease in numbers by weakening through resistance or friction (Attrition, 2016). In this study, attrition more specifically refers to the numbers of students who leave doctoral programs, and the causes of their exits. Barbara Lovitts' study on doctoral attrition and her book *Leaving the Ivory Tower* (2001)

brought attention to the problem of doctoral student attrition and exposed its impact on the lives of individuals, institutions, and society. Lovitts experienced the problem personally by dropping out of her doctoral program, after which she researched the problem for seven and a half years, entered another doctoral program, attained a Ph.D., and wrote her influential book on the subject (Lovitts, 2001). Lovitts described attrition as an invisible problem in doctoral education because little data on attrition were collected, so few faculty and administrators were aware of the statistics. Gardner (2009) added that doctoral students who drop out were seldom interviewed. To complicate matters, Lovitts (2001) explained the definition of a graduate student varies from institution to institution. Some institutions use the MA-First Model and count students after they receive a master's degree and begin a doctoral program, while other institutions employ the German Model, counting students in their programs only when students begin work on their dissertations. Institutions utilizing the American Model count all newly admitted graduate students to doctoral programs. Therefore, while students in some of these programs consider themselves doctoral students, the institutions do not. Thus the process of definitions may vary.

Understanding attrition is complicated by the problems of collecting information. Denecke et al. (2009) reported that data from the Ph.D. Completion Project, a large-scale enterprise sponsored by the Council of Graduate Schools (CGS) suggested the national average of doctoral completion rates has risen somewhat. Denecke et al. noted that surprisingly little is actually known about the attrition rate and the causes and types of attrition. Most administrators in universities do not collect data on completion rates in their institutions. However, even when data is available across institutions, researchers

have trouble gaining comparable data in different programs and institutions. Denecke et al. explained terms like *candidacy* and *cohort* may be defined differently within institutions and among departments. Methods of measuring programs often differ and the need to do so is diminished by the fact that there is no external requirement for the collection of data.

Because of these reasons, precise data on the doctoral attrition rate is lacking, but many researchers estimated that approximately fifty percent (50%) of people who enroll in doctoral programs drop out (Ampaw & Jaeger, 2012; Boton & Gregory, 2015; Demb, 2012; de Valero, 2001; Gardner, 2009; Lovitts, 2001; Smallwood, 2004). Denecke et al. (2009) reported the rate may be even higher based on recent reports. Gardner (2009) noted the rate varies depending on the discipline from eleven percent (11%) to sixty eight percent (68%). Indeed, some humanities programs graduate only one in three students entering their programs (de Valero, 2001; Gardner, 2009; Smallwood, 2004). Also attrition varies among institutions (Rodwell & Neumann, 2008). Many deans and departments do not realize the size of the problem until they examine the statistics (Smallwood, 2004). However, attrition, especially that occurring early in the process, is not always considered in a negative way. Students may decide to leave school to pursue more attractive opportunities (Golde, 2000; Most, 2008-2009). They may discover the career path does not actually fit their needs, or they may determine the institution itself is inadequate for their goals (Gardner, 2009; Golde, 2000; Most, 2008-2009).

Why attrition matters. Attrition matters because of the cost to university budgets, students, and members of society (Gardner, 2008; Gardner, 2009; Lovitts, 2001; Smallwood, 2004). University budgets record financial losses (Denecke et al., 2009), but

the actual costs of attrition are not known since institutions have few standards to evaluate efficiency and productivity related to attrition (Lovitts, 2001). The University of Notre Dame administrators found if attrition dropped by just ten percent (10%), the institution would save one million dollars a year in stipends alone (Gardner, 2009; Smallwood, 2004). On the undergraduate level, research indicates retaining undergraduates saves money; Lovitts (2001) argued that may hold true on the graduate level as well. The time and energy faculty spend on graduate students might constitute additional resource losses in productivity at the university level. Professors expend hours consulting with graduate students and spend additional effort teaching graduates in smaller classes. They provide personalized guidance in the students' dissertation studies. Yet, if students depart from the program, this effort produces no doctoral degrees (Houston, 2014). Furthermore, when departing graduate students are involved in research and other projects, faculty members must take time to find replacements causing possible delays in the projects (Houston, 2014).

Students who do not complete their degrees may suffer financial, professional, and emotional consequences (Denecke et al., 2009; Houston, 2014; Lovitts, 2001; Rodwell & Neumann, 2008). Graduate students' educational costs, often involving student loans, may not be redeemed as their career goals become unattainable without the completed degree (Denecke et al., 2009; Houston, 2014). Lovitts (2001) interviewed 305 students who did not complete their degrees and found most had to reconstruct their lives. These non-completers had been highly successful in the past as accomplished students with great confidence. Yet dropping out forced many of them to endure a failure they

could not explain or face. Some students attempted suicide based on their depression and distress. A few actually did commit suicide (Lovitts, 2001).

Ehrenberg, Zuckerman, Groen, So, and Brucker (2009) presented a more positive view of the fate of some of the dropouts after examining the Graduate Education Survey. It provided data that indicated ten percent (10%) of dropouts completed Ph.D. degrees from different departments. Twenty percent (20%) received professional degrees in areas like law or business. Ten percent (10%) were employed in lower clerical and administrative jobs six months after leaving school, but after three years the majority had moved on to professional positions. Ehrenberg et al. did not provide information on the fate of the other sixty percent (60%) of non-completers. Denecke et al. (2009) acknowledged that some non-completers transition to professional degrees or new careers, but their previous investment of intellectual and emotional endeavors in their former degree programs left emotional scars taking years to heal.

Members of society suffer losses when attrition withdraws capable people from the work population (Houston, 2014; Lovitts, 2001). Globally the need for higher education is increasing because doctoral education is at the core of university research, thus is a source of innovation and productivity for economic growth (Larson, 2011; Nerad & Heggelund, 2008). In addition, technology based companies need employees who hold doctoral degrees to build their businesses, and countries need them to aid social structures such as foundations, nonprofit organizations, policy think tanks, and industry trade associations (Larson, 2011).

Another reason doctoral attrition receives little attention involves a lack of reward in graduate systems for retaining and graduating students (de Valero, 2001; Golde, 2000;

Lovitts, 2001). Instead, Lovitts (2001) explained often departments are rewarded for high enrollment numbers that can be maintained by admitting more students rather than retaining the ones already admitted. Though deans and department chairs are asked to collect data on graduation rates, they are seldom asked for data on attrition. The Australian educational system focused on the problem of doctoral attrition and achieved some positive results. Doctoral student completion rates became a key element in granting institutional research block grants (Rodwell & Neumann, 2008).

In 2001, the Carnegie Foundation began a five-year project called the Carnegie Initiative on the Doctorate (CID), an action and research project geared to aligning the purpose and practices of doctoral education in six disciplines. The goal was to explain and improve doctoral programs in North America. Golde (2015), through her work on the CID, noted some faculty members were examining the practices involved in improving doctoral education. Denecke et al. (2009) suggested that as consumer rating tools become available to point out information about program outcomes such as completion rates, placement statistics, and time to degree, prospective students may use this information to choose programs for doctoral study accordingly.

Attrition also escapes notice because of the individual routes students take through a program. Not all students stay together as a cohort like students enrolled in medical or law school. When students take individual routes, it is hard to notice which students are missing (Lovitts, 2001). In the discipline of education, the problem is compounded as there is no shared, essential body of knowledge and no single disciplinary society for education (Golde, Walker, & Associates, 2006). The faculty Lovitts (2001) interviewed in her study could account for the number of graduate students whose

dissertations they directed, but could not account for predissertation students because they felt little responsibility for them.

Rodwell and Neumann (2008) defined the *selective admission myth* as the belief that students who drop out of doctoral programs are the less capable candidates, and those who stay behind are of the best quality. Smallwood (2004) contended that this unsupported belief ignores that candidates admitted to doctoral programs have successfully navigated academic life and met the standards of candidacy. A basic assumption of the selective admission myth is that ability is scarce. Consequently, supporters of the selective admission myth feel the reasons for attrition reside with the student not the faculty, the graduate program, or other possible unexplored factors (de Valero, 2001; Gardner, 2009; Golde, 2000; Houston, 2014; Lovitts, 2001; Rodwell & Neumann, 2008; West et al., 2011). It should be noted that before leaving their programs, these doctoral students often provided a service for the department in teaching assistantship roles by handling courses for the faculty (Lovitts, 2001). Smallwood (2004) pointed out students in pursuit of doctoral degrees have garnered academic achievements such as attaining inclusion on the honor roll, summa cum laude status, high GPAs, high Graduate Record Exam scores, scholastic certificates, and scholarships. Their successes would likely engender high self-efficacy and confidence needed to finish (Bandura, 1977). Smallwood (2004) questioned why, with little academic difference between those who complete the program and those who leave, are students leaving the programs?

There is no one simple answer to explain attrition because the reasons graduate students drop out of school are multifaceted (Gardner, 2009; Golde, 2000). Identifying some of the actual causes for departure from doctoral programs through departmental exit

interviews with students could provide data and clarify various reasons for departure; however, that is seldom done (de Valero, 2001; Golde, 2000). Researchers identified a number of reasons for attrition: (a) funding issues (Demb, 2012; de Valero, 2001; Rodwell & Neumann, 2008; West et al., 2011); (b) transition from dependent student taking classes to independent student writing a dissertation (Golde, 2000; West et al., 2011); (c) faculty claiming no responsibility for attrition and giving all responsibility to the student (de Valero, 2001; Gardner, 2009; Golde, 2000; Rodwell & Neumann, 2008; West et al., 2011); (d) lack of psychosocial support (Baker, Pifer, & Griffin, 2014; Gardner, 2009; Golde, 2000; Rodwell & Neumann, 2008); (e) the lack of socialization (Demb, 2012; de Valero, 2001; Gardner, 2008; Golde, 2000); (f) lack of mentoring (CITI Program at the University of Miami, 2012; Tierney, 1997; West et al., 2011); (g) gender (Baker et al., 2014; Gardner, 2009; Lechuga, 2011; Smallwood, 2004); (h) race/ethnicity (Baker et al., 2014; Gardner, 2009; Lechuga, 2011; Smallwood, 2004); (i) test scores and GPA (de Valero, 2001; Gardner, 2009); and (j) changing advisors (Demb, 2012; de Valero, 2001).

Gardner (2009) noted the actual causes of attrition need clarification through research conducted by the departments and institutions involved. Implementing exit interviews with departing students and gathering data on the rate of attrition could begin the process. Faculty and students could define expectations and share what is expected of students. Brainstorming remedies and solutions would go far to improve the success rate of students (Gardner, 2009).

Tables 1 and 2 outline some major studies related to doctoral student attrition and graduation.

Table 1

Doctoral Student Attrition/Graduation Studies

Author Date	Population Question	Statistic	Instruments Data	Results	Findings
Ampaw & Jaeger (2012)	2,068 students. What factors affect, retention, advancement to candidacy & completion?	Event History Analysis specifically the discrete-time hazard model	Transcripts & admission data; unemployment & weekly earnings data; labor market conditions; expected earnings data		61% completed candidacy, 50% graduated; after 8 yrs. less likely to graduate. Asian & international students more likely to finish; high unemployment rates in students' fields decrease odds of finishing
Barnes & Randall (2012)	23,009 students in 7 departments. What is the difference in satisfaction levels of current, former, and drop-out students in programs by type of discipline and institution?	AVOVA; Many-Facet Rasch Model	National Doctoral Program Survey (2000) by the National Association of Graduate-Professional Students	3-way ANOVA Significant interaction (p=.001) but small effect; MFRM item-level analysis = meaningful findings between disciplines, institutional types, enrollment status, & specific experiences	Disparities in satisfaction with training for jobs within & outside academia. Students in physical sciences more satisfied than those in social sciences. Students in hard sciences happier with finances than students in soft sciences. Little evidence of dissatisfaction with advisors across institution types & disciplines
Boton & Gregory (2015)	18 online lecturers in 6 universities in different countries. What are effective engagement strategies used by online lecturers to reduce attrition?		Interviews, web-based surveys; constructivist & connectivist learning theory		Adopting activities fit for diverse cohorts that support motivation and using technologies in teaching with a constructivist & connectivist approach reduces attrition.

Table 2

Doctoral Student Attrition/Graduation Studies

Author Date	Population Question	Statistic	Instruments Data	Results	Findings
Miller (2013)	10,000 students, 12,000 faculty. What are the relationships between timely doctoral completion rates and 22 variables? What variables are significant in high and low attrition rate departments?	multiple independent T-tests Chi-square analysis	Assessment of Research Doctorate Programs in the U.S. (2011) by the National Research Council	$p \leq 5$ significance on all regression lines. 80% of variance in timely completion rates explained by variables in one program and 66% to 40% in 4 others	In all programs specific variables were significantly related to timely completion rates. Between high and low completion groups, specific variables were different in all programs group
Gardner (2010)	60 students from 6 disciplines. How do disciplinary context and culture influence the socialization of doctoral students at one institution?		face-to-face interviews; loosely-structured protocol by phase of doctoral experience; constant comparative method		Themes influencing socialization: support, self-direction, ambiguity, & transitions. Needs vary depending on student.
West, Gokalp, Peña, Fisher, & Gupton (2011)	103 ED.D students. What are the challenges facing students? What is the efficacy of the Doctoral Support Center?	correlational analysis	questionnaires, focus groups, thematic and descriptive analysis	contacted DSC for challenges with committee $p \leq .05$; writing help $p < .01$; advisor $p < .05$	Student challenges: time management, responsibilities, and life events. Relationship with advisor related to success.
Willis & Carmichael (2011)	5 late-stage noncompleters in counselor education. What is the experience of doctoral attrition in counselor education?		Interviews, grounded theory, case study		Full-time job & problem relationships with advisors influenced decisions to leave. Change in personal goals related to leaving.

Boton and Gregory (2015) examined the reduction of the high attrition rates in online classes which might provide some ideas to apply in doctoral study. Boton and Gregory gained the perspective of 18 lecturers in six countries on their eLearning practices in higher education. These lecturers successfully taught their students from a variety of cultures and attained an overall seventy nine percent (79%) retention rate. Generally, attrition rates in online classes exceeded attrition rates in classes conducted within a physical classroom. Boton and Gregory employed an interpretivist paradigm as they collected open-ended data from a web-based survey and interviews built around the four themes of cultural diversity, motivation, learning management system (LMS), and online pedagogy. The courses engaged 54 to 350 students online with lecturers having eight to 30 years of experience teaching in university classes and four to 16 years teaching online.

To address cultural diversity, the teachers in the study by Boton and Gregory (2015) depended on collaborative activities taking into account different learning styles, exchanging ideas through interacting with other students, using case studies for group exploration, and employing videos and lectures within teamwork activities. The lecturers collaborated with colleagues in order to more effectively apply the activities. Five strategies supported motivation. First, teachers used multimedia resources such as text, audio, and video. Second, they developed an ongoing presence online by participating in chat rooms, forums, and contacting students through announcements or email. Third, problem-solving activities produced higher participation rates than any of the other activities. Fourth, teachers engaged students in authentic activities that featured real-life

situations. Last, they provided challenging activities requiring collaboration to keep students involved and encourage creative thinking.

The use of LMSs required lecturers to employ technology in their teaching. Fifty percent (50%) depended on specialized support; twenty-eight percent (28%) had formal training; eleven percent (11%) learned as they taught; and eleven percent (11%) were able to set up their own courses. Botton and Gregory (2015) also inquired about learning theories adopted by teachers and found constructivist and connectivist approaches appealed to sixty-one percent (61%); seventeen percent (17%) followed a connectivist theory; eleven percent (11%) favored a constructivist one; and eleven percent (11%) used a combination of humanistic and constructivist theories. Use of these strategies increased student retention and engagement.

Departmental culture. The term departmental culture refers to the set of attitudes, values, goals, and practices that characterize an institution or department (Culture, n.d.; Gold, 2015). Barnes and Randall (2012) analyzed the data from the National Doctoral Program survey (NDPS) 2000 to understand the differences in satisfaction levels of doctoral students across academic disciplines and different institutional types. The participants for this study included 23,009 students from seven discipline/departments and one *other* category including areas such as communication, speech, and information technology. The two types of universities included were Doctoral Research Extensive (20 doctoral degrees per year) and Doctoral Research Intensive (50 doctoral degrees per year). Stage one of data analysis used between-subjects factorial analysis of variance to examine mean differences across enrollment status, eight academic disciplines, and two institution types. The enrollment status,

academic discipline, and institution type became the three independent variables. The mean satisfaction rating served as the dependent variable.

Stage two of data analysis relied on the many-facet Rasch model which is based on the principle that data follow a hierarchy of a single continuum of interest. In its simplest form, the Rasch model maintains that the probability of an individual getting a correct answer is based on the person's ability and the difficulty of the item. An extension of the Rasch model, the Rating Scale Model (RSM) will analyze ratings of two or more categories. Using both models, they developed five extended models to fit these data.

In stage one, Barnes and Randall (2012) reported the three-way ANOVA produced a statistically significant interaction effect between academic discipline and enrollment status ($p=.001$), but the very small effect indicated the mean differences may not be very significant. Students who dropped out of the doctoral program had the lowest levels of satisfaction while the currently enrolled students reported slightly higher levels of satisfaction overall than graduates. In stage 2, the researchers found students enrolled in research extensive universities reported higher levels of satisfaction than those enrolled in research intensive universities. Students in the physical sciences reported the most satisfaction while those in the social sciences reported the least satisfaction. Across disciplines there was no practically significant difference in levels of satisfaction. Also there were no practically significant differences found in overall satisfaction on levels of students enrolled in research extensive and intensive universities. Students across disciplines and institutions felt at ease discussing careers in academia with their advisors, but less satisfied with information regarding careers outside of academia. Students were less satisfied with information about time to complete degree and post-graduation

placement. Education and humanities students reported less satisfaction with issues related to finances, support, and information, but engineering and physical sciences were more satisfied than expected with these items. Students in research intensive universities were generally less satisfied with their preparation and guidance in academic careers. One of the main advantages of the study was that their item-level analyses highlighted differences in subgroups in specific areas which allowed disciplines and institutions to address needs related to their programs.

A number of researchers have examined disciplinary and institutional cultures and their role in affecting students who drop out of their programs. Titus and Ballou (2013) collected web-administered questionnaires from 3,500 scientists who had received National Institute of Health funding and who worked with Ph.D. or MD/Ph.D. students to explore their perceptions of advising and mentoring. Through that process, Titus and Ballou found universities and departments had not been very active in defining the expectations for conduct of faculty members as they advised doctoral students. Titus and Ballou suggested employing assessment measures, training, and a reward structure for successful advising. Gardner (2009) reported that institutional culture influenced doctoral attrition with the existence of elements such as high faculty turn over, low pay for graduate assistants and faculty's perceptions of poorly prepared students as causes for attrition.

West et al. (2011) examined the support services of a Doctoral Support Center (DSC) created to assist doctoral students. Students who worked full-time needed support to fit their varied schedules, so the DSC staff offered video streaming of certain workshops, online modules, handouts, writing assistance from individuals, and mentoring

advice. If students did not have a positive relationship with their advisors or found their advisors unavailable when the students needed help, the DSC provided needed support. The inability for students to gain attention from their advisors might result from the intense work load in academic positions (Houston, Meyer, & Paewai 2006; Jacobs & Winslow, 2004). Tierney (1997) interviewed 300 faculty members over a three year period, uncovering intense work schedules with long hours, week-end work, and busy summer obligations. Virtually all faculty members with backgrounds in industry and business reported spending longer hours and working harder in their academic careers than in their careers in industry and business (Tierney, 1997). When Lovitts (2001) interviewed graduate students who left doctoral programs, the students reported their meetings with advisors lasted 20 to 30 minutes and stayed right on point. A few participants in the study volunteered that their busy advisors had little time available to meet with them. Lovitts (2001) reported that her survey results showed students who completed their degrees met for longer periods of time with their advisors than those who left the program.

Gardner (2009) completed a study analyzing doctoral attrition at one university noted for its high research productivity rate. She interviewed 60 doctoral students and 34 faculty members from six departments categorized as having high and low doctoral completion rates. The face-to-face interviews attempted to uncover contexts and cultures affecting doctoral completion rates. The data was viewed through the lens of attribution theory which included the consideration of the information an individual gathers about a situation and how that information is used to attain a casual judgment. She found faculty felt the reason for attrition fell on the students' shoulders while students blamed

programmatic, departmental, and institutional issues. Both groups described personal problems as an issue, but students outlined specific issues such as family and child rearing while faculty related no specifics, using the general term personal problems. Baker et al. (2014) recommended providing graduate students with a clearer understanding of the roles faculty members pursue so the students could moderate unrealistic expectations. Gardner (2009) observed that these divergent perceptions revealed a lack of communication between faculty and student. She suggested further research using exit interviews to explore the reasons graduate students leave their studies. By sharing the results of the exit interviews, faculty and students could engage in discussions, clarifying expectations and offering possible remedies and/or revisions to improve the program.

Demographics

In the study of human population, demographics refers to the qualities (e.g. age, gender, ethnicity) of a specific group of people (Demographics, n.d.). Nettles and Millett (2006) completed a comprehensive assessment of doctoral students, their lives, backgrounds, and experiences in doctoral programs. Their book, *Three Magic Letters: Getting to Ph.D.* presented the historical context in which the 9,036 doctoral student participants studied, and it explored their doctoral circumstances. Using both descriptive and relational analyses, they examined institutional and research settings; finances; educational and social experiences and performances; demographic and educational background; and detailed findings regarding students generally. Their extensive work is cited throughout this literature review.

Gender. Gender refers to the demographic variable referring to the behavioral, cultural, or psychological traits associated with one sex (Gender, n.d.). In 1960, women graduated with doctorates at a rate of ten and seven-tenths percent (10.7%) as compared to the eighty-nine and three-tenths percent (89.3%) of the doctorates earned to men. By 2000, females claimed forty-three and eight-tenths percent (43.8%) of the total doctorates acquired in the country. Doctoral education became more common for women in the 1980s and 1990s, though the numbers varied by field of study. By 2008, half of doctorates in psychology, biological sciences, the humanities, education, health and most social sciences were awarded to women. The physical sciences at twenty-six and four-tenths percent (26.4%) and engineering at eighteen and three-tenths percent (18.3%) were “less hospitable” to females (Walker, Golde, Jones, Bueschel, & Hutchings, 2008, p. 26). Through the longitudinal study of doctoral completion data from 1989-1997, Most (2008-2009) examined completion rates over nine years for 5,323 Ph.D. students from five disciplines in 16 institutions by gender, field, ethnicity and prior Master’s degree at entry and found similar results with females trailing males by only a two to three percent gap. With minor exceptions, Nettles and Millett (2006) found women and men comparable in rates and timeliness of degree completion.

In contrast, Garibaldi (2014) reported some colleges and universities across the country report student bodies disproportionately female and have begun to institute programs to recruit more males. He also reported women earned 87,451 doctoral degrees in 2011-2012 as opposed to the 82,611 earned by men. Though there is a lack of information to confirm why this happened, Garibaldi contended low academic performance and non-promotions in early grades coupled with more suspensions in

secondary school resulted in males having lower rates of attendance and graduation from high school. Consequently, males gained fewer placements in gifted programs and higher assignments in special education classes generating interests in less challenging military and low skilled careers.

Concerns regarding equity may still remain. Lovitts (2001) investigated issues of attrition from two universities using six sources: (1) survey of 511 completers and 395 non-completers, (2) interviews with a sample of non-completers, (3) interviews with directors of graduate study, (4) interviews with a sample of high- and low- Ph.D. producing faculty, (5) faculty retention rates, and (6) observations in two universities and nine departments. The two universities were among the top 40 Ph.D. granting universities in the United States. Lovitts (2001) found the women in her sample seven times more likely to report gender discrimination than men. Gender discrimination influenced thirty-eight percent (38%) of the students who dropped out of graduate school in their decision to leave. In a later study, Nettles and Millett (2006) observed some gender concerns in doctoral education as they pointed out variation in accomplishments did exist by discipline. For example, women in engineering, sciences, and mathematics showed significantly less productivity as documented by the lower number of paper presentations and published research articles. This caused apprehension among students since productivity contributes to upward movement in a student's career.

Another area of uneasiness for Nettles and Millett (2006) arose in an examination of the student interactions with faculty and peers. Having positive student and faculty interactions both socially and academically was associated with achieving a faculty or postdoctoral position after gaining a doctorate, as well as spending less time to complete

the degree. Men had a higher level of interactions with faculty and peers in education and higher interaction levels with faculty in engineering and the social sciences. Women reported a higher interaction rate with peers in the humanities, science, mathematics, and the social sciences. Overall men rated higher student-faculty social interactions than women, and this is “a troubling observation, because it implies the continuing existence of the ‘old boys club’ and possible sex discrimination” (Nettles & Millet, 2006, p. 288). Miller (2013) stated “it seems that some fields tend to produce more PhD’s when there is a higher percentage of minority or female faculty, while other fields tend to produce less” (p.100).

Race/Ethnicity. Race/ethnicity and discrimination impacted doctoral education (Baker et al., 2014; Lechuga, 2011; Lovitts, 2001; Most, 2008-2009). Lovitts (2001) acknowledged that five percent (5 %) of all the students in her study reported racial/ethnic discrimination in their experiences in graduate school. Since the overall number of students reporting discrimination was small, she listed the percent of students in the group affected by discrimination followed by the actual number of students. For example, of the 14 Black students, seventy-one percent (71%) or 10 students reported experiencing discrimination. In the other groups respectively, twenty-three percent (23%) or 15 Asians; nine percent (9%) or 1 Hispanic; and two percent (2%) or 15 White students reported experiencing discrimination. In the last 25 years of the twentieth century, Walker et al. (2008) asserted less than 10% of students who received doctorates were minority, and of these, African Americans made up three percent (3%), Asian/Pacific islanders two percent (2%), Hispanics two percent (2%), and American Indian/Alaska natives three-hundredths of a percent (.03%).

Race/ethnicity and gender intertwined in the literature. Garibaldi (2014) investigated gender and racial gaps in higher education between 2003 and 2012 and found Black students increased their college enrollment rates by forty-nine and seven-tenths percent (49.7%), and at the same time, Hispanics increased their enrollment by seventy-nine and three-tenths percent (79.3%). The White student increase was only seven and five-tenths percent (7.5%). Women of all races obtained more doctoral degrees than men, though men earned more first-professional degrees such as those in pharmacy, law, dentistry, and medicine.

While Black females were entering doctoral programs and careers in academia, they represented only one percent (1%) of the professors in predominantly White institutions. Racism, sexism, and other stereotypes often create barriers difficult to overcome (Jones et al., 2013). These researchers also pointed out that Black women often faced discrimination as they worked on their doctorates because others assumed they were incapable due to admission by affirmative action, or that they fit a stereotypical negative vision of women of color as domineering, hypersexual, or hostile.

In the qualitative study of 15 underrepresented faculty members in science, technology, engineering and mathematics, Lechuga (2011) acknowledged that the lack of minority and female faculty in tenure-track positions was an issue. The ethnically diverse faculty members in the study emphasized the importance of becoming allies with their graduate students and supporting them in a culturally sensitive way. One Latino faculty member understood his students needed to spend extended time with their families outside of the country and made adjustments in his own research time-lines to

accommodate this need. Lechuga maintained cultural sensitivity and good mentoring techniques can allow all faculty members to aid their underrepresented students.

International students. International students differed from other demographic groups in that they were reported to have maintained higher completion rates in less time than domestic students (Most, 2008-2009). Nettles and Millet (2006) found international students differed from the American students in three ways: faster completion rates, lower debt, and lower peer interactions. These researchers suggested that one reason for completing degrees faster might emanate from student visa requirements necessitating continuous enrollment and verification of sufficient funds. Students might be motivated to complete their degrees faster to save their families money. Researchers also found international students were more likely to gain departmental financial support and be less able to obtain loans. Students in their study reported lower peer interactions in order to have time to efficiently complete their degrees. However, these researchers suggested that cultural and language differences might influence a lack of socialization and satisfaction among these students.

The presence of international students in doctoral education increased from twelve and seven-tenths percent (12.7%) in 1960 to thirty-two and six-tenths percent (32.6%) in 2000 (Walker et al., 2008). However, Nettles and Millett (2006) noted attrition of international student enrollment in the United States began in the late 1990s, especially in science and engineering programs. These researchers indicated that since international students had substantially helped out graduate programs by engaging in teaching and research assistantships, the graduate programs in the future would need to counteract this labor loss as international student numbers decrease.

Where are international students going? Nettles and Millett (2006) suggested the loss of international students might indicate a loss in the competitive advantage higher education in the United States has enjoyed in the past. Increasingly, doctoral programs in Asia, Europe, Australia, and Asia have grown by offering attractive financial arrangements and hospitable academic environments (Altbach, 2015; Miller, 2013). The number of international students in the United States remains stagnant at 586,000 while the global demand for higher education tops out at two million and is projected to increase to eight million by 2025. The international economic benefits of more than 12 billion dollars this industry brings to the United States economy appears to be in jeopardy (Altbach, 2015).

The attrition of international students working toward doctorates pinpoints the need for United States institutions to include training in intercultural awareness to promote interaction with scholars from other parts of the world. Corporations and universities are becoming transnational and researchers increasingly find collaborators in other parts of the world (Larson, 2011).

Older students. In 1970, students age 35 years and older made up eight and nine-tenths percent (8.9%) of the enrollment in degree granting postsecondary institutions. By 2013, the population of older students almost doubled at seventeen percent (17%) (U. S. Department of Education, 2014a). In the fall of 2013, full-time students aged 30 and older enrolled in public, post baccalaureate degree granting postsecondary institutions, and constituted twenty-six percent (26%) of the student population. In private, nonprofit institutions, the number rose to thirty-six percent (36%) and in private, for-profit institutions, the count surged to seventy-four percent (74%). Part-time older students

enrolled in public, post baccalaureate degree institutions comprised sixty percent (60%) of the population, sixty-two percent (62%) of private, non-profit institutions, and seventy-nine percent (79%) of private, for-profit institutions (U. S. Department of Education, 2014b).

Stacy (2006) described the hurdles older students encountered when trying to enter chemistry doctoral programs at the University of California, Berkley where typical students admitted to the program moved directly from their undergraduate degrees to graduate programs. By rejecting these older students admission, Stacy argued that the department was deprived of valuable contributions from individuals with experience in industry, government, and business. Gardner (2008) interviewed older students and found they were often uncomfortable with the idea of fitting into the program. One 52-year-old student in Gardner's study shared her experience. She felt some faculty appeared to dislike older students, especially those who asked many questions. In an effort to fit into the class, she tried to remain in the background by not asking a lot of questions. Ironically, she was told she needed to participate more. She reported finding it hard to know her place.

Doctoral students enrolled in education programs were generally older people who do not attend school full-time (West et al., 2011). Golde and Walker (2006) explained that these students had worked in education before entering the program. They tend to be self-financed and attending school on a part-time status. While working full-time, they attended classes at night or late in the day and thus faced a fairly long time-to-degree, averaging 8.3 years. Most students returned to school in an effort to advance within the educational system and seek preparation in managerial and administrative

leadership by earning an Ed.D. Conversely, a Ph.D. program trained students in the traditional academic roles as researchers, college and university teachers, and scholars.

Enrollment status: part-time vs. full-time. Graduate students who enrolled full-time dominated the research literature. Yet, students working part-time toward their degrees suffered neglect even as the numbers of part-time students increased (Gardner & Gopaul, 2012). Part-time status had been related to attrition (Gardner, 2009) since these students did not experience socialization fully (Gardner, 2008), lacked financial aid (Gardner & Gopaul, 2012), had trouble balancing work, school, and family (West et al., 2011), and received little support due to unconventional availability (West et al., 2011).

Rodwell and Neumann (2008) completed a quantitative study in Australia with two aims. One was to develop indicators of timely doctoral completions with available data from universities. The other aim was to create a model to inform institutions on the placement of resources to shorten doctoral time to completion rates. They accessed national data from the Graduate Destinations Survey (GDS), a voluntary survey. Their study employed data from this survey on 185 students graduating with a Ph.D. from one mid-sized (approximately 20,000 students) comprehensive university. Candidate information included gender, age, residency, year of commencement, type of attendance, mode of study, and details on credit or advanced standing from previous study. Their inferential analyses were based on full- and part-time enrollment separately.

In the regression analyses of full-time student finishing in five years or less Rodwell and Neumann (2008) found the significant predictors were respective grouped fields of study, residency, and whether students were from an English speaking background or not. Key predictors for part-time students to complete in less than 3.25

years full-time to completion years were English speaking background and enrollment in the life, hard, and social sciences.

Rodwell and Neumann (2008) found the type of enrollment (full-time or part-time) to be the most important variable in timely completion of degrees. Calculation of completion time for higher degrees can vary. Rather than just using the time elapsed from the start of the degree to the graduation as was common with full-time enrollment, they adjusted the measure for part-time students. With part-time students the researchers attempted to measure the time spent working on the degree and excluded time students had not invested in the degree (such as time at their full time jobs). Their study indicated that completion rates were higher for full-time students, yet part-time students were more likely to complete their degrees quickly if only the time used in actual activities to complete the degree was considered. The researchers found substantial variation in regard to discipline. For example, students in science programs completed faster than other fields of study. They suggested that disciplines such as languages, humanities, and law may require an extended period of time in study to gain deep mastery of the topic area. This immersion may have created difficulties for part-time students. Rodwell and Neumann (2008) suggested there needed to be a customized support system by the institutions taking into consideration the candidates and the variables affecting them.

Gardner and Gopaul (2012) completed a qualitative study with 10 part-time doctoral students from different disciplines and identified three interrelated concepts connected to degree completion: balance, support, and fitting the mold. Balance referred to issues of handling full-time careers, families, and school work with little time to fully devote to each element. Feelings of guilt became a source of stress as students completed

passable or satisfactory work rather than the good or superior quality they could produce with more time and less stress. These part-time students gained their support from family, work, or co-workers rather than from faculty and peers as did full-time students.

However, those part-time students involved in a cohort program found aid and support from peer relationships. Last, part-time students felt isolated since they had full-time jobs, family obligations, and tended to be older. They did not fit in with the younger, full-time students and were unable to participate in social activities with them. Financial issues plagued part-time students because they needed work to afford school and could not take advantage of aid such as assistantships and work/study programs. Learning experiences provided by the institution available to full-time students were not available to them.

Gardner and Gopaul (2012) noted that the difference in the experience of part-time students was related to the discipline they studied. Part-time students were common in education, but were rarely found in science and engineering. Since isolation and lack of resources overwhelmed these students, the researchers recommended expanding financial aid and graduate services to an online status and providing evening and weekend hours for campus resources like writing centers, counseling programs, and childcare facilities.

Assistantships. Financial support is a major challenge for doctoral students (West et al., 2011), often requiring students to reduce their spending drastically, especially if they are students returning to school from the work world (Demb, 2012). The rise in educational costs explains much of this pressure. The United States Department of Education (2015) reported the average charges in current dollars for full-time attendance

at four-year institutions is \$17,474 a year as compared to \$4,406 in 1982-83. Students can apply for grants (de Varlero, 2001) and graduate assistant stipends (Demb, 2012).

Assistantships and fellowships provide financial support, but also aid the student in becoming part of the department in order to learn its culture (Smallwood, 2004).

Research assistantships are often available in the physical and life sciences while teaching assistantships and university-funded fellowships are more likely to occur in the social sciences and humanities (de Valero, 2001).

Miller (2013) completed a quantitative study examining the Research Council 2011 report *Assessment of Research Doctorate Programs in the United States*. Her study examined data from over 10,000 students and 12,000 faculty members from 365 programs in five fields. Her extensive study included 22 variables. Her results indicated that institutions with a higher percentage of teaching assistantships had a negative relationship to timely doctoral completion rates. Miller felt that possibly students' interests were being divided between studying and teaching, leaving scant time for the doctoral students' own coursework and research. Likewise, the higher percentage of faculty with grants had a negative relationship to timely doctoral completion rates supporting the theory that faculty who have heavy engagement in research may not have the time or energy to devote to mentoring or advising doctoral students.

Research assistantships, on the other hand, did not appear to be a negative influence (Miller, 2013). Paglis, Green, and Bauer (2006) explained an advisor inviting a Ph.D. student to collaborate on a research project is a well-established doctoral practice and one that leads to student participation in a published journal article. This experience aids in job placement for those who wish to pursue a research career. Smallwood (2004)

found the sciences tend to have lower attrition rates because when a student joins a teacher's research lab as an assistant, both parties can spend time getting to know each other. In this role, the doctoral student interacts with other graduate students in the graduate-student culture.

Demb (2012), author of *Daring the Doctorate*, completed a qualitative study to examine the dynamics involved with students who pursue a doctorate mid-career. Participants in the study were 15 doctoral students she advised through the completion of their programs. All participants first wrote reflection papers on their doctoral experience and then participated in several group discussions. These graduates reported financial issues topped the list of their concerns. They worked full-time to pay for costs of tuition, supplies, childcare, and living expenses, and this effort built stress. Since the Collaborative Institutional Training Initiative, CITI Program at the University of Miami (2012) defined one role for mentors as helping doctoral students locate funding, finding an appropriate mentor may aid students in covering costs. Miller (2013) recommended students seek funding through the institution, pursue fellowships, and apply for assistantships at the beginning of their programs. However, Miller also felt students should try to get financial aid outside of assistantships or create a plan to balance both the workload of assistantships and the requirements for their degree. Having full financial support was significantly related to shorter completion rates in doctoral students (Miller, 2013).

Completion rates. The time it takes to complete a doctoral degree has increased since 1967 when the median time spent enrolled as a student was 6.6 years (de Valero, 2001). Currently doctoral completion rates are seven to eight years and may even extend

to 13 years (West et al., 2011). Longer times required to gain a degree are negatively related to completion rates (Miller, 2013), but completion rates vary depending on the discipline as much as eleven percent (11%) to sixty-eight percent (68%) (Gardner, 2009; Rodwell & Neumann, 2008; Smallwood, 2004).

de Valero (2001) completed a mixed method study to investigate time to degree and completion rates among departments in one public, land-grant institution and to explore departmental factors positively or negatively affecting these issues. Completion time was measured from the first date of enrollment in graduate school to the graduation date. First, the median time to degree and median completion rates were calculated for science, engineering, and social science departments. The departments were grouped into four categories: high completion rates and short time to degree (HS); low completion rates and short time to degree (LS); high completion rates and long times to degree (HL); and low completion rate and long time to degree (LL). Two departments for each of the four categories were selected randomly. Open-ended, semi-structured interviews of 40 people (16 faculty and 24 students) investigated factors of financial support, degree requirements, departmental policies and practices, advising and department climate.

de Valero (2001) enlisted 876 students enrolled in doctoral programs in her study. By the end of the study 459 or fifty-three percent (53%) had graduated, 54 or six percent (6%) had stopped at levels other than doctorate, 20 or two percent (2%) were still enrolled, and 343 or thirty-nine percent (39%) had left graduate school. The median time to degree was 4.6 years with a range from 3.3 years to 6 years. The median completion rate was fifty-seven and one tenth percent (57.1%) with a range of fifteen and two tenths percent (15.2%) to eighty and nine tenths percent (80.9%). Factors affecting success of

graduate students in the high-short (HS) departments were financial support, department orientation and advising, relationship between courses and research skills, significant results required in dissertation, student-committee relationship, student-advisor relationship, attitudes toward students, student participation, and peer support. HS departments were considered the most successful.

de Valero (2001) found negative factors in LS department were the degree requirements, difficulty passing preliminary exams, difficult course work, a lack of orientation, and advising issues negatively affected the experience. Committee members provided very limited support. In the HL departments, the same positive factors as those in the HS departments aided students except for requiring significant results in the dissertation and the relation between the course work and the research skills. Students in this cluster reported that working as a teaching assistant extended the time to completion. Results in the LL departments were similar to those in the LS departments. However, only in the LL departments did students report that student participation and financial support were an impediment to success. According to respondents, a negative department climate resulted from conflicts among people, limited social and academic activities, and a lack of collaboration between faculty and students. Because of the exploratory nature of the study, two new factors appeared: student motivation and student ability. It appeared that personal characteristics as well as departmental factors affected completion of the degree.

When de Valero (2001) compared long-time-to-degree departments with short-time-to-degree departments, she found teaching assistantships resulted in students taking a longer time to complete degrees. Additionally, a lack of training students to conduct

independent research had the same effect. Those departments with a close relationship between course work and research obtained shorter-time-to-completion rates. In examination of departments with high and low completion rates, three factors appeared to influence completion rates: advising, orientations, and attitudes toward students. High-completion-rate-departments provided more advising and orientations for students. They added a more flexible plan of study, providing more course choices available for students. Advisors offered more involvement in helping develop their students' plan of studies. The warm and supportive departmental atmosphere in high-completion-rate-departments contrasted with the efficient and professional, though distant climate, found in low-completion-rate departments.

Some institutions have instituted measures to aid students in completing their degrees in a timely manner. Smallwood (2004) reported that administrators at Washington University in St. Louis attempted to assist students with financial pressures by making a shift in the size of their graduate school so the number of doctoral students matched the number of fellowships and assistantships available, thereby assuring funding for students for six years in an effort to reduce the time to completion and help ease the financial pressure on students.

West et al. (2011) outlined a more comprehensive approach with the Doctoral Support Center (DSC) at a research university in the southwest United States. It was founded in 2004 to aid students pursuing an Ed.D. in gaining their degrees by delivering assistance through course work, proposal, and dissertation writing stages. These doctoral students worked full-time and did not have the opportunities to engage in the departmental climate as did full-time graduate students. The DSC offered services

electronically and in person so that working students with limited time could access them. Writing advisors met with doctoral advisors to gain insights in how to aid students and used the input to guide student written products. Writing groups allowed students to improve writing skills, participate in peer support groups, and attend digital instructional modules. Presentation materials were offered online. Students received assistance writing papers for class and for their dissertations, preparation for their proposals, and support for dissertation defenses. In an evaluative survey, seventy-three percent (73%) of the students found the DSC services excellent or good with technical and emotional support rated as very helpful.

Ampaw and Jaeger (2012) completed a study to examine the effect of various elements such as financial aid and labor market conditions on the prospect that doctoral students will complete the three stages of doctoral education (transition, development, research). Stage one or the transition stage consisted of academic and social integration as students begin to take course work and adjust to the expectations of graduate school. Stage two or the development stage allowed students to complete course work, acquire the skills needed for doctoral candidacy, develop a research agenda, establish relationships with faculty, and present a dissertation proposal. Stage three or the research stage comprised the completion of research and defense of the dissertation. A land-grant institution provided 2,068 doctoral student participants who enrolled in the study at stage one. After completing 18 credits, 1,823 doctoral students moved on to stage 2 and 1,039 completed stage 3 to earn their degrees.

Because Ampaw and Jaeger (2012) explored student persistence at three stages of doctoral study over time, they employed a longitudinal explanatory research design in the

form of Event History Analysis (EHA). This statistic provided better measures for handling longitudinal data, time-varying variables, and censoring than logistic regression. EHA has the advantage of incorporating variables that change value over time. In order to answer the research questions, the discrete-time hazard model was used since students would be observed over semesters. The *hazard ratio* reports the effect the independent variables have on the probability that an event will occur in the *risk period* or semester in this case, if it had not occurred previously. It is similar to the odds ratio in logistic regression. The independent variables fell into the categories of student information, department information, and labor market information. Each of the three doctoral stages represented an event in the study and completion of a stage was the dependent variable for the study. Data included gender, race/ethnicity, citizenship, age, college, academic ability, enrollment status (full-time or part-time), grade point averages, and financial information. Financial information came from assistantships, grants, and loans. Labor market information included unemployment rates. Weekly wages of college-educated workers within the students' field of study supplied the opportunity cost of attendance.

Ampaw and Jaeger (2012) reported the average age of doctoral students beginning the program was 31 years and the oldest student was 67. The mean grant amount received by students was \$6,182 and the mean loan students obtained was \$9,462. Graphs of the estimates of hazard rate for different groups across time for the three events provided an understanding of the probability of attaining an event within a time period. Epanechnikov kernel function with optimal bandwidth was used to smooth the graphs. The hazard graphs elicited the following information. The likelihood of completing the transition stage was an increasing function of time. Hazard rates of

persistence were high ranging from thirty-five percent (35%) by the third semester to fifty percent (50%) after the eighth semester.

An overview of the study results for Ampaw and Jaeger (2012) suggested that if students did not gain candidacy by the eleventh semester, their likelihood of attaining the degree decreased with every semester they were enrolled. Students who had not completed their degrees in eight years had a decreasing likelihood of ever finishing. At every stage International students were more likely to complete their degrees than resident and U.S. students. Asian students had the highest likelihood of completing their degrees while students from other minorities had the lowest likelihood of degree completion. Gender had no effect on the likelihood of completing any stage and age had a negative effect on completing the transition and development stages but not the research stage. Students with research assistantships obtained higher odds of completing all stages, while those holding teaching assistantships had higher odds of completing transition and development stages but not the research stage. Students with grants had increasing odds of completing the development stage but decreasing odds for the research stage. Total loans obtained during the program increased odds for completing the transition stage, but reduced the odds of completing the development stage. Part-time enrollment decreased persistence during the transition stage but increased during the last two stages. Higher unemployment rates in a student's field increased persistence to complete the first two stages while increases in assistant professor salaries increased the odds of completing the research stage.

Advisor/Mentor

Willis and Carmichael (2011) engaged in a qualitative study to examine the experience of doctoral students in counselor education who left their programs during or after the third year of doctoral education. A criterion-based sampling method employed through two counseling listservs produced six participants enrolled in counselor education between 1975 and 2005 and ranging in age from 27 to 71 years. Willis, the principal researcher and a doctoral student completing his dissertation, conducted semi-structured interviews and recorded participants' narratives via audio recordings. Willis listened to the recordings to gain a sense of the whole group of narratives before transcribing them. Participants read the transcriptions with an opportunity to modify their interviews. The researcher reread the interviews several times before beginning open coding to identify items significant to the study. Next, the open codes were regrouped into related axial or broader codes using constant comparison. The data analysis continued as the codes were refined into themes to describe the participants' experiences. Two reviewers with doctorates in counselor education examined two separate participant's transcripts to ensure findings were appropriately bracketed by the interviewer. Participants then inspected individual descriptions for validation. The researcher constructed an overall description for all participants, and the product was sent to the participants to make comments and suggestions. Reflection on the data revealed there was more than one type of attrition for the participants.

Willis and Carmichael (2011) reported five participants with the pseudonyms of Gandalf, Angie, Sally, Cookie, and Drew spoke of barriers destroying their desires to continue. Each felt powerless and unable to overcome the barrier. All five participants

identified problems in their relationship with their chairs ranging from neglect to harassment. One advisor appeared to be moving out of state, another liked to chat about unrelated topics rather than lead the student, and one criticized the student regarding her divorce in front of a class and later called her drunk asking for a date. Students reported feeling powerless. Gandalf explained his frustration:

I asked for help and it just didn't materialize...Here I am, I have three earned degrees, two of them graduate level. I made one grade less than an A in my Master's program and here I am wanting to finish something up and it's like spitting in the wind. (p. 197)

Cookie expressed the need for mentoring from her chair:

I was thinking, wondering, if there had been one thing that would have made a significant difference for me, what would it have been? And what I thought was if there could have been, rather than just say 'go do it,' if there could have been somebody, a coach, or mentor, or whatever, that's what was missing for me. (p. 198)

Willis and Carmichael (2011) identified another barrier that all five shared was the place of refuge from doctoral study that their full-time careers provided. Each had a professional work position and while they felt powerless at school, they excelled on their jobs. All experienced negative emotional reactions such as shame, embarrassment, and anger resulting from dropping out of the program. These emotions extended over the long term. The researcher reported the emotions were fresh during the interviews even though dropping out was ten to 25 years in the past. In a post-interview, Gandalf reflected "I guess I ripped the scabs off some old, still painful, wounds. I wonder if I will ever get

over it” (p. 200). His wife displayed deep emotional reactions from deep anger toward the school to anguish over the toll the experience took on her husband. Gandalf stated he was “surprised she didn’t leave me” (p. 200).

Willis and Carmichael (2011) noted Marie described a positive experience that enabled her to leave a program she realized she did not wish to continue. Marie entered doctoral study to prove to an overcritical father that she was smart and capable. When she realized this was her goal she stated “I’ve been beating my head against this wall for all these years to try to prove to (my dad) that I’m not as stupid as he thought I was. How stupid is that?” (p. 201). Marie felt relief and peace after leaving. She enjoyed free time to engage in leisure activities and increased money since she was no longer paying for school.

When Willis started the study, he “believed that the academy, rather than the student, was the main source of late-stage doctoral attrition” (Willis & Carmichael, 2011, p. 194). After completing the study, he realized that both the academy and the student have a part in late-stage doctoral attrition. Willis and Carmichael (2011) advised potential students to research advisor candidates extensively. An appropriate chair should share the same methodological preferences as the student, show interest in the student’s topic, and be actively engaged in research mentoring. Additionally, recent doctoral candidates should be interviewed and encouraged to give candid feedback regarding faculty members’ performance in the advisor role. Prospective doctoral students also need to find programs offering adequate financial assistance.

Mullen (2006) wrote *A Graduate Student Guide: Making the Most of Mentoring* to allow potential and existing graduate students a view of the graduate experience. She

made use of dozens of anonymous responses from graduate students and faculty members and gathered data from existing documents, short electronic surveys, dialogues with responders, and preset support-group agendas. Mullen explained that an advisor is a faculty member or staff member who gives advice and council to students while a mentor is a trusted counselor or guide. According to the participants in Demb's (2012) study, mentors and advisors are different from each other.

Faculty advisors, whether assigned or selected by the student, guide their advisees academically to progress through the program in graduate school. Often these advisors take on the role of dissertation advisor (Baker et al., 2014). They prepare their students for future jobs; help them understand the culture of academia; instruct their advisees in how institutions work; and explain the dynamics of their roles as students, researchers, and then employees (Sugimoto, 2012). Advising graduate students is a complex and dynamic task. For example, advisors provide much needed, though hard to accept, feedback while offering support and an objective perspective on issues (Demb, 2012). Some students and faculty believe an advisor is not a friend, but rather a resource that gives deadlines, tells students what they need to hear, and helps their learners be realistic (Axelrod & Windell, 2012; Demb, 2012). Graduate students in Demb's (2012) study reported that advisors provide guidance and encouragement in order to meet the intellectual and personal undertakings required. They help students to absorb the new skills necessary, and to write a dissertation of sufficient quality to graduate with a degree.

Mentoring, the social foundation of research, seeks to motivate and provide support for students (CITI Program at the University of Miami, 2012; Sugimoto; 2012; Titus & Ballou, 2013). Mentors listen, keep in touch, allow for differences, and permit

mentees to make decisions (Nettles & Millett, 2006). They aid graduate students in career and job market exploration, help to gain funding, train in networking techniques, and provide opportunities to make contacts with leaders and researchers in the field (CITI Program at the University of Miami, 2012). Graduate students are more likely to succeed in their programs with the aid of a mentor (Titus & Ballou, 2013). In a questionnaire on the influences on ethical beliefs concerning research taken by 627 faculty and 1, 152 graduate students, Sprague, Daw, and Roberts (2001) reported that the influence of a mentor was only sixth in level of importance. They noticed that graduate students ranked mentors slightly more important than faculty members ranked them.

Mentoring's influence. Beginning in the 1970s, mentoring received increasing attention and research in business, developmental psychology, and education because it presented a viable way to train and develop individuals in many fields and disciplines (Campbell & Campbell, 1997; Jacobi, 1991; Paglis et al., 2006). In education, much of the early research relied on self-report measures and correlational designs with data gathered in a single point of time (Campbell & Campbell, 1997; Jacobi, 1991; Paglis et al., 2006), but gradually research increased in quantity and variety producing a body of literature outlining the potential benefits and problems in mentoring (CITI Program at the University of Miami, 2012; Paglis et al., 2006; Sugimoto, 2012). One quantitative design by Campbell and Campbell (1997) involved 339 mentored undergraduates, paired with non-mentored students on GPA, gender, ethnicity, and enrollment status. Mentored students gained higher GPAs (2.45 vs. 2.29), completed more units per semester (9.33 vs. 8.49), and obtained lower dropout rates of fourteen and five tenths percent (14.5%) vs. twenty-six and three tenths percent (26.3%).

Contemporary scholars generally agree that mentoring relationships promote success for graduate students (CITI Program at the University of Miami, 2012; Lechuga, 2011; Nettles & Millett, 2006; Paglis et al., 2006; Sugimoto, 2012; Titus & Ballou, 2013). Nettles and Millett found productivity increased in students with mentors. In education, engineering, and the social sciences, having a mentor was positively related to completion of a degree. In the humanities and social sciences, the aid of a mentor was related to shorter completion times. Students with mentors in all fields except science and mathematics were more likely to present at national conferences, and mentored students in the social sciences, education, engineering, mathematics, and sciences published more articles.

Paglis et al. (2006) completed a 5 ½ year longitudinal study of mentored doctoral students enrolled in a land-grant research university. Participants representing 24 departments in the hard sciences entered the doctoral program at the beginning of the study and completed three surveys to explore the effect of mentoring on research productivity, career commitment, and self-efficacy. Survey 1 occurred three weeks into the first semester of doctoral training; there were 233 respondents. Survey 2 followed at the end of the students' second academic year with a response rate of 161 students. Survey 3 was administered 5 ½ years after the students enrolled; 130 students responded. Some results were simple summations of research activity and others were factor analyzed using principal factors analysis with varimax rotation. Factor decision rules included: theoretical rationale, eigenvalues greater than one, examination of the scree plot, and high loadings with the absence of cross loadings. In all cases but one, factors

were obtained for each measure and coefficient alphas for the scales surpassed the .70 level.

First, Paglis et al. (2006) explored whether advisor mentoring positively influenced productivity of students by the end of their program after controlling for the students' initial ability to perform and research self-efficacy. Results indicated GRE scores were not significantly related but research experience before entering the program and three functions of advisor mentoring had significant zero-order correlations with the research productivity measure ($p < .05$). In regression analysis, entering prior research experience produced ($p < .10$) and collaborative mentoring ($p < .05$) were positive predictors of submission. Collaborative mentoring was the more influential predictor. Second, Paglis et al. examined whether advisor mentoring would be positively related to career commitment at the end of the program after controlling for career commitment at the beginning of the program. No support was found for this relationship. Third, researchers wanted to examine advisor mentoring's relationship to student self-efficacy and found only partial support. Zero-order correlations indicated stability of self-efficacy perceptions with a significant correlation between the baseline measure and the reassessment at the end of the study ($r = .40, p < .10$). Regression analysis indicated that psychosocial mentoring positively predicted self-efficacy ($p = .10$). However, there was only partial support available for this question. Overall results indicated positive benefits for productivity and self-efficacy, but no significance for research career commitment. Paglis et al. conjectured that exposure to the demanding realities of pursuing a research-centered academic career might dissuade students from entrance into such a field, or

possibly students examined the career opportunities before entering the program and decided on goals outside academia.

Nettles and Millett (2006) found “that having a faculty member who served as both advisor and mentor resulted in higher ratings of student interactions with their faculty advisor” (p. 191). While they lacked the qualitative data to support the conclusion, they felt this one positive relationship potentially would enable a path to a more auspicious relationship with other faculty members in the department. Golde et al. (2009) contended this relationship demanded a great deal from professors. Professors must be able to model the area of their expertise, break the whole into smaller components, develop strategies for teaching, and help the student integrate the elements back into the whole. Understanding the forms of coaching and scaffolding and how to apply them to each individual student are important skills in order to move students toward independence and expertise.

Students also have a role in the mentoring relationship. Golde et al. (2009) outlined the need for graduate students to develop this type of relationship, a method that may be unfamiliar in their academic experience. Not only do students need to think about their experiences and generalize them to other contexts, but they should take responsibility for their own learning and be willing to take risks and possibly fail.

Jacobi (1991) explained that the lack of a concise definition of mentoring has plagued researchers in their efforts to produce useful research. Titus and Ballou (2013) explored the issue of definition in their study regarding perceptions about the specific responsibilities of mentors and advisors through surveys of 3,500 science faculty members who had responsibilities for Ph.D. and MD/Ph.D. students. Fifty-three percent

(53%) of the faculty saw themselves as advisors and thirty-seven and six-tenths percent (37.6%) saw themselves as mentors. Male faculty over 65 years of age who were White, non-Hispanic, and born in the United States preferred the label *advisor* more often than female, non-White, age 55 or younger, and foreign born faculty. Faculty with tenure and 16 or more years of experience favored *advisor* more than non-tenured faculty with 15 years of experience or less. Titus and Ballou (2013) polled faculty on their perceptions of the activities of advisors and mentors and found that while the majority identified with the title *advisor*, the way faculty defined the roles demonstrated they actually saw little difference between advisor and mentor activities. Titus and Ballou added that “without the definition and agreement on the meanings, we individually construct our own reality” (p. 1278).

Mullen (2006) suggested the lack of definition on mentoring perhaps explained the absence of advising and mentoring in the assignment of faculty duties beyond teaching, research, and service. Titus and Ballou (2013) proposed absence of a definition might explain the absence of university and department definition of expectations for faculty members who advise doctoral candidates. As a solution, faculty could meet to craft definitions (Jacobi, 1991); outline goals for doctoral education (Golde, 2015); define expectations for faculty and students (CITI Program at the University of Miami, 2012; Gardner, 2009; Golde, 2015); fashion a way to gather data (Lovitts, 2001; Golde, 2000; Smallwood, 2004); institute mentor training programs for faculty (Houston, 2014; Titus & Ballou, 2013); create methods for measuring success (Lovitts, 2001; Titus & Ballou, 2013); provide methods to curb faculty abuse of graduate students (Lovitts, 2001); and develop rewards for advising and mentoring (CITI Program at the University of Miami,

2012; Stacy, 2006; Titus & Ballou, 2013). Perhaps the most motivating reward would be that faculty and students both gain from a new approach to graduate training (Golde & Walker, 2006; Jacobi, 1991; Lechuga, 2011).

Doctoral student roles in dissertations. Axelrod and Windell (2012) and Demb (2012) explained that some programs demand doctoral students assume the role of an independent researcher who will identify a topic, create research questions, research the questions, uncover the methods to explore the questions, collect data, and write a scholarly document with analysis, interpretation, and implication. This definition stresses independence as if the doctoral student would be working largely alone. Other researchers have maintained the doctoral student takes the position of a researcher-in-training with a master of the skill guiding the student (CITI Program at the University of Miami (2012); Demb, (2012).

de Valero (2001) noted that departments with high completion rates in shorter periods of time did not require doctoral dissertations to obtain significant results. The proposal was considered a contract, and if students accomplished what was listed in the proposal, the committee was satisfied. Committee members felt the result of non-significance contributed to the body of knowledge in the area if students could explain how they conducted the research, why the results were not significant, and how the research might be accomplished successfully in the future.

Golde et al. (2009) recommend a new form of relationship between students and faculty for the twenty-first century using the old term “apprenticeship” (p. 55) but removing the idea of indentured servitude. Instead apprenticeship affiliations would be reciprocal relationships between individuals to the benefit of each person involved. These

relationships would not necessarily be one-to-one or senior-junior in character, but be able to accommodate several people. They would introduce a new way to evaluate efficiency with the rate of progress which would allow students and faculty to assess students' accomplishments and progress.

Academic Socialization

Socialization is the process of interaction, integration, and learning in which graduate students learn about the values, attitudes, skills, and norms of the department or discipline (CITI Program at the University of Miami, 2012; Gardner & Gopaul, 2012). It is transmitted through the culture of the organization which consists of the activities, both social and academic, designed to share meaning and peer support (de Valero, 2001; Gardner, 2008; Tierney, 1997). This process assists members of the community in understanding how to succeed in the organization by comprehending the political, economic, and social influences involved (CITI Program at the University of Miami, 2012). Tierney (1997) maintained that socialization was not a process of learning a set list of activities and cultural attitudes. Instead, he proposed that culture was recreated as individuals joined the culture and brought their knowledge and experience into their interactions with others. Since people differ from each other, when they become part of an organization, they are involved in taking part in the creation of the culture rather than the discovery and duplication of a set culture. According to Tierney, the organizational community should embrace excellence and difference rather than similarity.

Golde (2015) echoed the importance of departmental culture and recommended the inclusion of people from different experiences, varied backgrounds, and with diverse points of view. To maintain an energetic intellectual community, a wide range of

perspectives aid in challenging thinking and exchanging of viewpoints. This type of community would be multigenerational and include graduate students, postdoctoral fellows, and faculty. Such a community would allow experimentation and risk-taking because scholars must understand how to learn from mistakes. A respectful atmosphere should be the norm with an overall supposition that all individuals in the community should be helped to succeed. Such communities must be nurtured with collegial activities, social events, and places for members to interact and to build connections. Building such a society requires deliberate actions and an understanding of its importance in well-structured program.

Tierney (1997) conducted a two-year study of promotion and tenure in eight public and private colleges and universities in the United States involving interviews with 300 individuals, ninety percent (90%) of whom were junior faculty. He explained that faculty culture is structured through the pace of the work, teaching, research, and service. The intense pace of work required long hours during the evening, week-ends, and summer. Faculty members previously involved in industry and business described academia as harder and more demanding. According to respondents in the study, teaching in research institutions should not take up too much time, so instructors should settle for a teaching quality of well-enough rather than good. One untenured faculty member volunteered, "If your scores are too high, it means you're spending too much time on teaching" (p. 11). In smaller institutions, where teaching was more important than research, teachers invested their energy in their classes. Research drove faculty in larger institutions to produce published articles and books. Researchers reported they often did not attempt cutting-edge studies because such work took too much time and could

potentially fail. Service did not count as very important, so individuals needed to only show they were minimally involved. Golde (2000), Gardner (2008), and Tierney (1997) agreed that in academic culture, fitting-in remains arduous for women, minorities, students with families, part-time students, and older students.

Tierney (1997) and Golde (2015) maintained a change in the academic community from promoting similarity and continuity to endorsing excellence, difference, and discontinuity could address the issues of rigidity. In her study Gardner (2008) noted that not all graduate students have the same experience and that experience can vary by discipline and institutional context. For underrepresented students such as women, students of color, students with families, part-time students, and older students, the institutional context may not fit their lifestyle and their background. Gardner explained that for these students, socialization is an important element in their decisions to stay or leave the program. Houston (2014) recommended enhancing socialization by embracing Self-Determination Theory (SDT), a construct developed by Ryan and Deci (2000b) to illustrate how motivation is strengthened or weakened. According to SDT, motivation is strengthened when individuals experience competence, relatedness, and autonomy. Competence refers to peoples' confidence in their ability to accomplish a given task. By providing instruction in needed skills such as writing, research, presentation skills, presenting at conferences, networking and building relationships, students build feelings of competence. Relatedness involves social relationships as they impact the individual completing a task. Institutional leaders and faculty can create opportunities for students to congregate socially and collaborate on research or class projects to help instill relatedness. Autonomy is the idea that people have some control over the task and the

purposes for doing the task. Autonomy grows from offering some choice in courses, research or course projects, and timelines to complete degree requirements.

Socialization also includes guiding students in ethical development. Sprague et al. (2001) surveyed 627 faculty and 1,152 graduate students in 49 departments in nine different colleges to gain their perceptions of the transmission of ethical beliefs about research. Both faculty and students reported needing further graduate education courses involving with ethical issues and also rated professional organizations as important in promoting ethics. Faculty input and modeling helped transmit ethical beliefs as did the influence of other graduate students in the department.

Gardner (2010) completed a qualitative study to explore how disciplinary context and culture influenced the socialization of 60 doctoral students from six disciplines at one university with very high research productivity. The six disciplines were selected to examine doctoral education from various disciplinary perspectives. English represented soft-pure disciplines; psychology and communication represented soft-applied disciplines; engineering represented hard-applied disciplines; and mathematics and oceanography represented hard-pure disciplines. The six disciplines characterized high and low doctoral completion rate categories based on a previously conducted study that examined a 20-year period at the institution. The high completion rate disciplines were communication at seventy-six and five tenths percent (76.5%); oceanography at seventy-two and seven tenths percent (72.7%); and psychology at seventy and two tenths percent (70.2%). The low completion rate disciplines were English at fifty-six and four tenths percent (56.4%); mathematics at thirty seven and six tenths percent (37.6%); and engineering at seventeen and six tenths percent (17.6%).

Gardner (2010) selected full-time students as participants and divided them into the three phases of the doctoral experience. Phase I included the time leading up to admission into the program through the beginning of the course work. Phase II encompassed the time after beginning the program to the onset of the candidacy status. Phase III comprised the period after students passed the examinations and gained candidacy status. Because of the small cell size of ten students per cell, analysis by phase within disciplines was limited but overall phase analysis across departments was possible. Gardner also worked to represent the demographics of each department in her participant selection. Students were contacted by email to solicit participation.

Gardner (2010) conducted 45 to 60 minute fact-to-face interviews employing a loosely-structured protocol which allowed discussion to depart from main topics and explore other ideas and concepts. Participants discussed the phase of the doctoral experience they were in at the time of the interview. Gardner applied a constant comparative method in which analysis begins early and continues until nearly the end of the study. She collected data and then explored key issues, events, or activities that came into focus. Next she continued to collect data to broaden her understanding and then wrote about the categories, keeping in mind past events as she searched for new information. All the while, she worked with the data to allow for emergent themes to develop. Trustworthiness of the data and its analysis occurred through peer debriefing by a colleague, member checking by one student from each department, and triangulation of sources since this study was part of a larger study where numerous departmental administrators and faculty members were involved.

Gardner (2010) identified four themes representing all six departments: (1) support, (2) self-direction, (3) ambiguity, and (4) transition.

(1) Support: In order to become part of an organization, individuals must learn how to interact with others and develop relationships. Students in departments with higher completion rates reported support from a variety of sources, but the department with highest completion rate described the presence of family-like atmosphere where everyone was helpful. A majority of the students cited support from fellow students in the program. Students in the departments with the lowest completion rates spoke of depending on faculty members for support. These departments had a high percentage of international students who often experience isolation.

(2) Self-direction: The movement toward independence is part of the doctoral program. This theme appeared in every department but in different ways. Students studying communication and engineering, departments with the highest and lowest rates of completion spoke the most about self-direction but with different views. Communications students discussed being allowed the freedom to select their own direction and use their own motivation as a guide. Engineering students identified learning how to conduct research independently but feeling that they had to teach themselves and figure it out on their own. English students discussed self-direction as the need to have a plan, and psychology students felt it was related to advising and the lack of direction from advisors. Oceanography and mathematics students discussed the subject less but related it to feeling lost.

- (3) Ambiguity: In every department, students discussed ambiguity, though much of the ambiguity concerned institutional matters rather than departmental ones. Students discussed problems understanding graduate school guidelines, regulations, and especially, paperwork. Ambiguity also related to the phase of the student. Students in Phase I found difficulty understanding what was expected of them. Those in Phase II were concerned with understanding the examination experience. Phase III students cited ambiguity regarding the dissertation process and how to research and write about the topic.
- (4) Transition: Transitioning between roles and expectation is an important part of the socialization process. Students in Phase I found difficulty in learning to adjust to new expectations and information. Students in Phase II transitioned to new skills, especially those related to scholarly discourse both in writing and discussions of theory. Phase III students began to understand what was expected of them, but had difficulty adjusting to the isolating role they now pursued, often devoid of contact with fellow students and faculty. Mathematics and engineering students mentioned transitioning most often, especially those international students who dealt with language and cultural issues. Students in all departments struggled with expectations related to dissertations and the skills needed to complete the process.

Gardner (2010) pointed out that the faculty in departments with the best socialization experiences had clear expectations, provided social and academic integration for students, were supportive, and provided faculty-student mentoring relationships. Departments with the worst socialization experiences were the least

supportive of students, required students to be more self-reliant, and lacked peer/faculty support. Recommendations included instituting an orientation program lasting beyond the first week of school, introducing social and academic integration activities, recognizing the unique nature of individual students, and evaluating graduate school guidelines on a regular basis.

Circumstance

Circumstance refers to a condition, fact, or event that affects a situation (Circumstance, n.d.). One professor interviewed by Lovitts (2001) mentioned that the reason for doctoral students leaving the program was “always a constellation of reasons” (p.24) that were hard for the student to navigate. While difficult, some of the circumstances faced by graduate students were personal in nature, and others were related to the process of attaining a degree. Gardner (2009) found both faculty members and students attributed personal problems as one reason for graduate student attrition. Student descriptions of personal problems were descriptive and specific, and approximately one third of the students attributed personal problems as a reason for attrition. However, Gardner explained that fifteen percent (15%) of faculty members attributed personal problems to attrition, and they offered vague explanations to describe personal problems, generally just using the term personal problems. A few members mentioned mental health issues, emotional problems, and pregnancy. Lovitts reported faculty members in her study offered more than 90 reasons for attrition with only thirty-three percent (33%) categorized as situational. These included being in a two-Ph.D. marriage, entanglements in another geographic region, pressure to improve family standard of living, poor state

job market, and depression. Overall, sixty-six percent (66%) of faculty responses named student dispositions as reasons for attrition.

Miller (2013) completed a study using the National Research Council's 2011 *Assessment of Research Doctoral Programs in the United States* to examine the relationship between timely completion rates and 22 other variables. The sample included over 10,000 students and over 12,000 faculty members from 365 programs in the fields of Chemical Engineering, Physics, Economics, Neuroscience, and English. When comparing all the programs in the data set, the high completing programs on average had higher satisfactions ratings, lower percentage of students with children, shorter time to degree, lower percentage of teaching assistantships, more student support services, a higher percentage of student with higher financial backing, and higher percentage of programs that offered orientations. While personal life incidents were reported by students in the majority of these fields, they contributed less than twenty to forty percent (20-40%) of the variance in completion rates. Likewise, twenty-three percent (23%) of participants who completed the survey by West et al. (2011) indicated that unforeseen circumstances in their personal lives created problems in their efforts to complete their degrees.

Students more specifically described issues such as the stress placed on marriage or the need to move with a spouse. Babies, children, and pregnancy competed for the time of students and added an additional strain on their lives (Gardner, 2009; Miler 2013). Students in the study by West et al. (2011) reported personal issues such as the birth of a child and unexpected family health problems. Gardner added that mental and physical illness as general reasons for difficulty in completing doctorates. Golde (2000)

affirmed that social integration, the process of being assimilated into the department and making friends, became difficult for students with personal problems. Managing time to include academic, family, and work responsibilities plagued sixty percent (60%) of the graduate students in the study by West et al. (2011). Lovitts (2001) maintained that socialization in a complex setting like graduate school may have led students to more internal or self-blame reasons for attrition.

In the study by Demb (2012), mid-career doctoral students explained the financial pressure of school required families to curtail expenditures and reduce the amount of time for family interactions; both factors produced guilt. Emotionally, the fear of failure, inadequacy, demands for time and energy plagued many students. As one student noted “I mean most of us can recognize we’re in the middle of a political landmine that we can’t fix” (p. 40).

In the study by Gardner (2009), 60 graduate students and 34 faculty members discussed the influence of cultural contexts and structures that facilitated or impeded student progress. Faculty discussed three reasons they felt students left doctoral research. Fifty-three percent (53%) explained students lacked ability, motivation, focus, drive, or initiative. Several mentioned dissertation research as the area giving students the most difficulty. Twenty-one percent (21%) contended the students should not have come to graduate school; the students merely *drifted* into the program. Fifteen percent (15%) cited personal problems as an issue though their definitions were very vague.

Gardner (2009) reported students expressed concern in three areas. Thirty-four percent (34%) attributed personal problems to attrition, but unlike faculty, their explanations were more specific. Most of the problems revolved around marriage,

children, and family responsibilities. Students were less specific when discussing mental and health issues. Thirty percent (30%) shared concerns with departmental issues such as bad advising, lack of financial support from a department with little money for assistantships, faculty attrition so students lost committee members or advisors, and institutional politics. One student explained the effect of departmental politics. “The faculty being unhappy filtered down to us. They had the power to make us unhappy” (p. 107). Twenty-one percent (21%) attributed attrition to the wrong fit of the program for the student. They indicated it was not because their peers could not handle the work, but rather that the program did not fit their needs or personality.

Gardner (2009) explained that results from her study implied that faculty were unaware of the reasons for student attrition and tended to blame students. Students, in similar fashion, placed the blame on faculty, the department, and the institution. The researcher suggested implementing dialogues among faculty and students to share expectations, consider issues, and offer remedies.

Demb (2012) explained that mid-career graduate students in her qualitative study cited some specific problems complicating their progress. They identified situations like the need to pursue a new set of theories or the realization that two or three additional courses would be necessary as unexpected difficulties. Students felt distressed when they had to deal with a committee containing people who are fighting with each other. Financial costs exceeding projections added to their stress.

Conducting Research in Schools

Conducting research in an educational setting is complicated by its very nature because of the number of stakeholders involved and the fact researchers must adhere to

strict guidelines to ensure the study is conducted in a precise and ethical manner (Rice et al., 2007). School district administrators must consider how the study and its findings might impact the schools, staff, and the district as a whole. For these reasons, district officials carefully scrutinize whether to allow research to be conducted in their districts (Alibali & Nathan, 2010; Powers, 2007). Furthermore, administrators, principals, and teachers are obligated to protect students' critical instruction time and must consider potential concerns of parents about their children being involved in research studies (Powers, 2007). Members of Institutional Review Boards (IRB) must protect the confidentiality, rights, and welfare of participants, particularly if they are members of vulnerable populations that include children less than 18 years of age (University of Nevada, Reno, 2016c). Federal oversight impacts research in schools. The Family Educational Rights and Privacy Act (FERPA) protects the privacy of student records and their use in research projects (U. S. Department of Education, 2015b).

One major difficulty to overcome in school-based research is the difference in goals between the stakeholders and researchers. Researchers seek generalized knowledge to share with the educational community, while school district staffs focus on increasing their students' learning and test scores. University administrators, IRB members, and federal regulators work to ensure safety and confidentiality. Realizing the difference helps researchers understand why meeting the needs identified at a school level may open the doors to research opportunities (Alibali & Nathan, 2010; Glennon, Hinton, Callahan, & Fischer, 2013; Powers, 2007). Another important difficulty involves the fact that educational research often must be conducted at a school site; it raises the problem of

control in an active, spontaneous classroom compared to research done under strict conditions associated with a laboratory (Brown, 1992).

Establishing research questions. Powers (2007) suggested before proposing a study, researchers would benefit from gaining an understanding of the school district and community. For example, schools located near universities often suffer a bombardment of requests to conduct research; therefore, seeking districts farther removed from the university may be more profitable in terms of eliciting interest in research studies. Alibali and Nathan (2010) and Glennon et al. (2013) counseled researchers to investigate school districts' goals and school interests to help direct construction of the type of research inquiry that might appeal to educators. Research questions about how curricula affect learning hold great interest in most districts, so finding out their interests is essential in deciding on a research topic, research questions, and method.

Research approval process. In order to conduct research through a university, researchers must comply with state laws and federal regulations designed to protect the safety and welfare of participants involved in research. Researchers must fulfill the terms of the Institutional Review Board (IRB) within the institution which provides oversight in all research involving human participants (University of Nevada, Reno, 2016c). Alibali and Nathan (2010) cautioned that IRB approval from a university requires filing a number of lengthy comprehensive documents following standardized and well-explained steps. They caution that the process can become time consuming.

Researching the approval process in the district and university remains paramount because educational research requires approval from multiple levels of authority (Rice et

al., 2007; University of Nevada, Reno, 2016c). Approval procedures vary a great deal from district to district. A district research committee may require meetings and lengthy applications or one person in the head office may give permission after a verbal agreement. Sometimes delays occur in both IRB and district individually and sometimes delays happen when the two entities have conflicting requirements. For example, district requirements may result in changing a procedure in the approved IRB protocol. In that case, the suggested change would require application to the IRB office to approve the change. Rice et al. (2007) forewarned researchers about the possibility that approval may take many weeks and even a number of months. Coordination between the two stakeholders can become complicated, so allowing a generous amount of time is wise.

Alibali and Nathan (2010) contended that because of federal laws, educators and school administrators feel great pressure to show Adequate Yearly Progress (AYP) and demonstrate growth in standardized test performance. Gaining access to students for research can be challenging. As a result, few districts allow research during instruction time unless the research can directly lead to improvement in student learning. In order to identify a research topic of interest and relevance to educational authorities, researchers need to investigate the concerns of administrators and educational staff in the districts targeted for study. In addition, school district officials worry about the Family Educational Rights and Privacy Act (FERPA) and its regulations, for even one parent complaint can place the district in non-compliance.

Powers (2007), a district administrator, explained the first challenge in gaining district approval requires the researcher to establish a positive relationship with the district central staff. The person or group to contact for research approval varies from

district to district, and she advised making many calls and emails to establish contact with those staff members designated to consider research requests. Employees in these positions rarely spend time in their offices as they attend meetings all over the district. It would not be unusual to contact them many times before receiving a response. If more than one school district is involved in the study, Plummer et al. (2014) warned a number of people will need to be contacted, and each district will likely have different procedures and goals. In large studies, a great deal of coordination will be necessary. These conversations must take place before completing IRB paper work.

Powers (2007) endorsed the creation of a one-page summary of a proposed study with essential statistical information, aims of the research, significance, and the timeframe to accompany the researcher in district meetings. Districts need assurance that research will create no harm to students or embarrass the district with less than flattering research results. She recommended getting right to the point, linking the research to student learning, and explaining incentives available to the district for allowing the research. Incentives might include such things as training for teachers or aid in writing grants. Rice et al. (2007) emphasized it is important to find out about the steps in the district approval process.

Alibali and Nathan (2010) recommended researchers spend time reading school, district, and state press releases along with relevant web sites. In this way researchers can identify issues of importance to educational stakeholders and thereby direct their research in that area of interest. Educational personnel are interested in how curricula affect learning and are open to experiments with a design-evaluate-redesign format, with or without control groups.

The next level of approval resides in the with the principal. Powers (2007) advised researchers to request a brief appointment with this administrator to present the one-page summary previously used with the district and explain the plan for the research. It is important to include research requirements of time and space, and the relevance of the study to instruction and standards. If the principal gives consent for the study, Alibali and Nathan (2010) advised researchers contact teachers to request their participation. When teachers are allowed to volunteer, they are more motivated to aid in the study. Teachers also need assurance, if their practices are addressed in the research, that they will be treated with care and respect. Plummer et al. (2014) added researchers should meet individually with all groups impacted by the study to provide an opportunity for these individuals to ask questions, raise concerns, and make suggestions. The researcher can use this opportunity to outline benefits to the school and the students.

Alibali and Nathan (2010) explained many reasons to meet with teachers before beginning research to request their participation. Researchers must explain the educational value of the study, and enlist teacher participation and input in planning the collection of data. Teachers that volunteer are more likely to comply with the research process, while teachers forced to participate often face the research as an impediment to their teaching. Teachers know the student culture and can best outline effective methods to gain student interest and assure the collection of parent permission and student assent.

Furthermore, Alibali and Nathan (2010) noted researchers must understand teachers need assurance their instructional goals are more important than the research, and that researchers will work to accommodate the educational aims of the staff. Because

research often focuses on the teacher and/or teacher practices, the researcher needs to understand the scrutiny the teacher faces and handle teacher experiences with understanding and respect.

Recruiting students, according to Alibali and Nathan (2010), involves informing parents and children about the research and obtaining consent from parents and assent from children, as well as consent from teachers and principals. These researchers explained that this process consumes a surprising amount of time and energy in order to bring principals, teachers, and parents in agreement. Rice et al. (2007) suggested meeting with the different groups separately as it allows a researcher to address questions and issues applicable to each. Parent permission forms and informational letters must be written on a level understandable to most adults, and any materials for students must reflect their reading levels. Obtaining acceptable translations into other languages and culturally appropriate text adds additional time and often costs.

With passage of the Family Educational Rights and Privacy Act (FERPA), Esbensen et al. (2008) reported that researchers needed active parental consent in cases where the research assesses change in student scores over time, uses individual student scores, or involves more than minimal risk to the students. Active parental consent stipulates that parental consent forms must be sent home and returned with a parental signature to the researcher for student involvement in any study. The signature on the form indicates a fully informed decision by the parent (Ji, Pokorny, & Jason, 2004).

Rice et al. (2007) cautioned that informing parents about the study and gaining their permission for student participation requires careful attention to the many IRB and

district requirements. Written documents must accommodate appropriate reading level, cultural sensitivity, clarity regarding any benefits, and any possible harmful outcomes. Student assent is addressed either verbally or in writing on a level suitable for the children's understanding. Translations of documents into other languages may be necessary. Production of these materials takes a considerable amount of time. Alibali and Nathan (2010) advised making parental contact by sending letters and permission forms home with students or sending the documents home in the mail. However, researchers may need to pay for postage and reimburse the school for staff time required to send out the letters. Plummer et al. (2014) added researchers might make use of a school automated phone system to alert families about the study.

Alibali and Nathan (2010) related that in many cases, letters and permission slips travel home with students, and signed forms are collected when students return to school. This information might also be mailed home with self-addressed stamped envelopes so parents can mail them back, although this requires the school involvement since the names and addresses of students are confidential. Therefore, researchers cannot complete this task. Many schools will not allow staff to complete these mailings or will require payment of these employees for their time.

Obtaining student assent poses a challenge, explained Rice et al. (2007) for if the study requires students to expend a great deal of energy generating data, some children may refuse to participate. Collecting data over several days may reduce these concerns since students will not tire as easily and may be more alert for the shorter time periods. Glennon et al. (2013) recommended tapping student interest in the subject matter of the study to generate the motivation to participate. Including interactive techniques, relating

the study to the world beyond the classroom, and providing choice all have the potential to produce intrinsic motivation in students. If the study becomes part of regular classroom instruction, Alibali and Nathan (2010) reported that parental consent and student assent are needed only to allow the data to be used in the study. All students would participate in the activity, but only the data with parent consent and student assent can be applied to the study.

Plummer et al. (2014) added implied consent as another option, if allowed by the district. The implied consent procedure generally produces higher participation and requires less work for everyone involved. Implied consent entails sending letters home to parents describing the research and indicating parents should contact the school if they wish their child removed from the study. If parents give their permission, they do not have to contact anyone. However, with FERPA rulings, implied consent is rarely allowed.

Gallagher et al. (2010) maintained that gaining assent from children is complicated and presents problems not present in other research contexts. Assent, whether written or verbal, depends on the child's interpretation and memory of the information given. The researcher may explain the research one way, but the student may understand it in a different way. A student may be told participation is voluntary, but often children do not have the confidence to withdraw. Assent may be based on the desire to please, or the child may have something else of concern to think about during research recruitment and so not fully understand the study. Often it is difficult to know the boundary between coercion and encouragement.

Gallagher et al. (2010) found that viewing children as “rational, autonomous agents” (p.479) is problematic for children are involved in important relationships with peers, parents, teachers, and the school staff members that influences their decisions. They offer no simple solutions to the complexity of student assent, but urge researchers to examine their own understanding of assent and to seek to understand how their participants understand assent. They concluded that research with students is complex and problematic.

Data collection and sharing results. Plummer et al. (2014) offered practical suggestions for data collection. Online data collection frees researchers from producing paper copies, transporting and storing instruments, and physically analyzing the data. However, problems with technology can occur when least expected. Researchers need to be prepared. If time allows, instituting a pilot study before the actual research with another group of students can illuminate glitches, and researchers can avoid or remedy them during the actual study.

From a district administrator’s perspective, Powers (2007) warned researchers to consult the district and principals if they plan to share study results with the press or the public in any way. Plummer et al. (2014) supported this view and explained giving administrators, principals, and teachers the opportunity to review and evaluate the study report before submission for publication builds trust and a sense of collaboration. It gives all participants ownership of the endeavor. Students and parents appreciate learning how the research results.

Leung et al. (2010) outlined ethical issues confronting researchers in schools. First, school administrators worry researchers might point out unethical practices taking place in classrooms or identify teachers not using best practices. Educators worry about published research findings that might characterize schools and school districts in an unfavorable light. Criticism might result from allowing research to replace instruction time. Second, using control groups in research establishes credibility, but using control groups in the research design may encounter resistance from educators since not all students would have the opportunity to benefit from the intervention. Third, a researcher may note inappropriate instruction, but immediate intervention might negate the study or build hostility from the teacher. With ethical problems, Leung et al. advocated care of the student's interests should precede those of the research study. School-based researchers face thorny problems fulfilling opposing obligations from fellow scholars, governmental policy makers, educators, and the public who expect research to be rigorous and truthful.

Investigator attributes. Experienced researchers (Alibali & Nathan, 2010; Plummer et al., 2014) advised novice investigators to practice patience and flexibility because problems will occur. Disruptions in Internet connectivity could interfere with online data collection, and researchers might need to scramble to obtain paper copies for student use. Special events, homecoming activities, fire alarms, or standardized testing might upset the previously agreed on schedule for the study. Above all, it is important to show appreciation to the school staff who helped in the study. Thank you gifts can be as simple as bringing in doughnuts or bagels to the teacher's lounge. A thank you note to the school or donations of books to the library extend gratitude and build good will paving the way for future researchers to conduct research

Plummer et al. (2014) lamented the lack of material written about how to complete research in schools and related the experience of a small group of psychologists involved in a Radcliffe Workshop where conducting educational research was discussed. All psychologists in the small group agreed that one major problem in completing classroom research was the lack of procedural knowledge. Each person learned what to do and what not to do by trial and error rather than through their graduate training. Nothing prepared them for the challenges and problems arising from educational research, and all wished for some type of field guide.

While these are excellent suggestions, Rice et al. (2007) reminded researchers to remember that districts, schools, communities, and people vary considerably in unique ways. Therefore, it is wise to contact other researchers who have experience conducting studies in the local districts earmarked for the study. They will share knowledge about the district and suggest effective procedures geared for each school.

Suggestions for Improvement

The research community has generated investigations into the problems associated with graduate attrition. Gardner (2009), Golde (2000), and Lovitts (2001) suggested collecting college statistics on doctoral attrition and conducting interviews with doctoral students leaving their program before finishing would be valuable in order to bring the problem of attrition into focus.

Golde (2015) director of the Carnegie Initiative on the Doctorate (CID), an action and research project to help departments consider how to improve their doctoral programs, made three suggestions for building improvements in doctoral student success.

First, she made clear no perfect department structure existed for any discipline or school. Rather members of the department needed to align the program requirements with the desired outcomes by assessing the skills, knowledge, and thinking habits a graduate should acquire. The second recommendation advised shaping the departmental culture to include a wide range of opinions and multigenerational views. Experimentation and risk taking should be valued along with the importance of the creation of a respectful atmosphere. The last recommendation concerned reexamining the one-on-one apprenticeship pedagogy of advising, and suggested placing students in networks of advisors with strong safety nets to provide support and a balance of freedom and guidance.

The Andrew W. Mellon Foundation in 1991 began the Graduate Education Initiative (GEI) to improve the structure and organization of doctoral programs in the humanities and related social sciences. The ten-year long initiative worked to improve the quality of doctoral program and reduce high rates of student attrition with a focus on the departmental level. The program included 54 departments in ten major universities and a slightly smaller set of comparison departments. The Mellon Foundation invested approximately \$85 million in the endeavor. Ehrenberg and Kuh (2009) published results in *Doctoral Education and the Faculty of the Future*.

After involvement in this work, Ehrenberg et al. (2009) agreed that department cultures have greater influence on students' progress than deans or central administrators. They maintained that innovations made on the department level would have a greater chance of implementation than those initiated by higher level administrators. They felt persuading faculty members to agree to and accept change would not be easy. Yet, if

faculty members created the change, the changes will more likely be accepted. Since department cultures and staff changed over time, changes in procedure and practices must evolve over time, too. This would make it imperative to collect relevant data to track desired progress toward desired results.

Golde et al. (2009) recommended departments consider a reframed method of apprenticeship. When the one-on-one relationship works well, advisors challenge their students, set high standards, share their knowledge, and shape instruction to fit their students' individual needs. When they do not work, students merely conform rather than develop independent thinking. If abuse, mistreatment, or neglect occurs, students feel there is little they can do. Administrators and faculty sometimes are reluctant to interfere.

The Golde et al. (2009) model of apprenticeship has four features: (1) Intentional Pedagogy, (2) Multiple Relationships, (3) Collective Responsibility, and (4) Relationships Characterized by Respect, Trust, and Reciprocity.

- (1) Intentional Pedagogy, according to Golde et al., requires a great deal from mentors. As expert masters, they must model the practice, explain the overall view, and break down the constituent parts. Mentors scaffold instruction by providing support in decreasing amounts as students attain skills. Examples might be employing a simulation of defending a grant proposal, requiring a course in dissertation proposal writing, or simply identifying the research questions in a published article. In this model, students would experience repeated practice with coaches providing feedback. Not all faculty member have these skills, but Golde et al. (2009) expressed confidence faculty can learn to mentor and gain benefits from mentoring. While much is expected of

a mentor, students must also work on the relationships by being responsible for their learning, taking risks, and accepting the possibility of failure.

- (2) The rapid growth of knowledge and interdisciplinary partnership in the work and academic worlds generated the necessity of Multiple Relationships, the second feature in the apprenticeship model of Golde et al. (2009). Complex contemporary problems necessitate the ability to absorb multiple perspectives and collaborate with others. Students could have research mentors, teaching mentors, and less formal relationships with faculty and other students. Sole responsibility for a student shifts to shared responsibility, so new guidelines on how students are to spend their time and receive funding would change. Students need to take on the responsibility to find mentors and reconcile differing advice and expectations from those mentors. For this to work, the culture of the department should encourage students to take part in shaping their education. Group collaboration in courses, research labs, cohorts, study groups contribute to the mentoring process.
- (3) Golde et al. (2009) outlined Collective Responsibility as a means to divide the accountability for student growth among many mentors who work together. In order to empower this model to work, faculty members must create a shared vision of the knowledge, skills, and mental habits desirable in a graduate, and create clear expectations for progress through the program. For example, faculty could outline the expected progress through the program, create timelines for identifying mentors, and outline customary speed of response to written drafts. By clearly defining goals, students can anticipate and prepare

ahead of time. Faculty misunderstandings would be reduced. Informal conversations between faculty members about how a specific student is doing makes student progress everyone's obligation. With shared responsibility for the student comes shared responsibility for calling other faculty on inappropriate behavior. In addition, students need to be held accountable to determine their own goals and seek out experiences to help attain those goals.

(4) The fourth feature of the apprenticeship model espoused by Golde et al.

(2009) is Relationships Characterized by Respect, Trust, and Reciprocity. The three qualities of respect, trust, and reciprocity promote a more pleasant atmosphere in which to work, but more importantly, facilitate learning.

Respect means a mentor's experience and guidance is reflected in a student's work, but at the same time the mentor respects the student's intellect by giving it space and time to grow. Trust develops over time spent in a respectful relationship. Reciprocity deals with advantages for both the mentor and the student. The student gains training, advice, support, feedback, and guidance.

The mentor benefits from exposure to new ideas, energy, satisfaction in seeing students succeed, and the formation of an intellectual legacy.

Ehrenberg, Jakubson, Groen, So, and Price (2007) point out that improving staff advising skills; outlining expectations on progress toward a degree, and the defining the nature of acceptable dissertations could significantly reduce attrition and be relatively costless.

Student Responsibility

What can a potential doctoral student do to enhance success? According to faculty advisors Axelrod and Windell (2012), students should ensure their own mental and physical health by paying attention to sleep, exercise, nutrition, relaxation time, counseling, and time management. They recommended setting reasonable goals with advisors and committee members and remembering these professionals have personal lives and obligations. The research project undertaken should make a scientific contribution to the field, and with the help of the advisor and committee, the project should move along smoothly without disruptions. The goal is to become an educated reader of research and know all the work in the field. Mullen (2006) proposed potential graduate students should consider researching future careers and how to navigate the academic world before entering it, yet they need to realize that discovery will occur as students immerse themselves in it. Reading literature regarding how the process works inside departments will help graduate students uncover less obvious procedures and requirements.

Selecting an advisor and committee. To find an advisor, Axelrod and Windell (2012) advised prospective doctoral students to employ a number of investigations. They could talk to other advisees, past and present, and consider consulting individuals such as former faculty or others involved in academia. In interviews with potential advisors, it is important to discuss expectations by asking questions about whether the advisor is interested in the field of student interest. Also, students should inquire about whether the individual has the time, skills, and experience for an advisor's role. If during the student's

time as a doctoral student, the potential advisor has sabbatical time or plans to leave the institution, this individual would not be a good fit.

Axelrod and Windell (2012) recommended selecting committee members after investigating them well by researching other committees on which they have served. They suggested finding out if the members in consideration work well together and meeting with them individually to gauge compatibility. The committee should want to advance learning, and feel motivated to help doctoral students attain their goals.

Sugimoto (2012) added that each member should have a role to play in helping support a student. They should have areas of expertise, such as in content or methods.

Selecting a mentor. Research has established the importance of student/mentoring relationships in doctoral education with mentored students demonstrating higher levels of critical thinking and development of excellent academic skills (Baker et al., 2014). Ineffective relationships can result in resentment and reduced efficiency for all involved (CITI Program at the University of Miami, 2012; Demb, 2012). Baker et al. (2014) pointed out the difficulty in locating a mentor because past research gives little indication on what distinctions foster forming successful mentor/student relationships. The ideal mentor varies greatly from person to person.

Mullen (2006) advocated a number of ways for students to seek out a mentor. Students should examine the graduate school's policies or procedures associated with mentoring. They might contact faculty members and other students in the program for information. Reading the profiles of faculty will help decipher who might have similar research interests. Mullen suggested that students find student leaders to contact in search of information about the doctoral process and the role of mentoring. Students should

attend any orientations, retreats, or social activities available to make contacts and gain insight into the program and possible mentors. Learning how to network aids in this process since assistance in mentoring may come from a number of sources. Most important, students must meet with potential mentors to identify compatibility.

To identify a suitable mentor, the CITI Program at the University of Miami (2012) recommended students need to establish their career plans in order to select a mentor able to provide training for that specific goal. A prospective mentor should have had success in the path the student wishes to follow, have an interest in the student's future career, be willing to make time to meet, and provide advice useful to move the student toward graduation. Students should seek out other graduate students involved in research, peers, and other doctoral students who have related, relevant experience. The most difficult quality to ascertain is the degree of personal compatibility, trust, and respect between a mentor and student. Demb (2012) explained students can have several mentors which might include partners, family, friends, employers, former employers, graduates, alumni, and committee members.

Nettles and Millett (2006) observed the vagueness of duties and responsibilities across disciplines and institutions makes understanding the roles of mentors and students in a mentoring relationship difficult. Gardner (2009) suggested expanding communication among faculty members and students about expectations regarding levels of achievement and effort of output required. The CITI Program at the University of Miami (2012) reminded students that mentoring relationships should not be passive as the student should take an active role in identifying needs and requirements. One successful mid-career graduate in the Demb (2012) study remarked, "We are scholar apprentices

and so we're looking to a master to guide us through that apprenticeship so that we too can become masters" (p. 41).

Communication. The Carnegie Initiative on the Doctorate (CID) examined the specific topic of education for the Ph.D. by exploring a limited number of departments and interdisciplines. Five of the researchers produced a book, *The Formation of Scholars* (Walker et al., 2008) to report on their work with faculty and graduate students. While they gained support and assistance from graduate deans and administrators, the work was done with and by departmental faculty and students. This report echoed many of the same suggestions as Golde et al. (2009) for shaping the doctoral experience. It urged faculty to communicate with students in order to view their perspective by engaging in one-on-one conversations, focus groups, regular town meeting, and surveys. Additionally, it suggested faculty participate in conversations to define the specific knowledge, skills, and dispositions their doctoral program could foster and to establish the purpose for each element of the program. Faculty could consider how to develop a collective responsibility for student progress and reflect on how to collect data to measure the commitment to improve. Students could become involved in their doctoral program and become part of the process for change. Students could take responsibility to seek out intellectual communities and understand their own goals and passions related to their education. Walker et al. explained administrators are important figures in doctoral education improvement. These leaders could join in the conversations about purpose and practice issues, provide funding for changes, advertise successes, and demand accountability.

Conclusion

The theme of elitism ran through the history of higher education from the Ancient Egyptian Mystery System to the marketing strategies employed in today's institutions. Those with wealth and influence attained preference over the poor and obscure. Attrition followed as an important theme relating to the method of selecting the skilled individuals needed by the society. This method of selection assumes ability is rare and by engaging a promising group of people in a difficult process, the most capable will emerge.

Gallagher (2015) suggested that the attitude that giftedness is related to genetics is prevalent, but in reality gifted individuals emerge from a "complex and successive set of interactions" (p. 8) involving heredity and environment. Gallagher proposed that creating favorable environments starting early in the life of an individual would produce large long-range results. Ability may not be as scarce as originally thought, especially with provisions to encourage development in youth and tap unrepresented groups. The methods producing attrition rates of approximately fifty percent (50%) may indicate a wasteful loss of talent, especially given the need for a well-trained population with the movement to a global knowledge economy.

The good news is that work progresses to inform educators and administrators about the scope of the problem, the need for change, and research into how to affect a more productive higher education system. The bad news is that the problem of attrition is multifaceted, so a simple quick solution may be a naïve expectation. However, Golde (2015) noted solutions can begin in a small way on a local level. When departments with multigenerational populations meet to begin working toward improvements geared to their disciplines and goals, the innovations have a greater chance of implementation.

Chapter 3

Methodology

The literature review examined the history of higher education and the history of doctoral education. It revealed departmental cultures play a part in attrition rates for doctoral students. Demographics such as gender, ethnicity, international student status, age, enrollment status, and assistantships influence completion rates and attrition. Advisors, mentors, and socialization can positively or negatively influence doctoral student success. Circumstances and a lack of understanding about how to conduct research in public schools can negatively influence the ability to complete doctoral research.

The methodology established the plan of action for addressing research questions, data collection, methods, and analysis (Wilson, 2009). Qualitative research, theoretical orientation, paradigm assumption, and case study approach are outlined as they apply to this study. The research site is described and data collection methods outlined to include the use of bracketing, interviews, the inclusion of a peer reviewer and two outside experts, repeated readings with memos, a code-recode procedure, and a four-step reflectivity inquiry process. Data sources are described and credibility of the study justified.

Qualitative Research

The purpose of this research was to gain an understanding of one doctoral student's experience working toward a Doctor of Philosophy (Ph.D.) with an emphasis on the process rather than the results. Three research questions guided the study:

1. Why did this doctoral academic experience contain obstacles?

2. Is it common to experience obstacles?
3. Is it possible to avoid or reduce the obstacles?

These research questions do not fit into a quantitative research paradigm because that type of research explains questions with numerical data analyzed using mathematically based methods (Yilmaz, 2013). Field (2009) explained the quantitative research process begins with an initial observation of data to establish research questions and generate a theory. Next, the researcher develops a hypothesis and identifies variables. After collecting data to test the theory and measure variables, analysis of the results concludes the research.

Qualitative research provided an appropriate approach to this study because it afforded a naturalistic, inductive approach to examine a situation in its setting, and to provide an in-depth, detailed view of a phenomenon (Morrow, 2007; Yilmaz, 2013). It allowed the researcher to investigate the complex and multifaceted nature of human interactions and social processes, and it employed language as a tool to collect meanings not easily observed or gathered through surveys or statistical approaches found in quantitative research methods (Morrow, 2007).

Bogdan and Biklen (2007) explained that qualitative research questions are created to investigate topics in context; researchers develop their understandings while engaging in the process. Schram (2006) described qualitative research questions as “something closer in kind to the preliminary give-and-take discussion you have with yourself and others about whether, why, and how you might want to go somewhere” (p. 74). Research questions therefore focus on understanding the meanings of events and

interactions involving people. In the process of research, the questions and the researcher's perspective evolve through an interactive design process.

Theoretical Orientation

According to Bogdan and Biklen (2007), *theoretical orientation* guides all research, and effective researchers understand their theoretical framework and its influence on their collection and analysis of data. This study employed a *phenomenological viewpoint* which focused on lived experience to help the reader understand the situation, and through reflection of the researcher, uncover the essence or underlying meanings (Schram, 2006). Schram outlined five basic assumptions of phenomenology.

- (1) Behavior is understood only as it happens in relationship to others, situations, and events.
- (2) People understand the world through their perceptions of the world.
- (3) Understanding the lives of people emerges from being aware of their perceptions and how they react to experience.
- (4) Reality is not objective but attached to an individual's consciousness of it.
Understanding a phenomenon arises from peoples' experiences with it.
- (5) Language conveys meaning, so a phenomenon can be understood through dialogue and consideration.
- (6) Central essential meanings can emerge from the experiences of individuals as they encounter a phenomenon.

Paradigm Assumption

Qualitative researchers use *paradigms assumptions* to uncover appropriate research questions, choose procedures, and outline issues of validity (Creswell, Hanson, Plano Clark, & Morales, 2007; Creswell & Miller, 2000). The paradigm assumption for this study included a mesh of two perspectives forming the *interpretive/critical perspective* (Creswell & Miller, 2000; Schram, 2006). Schram explained proponents of the *interpretive perspective* argue the things people know and believe about life emerge from their interactions with others in a variety of settings. The role of the interpretive researcher is to comprehend the complicated and constructed nature of reality from the individuals who live it. All constructs of reality are considered valid and valuable. Researchers must in some way involve themselves on some level in the lives of the participants in the study in order to focus and perfect an interpretation. An orientation toward change does not arise in this view.

Creswell and Miller (2000) reported the *critical perspective* challenges researchers to unearth hidden assumptions about how narratives are fashioned, read, and explained. Perspectives about narratives are encased in historical, social, political, economic, cultural, ethnic, and gender backgrounds. With this perspective, validity involves questioning and challenging assumptions, and the researchers need to disclose what they bring to the study. Schram (2006) added that researchers who adopt a critical perspective take part in the research with the assumption that their work can bring change. They move beyond description of the interpretive perspective to examine what could be. With this added element, researchers must present their own class, gender, ethnicity, or power status to understand how this might impact interpretations.

Schram (2006) offered an interpretive/critical continuum (see Figure 1) useful for researchers to understand their location or their movement from one perspective to another (see Figure 1). The Researcher's Aims along the top of the figure are not the research purposes but rather a "broader analytic intention" (p. 47) rooted within the purpose statements. They are not research questions for the study. The Orienting Questions on the lower section of the figure suggest the focus of the study questioning method and analysis intention. This research study began on the left and moved to the right.

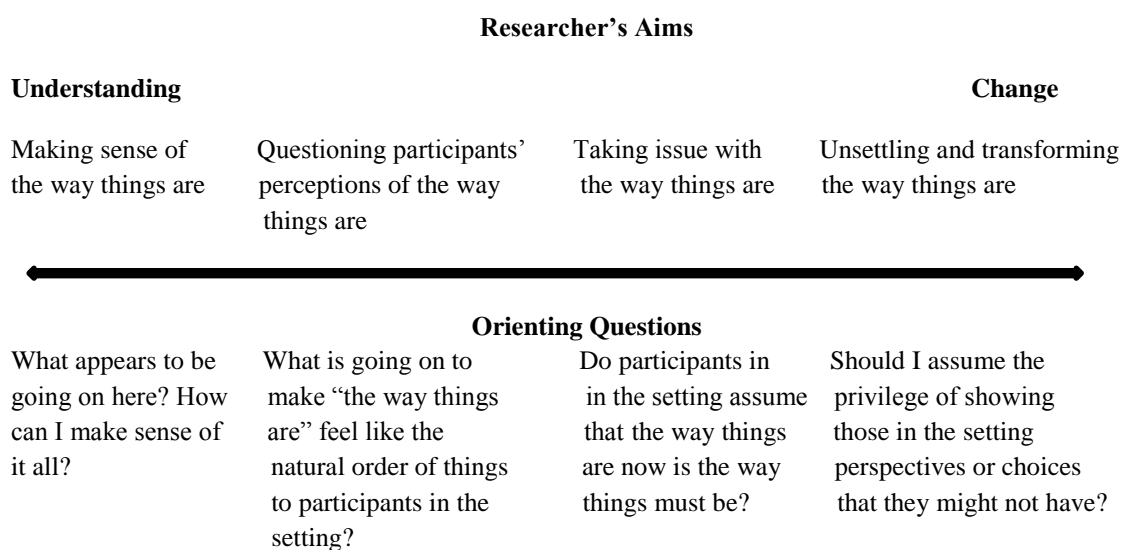


Figure 1. The Interpretive/Critical Continuum: A Practical Application

Case Study Approach

A case study was the appropriate vehicle for these research questions as it allowed for the close and detailed investigation of a phenomenon, providing an opportunity to gain insights useful for understanding (Bogdan & Biklen, 2007; Houston, 2014; Merriam, 1998; Stake, 1995). Case studies define an event in terms of the time in which it is bound and then explore the literature related to the situation and its influence on the case

(Hancock & Algozzine, 2011). Case studies address disciplinary orientation, research design, and information collection methods, and validation (Hancock & Algozzine, 2011).

One advantage to using a case study approach is that case studies permit a view of elements within the case and their interactions, highlighting the unique nature of the case. Case studies can also explain why actions take place within the case and provide understanding regarding similar cases. The major disadvantage of a case study approach stems from the researcher's inability to generalize, make conclusions, or understand how common the case may be in the population (Sullivan, 2009; Thomas, 2003). The researcher reports interpretations rather than facts and works to describe the event, people, or situation. Then the experience is submitted to thoughtful evaluation and intuition resulting in a combining of reality with the imagined to evolve other possible meanings (Merriam, 1998; Schram, 2006). The ultimate goal is to "describe the study in such a comprehensive manner as to enable the reader to feel as if they have been an active participant in the research and can determine whether or not the study findings could be applied to their own situation" (Baxter & Jack, 2008, p. 555).

Within the case study method is the subcategory of the *intrinsic case study design* which focuses on the case itself because the case is uncommon or distinctive in some way (Creswell et al., 2007; Schram, 2006). Stake (1995) explained the purpose is not to learn about other cases or general issues, but to study one case in particular. Context becomes important in intrinsic case studies, and researchers sequence action, categorize incidents, and aggregate intuitive feelings. Creswell et al. (2007) noted that intrinsic case studies resemble narrative research especially when the case involves a single individual; the

difference is that the focus is on the case rather than the individual. Narrative case studies deal with spoken or written language of one or two individuals which explains an event or action chronologically and how it unfolds over time. Intrinsic case study design provides an in-depth understanding of the case, employing analytic procedures of detailed explanations, taking into account the context and setting.

The Research Site

The study took place in a land grant university in the western United States. This public research institution has a student population approaching 20,000, and 93% of the full time faculty hold the highest degrees in their fields. The campus contains ten colleges: Agriculture, Biotechnology and Natural Resources; Business; Education; Engineering; Journalism; Liberal Arts; Medicine; Graduate School; and the Division of Health Sciences. This study took place in the College of Education which provides training for degrees in eleven specialty areas of education. As of the spring semester of 2016, this institution listed an enrollment of 767 doctoral students. In the College of Education there were 38 full time and 68 part time Ph.D. and Ed.D students (University of Nevada, Reno, 2016a; University of Nevada, Reno, 2016b).

Data Collection Methods

Bracketing. Since the researcher in this case also served as the informant, identifying – or bracketing - the investigator’s assumptions, thoughts, cultural background, interests, theories, and emotions was essential. Fischer (2009) endorsed bracketing as a method to address these issues. Bracketing does not ensure or aim for objectivity, but rather it allows the researcher to set aside personal issues to ensure understandings gained from the research are ones other researchers would appreciate

after examining the data. Tufford and Newman (2010) clarified that bracketing also provided an opportunity for the researcher to delve deeper into the content and produce a more insightful and complex analysis. The lack of a precise definition for bracketing may actually afford an advantage by producing a varied collection of approaches available for the researcher. Fischer (2009) supported the use of bracketing throughout every research project. Tufford and Newman brought to light a lack of consensus among scholars regarding when to bracket, but felt bracketing should occur at the beginning of the project and whenever preconceptions surfaced during the study. In this study bracketing took place during the autobiographical collection of events, evaluation of that data, and throughout the analysis phase.

Data sources. An intrinsic case study focuses on one case, and the researcher interprets meaning from understanding the issues of the case. This in-depth understanding emerges from multiple data sources or triangulation of data (Creswell et al., 2007). Each data source is “a piece of the puzzle” (Baxter & Jack, 2008, p. 554) and added together these pieces establish understanding of the case. Multiple perspectives lead to data confirmation, reduction in distortions, and the addition of breadth and depth to insights regarding the issues (Krefting, 1991; Yilmaz, 2013). Data sources for this study include:

- (1) a narrative from the doctoral student
- (2) a chronological narrative with bracketed personal issues
- (3) researcher coding and recoding of data
- (4) a literature review of doctoral graduation/attrition
- (5) physical artifacts (35 paper survey packets from the original research)

To obtain the narrative of the doctoral student experience, the researcher enlisted

the aid of a peer reviewer (Hancock & Algozzine, 2011) who was experienced in interview technique and case study research. Peer reviewers give support, play the devil's advocate, challenge suppositions, and ask difficult questions (Creswell & Miller, 2000). The peer reviewer suggested the doctoral student write a narrative of the events in the intrinsic case study. To begin this process, the doctoral student assumed the informant's role and collected all memories, emotional as well as factual, as they occurred in chronological order. After this document was completed, the peer reviewer met with the doctoral student and employed a guided conversation to allow the student to evaluate the details and clarify elements of the case in a nonthreatening environment (Yin, 2003). The completed document contained memories, assumptions, emotions, and biases of the informant.

To obtain the chronological narrative, the doctoral student assumed the role of researcher and bracketed assumptions, emotions, biases, theories, and interests to rewrite the narration of events in the study focusing on events in the order they happened. The peer reviewer again met with the study researcher to help evaluate the completed narrative striving for a document in which the researcher shed the role of participant in order to take on the researcher's stance. Peer examination is a technique involving discussions between the study researcher and an impartial colleague with experience in qualitative research to evaluate insights and problems with the research and adds credibility to the research (Creswell & Miller, 2000; Krefling, 1991; Tufford & Newman, 2010). Sullivan (2009) reminded the researcher that narratives never re-create the events but contain implied assumptions whether they are written in first-person or third-person.

Next, the study researcher employed a bracketing method (Tufford & Newman, 2010) that entailed the writing of memos while reading and reflecting the doctoral student's narration and the chronological narration. While conducting readings, the researcher created theoretical, methodological, procedural, and observational memos. The process was repeated after a week.

To increase dependability of the study, the research employed a code-recode procedure on the same two documents several weeks later (Krefting, 1991). Coding is a way to organize data by assigning a label or code to signify meaning, interpretation, or importance (Wilson, 2009). To code the documents, the researcher read through the narratives and noted repeated words, ideas, behaviors, events, or thinking patterns. These codes were later sorted and placed into categories pertinent to the research questions (Bodan & Biklen, 2007). In the end, the researcher compared the results. This technique is called double coding (Baxter & Jack, 2008) and code-recode procedure (Krefting, 1991). Codes resulting from this process were circumstance, at-risk qualities, academic/social isolation, positive forces, departmental/ instructional issues, mentor/advisor issues, motivational research implications, and graduate student failings.

The literature review of doctoral graduation/attrition, the coding analysis from the narrative of the doctoral student, and the chronological narrative with bracketed personal issues were examined with a reflectivity process recommended by Ben-Ari and Enosh (2010). Reflectivity in qualitative research is a means to process data in order to construct knowledge. Reflectivity employs two processes at the same time. The first is a contemplative stance, and the second is an engagement that involves recognizing differences and generating knowledge. Reflectivity requires four levels of analysis: (1)

observation, (2) informants' accounts, (3) text deliberation, and (4) contextualization and reconstruction. Observation constitutes the researcher's first encounter with the data within its natural setting and includes interpretations, evaluations, conclusions, and inferences. Informants' accounts require the researcher to move between emic (view of person in the culture) and etic (view of the person outside the culture) perspectives. Text deliberation moves to identifying repetitive themes, words, actions, or relations. Researchers next identify patterns, categories, or dimensions and then consider ways the information can be organized. New patterns can emerge. Contextualization and reconstruction requires examination of contradictions from one level and considers them in light of the whole situation. Often the two opposing items synthesize into a higher level of analysis. New knowledge emerges.

After analysis of the data with an inductive approach, patterns and themes arose based on frequency, dominance or significance without the obligation of a specific methodology. Objectives for the study were kept in mind during this process (Sullivan, 2009; Thomas, 2003). Hancock and Algonzzine (2011) described the process of uncovering themes in case study research as the synthesis of the information collected by examining each piece of new information in light of the research questions. Possible answers were organized into themes. Hancock and Algonzzine shared four criteria to evaluate themes. First, themes must relate to the research questions. Second, the themes must emerge from detailed analysis of the information the researcher collected. Third, themes should exemplify distinct categories related to findings. Fourth, each theme should be as explicit and descriptive as possible from the data collected.

The following themes emerged related to the study: conceptual framework for the case study, history of higher education, attrition/departmental cultures, demographic issues (gender, older students, enrollment status, assistantships, and completion rates), advisor/ mentor roles, socialization, circumstance, conducting research in public schools, and student responsibility.

Credibility

Bashir, Afzal, and Azeem (2008) explained that while quantitative and qualitative researchers both seek the truth, their methods differ and the methods of establishing credibility differ. The goals of quantitative research are to uncover causes, make predictions, and discover valid generalizations (Golafshani, 2003). In quantitative research, reliability means the extent the research instrument measures the variable in question dependably over time, in the same conditions, and with the same type of participants, while validity refers to the accuracy of the research data (Yilmaz, 2013). The goals of qualitative research are to encounter, illuminate, understand, and perhaps infer about the future (Golafshani, 2003). Qualitative researchers establish dependability (similar to reliability) by clearly explaining their choice, justification, and application of strategies and establish the effectiveness by evaluations from the researcher, outside auditors, and participants (Yilmaz, 2013). In qualitative research, validity deals with description and explanation, so concepts such as quality, rigor, and trustworthiness are more applicable (Bashir, Afzal, & Azeem, 2008).

Morrow (2007) explained that standards of rigor and trustworthiness in qualitative research come from within the genre itself and are always related in some way to the paradigm employed in the research. Though Morrow noted some criteria apply to all

qualitative research such as sufficient data, quality of analysis, reflexivity of the researcher, and rich descriptions. Hancock and Algozzine (2011) applied the term confirmation to case study research and suggested five strategies to confirm credibility. First, results could be shared with participants, often called member checking, to gain their feedback. The second method involved a review of the results with one or more fellow case study researchers who are familiar with the goals of the case. Third, outside experts might scrutinize the final report. Fourth, the researcher should disclose personal biases and explain how these biases were mitigated. Fifth, researchers demonstrate findings originate from multiple sources, a method called triangulation.

In this case study, the researcher employed triangulation with five sources: a narrative report from the doctoral student, a chronological report of the events, repeated readings of narratives, a coding and recoding activity, a literature review, a reflectivity procedure, and analysis of physical artifacts. The researcher gained the evaluative skills from a peer reviewer who was familiar with the goals of the case and from two peer debriefers who evaluated the finished case study report (Creswell & Miller, 2000). To deal with biases and personal assumptions, the researcher utilized bracketing and reflectivity techniques. The case study report contains detailed accounts providing rich description necessary to allow the reader to make decisions about the credibility of the account.

Chapter 4

Results

The methodology chapter explained the use of qualitative research, the theoretical orientation and paradigm assumption for the case study. The research site was described and data collection methods outlined to include the use of bracketing, interviews, the inclusion of a peer reviewer and two outside experts, repeated readings with memos, a code-recode procedure, and a four-step reflectivity inquiry process. Data sources, codes and themes were listed and credibility issues of the study explained.

In chapter 4, the background of the study is presented. The analysis that follows is related to the study's research questions. Five data design issues impacted the research attempts; the study design, consent, committee dissolved, collection procedure, and active parental consent. Data collection issues included six items dealing with researcher roles, mentoring, atmosphere at the school, classroom research approach, analysis of collected surveys, and circumstance. Explanations of the Conceptual Framework for the Case Study of Graduate Attrition/Graduation and a summary of the findings follows.

Background of Current Study

The purpose of this study was to examine the experience of one doctoral student's experience working toward a Ph. D. That doctoral experience was mine. I began the journey in the fall of 2003 with a carefully constructed doctoral committee. I selected my advisor because we shared the same teaching philosophy. I had taken several graduate courses offered by my advisor and worked as a mentor teacher in one of my advisor's classes for a number of summers. I admired him because he actually interacted with children, because he had a world class reputation as an expert in his field, and because his

instructional clinic had a warm, child-centered atmosphere. The remainder of my doctoral committee was developed in consultation with my advisor. Of the five members, four taught classes in which I had enrolled. One member worked closely and wrote with my advisor.

Because I was teaching full time, the coursework portion of my doctoral degree proceeded somewhat slowly, and I did not begin developing my dissertation proposal until 2009. The significance of this timeline is that the conditions at the university changed with the financial crisis which began in 2008 (Altundemir, 2012). The College of Education was one of the more seriously impacted colleges of the university, resulting in many faculty members either leaving the institution or retiring. Over a period of five years, my carefully constructed committee of six faculty members essentially disintegrated. Specifically, my advisor accepted a position at a university in another state; a second member accepted a position in another country; another left the university to pursue writing. The fourth member retired but remained in the community, and the fifth accepted phased-in retirement. Only one member remained on the faculty. The Associate Dean of the college allowed me to keep my doctoral committee because it was understood that I was almost finished with my research.

Proposal meeting, phase 1. My first proposal meeting occurred in the fall of 2013, ten years after starting the program. The purpose of the quantitative research I proposed was to examine the role of digital literacy among adolescents and its relationship to reading comprehension and the motivation to read informational material. To obtain the data sufficient for analysis required 130 secondary students to fill out four questionnaires.

The discussion during the proposal meeting centered on issues related to chapters 2, Literature Review and 3, Methodology. For instance, there was a lengthy discussion about gender and literacy skills in relation to my literature review. The discussion about chapter 3 focused on the statistical analysis I had chosen and technical issues related to how I wrote up the chapter. The committee members felt the research question was interesting and important, approved the research design, and recommended that I move forward with my plan.

Obtaining permission to conduct the study, phase 1. In order to conduct research in a school setting, the university Institutional Review Board (IRB), the school district, and the principals needed to give approval. The urban school district where I planned to collect data would not grant approval until I knew which principals were willing to allow me into their schools; the rationale was that the study needed to meet the needs of the school and not be conducted just for my convenience. Furthermore, the university IRB would not review my protocol until I had approval from the urban school district.

I made an appointment with the principal of a high school where one of my committee members worked and where a colleague conducted teacher training. The principal said she would support the study, but wanted me to talk to the teachers involved. She said that she would call me in two weeks, after which I could contact the teachers. Two weeks passed. I called back and left a message. After again receiving no response, I sent an email. This was met with silence, so I called to ask for an appointment with the principal and was directed to the principal's administrative assistant. After

meeting in person with the assistant, I was told she would look into it and call me. No one ever called. It was time to move to Plan B.

In order to locate a principal, I created a handout of information about the study to present to principals and then sought interviews with the principals of 29 intermediate and high schools in the district. I traveled to each school and personally delivered a handout to the principal in each school. I found two principals willing to talk with me, and one agreed that the study could be conducted in his school. He felt there would be no problem recruiting the 130 to 150 participants I needed for the study. Now that I had a school at which to recruit students, I established early February, 2014 as the timeframe for collecting data.

I began work on the IRB process by talking with a staff member in the Research Integrity Office. She forwarded me the necessary forms, directed me to the website information, and answered specific questions as they arose. I contacted her many times to ask questions about procedure. She advised me on a method to ensure confidentiality and students' freedom to choose to participate in the study. She felt all students in the classroom should receive a copy of the surveys, and students could select whether they wanted to take them. If students opted out, they could doodle on the forms. We also discussed parent permission to be in compliance with the Family Educational Rights and Privacy Act (FERPA) regulation and the use of a drawing for a \$5.00 gift certificate in a local business as an incentive for students.

The IRB staff member explained that I should complete the application forms and submit them to the IRB website after my advisor (identified in the IRB application process as the principal investigator) approved and signed them (University of Nevada,

Reno, 2016d). It was at this point that I learned that my advisor could not sign the applications as the principal investigator because he was no longer employed by the university. To overcome this obstacle, my advisor approached the committee member who was still employed at the university to act in this role. I was eager to proceed quickly, and my original advisor wanted me to submit the forms to IRB website before the winter break. I called the committee member who was acting as principal investigator and asked for an appointment to bring the papers in for her to sign. She declined saying she was not officially my principal investigator until spring semester of 2014 and this was still 2013. I made an appointment with her on the first day of spring semester 2014. She asked if I had been in contact with IRB, and I told her yes, many times. This seemed to reassure her. She did not review the papers, but signed her name. I submitted the papers to the IRB office immediately.

After submitting the application, a different IRB staff member contacted me in late January, 2014 with a list of revisions she felt necessary in the forms. Her requests dealt with adding information and explaining items in more detail. I returned the revised application in three days.

Ever cognizant of time, after six weeks of not hearing back about my IRB application, I called my IRB contact. She said the individual evaluating my application needed to talk to the school district contact and that person was out of town. A week later, I again contacted the IRB office, only to learn that my contact was on leave for 10 days. I called back when she returned, and she told me I should have been notified regarding the application. Because I had not received any word, she checked into the matter and found my paperwork on the desk of another employee who was on leave. She

said she would take care of it, which she did. The protocol was approved on March 18, 2014. I received notice the next day that the protocol had also been approved by the school district. I was ready to start data collection.

Data collection, phase 1. Printing the surveys and other forms required another week. On April 16, I met with the principal and the only teacher who agreed to allow me to collect data from her students. It became evident that the delays in timing of my data collection were a problem. The principal said that, since it was nearing the end of the year and students were in the middle of mandatory standardized testing, his teachers were overwhelmed. No one wanted to host the study except one teacher. Fortunately for me, there was another teacher who used the same room during the first teacher's prep period; that second teacher offered her class to be involved in the study. I felt that if a large number of the students took the survey, I might be in luck.

On April 21, I gave my IRB-approved recruitment speech to the teacher's six classes and to the class of a second teacher who used the classroom one period of the day. I told the students the study was voluntary, and explained that I needed their parents to give permission for me to access individual student reading scores. Students were instructed to take the forms home for their parents to read, and discuss the study with them. Students were asked to bring the forms back, signed or unsigned and put them in a folder placed in a secure place in the classroom. The teacher stepped in after my recruitment speech and told students if they returned the permission forms, signed or unsigned, she would give them 10 extra credit points. Students had one week to bring back the permission forms.

I returned at the end of the week and counted only 35 signed parent permission forms. This recruitment number was too small for statistical analyses, so I created another explanation of the study to bring the abstract ideas about the study to a more concrete level for the students. I presented the new recruitment speech on the day scheduled for student assent and survey data collection. After my speech, I was surprised to hear both teachers inform their students that all students were expected to fill out the surveys. Although I had made it clear that participation in the study was voluntary, the teachers decided that all students had to complete the documents to keep the classes quiet and involved. They reasoned I could throw away the surveys that did not have the appropriate parent permission slips. I circulated the room as the students filled out the surveys. When I encountered students who did not seem to want to fill out the forms, I told them they did not have to actually take the surveys. They could simply hand in the incomplete surveys at the end of the period. I also reminded the teachers and the class that the survey was voluntary.

At the end of the period, the teachers decided to allow students another week, to turn in the permission forms if they wanted to be in the study. I returned to collect permission forms, signed and unsigned, but I only received a survey a student took home to finish. In this entire process, there were a total of 35 surveys with signed parent permission and student assent.

Data management and initial data analysis, phase 1. A tutor helped me understand how to enter the information into the statistical computer program. When I went to the university laboratory to practice using the statistical program, I found that there was no one there to supervise or answer questions. In other words, the lab was

available, but students worked without guidance. Student workers in the library told me the employee who maintained the computers in that lab was very frustrated as there were so many problems with the computers after students were in the lab.

After collecting my data, I met with my committee member whose expertise was in statistical analysis. My question was whether I could do any analyses with such a low number of participants. As a way of explaining why my numbers were so low, I told him of my experiences with the student data collection process in the classroom. He informed me that I had violated the IRB protocol and needed to report it to IRB. I was astounded. It did not occur to me that I had done anything wrong. I immediately went to the IRB office.

Noncompliance with an IRB protocol. At the IRB office, I was interviewed and given forms to complete. There were three specific issues of noncompliance. The first was that the teacher had promised an extra 10 points for obtaining parent permission. This was an incentive beyond the drawing for a \$5.00 gift certificate. The second was that I redesigned the recruitment script without IRB approval. The third was that the teachers told all students to complete the survey even though the IRB protocol indicated that the students could submit a blank survey.

My rationale for not contradicting the teacher was that this was her class, and I did not want to contradict the way the teacher ran her class in front of her students. I further felt the rules of managing her class were not specifically related to the study. Unfortunately, my rationale was inconsistent with standard research practices; everything connected with the study needed to be written in the protocol. I submitted the Investigation Reporting Form and was told that I would probably not be able to use the

data from this study. The IRB compliance officer added that what happened was not essentially risky to the participants, but everything must be documented in the protocol. The IRB compliance officer indicated that the written report would go to the College of Education. I was asked to destroy the data that had been collected. I shredded the papers and placed them in a big plastic trash bag. Then I took a picture, sent an email saying the job had been done, and included a picture of the bag.

Regrouping. By this time, the issue of my advisor and all but one of my committee members not being employed by the university was front and center. It was determined that the dissertation advisor must be a member of the faculty. This meant that the individual I originally selected as my advisor could no longer act in this role. On June 11, 2014, I met with another possible advisor. I was told that I would not be able to continue my study without a new committee. Moreover, I was informed that I would need to attend the university for at least one more year, possibly two, because my study would need to be completely redesigned. After talking with my husband, I decided not to take the offer.

After considering my situation, I met with a counselor at the University Disability Center and was advised of available support should I continue with my degree. On that same day, I met with the Associate Dean of the College of Education to explain the situation. He asked for my proposal to review and indicated that he would further check into the situation.

The new committee, phase 2. I met with the Associate Dean again on July 21, 2014 when he offered to be my advisor. Because the proposal had been written and approved, he believed we could gather new committee members. He required that all

members had to be on the staff at the university, thus eliminating my past advisor as a possible member. I made a list of professors I knew and compiled a list of suggestions made by some fellow doctoral students. We met on several occasions in August and September to work on the committee composition and the timeline for completion. The committee consisted of three faculty members that I did not know and one member of my original committee.

Proposal meeting, phase 2. The second proposal meeting occurred on November 13, 2014. Two of the new members offered detailed evaluations regarding writing and clarity in the proposal. The committee discussed the critical issue of obtaining parent permission for each student participant. Every school district was adamant about having physical copies of permission slips signed by parents before allowing data collection and releasing student reading scores. Getting adolescents to take permission slips home and return them signed could be a challenge. A great deal of time was spent discussing the problem of obtaining a large enough number of participants to allow for statistical analysis. After identifying the new schools where principals could be sought for student participants, it appeared that a large number of participants might be achievable. The committee felt the research questions showed promise for developing new insights into literacy and technology, and they approved the proposal.

Obtaining permission to conduct the study, phase 2. I began early in the fall of 2014 to search for rural districts in which superintendents would be willing to allow the study to be completed in their districts. The superintendent in the first rural school district I contacted required completion of forms describing the study procedure and a cover letter sent by email for review by a committee of administrators. I also provided a short

Power Point presentation describing the study. Though I inquired several times if the material had arrived and if they had made a decision, I received no reply.

At the second rural school, I met with an assistant superintendent to begin the approval process. She was very interested and thought it would be possible and desirable to complete the study in the district. Several days later, she called and said I would need to meet with a committee to explain the study. One individual on the committee did not approve of the study, and two other individuals did. Without a unanimous decision, they could not approve the study.

I called a teacher I knew in the third rural school district to ask who to contact regarding my study. She gave me a name and address and said she would put in a good word for me. I sent information and a request for a meeting. I heard nothing, even after several follow up emails.

I contacted the superintendent at the fourth rural school district and talked to him on the phone. He interrupted me before I could explain the study to say the parents in his district did not like surveys, so it was impossible. He promptly hung up.

My former advisor suggested I contact a former student of his in a fifth rural school district. I talked to her on the phone, and she was very willing to help. She sent me to another person in the district, who received the information, but never responded to my inquiries.

On October 5, I met with two administrators, the assistant superintendent and the curriculum director, of the sixth rural school district. They agreed to allow me to do the study as long as I did not use classroom instruction time. Students could take the surveys before school, at lunch, or after school. Many students rode a bus, so before or after

school would not work. This left lunch as the best possible time. The procedure in this district also required that I get the approval of the individual principals before proceeding. The schools for this geographically large district were located at great distances from each other.

On October 15, the superintendent of the seventh rural district agreed to participate in the study. This district did not use the same reading testing as the other districts. Therefore, conducting the study in this district could not take place because the test was one of the measures in my protocol.

On October 17, the superintendent of the eighth rural school district gave permission for the study and would talk to the intermediate school principal. If that principal gave his approval, it would be a go. On December 5, I meet with the intermediate school principal. He agreed to have the study conducted at his school, but informed me that this district required the type of standardized reading testing necessary for my study only with seventh graders. The other districts I contacted used this test on third through ninth graders. In order to include this district in the study, I would need to limit my participants to seventh graders. In this district, the number of seventh graders approached 300; statistical analysis would be feasible.

After adjusting my study to include only seventh graders, I emailed and called all five intermediate school principals in the sixth rural school district where I had permission to conduct the study. I met with four of the principals in person to present the study; one principal did not reply to either phone calls or email messages. These four principals were willing to allow the study in their schools. One school had only 19 seventh graders, but the others had 102, 177, and 567 possible participants.

The IRB application was for the same study, but the procedure section needed to reflect the requirements of two different school districts. One district allowed data collection during a class period and the other required it during lunch. Both districts required signed parent permission forms. By the end of December, all the IRB forms were complete. A problem in the university's new IRB computer submission program caused another delay; it was not until February 3, 2015 that we uncovered the issue and completed submission. The study was approved on March 5.

Data collection, phase 2. Once the study was approved by IRB, I contacted the intermediate school principal of the eighth rural school district to set up a date to collect the survey. This school was the most promising source of participants because the study could take place in the classroom and the number of possible students was large. However, the school was in turmoil because one of their outstanding students had recently committed suicide. I was asked to not collect data at this time.

I contacted the school leaders in the sixth school district where permission had been granted to conduct research during lunch. The protocol indicated I would recruit on one day and send home parent permission documents along with student assent forms. A week later the surveys would be administered during two lunch periods, but only after signed parent permission forms were returned and assent forms signed. I scheduled these events so I could reach each school to fit everyone in by the end of the year. I reserved some time to contact the school district where the suicide occurred in case things had settled down.

At rural Intermediate School A in a small farming community, students entered the office with questions or to deliver items to a secretary who knew each student by

name. Student work and student pictures decorated the walls along with funny statues of the school mascot on the floor and shelving. The principal warmly greeted me, and we moved to the multipurpose room for the morning assembly. While waiting for the assembly to start, a student approached the principal to discuss a video the principal had recommended to help the student understand a concept. They both agreed the video aided their understanding. Students arrived chatting but quieted down without much instruction to do so. The announcements at the beginning of the assembly highlighted a number of future events for students and provided some congratulations for work well done. A counselor and teacher reminded students of upcoming deadlines. The seventh graders stayed behind after the rest of the secondary students were dismissed to their first period class. The prospective participants listened quietly and attentively. I told them to return the signed permission forms to me on the day of data collection. When I arrived for data collection, the secretary handed me two signed parent permission forms given to her by students. I was shown to an unoccupied classroom and the two students arrived at lunch to take the surveys.

In rural Intermediate School B, the principal was very hard to contact, but he agreed to the study. On the date of the recruitment, he was astounded when I arrived as he forgot about this event. He immediately sent out an email to teachers of the seventh-grade classes telling them to take their students to the multiple purpose room for an assembly after they took roll in the next class period. Then he hurried to find a microphone and speakers which he set up and tested. Next, he rushed to the office to make an announcement over the loud speaker before the class ended. The bell rang almost immediately after he set up the equipment. He confided to me that many of his

students were involved in a track meet and were not in school, a piece of information that would have been good to know when settling on a date for recruitment. The principal lowered accordion style seating benches from their storage in the multiple purpose room walls, and then ushered students to seats as they arrived. His teachers asked why they did not know about this assembly, and he laughed saying, “I sent you an email. Don’t you read your email?” The students were polite and gave their full attention as the principal introduced me to give a short recruitment speech. I explained the signed permission forms should be handed to me on the day of the study. The permission forms were delivered to the teachers by principal to hand out to students after returning to class. The principal told students to return the permission forms to him, ignoring my instructions. Then he quickly dismissed the students to their advisory classes.

The principal, new to the job, had difficulty organizing events and thus the confusion. He quickly acted once he understood the situation. The main office and was arranged with little physical space to display student work or achievement. The staff, while polite to visitors, handled students with business-like formality. The several students sent to the office with discipline issues were approached in a stern manner.

On the day set aside to begin data collection, the principal was not in the building and the office staff was not aware of the study. A vice principal, quickly arranged for the use of an unoccupied classroom for the researcher’s use and announced the study’s location over the loud speaker. She handed the researcher a list of students she felt would be attending based on some returned parent permission forms

In rural Intermediate School C, students walked down the hall, smiled, and said hello to visitors in their school. The principal showed great pride in the students’

accomplishments by filling the hallway walls with student work which he pointed out to visitors. He developed special programs to motivate his students. His school schedule differed from all the other schools in the district by allowing for time students could pursue special interests such as cooking or creative writing.

The secretaries and the counselor in the main office demonstrated a cheerful attitude toward parents and students. The office staff explained the school seldom needed to interview for new teachers because teachers remained in the school as it was a great place to work. They spoke with pride of the school and its successes. One student, sent to the office on a discipline issue, was treated with respect and concern.

In this school, after recruitment was given in the seventh-grade science classes, the science teacher related the proposed study to a unit he was conducting on the research process. He actively involved students by asking them to evaluate the location of the proposed study data collection on the graphic he used in class to teach the steps taken in a research study. Rather than seeking only one right answer and dismissing any other student comments, he considered the logic and thinking involved in the various answers students volunteered. Students gave their full attention and actively participated in the discussion. Data collection took place in the science classroom during lunch after students arrived chatting in larger numbers and in social group clusters. Most brought their lunches with them. Data collection took place over two days. One student was sick on the second day; the science teacher gave the survey to that student to complete when he returned and later sent it to me in the mail.

I was unable to collect data in the large intermediate school in the eighth school district because while the tension of the student suicide had been relieved, another

problem had surfaced. The state department of education had mandated that all students participate in the newly adopted Smarter Balanced Assessment Consortium Testing program. The computer program contained problems that threw students out of the test and required them to start again in order to complete their work. The same problem occurred in the last and largest intermediate school in the sixth school district. The principals in these schools were under pressure to evaluate every student. There was no time for data collection. I was again out of luck with a total of only 35 completed surveys.

Data Design Issues

Issue one – study design. I selected the study and instruments designated for the research before meeting with my advisor. After getting approval from him, I consulted extensively with a member of my committee regarding the statistical analysis. The issues of how to deal with digital reading, reading informational material, and motivation played prominent roles in educational publications and seemed likely subjects to examine. All instruments had been validated and used with adolescents. These four quantitative research questions appeared appropriate:

1. Are there differences in adolescent reading scores by level of motivation for reading informational material in school (HIGH and LOW) and by the level of time spent in digital literacy (HIGH and LOW)?
2. Are there differences in adolescent reading scores by level of motivation for reading informational material outside-of-school (HIGH and LOW) and by the level of time spent in digital literacy (HIGH and LOW)?

3. Is there a relationship between computer self-efficacy and the motivation to read informational material in school?
4. Is there a relationship between computer self-efficacy and the motivation to read informational material outside-of-school?

Issue two - consent. In my original proposal meeting, parental consent was not mentioned as an issue that might negatively affect my study. I came into the meeting confident gaining consent would not constitute a problem, but I probably should have known better with my experience collecting signed information forms from students in my own classroom. Instead, the committee examined other issues such as gender and literacy in chapter two and discussed their possible importance in relation to the research questions. Statistical analysis was examined in chapter 3 with some questions on technical issues. The subject matter was deemed important and interesting and the study viable. I was given permission to proceed.

Issue three – committee dissolved. After the original data collection attempt failed and the non-compliance report was completed, I received a request for a meeting from a faculty member in the college. She explained my original committee could not continue in that role. The process of finding a new advisor and committee for a partially completed dissertation proved challenging. After some inquiry I attained a new advisor, but the establishment of a new committee took some time. Finding committee members willing to enter a work in progress proved difficult. One committee member eventually dropped out and another faculty member agreed to fill the vacancy.

Issue four – collection design. The data collection design originated from suggestions made by the IRB staff member. She felt each student should receive a copy

of the surveys and the students could choose whether to fill out the documents or not. Those students not participating would simply sit in the classroom and doodle on the survey document. I would only use completed surveys with parental permission and student assent in my study. However, on the day designated to complete the surveys in the school, both teachers involved stepped in to require all students to take the surveys countering my instruction to students giving them the choice to participate or not.

Issue five – active parental consent. Since I needed to obtain the students' scores from the district reading test, parental permission was required. School district administrators emphatically demanded that student information remain private because of FERPA requirements. Signed parental permission forms were required by every district and principal. They prohibited the use of passive parental consent, hand written notes, phone calls, or emails. The student assent prerequisite occurred through a recruitment speech and the students' voluntary participation in the study. In the original study, the recruitment speech was given on one day and parental permission forms were sent home with students. Students were instructed to return the forms after one week, signed or unsigned, to a secure folder located in the classroom.

Data Collection Issues

Issue one – researcher role. After working as a teacher for many years, it was difficult to understand how to assume the role of a researcher. For example, the teacher in the first data collection experience stepped in after my recruitment speech and told students if they returned the permission slips, signed or unsigned, she would give them 10 extra credit points. This seemed reasonable to me in my teacher role, since this was her classroom, and as a teacher, she was handling classroom management procedures. This

did not appear to me to be connected to the study, but rather related how the teacher chose to supervise her classroom.

Issue two - mentoring. With my advisor located in another state and only one committee member still working in the department, I was left little local support during the establishment of the original study procedure and collection. The reason stemmed from a series of misunderstandings. Since I needed a principal investigator housed in the university, my advisor contacted the remaining committee member left in the department to arrange fulfillment of this role. Their conversation resulted in some confusion, and as a result, I was left without guidance. To compound the problem, my understanding of a graduate student's role as an independent researcher, led me to believe that I should accomplish these steps on my own, independently.

My data collection method originated from the advice of an IRB staff member. I had been advised by two members of my committee to follow the directions coming from that office. As a teacher, I felt leaving students with nothing to do during a class might not be the best option for the collection design, but the IRB staff member seemed to feel this was standard practice. My directions were to follow whatever the IRB office indicated as necessary.

The lack of a mentor who had experience researching in the local public schools left me in a quandary on several occasions. I could have used advice on how to set up procedures to encourage the return of signed parental consent forms, on how to design collection methods within the classroom, and on how to conduct research in a school dealing with numerous underrepresented groups. The meager number of returned parent

permission forms left me in a perplexing predicament, and the creation of a second recruitment speech seem only logical from my teacher point of view.

Issue three – atmosphere at the school. I was able to collect data in three of the schools in the sixth school district. The atmosphere and method of handling the study by the three schools was different. In rural Intermediate School A, the office secretary was upbeat and friendly and in the principal interacted with students as they came into the school. The morning school assembly was orderly, positive in nature, and to the point.

In rural Intermediate School B, the office staff maintained an efficient atmosphere but exhibited a somewhat a stern manner toward students. Students moved between classes in an orderly manner, but little of their work adorned the hallways. Organizational issues in the school complicated data collection.

In rural Intermediate School C, the principal and staff demonstrated pride of the school by praising the student's accomplishments. A special school schedule allowed students to pursue special interests, and student work filled the walls and display cases. Students smiled and greeted visitors in the hallway.

Issue four – classroom research approach. The second attempt at completing the original study occurred in two different rural districts. In the sixth rural school district, data was to be collected at lunch. In the eighth rural school district, data was to be collected during a regular class period with students given the choice to complete the study packet or an alternate packet.

In the three middle schools located in the sixth rural school district, the data collection experience varied. In Schools A and B students participating in the study would collect their lunches and enter a classroom removed from the lunchroom. Here

they would eat their lunches and work on the surveys. Students would give up their social activities during the lunch period in return for a five-dollar gift certificate at a local business.

Intermediate School B deviated from the other schools because the science teacher created a unit on the scientific method and study design thereby placing the study within the curriculum. Students took the survey in their science classroom with the science teacher available to aid in monitoring and answering questions. They also received a five-dollar gift certificate at a local business.

Issue five – analysis of collected surveys. Four instruments made up the survey section of the original study: (1) Computer Attitudes and Self-Confidence Questionnaire (CASCQ), (2) Motivation for Reading Information Books-School Questionnaire (MRIB-S), (3) Motivation for Reading Information Books-Out of School Questionnaire Examination (MRIB-N), (4) Information communication Technology Questionnaire (ICTQ) (see Appendixes A, B, C). Students completed the surveys in 30 to 40 minutes.

Examination of the survey paper copies produced insights into data collection procedure. Six difficulties the students encountered with the instruments appeared: (1) skipped questions, (2) skipped pages, (3) strong emphasis of some answers, (4) *strongly agree* or *strongly disagree* used as responses, (5) pictures or symbols drawn on the test, and (6) changed answers (see Tables 1, 2, and 3).

1. Seven (7) of the thirty-three (33) students skipped questions.
2. One seventh-grader skipped two pages, and these were facing pages on the back-to-back printing of the document. One other student skipped a whole page.

3. Three students emphasized some answers of a few questions with heavy repeated circling of their choices. One of the four participants, in answer to item 18 in the MRIB-S (“It is very important to me to be successful in reading information books for school.”) emphasized strongly *Somewhat true of me*. On that same question, *Not very true of me* was identified with a light circle as if that might have been the student’s first choice. The same situation occurred on item 26 in the MRIB-S (“I think the information books that I read for school are really confusing.”) with *Not very true of me* chosen using heavy circles and *Not true at all* circled lightly. In item 49, (“I don’t want to read information books in school.”), the only answer *Very true of me* was selected with four very heavy circles. In the MRIB-N, this same student circled *Not at all true of me* with four heavy circles and the item *Somewhat true of me* was circled lightly and then crossed out. For another student, only one item, 55 in the MIRB-S (“I can correctly answer questions based on an information book I have read for school.”) in the whole survey contained six bold circles around *Very true of me*.

Another student emphasized answers in a different way. In the ICTQ on item 15 (“Doing homework on the computer.”), *Never or hardly ever* was circled, but the word *never* contained bold underlining.

4. The basic format of the CASCQ caused some confusion (see Appendix A). Each item in the measure is numbered and written on one line. Under the item, the choices are all listed on one line. *Strongly agree* begins the line with five numerical choices, 1 – 5, and the last item is the descriptor *Strongly disagree*.

Nine students felt *Strongly agree* and *Strongly disagree* were choices and marked the descriptors as answers, choosing from seven answers instead of the five intended. These surveys would need to be discarded in a statistical analysis.

5. Pictures or symbols drawn on the test identified some interesting thinking. Two students working in the ICTQ felt the need to clarify their answers to items in the *Never or hardly ever* category. They circled only part of the answer *never* or *hardly ever*. Another student circled the words *work access* in the instructions on the third section of the ICTQ.

In the MRIB-S, one student placed a question mark by item 7 (“My classmates believe my ideas about information books for school.”) while the answer *Not very true of me* was circled indicating possible confusion about the item content. One student answering number 36 in the MRIB-S (“It doesn’t make a difference to me whether I read information books for school.”) circled *Not at all true of me* and then drew two horizontal lines through the other three answers.

Two participants drew illustrations on the back of their surveys and judging from the similarity of the pictures, they may have been sitting next to each other. One picture showed a book with *Reading is Fun Vol.1* on the spine and *Reading is Fun* on the front cover. A computer screen and mouse attachment was drawn nearby. The second student drew a book with *Reading is Fun #1* on the spine of the book, but this book had flames shooting out of the top and a frowning face above the flames. Another computer and mouse

were drawn on the side with a smiling face above them. *Creepers forever* appeared on the left corner of the page with what looked like a frowning face.

In the CASCQ, one student noted a distinction in thinking about number 28 (“It is fun figuring out how computers work.”) The word *software* was written by the circled number 4 and the word *hardware* was written by the circled number 2. This student also underlined the word *need* in number 17 (“I get anxious each time I need to learn something about computers.”) The student circled *Strongly disagree* on this item.

6. The last category examined students who changed their minds on an answer by erasing or crossing out the first answer and selecting a second. Eighteen students changed answers on 55 questions.

In regard to students changing their minds on answers, I noticed a possible influence related to the behavior of fellow students when collection was completed during lunch. On three occasions, two students took the surveys together in a room with me. No one else was present. Each time, one student finished before the other and left the room. The remaining participants watched the classmates leave and then continued to finish the survey packet.

In another incident, three students came to finish their surveys on the second day available for them to finish. Two friends finished first, and the remaining student continued to fill out the form looking up now and then to attend to the other girls.

Tables 3, 4 and 5 present the breakdown of survey item irregularity in each of the survey instruments for each of the three schools.

Table 3

Intermediate School A survey item irregularity for 2 students on 4 survey documents

Item Irregularity	ICTQ	CASCQ	MRIB-S	MRIB-N
Skipped Questions				
Skipped Pages				18702 two full pages
Emphasize some answers strongly			18702 #18, #26, #49	18702 #52
Strongly agree and disagree as options				
Pictures or symbols drawn on test				
Changed mind on answers	18702 #22	18701 #4, #8	18702 #18 18701 #33	18702 #6, #31, #52 18701 #11, #31

Note. ^aInformation Communication Technology Questionnaire (ICTQ); ^bComputer Attitudes and Self-Confidence Questionnaire (CASCQ); ^cMotivation for Reading Information Books – School Questionnaire (MRIB-S); ^dMotivations for Reading Information Books-Out of School Questionnaire (MRIB-N); ^e18701 and 18702 are student ID numbers.

Table 4

Intermediate School B survey item irregularity for 4 students on 4 survey documents

Item Irregularity	ICTQ	CASCQ	MRIB-S	MRIB-N
Skipped Questions	18735 #18	18735 #14	18734	18734 #41, #43
Skipped Pages				
Emphasize some answers strongly				
Strongly agree and disagree as options		18734		
Pattern answering				
Pictures drawn on test				
Changed mind on answers		18736 #5		18734 #31

Note. ^aInformation Communication Technology Questionnaire (ICTQ); ^bComputer Attitudes and Self-Confidence Questionnaire (CASCQ); ^cMotivation for Reading Information Books – School Questionnaire (MRIB-S); ^dMotivations for Reading Information Books-Out of School Questionnaire (MRIB-N); ^e18734, 18735, and 18736 are student ID numbers.

Table 5

Intermediate School C survey item irregularity for 27 students on 4 survey documents

Item Irregularity	ICTQ	CASCQ	MRIB-S	MRIB-N
Skipped Questions	18708 #23 18728 #15	18712 #27 18717 #13	18729 #54	
Skipped Pages			18704	
Emphasize some answers strongly	18707 #15		18728 #55	
Strongly agree and disagree as options		18707 18708 18712 #19 18713 18720 18721 18725		
Pictures or symbols drawn on test	18715 #16, #17, #18, #19, #20 18720 #15, #16, #17, #18, #20 18724 of first page		18705 #7 18720 #36	18705 18705 18707
Changed mind on answers	18705 #26 18707#8 #12 18720 #29	18705 #5 18712 #10 18715 #26 18721 #19, #23 18723 #7, #10, #11, #17 18727 #16, #19	18703 #12, #46 18705 #46, #54 18708 #5, #26, #27, #55 18709 #45 18715 #3, #15, #32 18719 #53 18720 #3, #12, #14 18723 #16 18726 #22 18727 #41 18728 #39	18703 #10, #39 18707 #46 18708 #26, #31 18709 #33 18719 #21 18723 #47

Note. ^aInformation Communication Technology Questionnaire (ICTQ); ^bComputer Attitudes and Self-Confidence Questionnaire (CASCQ); ^cMotivation for Reading Information Books – School Questionnaire (MRIB-S); ^dMotivations for Reading Information Books-Out of School Questionnaire (MRIB-N); ^eStudent ID numbers begin with 187.

Issue six. – circumstance. Two circumstances negatively influenced the second data collection phase of the original research study. The first was the suicide of a popular student in one of the larger rural schools. This tragic incident left the students, community, and the school staff in crisis mode and unable to participate in research. The second circumstance involved state mandated computer based testing. The state department of education and the school districts involved in the study joined the Smarter Balanced Assessment Consortium, a service through the University of California, Los Angeles to develop assessments of student progress toward college and career readiness (Smarter Balanced Assessment Consortium, n.d.).

Testing of every student in third through eighth grade began in April and was to be completed by June 12. Unfortunately, the computer systems crashed unable to handle the size of the demand on the system. Testing stopped and then resumed again, but problems prevailed to delay testing. The counties involved in the study had most difficult problems with testing in the state. Students would begin a test, almost complete it, and would be thrown off the system. They would be required to try again to finish the testing. According to state law, all students had to be tested by the end of the school year, and principals scrambled to test students (Millard, 2015). Time did not allow for research data collection.

Summary of Findings

The first research question asked why this doctoral experience contained obstacles. In answer to that question, analysis suggested five data design issues and six data collection issues complicated the study. The excessively long time span to complete the degree generated from part-time enrollment status, the change in advisors and

committees, and the lack of a mentor during data design and collection. The need to collect active parental permission presented the largest problem because it inhibited gaining sufficient participants to complete statistical analysis. Along this same line, an understanding of how to complete school-based research crippled the efforts further.

The second research question asked if it is common to experience obstacles. After conducting the literature review, no evidence verified the number of problems doctoral students experienced who left their doctoral programs. In fact, such data was commonly not collected on who or why students left doctoral programs (Gardner, 2009). The literature review revealed that many obstacles experienced in this case study had been experienced by other graduate students, but no data verified the number of obstacles the average graduate student experienced. Since data was unavailable, it would be impossible to indicate an answer at this point.

The third research question asked if it is possible to avoid or reduce the obstacles. Axelrod and Windell (2012) explained students can plan for their mental and physical health, and carefully select advisors, mentors, and committee members. Mullen (2006) recommended researching the academic world, the departments, and program procedures. All of these suggestions would help, but most importantly prospective students should extensively research the careers, both in academia and out, to have a clear picture of the where the degree will lead them. Students should begin the graduate process with an extensive exploration of the end product and how that product might fit into a desirable future. They should conduct extensive research regarding the institution, department, faculty, and doctoral program.

Chapter 5

Discussion

This case study explored the specific phenomenon of one doctoral student's experience in pursuing a Ph.D. degree in a research based university. It endeavored to illuminate an academic experience in its real-world context to gain some insights into the process experienced by the doctoral student in the study. While not generalizable to a larger population, the study may provide useful information to others considering engaging in a doctoral program (Houston, 2014; Sullivan, 2009; Thomas, 2003).

The case study investigated three research questions:

- (1) Why did this doctoral academic experience contain obstacles?
- (2) Is it common to experience obstacles?
- (3) Is it possible to avoid or reduce the obstacles?

Data Design Issues

Issue one – study design. The design of the original study originated from research on the issues of digital reading, informational reading, and motivation. It was not well understood that the pressures on school districts to produce excellent test results would influence their decisions to only allow school-based research that would directly reinforce their specific curriculum concerns. Alibali and Nathan (2010) explained the function of schools involved student learning, and researchers interested in conducting studies in school districts needed to be sure their efforts facilitated student success. They recommended employing research on how curricula impacts learning or applying theoretically-based interventions with a design-evaluate-redesign approach. One major problem with the original research proposal concerned the research topic. It did not have

a direct impact on current teaching and testing in the districts, was unrelated to local educator goals, and thus placed the research proposed in a precarious position. Districts, principals, and teachers actively protect instruction time, and the research did not support instruction which perhaps made the study appear irrelevant in the eyes of the public school educators. Had the original research subject concerned curriculum based research projects of importance to local school districts, principals, and teachers, the difficulties of gaining approval and completing the study would likely have diminished.

Issue two – consent. The original proposal meeting helped clarify a number of issues, but it did not address the problem of gaining parental consent. In the past, gaining parental permission for school-based research posed few problems. Researchers using passive parental consent procedures could most often realize participation rates of eighty percent (80%) or more. With the change established by FERPA to require active or signed parental consent, the participation rate reduced to a range of forty percent (40%) to sixty-seven percent (67%) (Esbensen et al., 2008). With the institution of active parental consent requirements, obtaining sufficient numbers of participants in a study proved difficult. Researchers now had to contribute considerable time, money, and resources to complete school-based studies (Ji et al., 2004). This issue of gaining the needed participants eventually resulted in the inability to complete the original study.

Issue three – committee dissolved. de Valero (2001) explained that changing advisors during a doctoral program inevitably changes the dissertation research in small or even more extensive ways. She reported that changing the advisor usually means changing the dissertation topic and extending the time to graduation. Demb (2012) and

Gardner (2009) noted that an advisor moving away and faculty turnover had the same type of effect. In the case study, after improper data collection from the urban district in the first collection attempt, the location of the study changed in the second collection attempt from execution in an urban school district to execution in two rural school districts. This change occurred after the installation of a new committee, a new proposal presentation, and input from the new committee. The inability to collect a sufficient number of participants in a second attempt at data collection led the doctoral student into a third effort to complete a different type of dissertation. The study changed from a quantitative study to a qualitative case study further lengthening the completion time.

Issue four – collection design. The issues of how to conduct research with children in schools developed into one of the most significant academic barriers to completing the research described in this case study. Alibali and Nathan (2010) and Plummer et al. (2014) reported they found doctoral students commonly did not understand the mechanics of conducting research in schools. Plummer et al. proposed the development of a field guide addressing procedural knowledge of the process learned from experienced researchers, district administrators, principals, and teachers. This would help novice students and open the door for important school-based research.

Furthermore, Alibali and Nathan (2010) stressed the importance of including teachers in meetings to explain the research purpose and its relevance to their instruction in order to gain their collaboration in the process. Teachers who volunteer to participate cope more easily with protocol procedures and disruptions. Additionally, teachers can offer suggestions in the study design and the methods for collection of data. Teachers

know the student culture and can add valuable insight in study procedure. In most of the districts contacted for the original study, principals asked for teacher volunteers to participate rather than dictating cooperation. In this instance, the procedure for conducting the study was shaped by IRB, school district, and principal requirements. Teachers were not consulted and only introduced to the study after the procedure and topic were intact. Getting to know teachers before deciding on a topic for the study may have provided an opportunity to gain information about the type of research attractive to the district, community, and the teachers themselves. Through gaining teacher interest, researchers would have the opportunity to share the importance of protocol procedure and gain valuable suggestions to improve data collection.

Issue five – active parental consent. The difficulty of attaining active or signed parental consent did not arise as an issue in the first proposal meeting. It was discussed in length at the second proposal meeting, but the committee felt gaining the needed number of participants seemed reasonable considering the high number of potential participants in both districts. However, active parental consent proved to undermine completion of the first data collection effort and did influence the low number of participants in the three schools where data was collected in the second attempt. Active parental consent can impact participation rate figures in a negative way.

Esbensen et al. (1996) investigated the ethical issues around active and passive consent procedures for school-based research. Passive parental consent requires parents of participants to respond to notification of a study if they do not want their child involved. Active consent requires parents to return a signed consent form to the school if

they wish to allow their student to participate in the study. Esbensen et al. took part in the collection of a survey from the National Evaluation of the Gang Resistance Education and Training program survey (G.R.E.A.T). This program was a school-based gang prevention program taught by police officers. A quasi-experimental design was employed for the longitudinal study. The sample consisted of seventh-grade students who completed the training and survey and a control group. Esbensen et al. pulled data from two locations to examine the effect of active consent procedures on response rates and sample bias. In the Torrance, California location researchers conducted five weeks of mailings to parents and follow-up phone calls to produce results. In the second project in Omaha, Nebraska researchers worked for two quarters sending home letters multiple times, making follow up calls, and promising a pizza party. In both locations, using multiple methods, the final participation rates were sixty-five percent (65%) which contrasts to participation rates of seventy-five percent (75%) to ninety-three percent (93%) in other school districts with passive consent procedures. Esbensen et al. concluded requiring active parental consent greatly endangered obtaining accurate information because of sample bias.

Other, more recent researchers have increased the response rates by increasing the collection time and instituting numerous procedures to enhance collection. Ji et al. (2004) investigated factors influencing return rates for active parental consent forms to employ a survey about tobacco, drug, and alcohol use with 21,123 seventh- through twelfth-grades students in 41 middle and high schools. Permission forms were collected over a nine month period by applying 13 procedures to encourage higher return rates. The most

productive procedure was to include the active consent form with other school forms parents were required to sign such as parent handbooks or student activity forms. The procedure with the next most productive impact was to include the active consent forms with school report cards. The researchers collected 14,352 parent consent forms for an overall return rate of sixty-eight percent (68%). The average return rate was eighty-two percent (82%) for middle schools and fifty-seven percent (57%), for high schools with the number of attempts to collect ranging from one to seven.

Ji et al. (2004) conducted a two-way ANOVA to compare the mean consent rate by each of the main effects (middle schools vs. high schools and high and low school support). The schools' mean initial and final consent return rates were explored with an ANOVA. An alpha level with a Bonferroni correction of .025 accounted for the use of multiple ANOVA tests. For each of the four school levels in the study, repeated measures ANOVAs were conducted to establish if the number of consent forms increased significantly with each attempt. Another alpha level with a Bonferroni correction of .01 was used again account for the use of multiple ANOVA tests.

Ji et al. (2004) found the initial consent return rate on the ANOVA results indicated the main effect for school type was significant, $F(1, 35) = 8.04, p < .025$. The main effect for school support was not significant, $F(1, 35) = 3.98, p = .05$. There was no significance regarding the interaction between school type and support. $F(1, 35) = .68, p = .42$. The initial mean consent return rate for the middle schools ($M = 58\%, SD = 26\%$) was significantly higher than the high schools ($M = 31\%, SD = 19\%$). In the final consent return rate, the main effect for school type, $F(1, 35) = 17.06, p < .02$, and school support

$F(1, 35) = 77.52, p < .025$ was significant. However, the interaction between school type and school support was not significant, $F(1, 35) = 1.61, p = .21$. The school type main effect indicated that the final mean middle schools consent form return rate ($M = 82\%$, $SD = 12\%$) was significantly higher than the high schools consent form return rate ($M = 57\%$, $SD = 19\%$). The school support main effect indicated that the final mean consent form return rate for the high support schools ($M = 80\%$, $SD = 14\%$) was significantly higher than the low support schools ($M = 59\%$, $SD = 21\%$).

In the repeated measure ANOVA with its within-subjects post hoc tests, Ji et al. (2004) found the middle school high-support group obtained significant increases in consent form collection from the first to the second attempt and from the second to the third attempt. The middle school low-support group had not significant increases in consent forms collection at any level. The high school high-support group had significant increases only from the second attempt to the third attempt. The high school low-support group obtained significant increases in consent forms returned from the first to the second attempt, the second to third attempt, and the third to the fourth attempt. The ANOVA results indicated that school type rather than support was a significant factor in obtaining high return rates. School support was an important factor in the final return rate, but was significant in attempts to retrieve forms not yet handed in. Three attempts were the maximum number of attempts to show significant gains.

Esbensen, Miller, Taylor, He, and Feng (1999) conducted a multisite longitudinal study of surveys taken during pre- and post-instruction of the National Evaluation of the Gang Resistance Education and Training program (G.R.E.A.T). Passive consent

procedures were employed in collection of pretest-data and active consent in the post-test data. Researchers used the pretest results to examine demographic, attitudinal, and behavioral differences between those students for whom active consent was provided and for whom active consent was either denied or from whom no response was received. In this way they could compare differences between students whose parents provided active consent and those who either refused active consent or did not return the form. They also examined district-, school-, and classroom-level characteristics.

A total of 113 middle school classrooms and 2,496 students in five cities completed the pretest with only 13 parents or four-tenths percent (0.4%) refusing to allow student participation using passive consent procedures. To collect posttest data, researchers spent four weeks on each site and used a minimum of three mailings of active consent forms, follow-up phone calls after the second mailing, collaboration with the school teachers, and offering incentives for those who returned the forms. The overall response rate was sixty-four percent (64%) with fifty-four percent (54%) resulting in research consent and ten percent (10%) rejecting consent. Esbensen et al. noted that selection bias occurred with active consent in under-represented groups such as Blacks, Asian Americans, low achievers, children with less well educated parents, and students who often participate in problem behavior. They explained that “Social science researchers are generally confronted with an underrepresentation of racial and ethnic minorities and of non-middle-class respondents” (p. 327). A conservative cost of gaining parental consent for this study was \$50,000.

Esbensen et al. (2008) completed a quantitative study to determine what is necessary to increase active parental consent rates, how the procedures might affect sample bias, and how to do so in a timely manner. The study included 29 schools, 186 classrooms, and 4,653 students. The students were involved in a school-based gang and violence prevention program which supplied the data. A multi-pronged strategy used to encourage return of permission forms included allowing several weeks to gain access; attaching active consent forms to other school forms requiring signatures; giving incentives to students, teachers and schools; employing follow up phone calls; and instituting daily contact with teachers and students. Their procedure required a great deal of effort, time, and money. The total cost of the incentives was \$27,144.

In general, seventy-nine percent (79%) of parents gave consent for research, eleven percent (11%) refused participation, and ten percent (10%) of forms were not returned. Despite similar efforts and strategies used to obtain active consent, the consent rates varied greatly. Active consent rates varied by district with a range of seventy-five percent (75%) to eighty-five percent (85%). At the school level, consent rates demonstrated considerable diversity with a range of sixty percent (60%) to ninety-two percent (92%).

Lower return rates were associated with Title 1 schools, high-risk schools and districts, schools with high teacher/student ratios, and schools with higher percentage of students eligible for free or reduced lunch rates. Additionally, Esbensen et al. noted that when it comes to consent for research, classrooms have a personality not related to the teacher, so researchers should be aware that what will work in one classroom may not

work in another. Despite this situation, involving teachers was recommended as teachers often know what works in one classroom, but not another. Researchers supported the idea that obtaining a seventy percent (70%) active consent rate is not impossible with adequate resources in time, money, and innovative strategies.

Data Collection Issues

Issue one – researcher role. Demb (2012) explained that doctoral programs often define doctoral students as independent researchers who are required to identify a topic, create research questions, develop methods to research the questions, and collect data. After they develop and write the analyses, interpretations, and implications regarding the research. Demb also referred to doctoral students as researchers in training. One of the doctoral student informants in her qualitative study reported “We are scholar apprentices and so we’re looking to a master to guide us through that apprenticeship so that we too can become masters” (p. 41). Another informant explained that the change in role from being a teacher to being a student was challenging and other participants described the movement into new roles aided by socialization into the community and reorganization of intellectual processes within the individual.

Socialization is the process through which students assimilate an understanding of academic culture (Golde, 2000; Miller, 2013; Tierney, 1997). In order to engage in socialization, the student must socialize and interact with faculty and fellow students to learn the doctoral student role (Houston, 2014). Socialization is a process of learning to fit in an academic environment and become part of a social group (Mullen, 2006). Due to

part-time enrollment, age, the loss of a committee, and the lack of mentoring, little socialization was included in the doctoral experience represented by this case study.

A doctoral student must learn to move from the role of teacher to the role of researcher. The lack of a local mentor during the data design and collection experience resulted in some confusion. An available mentor to confer with after the teacher offered extra credit points for returning the parental forms signed or unsigned would likely have identified the issue of non-compliance and corrective actions could have been employed immediately.

Issue two – mentoring. The CITI Program at the University of Miami (2012) espoused the value of mentoring and highlighted skills mentors should encourage in order for trainees to flourish:

1. Development of a proficient researcher to include the many dimensions of research such as critical thinking, creativity, communication skills, academic requirements, and professional requirements.
2. Career support with an introduction to the job market, opportunities to make contacts important in the field and in research, honing networking skills, and an awareness of career options.
3. Socialization into the field with ethical, social, political, and economic understandings of how to interact in the academic community and build collegiality. Establish skills in teaching, communicating, team work, leadership, budget management, administration, planning, listening, and speaking.

4. Become an advocate to provide support for the trainee doctoral student.

Mullen (2006) explained a mentor should be a trustworthy guide, and defined a mentor dyad in an educational setting as a mentor teacher and a mentee student. Baker et al. (2014) pointed out that the definition of the term mentor is inconsistent and unclear since scholars do not fully understand the dimensions of personality and identity involved in a successful mentoring relationship. Yet, despite the confusion, they note graduate students who have mentors demonstrate higher levels of critical thinking, academic skill, and interest in becoming professors than those graduate students who do not have mentors. Baker et al. (2014) also mentioned that not all mentoring relationships are positive, not all students want a mentor, and ineffective relationships can cause resentment to both mentor and mentee.

According to the CITI Program at the University of Miami (2012), the vehicle for socialization is through the relationship with a mentor or several mentors that might include faculty advisors, faculty members, fellow students, wise friends, or individuals with experience. Socialization guides trainees in ethical, political, economic and social involvement in an academic community and imparts a sense of collegiality (CITI Program at the University of Miami, 2012). The culture of an organization is the sum of its activities which teaches appropriate behavior, defines expectations, and outlines failure and success.

The lack of a mentor who understood school-based research caused problems in the study. Houston et al. (2006) and Baker et al. (2014) explained traditional university faculty jobs in a complex and arduous work environment focus on the three domains of

research, teaching, and service. Faculty in their study reported they were on average working quite a bit in excess of full-time. Jacobs and Winslow (2004) analysis of data in their study found faculty working 60 or more hours a week were more likely to publish than those who worked less. Graduate students in the four-year study by Paglis et al. (2006) indicated witnessing the pressure and conflicting demands on their advisors made them question the desirability of a career in academia.

Issue three – atmosphere at the school. Ryan and Deci (2000b) developed Self-Determination Theory (SDT), a construct to examine people's psychological needs, growth tendencies, and the environment to advance or weaken motivation. SDT contends that motivation surfaces once the basic needs of competence, autonomy, and relatedness are fulfilled. Competence refers an individual's confidence in their ability to accomplish a given task while autonomy conveys the idea that individuals have some control over the task and the purposes people have for doing the task. Relatedness deals with social relationships as they impact the individual completing the task (Ryan & Deci, 2000a; Ryan & Deci, 2000b; Wigfield & Guthrie, 1997).

To enhance motivation in schools, students need to feel they belong and are connected, and they need to feel capable of completing the tasks required. Classrooms need to provide support for internalization, lessen external regulation, and present activities students have the skills to complete. When these elements are missing, students make less effort in school and have a tendency to blame others for their failures or their lack of effort (Guthrie, 2008). In an indifferent atmosphere, amotivation, the absence of motivation, or the feeling of nonrelevance would find fertile ground to take root in

students' minds (Bridgeland, Dilulio, & Morrison, 2006; Legault, Green-Demers, & Pelletier, 2006; Ryan & Deci, 2000a).

In the sixth rural school district, evidence of the value of a positive motivational support appeared in the percentage of students participating in each of the three schools. In School A, a small facility with a positive atmosphere, ten and one-half percent (10.5%) of the seventh grade students participated. In School C, a slightly larger school with a positive atmosphere and where the study was tied to the curriculum, there was a twenty-six percent (26%) completion rate. In School B, the largest school of the group with a more somber ambiance and little student understanding of the study, only two percent (2%) of the student population participated.

Issue four – classroom research approach. Two different school districts agreed to participate in the study and each required different procedures for data collection. In the sixth rural school district, the students came on their own during lunch to take the surveys, and in the eighth rural school district, students would take the surveys during class. In the latter option, students chose between the study surveys and an alternate assignment of equal length. Both district data collection procedures were influenced by social implications. In the sixth rural school district, students participating in the study sacrificed an important social event of the day, lunch. In addition, with the high Free and Reduced Lunch rates in both districts, lunch provided an important source of food to many students. In the eighth rural school district, students were placed in a familiar classroom setting where they were expected to conduct academic activities. Each student was given two activities and could choose which one to do without letting others know

their choice. Students who finished early could sit quietly, and their completion would not disturb students taking longer.

The influence of the social world on students' motivation and achievement appears as an important motivator in Expectancy-Value Theory (Eccles & Wigfield, 2002). Students' behavior is influenced by the beliefs and actions of those around them and also by the environment (Bembenutty, 2008; Eccles & Wigfield, 2002; Schunk, Pintrich, & Meece, 2008). Students seated in their classrooms among familiar fellow students would be more likely to participate in the study. If instead they choose the alternate educational assignment, they would be busy and not disturbing others in a familiar social environment. Wentzel, Filisetti, and Looney (2007) explored social influences as they conducted research with sixth and eighth graders. They found that adolescents worked to achieve positive or negative social goals in school. External reasons for motivation would include fear of punishment or a willingness to cooperate. Introjected reasons might comprise a wish to have a good sense of self through the approval of others (other-focused) or to avoid negative feelings like guilt or shame (self-focused). Internal reasons refer to valuing positive social behavior or negative behavior (Wentzel et al., 2007).

In the original research design, students were asked to complete four survey instruments and answer 167 questions unrelated to the curriculum and requiring a great deal of reading and time. The large amount of data to be collected in the original research study may have established a negative influence on the willingness of students to participate. Had the instruments been embedded within the curriculum, students may have understood the relevance of filling out the surveys. Allowing students to take the

surveys on four different days could have enhanced chances of more engaged participation because less time would be needed for each instrument and fatigue over a lengthy task would be avoided.

In order to motivate students to participate in a study, connecting the study to the curriculum produced positive results. This was illustrated by the procedure used by the science teacher in School C. His method included many of the qualities developed by Guthrie and Klaude (2012). They created *Concept-Oriented Reading Instruction* to motivate students to read informational material. In construction of a curriculum, they included activities that assured relevance, offered choice, and included collaboration among students. This type of arrangement in a classroom would lend relevance to the study in the eyes of the students. It would also appear attractive to administrators and principals because the study would be associated with a proven teaching technique shown to improve informational reading interest and skills.

Issue five – analysis of collected surveys. In an article explaining how they completed a school-based study, Plummer et al. (2014) employed several dry runs or pilot studies to improve the procedure before engaging in their actual study. Adults helped identify technological issues, spelling, and grammar errors. Students taking the pilot study gave feedback to improve procedures. In analysis of the paper surveys in the original study, a problem was noted in the basic format of the CASCQ. Some students felt they should select an answer from seven options, while other students felt only five were available. Confusions regarding language appeared during the study with students in one school being unfamiliar with the term USB stick used on one instrument. They did understand the terms memory stick or thumb drive. Changes to the instructions for the test and its

format need revision to eliminate confusion. A pilot study would likely have uncovered this problem.

Some students emphasized a few answers on the surveys with heavy repeated circling of the chosen answer. Could this mean the students feel strongly about the answer? On the ICTQ, one student answered item 15 (“Doing homework on the computer.”) by selecting *Never or hardly ever*, but the word *never* was boldly underlined. Does this mean the participant never wants to use the computer on homework at home, or does it mean he never needs to? Another student circled the words *work access* in the instructions on the third section of the ICTQ. Most 12- and 13-year old teens do not work, so this student might have found the inclusion of the term problematic.

Two students included drawings of books and computers on the backs of their surveys. One student’s illustration indicated a dislike of reading books and the other an enjoyment, but both additionally drew computers. Adding interviews with students might glean a clearer understanding of reading related to print and digital formats. An interview might possibly clear up the answer one student listed on the CASCQ (“I get anxious each time I need to learn something about computers.”) The student selected *Strongly disagree*, but underlined the word *need* several times. However, earlier in the survey the student expressed enjoyment figuring out how computers work. Since this student does not get anxious when needing to learn something on computers, could anxiety appear when required to learn something not needed or some skill already acquired? Possibly, the student felt quite accomplished and seldom or never needed to learn something. Inclusion of an interview might provide a more specific understanding regarding students’ opinions.

The surveys were collected during lunch, so students would leave the room when they finished leaving other students behind to finish. Would students left behind become distracted by other students leaving the room or by their talking? A survey given during a class period might guard against this possible distraction.

Then of course, researchers must consider the issue of participants actually answering truthfully. For example, one student indicated ownership of a cell phone but also noted not using it at school or outside of school? Was the student not paying attention or is it possible to have a teen with a cell phone that is not used? Certainly, engaging in a pilot study would have ironed out many of the issues with data collection.

In the original research design, students were asked to complete four survey instruments and answer 167 questions unrelated to the curriculum and requiring a great deal of reading and time. The large amount of data to be collected in the original research study may have established a negative influence on the willingness of students to participate. Had the instruments been embedded within the curriculum, students may have understood the relevance of filling out the surveys. Allowing students to take the surveys on four different days may have enhanced chances of more engaged participation because less time would be needed for each instrument and fatigue over a lengthy task would be avoided.

Circumstance

The Oxford Dictionaries (2015) defined the term circumstance as an event or fact that causes or helps to cause something to happen, typically something undesirable (Circumstance, 2015). Merriam-Webster's online dictionary explained circumstance

simply as a condition that affects a situation (Circumstance, n.d.). Circumstances can elicit positive or negative reactions.

On a positive note, several circumstances enriched the doctoral student experience described in this study. Course work leading up to the dissertation improved classroom teaching practice and instilled a love of research. A doctoral support group provided advice and suggestions, and workshops in technology provided increased digital research skills. The Disability Center provided an overview of technology available for writing organization, and the Institutional Review Board (IRB) office answered many questions regarding data collection and application forms. The first advisor encouraged attendance at a national conference, supported writing of the original proposal, and encouraged an effort to try again after noncompliance in the first research attempt. The second advisor/mentor volunteered to assist the student, helped select a new committee, provided academic and psychosocial support, and instilled clearer understanding of the academic community. Writing and technological aid supplied by the committee members enriched the student's skills and encouraged the student to persevere.

Handling negative circumstances proved problematic. During the second data collection phase of the original research study, two unexpected incidents doomed the ability to acquire data from the necessary number of participants. The first was the suicide of a student in a rural school. Rural communities exhibit generally higher suicide rates on a national and worldwide basis than urban communities, and those incidents profoundly affect families, friends, and the community (Hirsch, 2006; Judd, Cooper, Fraser, & Davis, 2006). The students and the community population needed time to

process the tragedy, and the school staff interceded to forestall any students who might succumb to a copy-cat suicide. Naturally, research was postponed.

The second involved the state mandated testing through the Smarter Balanced Assessment Consortium. et al. (2014) reported that in school-based studies, researchers should not be surprised when something unexpected happens. They experienced such events as unannounced fire alarms, field trips and assemblies, as well as school cancelations due to bad weather. In their study, they were able to make alternative plans. In this case, there was no possible alternative plan available.

Conceptual Framework for the Case Study of Graduate Attrition/Graduation

The Conceptual Framework for the Case Study of Graduate Attrition/Graduation emerged from analysis of the literature review and narratives to establish the relationships of the elements in the doctoral process as experienced by the student (see Figure 2).

Literature reviews contain a good deal of information from a variety of sources and the efforts to explain relationships among ideas often results in a visual model called a conceptual framework (Hancock & Algozzine, 2011). These visuals contain the factors, constructs, and ideas in an effort to demonstrate relationships seen by the researcher, and often they change or grow out of the fieldwork and data analysis (Baxter & Jack, 2008; Miles & Huberman, 1994).

This conceptual framework began as what Hancock and Algozzine (2011) label a *no-risk framework*. This beginning framework was very global in nature and simply listed major concepts related to graduate attrition and graduation. As research continued

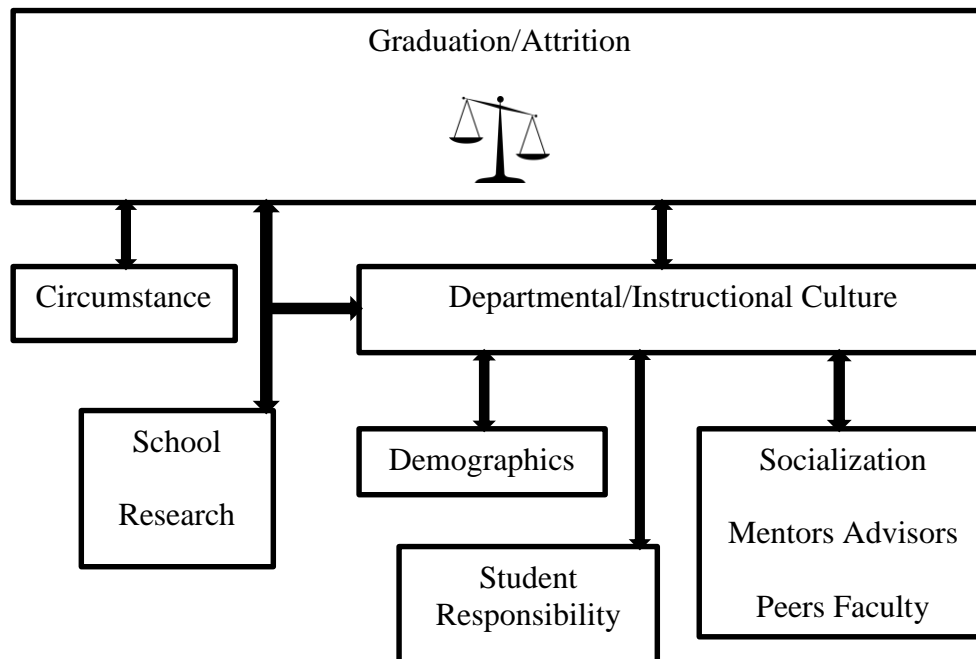


Figure 2. Conceptual Framework for the Case Study of Graduate Attrition/Graduation

it became apparent that the departmental/instructional culture shaped a good deal of the doctoral student's experience. Departmental/instructional culture promotes or discourages the socialization process through its goals, guidelines, and activities. Socialization is delivered through mentors, advisors, peers, and other faculty. Demographic concerns and education regarding student responsibility for their doctoral progress come from the departmental/instructional culture and socialization. School research complicated the experience and could not be controlled by the institution or departmental/instructional culture for other stakeholders provided important input. Circumstance, in most cases, could not be controlled by institutions or individuals, but rather students must address them in the best way they can.

Recommendations for Future Research

While concern regarding attrition in doctoral education began to surface in the 1980s and has grown in interest over the years (Campbell & Campbell, 1997; Jacobi, 1991; Paglis et al., 2006), there remain areas ripe for future research.

- Data on attrition is seldom collected. To fill this gap, quantitative researchers could collect statistics on students who drop out of doctoral programs and qualitative research could examine exit interviews with students exiting before graduation.
- Research could follow colleges as they engage in the process of revamping their doctoral program, track their methods, data collection, and effectiveness. Since no perfect doctoral programs exist and since each school needs to define its specific needs, a variety of experiences from different institutions would provide valuable insights for faculty beginning the process of change.
- The roles of mentors and advisors have overlapping definitions and expectations. Research could seek to not only more specifically define the roles, but it could identify methods that allow customization for students' individual needs.
- Important school-based research is often avoided because of its involved process and lack of information on how to conduct a study in this complicated setting. Completion of a school-based research guide with input from districts, principals, teachers, IRB staff, and educational researchers would enrich and encourage valuable studies.

- With implementation of changes in the roles of faculty members regarding mentoring and advising, research on staff workloads and priorities of duties should be explored. Piling more work on already overextended workers will make problems, not solve them.

This study grew out of an individual doctoral student's frustration over what seemed unending problems in completing a degree. After engaging in a case study, the researcher discovered the obstacles encountered were not uncommon, but whether they were excessive remains a mystery as research uncovering that data does not exist. More importantly, inattention to the problem of doctoral student attrition negatively impacts the lives and finances of students who drop out and wastes the resources of our universities, our country, and our world.

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