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The Impact Of Cognitive Maps (Conceptual Understanding), Background Characteristics,
And Religious Identity On Doctoral Students' Persistence Across Academic Programs
And Demographic Groups

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Leo A. Johnson, Jr.

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Leo A. Johnson, Jr., Ph.D.

Director: John Convey, Ph.D.

The Impact Of Cognitive Maps (Conceptual Understanding), Background Characteristics, And Religious Identity On Doctoral Students' Persistence Across Academic Programs And Demographic Groups

The research sought to determine the impact that university/departmental documents, faculty, peers, and student attributes have on students' understanding of the doctoral process. In addition, the study investigated the role that the religious identity of a university plays in doctoral persistence. The student's conceptual understanding of the doctoral process as this study proposed resides in students' cognitive maps.

The study involved 122 doctoral students who passed their qualifying examination and attended the university between the years of 1997 to 2007. Participants were divided into three groups: Completers (received a doctoral degree within a five-year period), at-risk completers (more than five years to complete degree requirements), and non-completers (no longer enrolled). Participants completed an online survey that measured the extent to which university documents, faculty, and peers helped them understand the doctoral process.
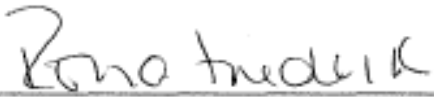
A one-way ANOVA was used to determine if there were significant differences in the mean scores of three groups on each of the items of the survey. The results indicated that completers were more favorable than non-completers on two items with respect to the amount of understanding that faculty provided regarding the doctoral process: work required for the PhD and comprehensive guidelines. No differences between the groups were found for the document items and the peer items. A repeated measures Analysis of

Variance showed that on 13 out of 15 of the items participants had a more favorable rating of the help provided by faculty in understanding the doctoral process when compared to the help in understanding of the doctoral process provided by university documents and peers. A regression analysis revealed no significant demographic predictor of degree completion, and no significant relationship occurred between years of persistence and the understanding of the doctoral process from documents, the faculty and peers.

With respect to religious identity of the university playing a role in doctoral persistence, a one-way ANOVA showed the groups differed on only one of the 14 items. Overall, the religious identity of the university did not seem to play a role in persistence to degree.

This dissertation by Leo Johnson, Jr. fulfills the dissertation requirement of the doctoral degree in Educational Psychology approved by John Convey, Ph.D. as Director, and by Rona M. Frederick, Ph.D., and Leonard DeFiore, Ph.D, as Readers.

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John Convey, Ph.D. as
Director

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Rona M. Frederick, Ph.D

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Leonard DeFiore, Ph.D

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Chapter I

Introduction

Doctoral persistence in education is a phenomenon that only recently became a major focus of many researchers (Golde, 1996; King, 2004; Lovitts, 2001). Doctoral persistence can be defined as a student's postsecondary education continuation behavior that leads to graduation (Yekovich, 2005) Studies have suggested that more than one third of doctoral students leave in the first year (Lovitts & Nelson, 2000, p.49). At the high end of the scale, some estimates based on cohort studies have been that doctoral candidate attrition overall may be as high as 85 percent in the USA (D'Andrea, 2002). Sowell (2008), Vice President of the Council of Graduate Schools, indicates that there are many reasons to focus on completion because attrition can be particularly difficult for those who have spent years working on a degree, and the longer it takes the student to complete , the more it is going to cost the student and the institution. Universities have begun to focus on doctoral completion in an attempt to avoid the high financial loss that is incurred by both the university and the student when students do not complete their doctoral studies (Gardner, 2008). Key stakeholders are concerned about high attrition because many students never finish -- leaving some fields facing shortages of doctorates and leaving many students who drop out feeling like they wasted years of their lives (Jaschik, 2007). The need for additional research to address why some students fail to

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complete their doctoral studies has come to the forefront because of the national andindividual implications and consequences of high levels of attrition from doctoral programs (Council of Graduate Schools, 2008).

When research has been done on academic persistence, it is typically done at the post-secondary level and usually deals with undergraduates (Wao, 2008; Bair, 1999; Sandler, 2000; Tinto, 1993). When persistence in doctoral programs is addressed, the same models that are used to study undergraduate attrition are used in the doctoral research (Stallone, 2003; King 2004). In addition, as with undergraduate studies of persistence, usually student attributes are the focal points of the doctoral research (Tinto, 1993; Hoskins, 2002; Clark, 1999). The theory behind a number of doctoral studies on persistence indicate that what the student brings to the educational forum, both psychological and sociological, will determine if a student will persist or dropout. These studies that focus on doctoral persistence seem to hold the student responsible for their success or failure in the doctoral program. What is still true today is that countless doctoral students continue to be caught in an "All-But-Dissertation" or ABD syndrome. Kittell-Limerick (2005) indicates that these ABDs are a growing concern and are becoming a national trend that demands continuing evaluation and assessment. It is imperative that the barriers involved in the success or failure of this ABD population be examined closely (Kittell-Limerick, 2005).

Very few studies (Golde; 1996; Lovitts, 1996) address the policy and procedure factors that impact the doctoral process, and few hold that the institution bears any responsibility for any failure of students to move through the process of PhD attainment. In addition, even fewer studies, (Herzig, 2002; Bauer, 2004) deal with a student's understanding of the doctoral process as a factor that leads to successful doctoral completion.

<u>Purpose of the Study</u>

The study will investigate persistence at a private, Catholic research university located in a large Mid-Atlantic metropolitan area. The research will attempt to determine the impact that university documents, faculty, peers, and student characteristics have on students' understanding of the doctoral process. An additional purpose of the study is to analyze the concept of religious identity and its relationship to doctoral persistence. The objective is to determine if there is a nexus between doctoral persistence and religious identity. This additional purpose can be stated as an attempt to investigate how the academic encounters the religious and the religious encounters the academic, "how they are intrinsically related" (Buckley, 1993a, p. 14).

This study proposes that cognitive maps represent a student's understanding of the doctoral process. Cognitive maps help people make sense of what they are experiencing, and tell them where to go and how to get there, and they provide the possessor with a conceptual understanding of the environment, a plan of action, and a platform for informed decision making for moving from point A to point B (Lovitts, 1996). According to Lovitts, a cognitive map can be inferred from a student's conceptual

understanding of the four components listed above. The focus on cognitive map construction is used to investigate if a well-developed cognitive map is one of the keys which leads to doctoral persistence and PhD attainment.

The role that various components of doctoral persistence play in the doctoral process has been researched, but there is still much research that is needed to develop a heuristic that will facilitate doctoral students' pursuit of the PhD. This research will take a novel approach to the study of doctoral persistence. An attempt will be made to understand what factors of the doctoral process play a role in determining student's cognitive maps. The factors that will be addressed in the study that possibly help students understand the doctoral process are student characteristics, university documents, faculty, peers and the religious identity of the university.

The Research Context

As mentioned previously, the university is a religious institution in the Mid-Atlantic. The largest school in the university is the School of Arts and Sciences which currently enrolls approximately 550 full and part-time graduate students. The school encompasses 18 departments and several more non-departmental programs, with a regular faculty of more than 160. There are approximately 70 graduate degree programs. The students represent a broad range of ages and come from various social, economic, and cultural backgrounds. This university was selected because the researcher was interested in investigating doctoral persistence at a Catholic university in a large Mid-Atlantic metropolitan area. The researcher was encouraged by his major professor to use

the above research venue because he felt that he could facilitate the acquisition of the

data needed to complete the research in a timely manner.

Research Questions

The research questions that will guide this study in its attempt to examine the role

that student characteristics, university documents, faculty, peers and the religious identity

of the university play in helping students to understand the doctoral process are listed

below.

1. Do completers acquire more understanding (cognitive maps) of the doctoral process from university documents, faculty, and peers than At-Risk completers and non-completers (ABD)?
2. Do students acquire more understanding (cognitive maps) of the doctoral process from university documents, faculty, or peers?
3. What student characteristics (age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, parental status, and previous enrollment in a doctoral program) are important predictors of completion of degree requirements?
4. What is the relationship between non-completers' conceptual understanding of the doctoral process (cognitive maps) and the number of years of persistence at the university?
5. Does religious Identity of the university play a role in doctoral persistence?

Hypotheses

As mentioned throughout this chapter, this study's aim is to try to determine if

student's characteristics, university documents, faculty, peers, and the religious identity

of a university influences students' development of a conceptual understanding of the

doctoral process. Thus, the hypotheses are as follows:

1. Completers (received PhD within a five year period) will have more favorable mean scores on the university, faculty, and peer components of the survey instrument indicating that Completers acquired more understanding of the

doctoral process from the university, faculty, and peers than at-risk completers and non-completers.

2. More favorable mean understanding scores will occur on the faculty component of the survey instrument indicating that Completers, At-risk-completers, and Non-completers rely more on faculty to acquire an understanding of the doctoral process.

3. Student characteristics of age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, and parental status, and previous enrollment in a doctoral program are important predictors of completion of degree requirements.

4. Non-Completers amount of understanding of the doctoral process received from university, faculty, and peers will be related to number of years that they persist.

5. There will be a significant difference between the scores of Completers, At-Risk Completers and Non-completers on the religious identity portion of the survey.

<u>Research Design</u>

A retrospective survey was used to capture events and experiences that have occurred over a ten year span. In a retrospective survey, the researcher gathers the data from past records and classifies the participants according to predetermined groups or categories (Gay & Airasian, 2000). The statistical procedures used to treat the research data included descriptive statistics, Factorial Analysis of Variance, Pearson product moment correlations, and Regression analysis. The study involved doctoral students who passed their qualifying examination and attended the University between the years of 1997 to 2007. To obtain the data for the study, participants (Completers, At-Risk Completers, and Non-Completers (ABDs) were asked to complete a survey that measured their understanding of the doctoral process. Questions are embedded in the survey that queries students regarding the role that the institution's religious identity played in their doctoral persistence.

<u>Conceptual Framework</u>

        The conceptual model used in this study illustrates the flow and the interrelationships of the various components of the model to one another. The study investigated certain student characteristics to determine if they had an impact on student's conceptual understanding of the doctoral process. The one-directional arrows from the student characteristics imply that the characteristics have an impact on students' understanding of the doctoral process. The four connected circles indicated that university documents, faculty, peers and the religious identity of the university, all play a role in helping students come to understand the doctoral process. The arrow leading to doctoral persistence indicates that the amount of understanding acquired regarding the doctoral process from university documents, faculty, peers, and the religious identity of the university impacts students' doctoral persistence. Lastly, the arrow on the model from doctoral persistence to degree completion is a representation of the relationship between persistence and degree completion. Figure 1 illustrates the conceptual framework for this study.

Figure 1

A Theoretical Model of Cognitive Map Development and Doctoral Persistence
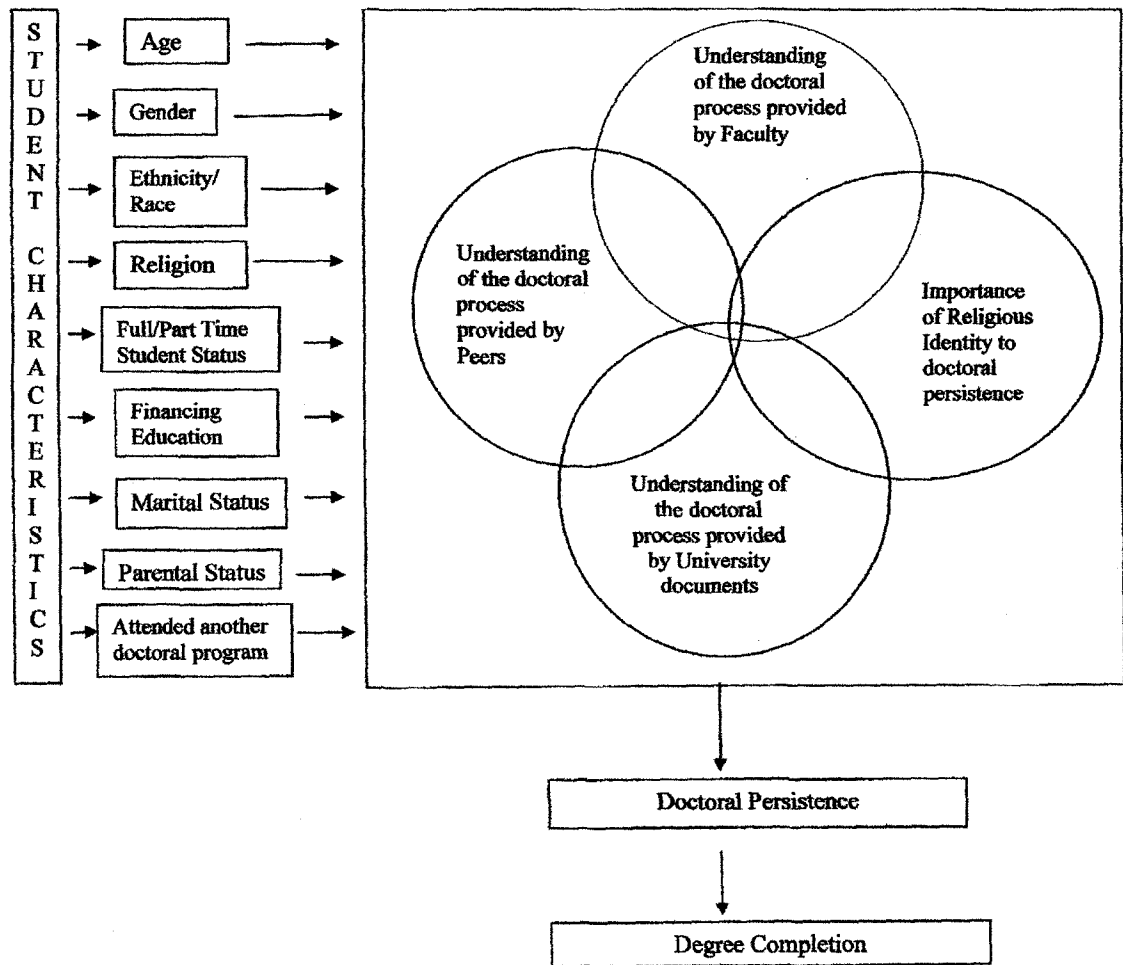
<u>Definition of Terms</u>

ABD (Non‑Completers):

> Doctoral students who advanced to doctoral candidacy, and are no longer enrolled
> in the PhD program.

Academic integration:

> Faculty support, advisor interest, academic activities, academic satisfaction
> (Tinto, 1993)

At‑risk completers:

> Doctoral candidates who received their PhD, but they did not complete degree
> requirements in five years the time period specified by the university.

Attrition:

> A student recorded as having left the university when she or he has not been
> registered for two consecutive years (Nerad and Miller, 1996)

Background characteristics:

> Age, gender, race/ethnicity, marital status, full or part-time student, religion,
> financial support, parental status, and previous enrollment in a doctoral program

> *Candidacy:*

> Passed qualifying exam and completed all course work for the PhD.

Completers:

> Doctoral candidates who received their PhD. within a five year period

Definition of the dissertation:

Refers to whether the dissertation is perceived primarily as a test of future ability

to do research or whether the dissertation makes contribution to research or to

practice (Laden, 2001)

Departmental advising:

Refers to general departmental advising and individual mentoring (Laden, 2001)

Departmental Characteristics:

Departmental support, academic climate, funding

Departmental Environment:

Refers to academic support services and social activities for all students to assist

them at every stage of the doctoral process (Laden, 2001)

Elapsed time-to-degree:

Time from entry into the University's graduate program to the awarding of the

degree (Tuckman, 1991)

Financial Support:

Refers to how much and how many years of funding are available to graduate

students (Laden, 2001)

Global Cognitive Map (formal):

Provides a picture of the larger system of knowledge of formal rules, policies, and

procedures of the university are located in the Global Cognitive map, and contains

the following features: Coursework, Masters Thesis Qualifying Examinations,

Dissertation (Lovitts, 1996).

Institutional Religious Identity:

> Defined as those features of Christian higher education perceived as essential to its fundamental character, make it distinctive, but not necessarily unique, among peer institutions, and demonstrated some degree of continuity over time (Albert & Wheeten, 1985)

Local Cognitive Maps:

> Maps of the academic system (tasks) and Maps of the social system (socio-emotional relationships): They provide understanding of how to accomplish the day-to-day tasks that will enable doctoral students to move from one requirement or stage to the next (Lovitts, 1996).

Persistence:

> A student's postsecondary education continuation behavior that leads to graduation and is measured by the time in which the student was registered in graduate school (Tuckman, 1991)

Admission Requirement:

> A stipulation that a master's degree and qualifying exam are required admission to the doctoral program (Laden, 2001).

Retention Rate:

> The measured percentage of admitted students who completed their degree

Social integration:

> Socializing, peer group interactions, sense of belonging (Tinto, 1993)

Socialization:

A process by which new members acquire the core elements of a new culture

(Tuckman, 1991)

Significance of the Research

The significance of the research lies in providing some empirical evidence regarding student's doctoral persistence at the focal university. Previous research on doctoral persistence focused on how student characteristics interacted with the university to develop academic and social integration which leads to persistence. This research focused on those policies and procedures of the university that assist students in developing conceptual understanding (cognitive maps) of the doctoral process that will ultimately determine if the student will persist or withdraw. The research also sought to determine the relationship between faculty, student characteristics, and peers in the formation of students' cognitive maps. The aim was to produce research that contributes to a theory of persistence by developing a base line for future studies and providing information that can be used in future research on doctoral persistence (Gleason, 2003). In addition, the research detailed how students come to understand the doctoral process and how this understanding facilitated or hindered their attempts to acquire the doctoral degree. Finally, there are two additional reasons why this research will be significant. First this research fills a gap in the current religious higher education literature base. Presently, there is no research that addresses the impact of religious identity on doctoral

persistence. The second void that is filled by this research is that a framework is developed that can be used to identify and evaluate the religious components of the university that may enhance doctoral persistence.

<u>The Limitations of the Study</u>

The study involves doctoral students of a small, private, religiously affiliated urban research University who attended the University between the years 1997 to 2007. Thus, the results may not be generalizable to graduate populations that are not similar to the one being studied. Further, the study is limited by those students who volunteer to participate in the study, and the results must be interpreted within this constraint.

Chapter 2

A Review of the Literature

<u>Chapter Overview</u>

As this literature review unfolds, it will attempt to demonstrate that there is a need for additional research to determine what components play a role in doctoral persistence. The components of doctoral persistence in this study centers on those aspects of doctoral study that help students understand the doctoral process that leads to the successful completion of the doctorate. Specifically, this literature review will make the case for the need for research to determine the role that university documents, faculty, peers, and student characteristics play in enabling students to develop a knowledge base which enables them to make sense of the doctoral process. In addition, the review will demonstrate that research is needed to determine if the majority of the understanding of the doctoral process is derived from university documents, faculty or peers. An additional portion of the literature review will be devoted to making the case that there is a need to understand the role that the religious identity of a university plays in the acquisition of the doctorate.

To make the case that further research is needed to understand how students come to understand the doctoral process, the review begins by examining three studies Nettles & Millett (2006); Most (2008); and Lott, Gardner, Powers (2010) which provide keen insight into the concept of doctoral persistence and attrition. These studies are presented because they are major additions to studies on doctoral student persistence and attrition.

The review will present literature to support the theoretical framework of the study, and lay the foundation for the research questions. The chapter continues by exploring student characteristics, departmental characteristics, faculty characteristics, and doctoral peer characteristics and their role in doctoral persistence and attrition. A discourse of cognitive maps follows with a particular focus on their relationship to the doctoral student's decision to persist or attrite. Further, major research in the area of doctoral persistence and attrition will be presented. To make the case that research is needed to understand religious identity and its relationship to doctoral persistence, those characteristics that identify a university's religious character will be covered in the literature review. The establishment of the characteristics of the religious identity of a university is important because the study will attempt to determine if these characteristics are seen by doctoral students as important to their doctoral persistence. Distinctive identity is important because it provides the necessary foundation for developing and nurturing loyalty, enhancing commitment, and motivating members to achieve organizational goals (Albert and Whetten, 1985). The chapter concludes with a summation of the pertinent literature presented in the review that establishes the rational for the study.

<u>Historical Overview</u>

This historical overview is presented to give insight into what issues have been addressed with regard to doctoral persistence. This overview is also given to ascertain what additional research is needed to help develop strategies that may prevent students from falling into the All But Dissertation (ABD) syndrome. The adage that you have to

know where you have come from to know where you need to go is applicable here. The studies that are presented below succinctly illustrate that there are alarming issues regarding doctoral completion rates. Further, the studies are presented to show the need for multifaceted research to develop models that will help doctoral students succeed in their pursuit of the doctorate.

In the spring of 1995, Catherine Millett, a doctoral student at the time, approached faculty member Michael Nettles and asked: "How do doctoral students find the financial resources to support their academic interests and see themselves through the timely completion of their PhD degrees (Gardner, 2006)?" So began the exchange that spawned the collaboration that led to one of the most comprehensive and ambitious projects on doctoral education in the United States, *Three Magic Letters: Getting to the PhD* (Nettles & Milletts, 2006). Nettles and Millet's work represents the burgeoning emphasis of studying doctoral education from the disciplinary perspective, as has been suggested by experts such as Golde and Dore (2004). Nettles and Millett have collected, compiled, analyzed, and interpreted an impressive array of data to shed light on the complexity of the doctoral experience. (Gardner,2006) *The Three Magic Letters: Getting to PhD* is a welcome addition to the growing corpus of major studies on doctoral education (Lovitts,2006). Stewart (2006), president of the Council of Graduate Schools, pointed out that the research of Nettles and Millett was the first effort to describe and interpret the empirical realities of the doctoral education process from the perspective of different socioeconomic groups, in different broad fields, and across a variety of universities. Most (2008) points out that the work of Nettles and Millett (2006) is one of the most

comprehensive examinations of doctoral students with respect to measured variables and, it offers new insights regarding the experiences of doctoral students.

Bernard Berelson's Graduate Education in the United States (1960) forms the foundation for Nettles and Millett's study. Berelson's research provides a basis for understanding the sea change that has occurred in the past forty years (Nettles & Milletts, 2006). This foundation is based upon the five experiences on which Nettles and Millett focused in their study, including type of funding, socialization, research productivity, satisfaction and stopping out of a doctoral program, and doctoral degree completion. (Gardner,2006) The framework suggests that personal and academic backgrounds, along with other acquired benefits, contribute to the quality of students' experiences and outcomes (Nettles & Milletts, 2006).

Nettles and Milletts (2006) selected seventeen universities for the study that granted the majority of doctoral degrees. They chose a purposive sampling plan that allowed them to generalize findings to the population of doctoral students attending the nation's largest research universities. Six criteria guided the selection of this diverse and visible pool of doctorate-granting universities: Geographic Location, Carnegie Classification, Ranking by Degrees Conferred, Ranking by Fund Revenue, Minority PhDs Conferred 1989-1993, Ranking by Field of Study in 1995 (Nettles & Milletts, 2006). Nettles and Milletts analyses for this study are both descriptive and relational.

Nettles and Milletts (2006) selected English, history, economics, mathematics, political science, and physics as the disciplines for their research because they matched the six disciplines in Bowen and Rudenstine's 1992 study, In *Pursuit of the Ph.D.*

Second, they also selected the fields of engineering and education to be a part of the study because they enroll students whose experiences and training have too often been omitted from research, despite the fact that they are also often training for research and academic careers (Nettles & Milletts, 2006). The above procedure resulted in a stratified sample of 14,020 doctoral students, drawn from the twenty-one universities and the eleven disciplines or fields of study (Lovitts, 2006). Nettles and Milletts (2006) used The Survey of Doctoral Student Finances, Experiences, and Achievements database which includes more than eight hundred variables. They used approximately forty variables from the Survey in the analyses.

Nettles and Millett (2006) administered a twenty-eight page survey to currently enrolled doctoral students in their second year and beyond. The study had a 70 percent response rate, resulting in one of the largest samples of doctoral students (9,036) in American universities (Lovitts, 2006). Nettles and Millen (2006) provide descriptive statistics for five broad fields of study (education, engineering, humanities, science and mathematics, and social sciences), for five groups of students (African American, Asian American, Hispanic, white, and international) and for men and women. They also in the study provide relational analyses that are designed to predict and explain many of the field, racial/ethnic, and sex differences. (Lovitts, 2006)

Nettles and Millett (2006) research present findings along the key dimensions that they studied: finding, socialization; research productivity; satisfaction, time to degree; performance; field differences and group differences. Among the findings:

- More than 30 percent of all graduate students never feel that they have a faculty mentor.
- Two-thirds of graduate students enter Ph.D. programs without any debt, suggesting that those concerned about expanding the pipeline to graduate education should pay attention to the affordability of undergraduate education.
- Students rate their social interaction with faculty members as high in the engineering, sciences, mathematics and education -- and relatively low in the social sciences and humanities.
- In rating the quality of academic interactions, students in the humanities think highly of their professors while those in the social sciences and math and science are more critical.
- Significant gaps exist in the experiences of minority and female graduate students -- from admissions to getting teaching or research assistant jobs to publishing research while still in graduate school. Generally, these gaps do not favor minority students (Nettles &Milletts, 2006).

Nettles and Milletts (2006) conclude their study by pointing out that the major challenge for doctoral faculty arises from the diversity of the students. While doctoral students share many common characteristics, they differ in their origins, their interactions, and their aspirations from students of a half century ago (Nettles & Millett, 2006). No longer are the three magic letters reserved for a homogenous group of students with monastic tendencies and academic career aspirations (Gardner, 2006). Further, Golde and Dore (2001) and Lovitts (2001) have identified lack of information as a critical factor for people who are progressing through the doctoral programs. For institutions, this information deficit has major consequences for doctoral student retention and ultimate completion of the degree (Nettles & Millett, 2006).

Education researchers and policymakers continue to be concerned with the nature and effectiveness of doctoral education (Denecke & Slimowitz, 2004). Most (2008) points out that the primary forces driving this trend are primarily economic, as doctoral

education can have very high costs for students, faculty, research universities, and other

organizations that support doctoral training . For the individual student, costs include

explicit or out-of-pocket expenses as well as opportunity costs (Bair & Haworth, 2004;

Denecke & Slimowitz, 2004). High dropout rates, low completion rates, and excessively

long times to degree are often indicators of an inefficient if not failing program (Lovitts

& Nelson, 2000). The potential social costs of high attrition rates and low completion

rates include reduced economic output and a condition in which talent is wasted (Tinto,

1993). Bair and Haworth (2004) argued that, given low completion rates and the

important role that doctoral recipients play in research, education, leadership, policy, and

professional practice, more research efforts should be directed toward increasing

knowledge about the nature of doctoral student attrition and completion.

     A better understanding of patterns of attrition and completion could facilitate the

reduction of unnecessary costs and the achievement of goals shared by students,

institutions, funding agencies, and society (Denecke & Slimowitz, 2004; Nettles &

Millett, 2006). Denecke and Slimowitz (2004) noted that current conventional wisdom is

that only 40 to 50% of doctoral students complete the Ph.D. However, despite decades of

interest in the topic of doctoral student attrition and completion, few studies have

comprehensively examined multiple disciplines and multiple institutions (Bair &

Haworth, 2004). Most (2008) indicates that despite decades of interest in Ph.D. student

outcomes, there have been few comprehensive studies of doctoral student completion,

and as a consequence, there is relatively scant evidence to support general assertions

regarding estimates and the temporal dimensions of completion rates

Most (2008) research evolved because he was cognizant of the above observations and he was motivated by the suggestion made by Denecke & Slimowitz (2004) that achieving the right policy perspective on completion rates hinges on learning more about actual patterns of attrition and completion. Most undertook a study that estimated and compared completion rates over time for 5,323 PhD students from five fields in 16 institutions by field, gender, ethnicity, and prior Master's degree at entry status using the longitudinal database of the AAU/AGS Project for Research on Doctoral Education (Most 2008). Most (2008) uses the Association of American Universities/Association of Graduate Schools (AAU/AGS) Project for Research on Doctoral Education longitudinal database because it is a rich source of longitudinal data for the study of doctoral student outcomes (Ehrenberg, 2005). The students included in the study entered Ph.D. programs between the 1989-90 and 1992-93 academic years and were followed through the 1997-98 academic year (Most, 2008).

Most's study included approximately 40 institutions out of the 62 AAU members who participated in the AAU/AGS project. Data was collected on Ph.D. students in 10 fields. AAU/AGS database indicated that 16 of the 40 participating institutions provided sufficient data to be included in the study. The 16 schools contained 5,323 Ph.D. students that could be included in the study. The students were in the above five disciplines that entered programs from 1989 to 1992, and were a part of the study's database. Nationality and ethnicity categories were combined into one variable. There were three ethnic categories for U.S. citizens: White, underrepresented minority, and Asian American. Foreign students were the fourth ethnicity/nationality category (Most, 2008).

The primary analytic goal of this study was to examine patterns of completion rates over time by field, gender, ethnicity, and prior Master's degree at entry status. The primary purpose of this study was to obtain more comprehensive and current group-specific estimates of completion rates for doctoral students over time (Most, 2008). Most's study is an extension of the research done by Zwick (1991) with respect to the number of institutions from which student data were derived and in the years covered by Zwick's research. Following Zwick (1991), survival analysis methods were used to estimate completion rates. Individual students are observed annually, and transitions from one discrete state (e.g., student) to another (e.g., graduate, dropout, or censored) are recorded. In this study, the unit of time used for the measurement of completion is an academic year.

The results of the analyses of this study are presented below.

- By the end of the ninth year, it was estimated that approximately 30% of the total sample had completed the degree.
- The estimated percentage of male students completing the Ph.D. nine years after entry is approximately 31%, while it is 29% for female students.
- The nine-year completion rates for foreign, underrepresented minority, White, and Asian American students were 37%, 29%, 27%, and 23%, respectively
- By the ninth year in a program, 42% of the students with a prior Master's degree at entry completed the Ph.D., while only 27% of the students without the prior Master's degree
- The nine-year estimated completion proportions for students in economics and mathematics with and without prior Master's degree were 38% and 29%, respectively. The comparable proportions for students in English were 35% and 20%.
- Nine-year completion rates ranged from a low of 23% in English to a high of 47% in biochemistry, with the other three fields clustered together at approximately 30% (Most, 2008)

In their recent empirical study, Nettles and Millett (2006) advanced the general argument that one of the major challenges in increasing completion rates is the diversity of students. The current study offers another data point in this discussion and the findings suggest that demographic characteristics are associated with completion rates and that much remains to be learned (Most, 2008). Denecke and Slimowitz (2004) argued that it is critical to develop an understanding of the nature and extent of doctoral student completion in the United States. The findings of this study seem to address the above charge because the findings offer meaningful empirically-based estimates of the magnitudes of completion rates over time as well as comparisons of completion rates by field, gender, ethnicity, and prior Master's degree status (Most, 2008).

Loft, Gardner, & Powers (2010) observed that the STEM fields (Sciences, Technology, Engineering, and Mathematics) areas have become the focus of multiple studies and funding initiatives in recent years. Despite these efforts, lingering concerns exist about who enters, who is retained, and who completes the doctorate in STEM fields (Lott, Gardner, & Powers (2010). STEM disciplines provide the foundation for future advancements in commercialization and innovation and support existing businesses and enterprises that rely on mathematics, science, technology, and engineering expertise (Council on Postsecondary Education, 2007). With the increased emphasis on the STEM fields, an increased awareness of the populations awarded these degrees, as well as the large number of conferred degrees awarded annually, a better understanding of the doctoral experience in these fields is warranted (Lott, Gardner, & Powers (2010). Doctoral education in the United States has become the focus of much study and concern

in the past several decades (Gardner, 2008; Most. 2010, Nettles & Millett, 2006; Golde, 2005, Council of Graduate Schools, 2008). Doctoral student attrition in the United States has reached alarming proportions, with reported rates of approximately 50% across disciplines (Nettles & Millett, 2006). Lovitts (2001), remarking on various doctoral studies on attrition cited completion rates in the sciences ranging from 50% to 76.8%. Doctoral student attrition rates in the US have been measured at 57% across disciplines according the Council of Graduate Schools (Council of Graduate Schools, 2008).

(Lott, Gardner, & Powers (2010) sought to address the gaps in the doctoral education literature by exploring STEM disciplines and their rates of attrition over time at one institution. In addition, they sought to examine doctoral student attrition as a temporal process. In other words, doctoral student attrition has generally been studied as simply an occurrence (i.e., a student leaves a doctoral program or is retained) rather than as a longitudinal process occurring over time (Most, 2008). This study uses the analytic tool of event history analysis in order to better understand the dynamics of doctoral student attrition in the S LEM fields over a 20-year period at one institution. (Lott, Gardner, & Powers, 2010).

Lott, Gardner, & Powers (2010).utilize discrete-time event history analysis to model doctoral attrition for 10,088 individuals, in 56 STEM departments, at one research-extensive institution, located in the South, over a 20-year period. The institution for this study is located in the southern United States and is a public institution serving the state's constituents through its Land Grant status. The institution is labeled as research-extensive (McCormick, 2001) third-tier national university by the U.S. News and World Report

institutional rankings (U.S. News and World Report, 2007). A total of 3,614 doctoral students in 56 departments were involved in the study who attended the university during the years1984 through 1999. For the purposes of the study, only students from the years 1984 through 1999 were included due to a 7-year limitation policy for degree completion at this institution (Lott, Gardner, & Powers, 2010).. Only hard-pure disciplines (e.g., astronomy, chemistry, geology, math, physics, zoology, biology, etc.) and hard-applied disciplines (e.g., engineering, computer science, agronomy, dairy science, horticulture, agricultural economics, etc.) were included in the analyses. Lott, Gardner, & Powers, (2010).used discrete-time event history models to better understand attrition in relation to the individual characteristics of the students (i.e., race, sex, marital status, citizenship, discipline, etc.). These models are widely applied to longitudinal data when the exact timing of the event is unknown or when events occur at fixed time points for all sample members (Allison, 1984). Logistic regression models were used to analysis the data. The questions guiding the study included: what is the relationship between age, gender, race, citizenship, marital status, GRE scores, characteristics of major or discipline, and the STEM disciplines, and does attrition vary over time in STEM disciplines (Lou, Gardner, & Powers, 2010).

The results of the study show that attrition is greatest in the first year of doctoral study. Attrition is greater for females, Asians, and for those who belong to a hard-applied science major (versus a hard-pure major). Attrition is lower for married students and for those who have higher relative GRE scores than their peers in the same program (Lott, Gardner, Powers, 2010).

Lott, Gardner, & Powers (2010) sought to better understand how attrition in doctoral education occurs over time at one institution in relation to particular demographic variables such as sex, marital status, GRE scores, as well as in relation to particular disciplines in the STEM fields. Through event history analysis, they presented several important findings that lend themselves to a deeper understanding of the relationship between time and particular characteristics of the doctoral students in the sample (Lott, Gardner, & Powers 2010). While the above research is an exploratory study, more research must be conducted to better analyze the relationships between particular demographic attributes and attrition, funding and attrition, and qualitative studies should be conducted to better understand the particular cultures and environments that contribute to doctoral student attrition and completion (Lott, Gardner, & Powers, 2010).

The above studies highlight that doctoral attrition rates are at an all time high. They further indicated that if we are to avoid wasting of human resources and capital in the doctoral enterprise, research is needed to address the crux of the doctoral attrition malady. There is a need to move away from the focus on the attrition numbers to what heuristics are available to increase the persistent rates of doctoral students. (Gardner, 2008) points to this move by asking," Why are there a rising proportion of students who attain ABD status but do not finish their degree?" The answer to this question can be addressed by research that is being posed by this study. This study attempts to investigate the role that the university documents, faculty, peers, and student characteristics play in students coming to understand the doctoral process that guides them to successful

completion of the doctorate. To lay the foundation for this research the next section

delves into a discussion of the theoretical framework of this study.

Theoretical Framework

The research literature that serves as the underpinnings for the study's theoretical

framework addresses persistence or withdrawal behavior from the sociological

perspective, the organizational perspective, the psychological perspective, and the

religious identity perspective.

- Sociological perspectives focus on the influence of various social forces on doctoral student departure or withdrawal.
- Organizational perspectives focus on the influence of organizational characteristics and processes on doctoral student departure or withdrawal.
- Psychological perspectives focus on the influence of psychological characteristics and processes on doctoral student departure or withdrawal.
- Religious perspectives focus on the influence of the university's religious identity on student departure or withdrawal.

A number of theories that address the above perspectives have been put forth to

explain doctoral persistence Tinto (1993); Lovitts (2001); Nettles and Millett, 2006;

Golde, 1998 Paschal, 2009; Stolzenberg, 2006; Strayhom, 2005'; Wao, 2008. Such

theories have led to the development of conceptual models that have increased our

understanding of the doctoral persistence paradigm. The doctoral persistence conceptual

models can help to address one of the major challenges facing doctoral education today

and that is the complexity and diversity of doctoral students (Gardner, 2006). The

doctoral persistence conceptual models if they are used to analyze, cooperate and

communicate across contexts—to develop partnerships across institutional and

disciplinary boundaries—we may more successfully advance scholarship on doctoral

programs, create images of possibility for what the doctorate can be (Millett, 2003), and

engender changes and outcomes that all stakeholders value (McAlpine & Norton, 2006).

This research will rely on the doctoral persistent theories and models of four researchers:

Tinto (1993), Lovitts (1996), Golde (1996), and Janosik (1996). Tinto (1993) explored

doctoral persistence from sociological and organizational perspectives. This study's

theoretical framework will draw from Tinto's work on the role that student attributes play

in doctoral persistence, and the impact that they have on academic and social integration

which are key constructs impacting persistence. From Lovitts (1996), the theoretical

framework will draw from her sociological and psychological perspective which uses

cognitive maps as a cornerstone of doctoral persistence. According to Lovitts, cognitive

maps play a key role in doctoral persistence because they provide a clear conduit to

understanding the doctoral process which enhances doctoral persistence. Lovitts'

cognitive map framework will be used as an underpinning for the theoretical framework

of this study. From Golde's research, the theoretical framework will draw on the role

that departments play in doctoral attrition. Golde (1996) stresses that previous research

on doctoral attrition has emphasized individual characteristics; however, her study sought

to demonstrate that departmental polices, practices and their relationships impact doctoral

student attrition. From Janosik's research, the theoretical framework will draw on the

role that the university's religious identity plays on doctoral persistence. Janosik (1996)

in his study of presidents of religious affiliated universities identified 15 constructs that

constitute the identity of universities that have a religious affiliation. This research will

survey doctoral students with regard to the influence that the above constructs had on their doctoral persistence.

<u>Tinto's Research</u>

One of the major studies that have given focus to doctoral persistent is the work of Vincent Tinto. His model was based on the evolution of his undergraduate model that he felt was applicable to the doctoral paradigm. At the end of his influential book published in 1993, Tinto attempted to develop a longitudinal model of graduate persistence, but quickly cautioned that the process of graduate persistence cannot be easily described by one simple model (Gittings, 2010). Tinto (1993) offered the beginnings of a theory of doctoral student attrition. He argued that like undergraduate attrition and retention, the phenomenon of doctoral student attrition is probably best understood as the interaction between the student and the educational organization (Tinto, 1993). At base, Tinto's interactionalist theory is sociological and focuses on integration: doctoral students must be integrated into both the discipline and the department (Golde, 2005). For undergraduates the relevant educational community is the institution, but, Tinto says, "Graduate persistence is, at one and the same time, both more local and more national in character than is undergraduate persistence" (1993, p. 234). Tinto suggests that graduate persistence is also shaped by the personal and intellectual interactions that occur within and between students and faculty as well as the various communities that comprise the academic and social systems of the institution (Tinto, 1993).. Integration into the social and intellectual life of the institution reinforces the doctoral student's commitment to completing the degree. The doctoral student's commitment to the

university occurs through the integration process (Tinto, 1993). Tinto explained doctoral

persistence, stating: The process of doctoral persistence should be visualized as reflecting

an interactive series of nested and intersecting communities not only within the

university, but beyond it to the broader intellectual and social communities of students

and faculty that define the norms of the field of study at a national level (Gittings, 2010).

As mentioned above, Tinto as a starting point in the development of his theory of

doctoral persistence used his research on undergraduate attrition because recent research

on doctoral persistence yields a number of findings similar to those at the undergraduate

level (Thomas, 2000). Tinto's (1993) Longitudinal Model of Doctoral Persistence

emphasized the concept of graduate communities, which is influenced by internal factors

(i.e., department or institution) and external factors (i.e., family, employment, and

society).(Wao, 2008). Tinto's theory relies heavily on the attributes of the individual.

The attributes of the individual help determine goals and commitments. These goals and

commitments factor heavily in determining doctoral completion. Tinto's (1993) model

posits that individual attributes, most notably gender, age, race, ability, and social class,

as well as individual educational experiences prior to entry to graduate school help shape

individual goals (educational and career) and commitments (goal and institutional

educational experiences). In addition, the attributes help determine the type and quality

of the type of interactions that will occur as the journey of dissertation progress unfolds.

These attributes help specify the orientations that individuals bring with them to the task

of completing a doctoral degree and, in turn, establish the conditions within which

subsequent interactions occur (Tinto, 1993). Background traits along with initial

commitments influence academic and social integration. If the level of academic and social integration is high, then there will be an elevation of the level of doctoral persistence and commitment to the institution. These background traits also figure in what has been referred to in Tinto's (1993) model as "goodness of fit?!

Tinto's model of graduate persistence relies on the psycho-social idea of "fit," integration of the student with their college (Golde, 1996) The more tightly students are linked with the school, both intellectually and socially, through classroom and out-of-classroom experiences, the more likely they are to graduate (Tinto, 1993). Tinto's ideas of "fit" and "match" is coupled with the role that he sees that social integration plays in doctoral persistence.

Tinto identified three overarching stages of his doctoral persistence model which illustrate the longitudinal nature of doctoral persistence (Mclaughlin,2006). The first stage (stage of transition) of the process of doctoral persistence typically covers the first year of study, and it t is during this time that the individual seeks to establish membership in the academic and social communities of the university (King 2004). The second stage of graduate study, which leads to candidacy, entails the acquisition of knowledge and the development of competencies deemed necessary for doctoral research (Tinto, 1993). Culminating as it does in doctoral comprehensive exams, successful completion of this stage mirrors both individual abilities and skills and the character of personal interactions with faculty within the academic domain of the institution (Lovitts, 1996). The final stage of doctoral persistence, completion of a doctoral dissertation, covers that period of time from gaining of candidacy, through the completion of a doctoral research proposal, to the

successful completion of the research project and defense of the dissertation (Wao, 2008). Moreover, it is the final stage that is more likely to reflect not only the nature of an individual's abilities but also the influence an individual faculty member exerts as a mentor and advisor (Lovitts & Nelson, 2000).

The importance of Tinto's model of doctoral persistence lies in the establishment of a number of tenants. Tinto'(1997) established the concept that psychological orientations were the most important predictors in successful completion of the doctorial degree and students were predisposed by their personality characteristics. Tinto (1993b) found that social interaction was directly related to the probability of completion and defined isolation as the "absence of integrating experiences." The higher the degree of integration through social encounters the greater the commitment on the part of the student to finish (Tinto, 1997). Tinto (1993) also connected the involvement of peers and faculty with the doctoral student to socialization and persistence. This was confirmed by Gardner and Barnes (2007), who reported that doctoral students mentioned increased social interaction with faculty and peers as contributing to the socialization of the doctoral students with their departments and disciplines.

Tinto (1993) has had a major impact on how educators began to view the acquisition of the doctorate (Thomas, 2000.) Tinto's model has been seminal in studying doctoral student persistence because it served as the framework for researchers to built and develop their theoretical and empirical work (Bean & Eaton, 2002). This model's statue is further enhanced because studies support Tinto's thesis that persistence is linked to the academic nature of social interactions that occur between peers and faculty (Girves &

Wemmerus, 1998). This model was pivotal in refocusing the field on understanding

persistence to be the product of the interaction between students and their experiences in

the college environment (Braxton, 2000). Tinto's research has also drawn the attention

of researchers because his theory explains the role of organizational structure in doctoral

persistence. The organizational view on doctoral student departure is reflected in the

organizational characteristics and processes that affect student departure (Tinto 1986,

1993). Tinto points to such structural properties of organizations as bureaucratic

structure, institutional size, faculty-student ratios, and institutional resources and goals as

organizational characteristics that might affect doctoral student departure (Braxton,

2000). Confirming concepts postulated by Tinto's doctoral student attrition theory,

researchers found the key components needed to foster graduate student socialization

were interaction with faculty, interaction with peers, and opportunities for observation

and participation (Austin, 2002; Poock, 2001).Tinto's model includes most of the

constructs identified in other models. Its emphasis on the longitudinal nature of doctoral

persistence is supported by other studies (Wao, 2008).

When Tinto, (1993b), commented that more research was needed discover which

factors contributed to the non-completion and high attrition rate in doctoral programs, he

alluded that, despite the literature on high attrition rates in graduate programs, much still

remained unknown and what was known was difficult to access (Limerick, 2005). Tinto

(1993) believes that due to disciplinary differences and differences in the stages of the

doctoral process, persistence at the graduate level cannot be described by any one

developmental model. Factors that are significant at one stage may not be significant at

the next stage. Some factors, such as student-faculty interaction, may have differential effects over time. (Stolezenberg, 2006)

The above observations with respect to Tinto's doctoral persistence led this research to investigate if a doctoral model based on student characteristics, university documents, faculty, peers and religious identity play a role in doctoral persistence. This study draws from Tinto's perspective in developing the conceptual piece of the doctoral persistence model that is presented in the study. See Figure 1. While Tinto's theory is used to support the theoretical framework in this study and to develop the conceptual model of the study, this research will address certain aspects that were not addressed by Tinto's research. According to Tinto (2005), his research was based on theory building and analogy. He did not use empirical research in developing his theory. Therefore, from his research one cannot point to any empirical evidence that student attributes affect doctoral persistence. This research will fill this gap by presenting empirical evidence on the impact student attributes have on doctoral persistence. In addition, Tinto held that student attributes play a role in determining the student's academic and social integration. This study will use student attributes to determine their impact on the development of a student's cognitive maps and does this development lead to doctoral persistence.

Lovitts' Research

Lovitts (2001) another influential researcher in the area of doctoral persistence builds her theory on undergraduate attrition research. She uses Tinto's (1993) research to develop and support her theory of doctoral persistence (Golde, 2005). Lovitts (2001) elaborates on Tinto's (1993) framework, establishing that academic integration is the

most important for doctoral students, while social integration (which is important for undergraduates) is not directly implicated in doctoral attrition (Golde, 2000). Lovitts (2001) in the process of elaborating on Tinto's model explored how differences in five structural levels: Institutional, Disciplinary, Inter-Departmental, Intra-Departmental and Individual affects doctoral persistence. Lovitts indicates that doctoral persistence is affected by the interaction between the structural levels of the university (institutional, disciplinary, interdepartmental and intradepartmental) with individual factors as health, family, and finances. Well-integrated students' individual characteristics dovetail with the university's institutional structural levels. According to Lovitts, students who are successfully integrated into the university's culture receive extensive resources that enhance and reinforce their persistence. They are satisfied with their programs and see themselves as achieving their personal, professional, and intellectual goals. Students who are poorly integrated according to Lovitts have a different experience. They lack connections with the doctoral community that can help them be successful and bring their doctoral goals to fruition. Without the support and help of the community, they begin to rely on their own resources and attempt to go it alone in their doctoral journey. This view of the landscape, of being on your own without support, causes isolation and frustration. The student begins to question, whether or not achieving the doctorate is worth the time and effort and as a result their persistence starts to wane (Lovitts 2001).

Lovitts in developing her theory identified three tenets that serve as underpinnings for her theoretical framework: 1) Academic background characteristics do not predict completion status (Lovitts, 2004). 2). Completion rates are related to the development of

departmental cognitive maps which give an understanding of formal requirements and informal expectations of the department (Gittings, 2010). 3) High attrition in doctoral programs was due to the inherently flawed culture in doctoral programs which resuled in the absence of organizational structures that facilitate integration into the doctoral program (Mclaughlin, 2006). Lovitts' model emphasized the role of organizational features in student integration, it reflects her' contention that high attrition in doctoral programs is due to the absence of organizational structures that facilitate integration (Paschal, 2009).

Lovitts goes on to state that departments are not just social structural units in which graduate education takes place; they are cultures that are independent of the parent discipline and shape the structures, processes and interactions that take place within them (Lovitts, 2001). The above underpinnings led Lovitts (1996) theoretical findings to focus on student cognitive map development and academic integration. Her findings led her to conclude that the more developed a student's cognitive maps and the more they are academically integrated, the more likely they will persist.

Lovitts's (1996) sample was drawn from two universities which are among the top PhD granting universities in the United States. Thirty non-completers, approximately two from each of the nine departments from each university, participated in telephone interviews to explore issues that could not be addressed adequately by the survey instrument. Interviews were conducted with the Directors of Graduate Study in each department to gain background information on the departments' formal and informal structures and processes for educating graduate students. In addition, site visits were

made to each university and two faculty members from each of the nine participating departments participated in face-to-face interviews in order to discern systematic differences in attitudes, beliefs, and behaviors of those responsible for training graduate students.

Lovitts (1996) in her research found that the attribution process and the lack of appropriate feedback were associated with universities' high attrition rate, and differences in departments' attrition rates are associated with differences in structures and opportunities available to students to integrate in the departments social and academic systems. She further found differences in how departments assist students in cognitive map development. In addition, her findings showed that the differences between completers and non-completers who considered leaving lie in the differential distribution of structures and opportunities for integration and cognitive map development within departments (Lovitts, 1996). Lovitts (1997) follows up on her findings by pointing out which mechanisms contribute to social and academinc integration. She points out that academic integration develops through formal interactions between and among graduate students and faculty as they work to achieve the primary goals of graduate education: intellectual and professional development. Social integration occurs outside the classroom through informal, casual interactions between and among graduate students and faculty. The programmatic, social, and even physical structures of a department can facilitate or impede both academic and social integration (Lovitts,1997).

Lovitts' research on doctoral persistence moved away from a focus on students and shifted to a focus on departments within the university. This focus on the department

is driven by the question: How does a department of a university hinder or help doctoral matriculation (Lovitts, 1996)? This focus was a departure from Tinto (1993) with regard to doctoral persistence. Tinto focuses on the attributes of the student and how these attributes interact with the university's policies and procedures, faculty, and peers to become integrated into the fabric of the university. Lovitts' focus is not on the individual but on the institution. Her key to persistence is how the institution shapes and changes the individual once they appear at the university's door step. Lovitts & Nelson (2000) view the real problem of doctoral attrition as one that is associated with the character of graduate programs rather than with the character of their students. It is the responsibility of the university to provide the students with the necessary knowledge to obtain the goal of the doctorate. Relatively few students are well informed about the nature of graduate study or what will be expected of them. The level of knowledge with respect to graduate study is notably lower for non-completers than for completers (Lovitts & Nelson, 2000). According to Lovitts (2001), the university has to accept a portion of the responsibility when a student does not complete degree requirements. Lovitts' research stipulates that knowledge of the doctoral process is a key element in doctoral persistence and this knowledge is in the form of cognitive maps.

Lovitt (1996) provides a number of definitions of cognitive maps. According to Lovitts, cognitive maps can be conceived of as individual and social representations that function to give coherence to perceptions of events, people, and objects. Further, cognitive maps are images and concepts created jointly by members of a community through inter-individual communication. In addition, she indicates that cognitive maps

help people make sense of what they are experiencing, and tell them where to go and how to get there. Also according to Lovitts, cognitive maps provide the processor with a conceptual understanding of the environment, a plan of action, and a platform for informed decision making for moving from point A to point B. Lastly, she points out that cognitive maps or scripts that provide individuals with predictions about events and sequences of outcomes (Lovitts, 2001).

Lovitts' research on cognitive maps provides one of the major keystones for the theoretical framework for this study. Her research will be used to analyze a number of research questions in this study. However, it is important to note that Lovitts' conceptualization of cognitive maps is really conceptual understandings which function to give coherence to perceptions of events, people and objects. They are not representations in the formal sense that cognitive scientists use the term (e.g., Anderson, 1982). This note is important because this research will equate Lovitts' cognitive maps with conceptual understandings.

Cognitive maps help students to understand just how to navigate the doctoral process. Students develop their cognitive maps through interactions with their academic departments, faculty and peers. Cognitive maps can take on many forms, and this research will address the universities' policies and procedures cognitive map, faculty cognitive map, and the peer cognitive map. This research will address these maps to assess their impact on doctoral persistence.

Although this research uses Lovitts theoretical assertion that cognitive maps play a key role in doctoral persistence, it differs from her research in that this research focuses

on what central figures impact the formation of students' cognitive maps. Lovitts'

research focused on the role that cognitive maps play in doctoral persistence and how

opportunities were afforded students to develop their cognitive maps. She did not

address the issue of the degree of impact that university's documents, faculty, and peers

have on the development of cognitive maps. Also she did not explore if different types of

student attributes result in the formation of different types of cognitive maps.

Golde's Research

The third study that will provide a base for the theoretical framework of this study

is Golde's (1996) work on doctoral attrition. Golde's research keys in on three areas:

attrition as opposed to persistence, the individual student experience, and voices of the

student. Of the three areas that Golde speaks to, this research will only address the

individual student experience as it relates to persistence. She examines the student

experience from the frame of departmental context. The construct "Departmental

Context" is used to describe both the organization's structural features (formal policies

and informal practices) and the arena in which relationships are formed (Golde, 1996).

Golde's (1996) focuses on retention or attrition and not on persistence because

persistence connotes that the student shoulders major responsibility for obtaining their

doctoral degree. The persistence perspective puts the onus for achievement on the

student, and obscures institutional or structural barriers to success. In addition, she points

out that the institutional perspective with regard to persistence contends that student's

lack of persistence is because they do not have the ability, they lack motivation, or they

lack goal commitment. Those who leave are often called "dropouts" to emphasize both volition and inevitability; the term suggests the problem is with the student, not with the program (Lovitts & Nelson, 2000). Retention or attrition shifts the burden from the student to the department. The department shares the responsibility for student success or lack of success in the pursuit of the doctorate.

A second focus of Golde's (1996) research is the individual student's experience. Golde indicates that rather than focusing on the individual characteristics of the students, or particular organizational polices, there is a need to understand how all of these factors link together to form the "individual student" experience. Golde points out that graduate student experience is unique in that the student is becoming socialized not only to the graduate school environment and the role of student but simultaneously to the professional role (Golde, 1998). Golde indicates that the socialization experience for graduate students is also unique by discipline. The discipline, and its location in the university through a department, is the locus of the graduate student experience (Golde, 2005). Golde's approch to focusing on the graduate student experience broadens our understanding of the contexts and cultures that influence the doctoral experience. (Anastas & Kuerbis, 2009). Together, the student and the department interact with and shape each other (Golde, 1996).The type and quality of the interaction between the student and the organization is an important factor that will determine the success or failure of the acquisition of the doctoral degree.

According to Golde (1996), the individual student experience and how it relates to persistence is affected by departmental context. The departmental context and its effects

on the above can either facilitate or hinder doctoral attrition or persistence. Lovitts &

Nelson (2000) succinctly state the effects of departmental context by pointing out that it

is a lack of integration into the departmental community that contributes most heavily to

the departure of graduate students. The importance of the role of the department in

doctoral completion caused Golde to shift the emphasis of her research away from the

student to the department. Golde (1996) shifts her research away from the individual in

order to make the department the centerpiece of her study. She investigates impressions

that students expressed regarding their doctoral experiences within the department. She

investigates these impressions to address issues and concerns which developed from

students' interaction with the department's informal practices and formal policies. The

above concerns were addressed to make the point that students' departmental interactions

shape the doctoral experience and eventually determine student persistence or attrition.

As a result of Golde's research, she developed a model that indicated the

influences on the leaving decision. Golde's (1996) model emphasizes that attrition is a

dynamic decision process, not a dichotomous state of being, enrolled vs. attrited. Her

model emphasizes that students consider numerous factors before they decide if they will

leave or continue in their doctoral program. The three most important of these are the

relationships in the department (welcoming and supportive of students), the requirements,

and the student's own expectations and goals. Golde (2005) elaborates on her model by

explaining what relationships, requirements, and expectations affect doctoral persistence.

Students will decide to leave if the relationships in the department do not involve a sense

of community between faculty, staff and students. They will also decide to leave,

according to Golde's model if the research proposal, course work, and program requirements are problematic. Further, her model contends that if students have unrealistic expectations regarding the life of a graduate student, the discipline and academic life overall, these expectations will also influence the leaving decision.

The driving research goal for Golde's study was to understand the ways in which the department and the discipline, as made visible in the departmental culture and practices influence doctoral student attrition (Golde, 1996). A positive departmental culture enables students to derive numerous learning opportunities both in and out of the classroom (Bair, Haworth, J. G. & Sandfort, 2004). Such benefits include academic and social structures, a positive doctoral student culture, involvement in program/department/campus events and activities, student leadership opportunities, attendance and participation at professional meetings/conferences, athletic and wellness opportunities, and specialized communication (Lovitts, 2002). Practically, it is important to focus on departmental practices and culture because these features can, if desired, be targeted for change (Nelson & Lovitts, 2001). Some practices may ameliorate attrition, others may exacerbate it, and one can assess if these strategies are desirable (Golde, 2005).

The site of the Golde's investigation was a Midwestern University classified at the time the data were collected as a Research I University, and is a member of the American Association of Universities (Carnegie Foundation for the Advancement of Teaching, 1994). Golde (2005) gathered data on all students who started a doctoral program between fall 1984 and fall of 1989. Attrition rates were calculated for each department to

determine which students left without a degree. Case studies of four departments —

Biology, Geology, History and English-were developed, and she spent time in each

department as an observer and interviewer to understand what it was like to be a doctoral

student in the department. Golde's (1996) key research findings include: (1) Structure

and timing of the various requirements for the doctorate affects the attrition decision, (2)

relationship with advisors are critical to the doctoral experience, (3) the attrition decision

was usually regarded as positive, (4) some women experienced graduate school

differently than their male peers (5) patterns of attrition are inconsistent.

<u>Janosik's Research</u>

The fourth study that will provide a base for the theoretical frame work is

Janoski's (1996) work on institutional identity. To develop his hypotheses, Janosik used

the research of Murphy (1991) and Dodge (1991) who attempted to identify which of a

selected set of independent variables contribute most to the dependent variable,

distinctive identity. Murphy (1991) studied the "visions and values" of five faith based

colleges and universities and found that the faith based ideology of the institution

significantly influenced perceptions and attitudes of their graduates with respect to

Christianity. Dodge (1991) studied trustee, administrator, staff, faculty, student, alumni,

and parent constituencies at the College of Mount Saint Vincent, and found that the

presence of an environment of Christian community; attention to the moral and spiritual

development of students; and the presence of Christian values were the most important

characteristics. More often than not, "signs and symbols" of Christianity were considered

less important (Janosik, 1996). Janoski attempted to explore institutional identity by

developing a comprehensive set of components which would enable religious institutions

of higher education to convey, assess, and enhance their concept of religious identity.

Each component of religious identity contained descriptive elements. An exhaustive

literature review and focus groups were used to validate each descriptive element. This

process was used to develop instrumentation to collect perceptions of religious identity

from university presidents in American religiously affiliated higher education institutions

(Murphy, 1991). Janosik hoped to discern if an inclusive set of independent variables or

elements associated with distinctive identity in religiously affiliated higher education

would converge to form larger theoretical constructs (Janosik, 1996).

According to Janosik (1996), the distinctive religious identity of an American

college or university is derived from and is primarily dependent upon three predominant

variables: external, internal, and projected .The variables are not necessarily mutually

exclusive. Janosik postulates that the external variables include the evolving nature of

higher education, the pluralizing impact of society, and the relationship between the

college or university and the Church. Internal variables that shape identity include the

founding religious society, policies and procedures that state the mission and values of

the university, the administrators, faculty, staff and students, academic programs,

curriculum, extra curricular activates, and personnel policies and procedures.

Janosik (1996) in his research attempted to include the tenets of Pope John Paul II

in *Ex Corde Ecclesiae* (1990) that states part of the nature of a Catholic university is "to

make known its Catholic identity, either in a mission statement or in some other

appropriate public document" (1990, Art.2, §3). He added, "The university, particularly

through it's "structure and its regulations, is to provide means which will guarantee the expression and preservation of this identity" (1990, Art.2, §3).

Lastly, Janosik states that as a result of these external and internal influences, an institution's identity evolves and is reinforced. This identity, achieved through operationalizing distinctive characteristics, enables and obligates educators in religiously affiliated higher education to promote a variety of administrative, academic and developmental outcomes. These characteristics allow the institution to engage in evangelization and conduct dialogue with immediate and distant communities, all of which constitutes service to society and the Church, reinforcing the identity of the institution (Rittof, 2001).

Janosik (1996) sampled 220 presidents of religious affiliated colleges and universities in the United States for his study. The Total Design Method (TDM) was used to minimize response bias and maximize return rate (Dillman, 1978). Dillman points out that the appeal of the TDM is based on convincing people first that a problem exists that is of importance to a group with which they identify, and second, that their help is needed to find a solution. The Total Design Method [TDM] provided an overall framework for Janosik's survey construction and data collection. Using the TDM design, Janosik developed fifteen theoretical constructs:

1) Evolving Nature
2) Founding Church
3) Philosophy & Theology
4) Catholic Formation
5) Ecumenical Community
6) American Society
7) Mission & Values
8) Teaching & Research
9) Spiritual Development
10) Student Development
11) Roman Church
12) Faith & Reason
13) Integration
14) Social Justice
15) Evangelization

intended to reflect an inclusive definition of institutional identity, applicable to religiously affiliated higher education (Janosik, 1996).

Janosik's (1996) research findings indicated that presidents of the universities perceive items related to (a) emphasizing the harmony of faith and reason, (b) evolving nature if higher education, (c) integrating knowledge, and (d) achieving student outcomes goals as most important to institutional identity. Conversely, items related to responding to changing expectations of American society, encouraging ecumenical community on the campus, maintaining a relationship with the Church, and facilitating religious formation among the student population were more likely to be among the items as "least important" to institutional identity (Janosik, 1996). Further in his study on religious identity, Janosik discovered that as religious affiliated colleges and universities in the United States increase in size and scope, and become research institutions, their heightened interest in research and scholarship far over-shadowed both their interest in and their ability to maintain a strong and distinctive religious identity (Rittof, 2001).

Cognitive Maps

Cognitive maps will play a central role in this research; therefore, they are a part of the theoretical framework of this study. Cognitive maps play a central role in this study because the major thesis of this research is that well developed cognitive maps enable students to effectively move through the doctoral process which leads to acquisition of the doctorate. The three maps that will be investigated are the students' university documents cognitive map, faculty cognitive map, and peer cognitive map. University's documents cognitive map consists of a student's clear and concise knowledge of those

policies and procedures that are found in university documents that allow them to

facilitate the acquisition of their eventual goal, the doctoral degree. Expert knowledge of

the curriculum, candidacy requirements, Proposal Defense (P&D) guidelines,

orientations, graduate catalogue, and graduate student handbook is knowledge that

students must have as a part of their university's document cognitive map. A well

developed document cognitive map can help a student to avoid the many pitfalls that will

hinder, frustrate, or even stop their pursuit of the PhD. According to Lovitts (1996), the

university has an obligation to help students to develop their document cognitive map.

University's help students develop this cognitive map through Orientations, Seminars,

Lyceums and Colloquia.

The faculty cognitive map helps the student to understand the expectations of

faculty, resources available to the student, and guidance in the development of the

dissertation. Faculty are the key component in the development of a student's cognitive

map as they serve as the gatekeeper to acquiring the doctorate. Throughout the

dissertation-completion process the relationship between the doctoral student and the

advisor, chair, and other faculty continues to be a critical factor in the successful

completion of the dissertation and attainment of the doctoral degree (Rodrigues,

Lehmann, and Fleith, 2005). The theme running throughout numerous studies on

dissertation completion point to the critical role faculty and advisors play in doctoral

student retention (Bartolini,2009).Chair, advisors, and faculty play a large part in shaping

the doctoral student's ability to persist through personal and intellectual interactions with

students (Tinto, 1993) Data suggest that the single most important factor in students'

decisions to continue or withdraw is the relationship with a faculty adviser (Lovitts & Nelson, 2000). The graduate Without an expert faculty cognitive map, the student is almost certain to experience unnecessary problems in their attempt to acquire the doctorate, experience an extended time-to-degree, or may unfortunately become an attrition statistic.

The last component that plays a role in a student's success in the doctoral pursuit is the peer cognitive map. Doctoral students must have knowledge that will help them to effectively interact with their peers. Tinto (1993) connected the involvement of peers and faculty with the doctoral student to socialization and persistence. This was confirmed by Gardner and Barnes (2007), who reported that doctoral students mentioned increased social interaction with faculty and peers as contributing to the socialization of the doctoral students with their departments and disciplines (Bartolini, 2009). Peers can be a valuable asset in providing and helping students to understand the doctoral culture at any university. Knowledge of the doctoral culture goes a long way towards reducing the stress and isolation that often accompanies the pursuit of the doctoral degree. Tinto (1993) indicates that social interaction with one's peers and faculty becomes closely linked not only to intellectual development, but also to the development of important skills required for doctoral completion.

Lovitts (1996) provides a summation of the role of cognitive maps in graduate student attrition. Lovitts contends that well structured cognitive maps provide students with guides that can help them predict and gain a degree of control over a highly complex and ambiguous environment. However, when cognitive maps are vague and inaccurate,

or read incorrectly, students are likely to stumble and fall Lovitts, 2001). Lovitts (2002) is

one of the few researchers that have addressed the concept of cognitive maps and how

they influence doctoral persistence. Relatively few students are well informed about the

nature of graduate study or what will be expected of them, and the level of knowledge,

notably, is lower for non-completers than for completers (Lovitts & Nelson, 2000). In

addition to Lovitts, Zanna & Darley (1987), although not directly using the term

cognitive map, indicate that certain knowledge enables students to successfully complete

the doctoral process. To make the point that knowledge of the doctoral process is crucial

to doctoral success, they use a game analogy. The prevailing thought is that there are

rules that all students know that are applicable to the successful completion of the

doctorate; consequently, those who win the doctoral persistence game have the most

talents and acumen (Parent, 1998). However, Zanna & Darley propose a counter

explanation that explains which students win at the doctoral game. According to Zanna &

Darley, it is not those who have the most intelligence that achieve success at the doctoral

game, but those who understand the rules of the game achieve the greater success. Those

who have a lucid understanding of the rules have an advantage over those who are most

astute but do not have an understanding of the rules. It is possible that even if they have

the skills to be successful at the game they may achieve less because of the lack of

knowledge of game rules (Parent, 1998). The above statement is often true for many

doctoral students because all doctoral students have the intelligence to complete the

doctorate or they would not have been accepted in a doctoral program, but their lack of

success is often their inability to understand how to successfully navigate through the

doctoral system. If students are not successful because they do not understand (cognitive maps) the process involved in acquiring the doctorate, then this becomes a tragedy for the individual and the university. In addition, there is also a moral issue; if some individuals succeed because they understand the rules of the game, while others fail because they do not, then a basic unfairness has been perpetuated (Zanna & Darley, 1987).

Parent (1998) in her research weighs in on the concept of cognitive maps (although not expressed in terms of "cognitive maps,"). She writes that the use of the 4 R's strategies: Rules, Roles, Relationships and Available Resources enable students to develop mental maps of how things "work" in the various academic systems. The idea of needing knowledge maps that can facilitate and give direction to acquiring the doctorate is also addressed by Hawley, in her 1993 book *Being Bright is Not Enough: The Unwritten Rules of Doctoral Study,* acknowledges that in order to succeed at completing the doctorate, students need to be knowledgeable, intuitive, and perceptive in understanding how to achieve their ultimate goal of attaining the doctorate and that this ability is in fact is one form of "intelligence" that the doctoral process tests (Hawley, p. 12-13).

This study revolves around cognitive maps and the role they play in doctoral persistence or attrition. There are five components of doctoral persistence that will be studied to see what impact they have on students' cognitive maps. The five components that will be addressed are as follows: students' characteristics, university's policies/procedures, faculty, peers, and the religious identity of the university. An attempt will be made to determine the role that each of the above components play in doctoral

persistence. In addition, the research will seek to ascertain which of the above have the greatest influence on persistence of doctoral students. There are many factors which influence doctoral degree completion but little research has addressed cognitive maps and the role that they play in influencing the completion or non-completion of the doctoral degree. This study attempts to fill this void in doctoral persistence/attrition research.

Doctoral Persistence and Student Characteristics

The first component that will be addressed by this study is the role that student's characteristics play in the development of cognitive maps. There are a number of research studies that address the role of student characteristics in doctoral persistence, but none address these characteristics from the standpoint of their role in the development of cognitive maps. Latona and Browne (2001) constructed a useful synthesis of UK, US and Australian studies and developed a framework of three groups of influences that predict timely completions. One of the groups were student cohorts and characteristics (situational and dispositional factors such as disciplinary differences, gender, age, admission characteristics and prior qualifications, age, and psychological and behavioural characteristics) that impact doctoral completions (Latona & Browne, 2001; Manathunga,2005).

Gittings, (2010) in his research sought to examine the effect of student characteristics and program characteristics on doctoral degree completion. One research question adressed was do certain student variables (age, ethnicity, gender, financial support, employment, marital status, dependents, distance from campus, debt load, employment status change after comprehensive exams, and enrollment status) affect

doctoral student degree completion (Gittings, 2010)? Gittings research found found that

enrollment status of the student and the increase of age of the respondent may have a

positive influence on doctoral degree completion. Stallone (2003) in her study examined

factors, specifically human factors, that impact doctoral student attition in education. In

her research she reported that demographic variables such as gender, ethnicity, and age

have been examined in numerous studies on doctoral student attrition and persistence;

however,. research findings on the effects of these factors are mixed, in part due to the

influence of other variables such as program size and culture, as well as numerous other

individual factors. The Council of Graduate Schools (2009) points out that there is a

need to include student input as part of the PhD completion project because we believe

their perspective is critical to our understanding of how the interaction of student

characteristics and institutional characteristics contribute to success in completing Ph.D.

programs. The Council goes on to state to understand doctoral program attrition and

completion, one needs to understand both the student characteristics and the institutional

characteristics-at the graduate school, department, and discipline levels-that cause

students to become fully integrated into or alienated from the department and discipline

and their cultures, norms, and practices (Council of Graduate Schools, 2009).

In an attempt to expand on the above research, this study will investigate the role

that certain student characteristics play in the formation of students' cognitive maps. The

research will pose this query: Does gender, race/ethnicity, religion, full/part-time

enrollment, type of financial support, martial status, or prior enrollment in a PhD program

affect the formation of students' cognitive maps? By attaching student characteristics to

the formation of cognitive maps, the research will attempt to ascertain if different characteristics influence how individuals acquire conceptual understanding of doctoral process from university documents, faculty, and peers. This research will attempt to answer the query of just how students' characteristics impact doctoral persistence.

Doctoral Persistence and University/Department Documents

A second component that will be investigated is the role that university documents play in cognitive map development and doctoral persistence. Examples of university's documents that will be addressed in this research to see if they impact student's cognitive maps are documents that deal with policy and procedures, work required for the PhD, degree requirements, course guidelines, comprehensive guidelines, faculty guidelines, faculty grading, major advisor selection, mentoring guidelines, proposal defense guidelines (P&D), dissertation guidelines, dissertation defense, financial aid, support groups, and technology. The Council of Graduate Schools (2010) launched a major initiative that addresses policies and practices that promote student success. The current volume, Ph.D. Completion and Attrition: Policies and Practices to Promote Student Success, gives specific attention to the institutional policies developed at partner institutions, which have great potential to affect completion at the institutions involved in this project (Council of Graduate Schools (2010). The Council of Graduate Schools focused initially on completion rates for minorities because data from the U.S. Census Bureau suggest that the minority share of the college- age population will increase by 14% between 2007 and 2015, while the White, non-Hispanic college-age population will decrease by 6% in the same time period; however, the Council quickly realized that the

above initiative would benefit all graduate students because we know that many of the policies, procedures, and practices that can be put in place to address attrition for these groups will increase completion for majority groups as well (Council of Graduate Schools, 2010).

Additional research on doctoral persistence should logically focus on the department because departmental guidelines that relate to doctoral progression mold the type of doctoral experience that each student will encounter in their pursuit of the PhD (Becher & Trowler, 2001; Donald, 2002; Huber & Morreale, 2002). Golde (1995) in her research directly addressed department's policies and procedures that directly affect doctoral student attrition. She found that departments that implemented policies and procedures oriented to helping students through the graduate education process had lower levels of attrition (Bauer, 2004). Golde (1995) in her study considered the following policies and procedures: orientation programs held by the department, course work, procedures to get to know graduate faculty, policies for selecting a dissertation advisor, and dissertation requirements. While some attrition is expected and sometimes helpful to students in discovering what they are willing and wanting to do, a high number is not good for students nor the department thus encouraging many departments to adopt practices that may help reduce attrition rates (Golde, 2005).

(Kittell-Limerick,2005) opines that although universities have a responsibility to be aware of barriers and to facilitate programs that would aid in higher dissertation completion rates, research found that the policies implemented at the departmental level have more influence over the student than the university policy. Studies have been done

which prove that some of the greatest determinants exist in the policies, practices, and departmental environments housing graduate programs (Denecke, 2004). The department becomes the "home" to the graduate student, and its climate influences the expectations and relationships which will form the training arena leading to success or failure of attaining the doctoral degree (Kittell-Limerick,2005).

From the student's perspective, some departments influence the doctoral process in a negative way by having policies and procedures that place roadblocks in the path to success. Students often find that Administrative policies and procedures need to be re-learned—especially for students who left academia for a long period (Azad Ali, 2007). Learning these policies is often left mostly to the individual students. Azad Ali points out that the students who have larger social networks have less difficulty in learning about policies and procedures. To other students, this may represent a difficult time and may lead them to be confused, withdrawn, and result in them leaving and droping out of the doctoral program (Azad Ali 2007). Golde (2005) indicates that the department largely determines the policies that affect student life. Simultaneously, departmental practices and cultural assumptions about doctoral education are shaped by disciplinary norms and practices (including the job market in the discipline) and by the nature of research and scholarship in the discipline (Becher & Trowler, 2001; Donald, 2002; Huber & Morreale, 2002).

<u>Doctoral Persistence and Faculty</u>

The third component of the study is the role that faculty play in the formation of a doctoral students' cognitive maps. Most research on doctoral student persistence envision faculty as playing an instrumental roll in doctoral students acquiring their PhD. Bartolini (2009) contens that throughout the dissertation-completion process the relationship between the doctoral student and the advisor, chair, and other faculty continues to be a critical factor in the successful completion of the dissertation and attainment of the doctoral degree. Lovitts & Nelson (2002) noted that faculty members are the socializing agents of the discipline; they impart the norms and expectations. Bartolini (2009) contents that faculty involvement across the stages of the dissertation-completion process can reduce stress through educating the doctoral student on what is expected by the doctoral program, and how to persist to dissertation completion. Further, faculty commitment to providing supports that will reduce attrition will benefit both the doctoral student and the university (Bartolini, 2009). Katz (2002) in his research points out that faculty play a number of roles in the academy, and one role is to make a conscious effort to make daily informal contact with students that could possibly prevent attrition. Tinto (1993) suggests that "the faculty-mentor relationship is the one that is most likely to shape completion" (p.241). Gittings (2010) in his review of the literature discovered that the most significant general findings with respect to faculty's role in doctoral persistence was that the relationship with the faculty adviser was key to remaining at the university and key to the successful completion of the dissertation stage (de Valero, 2001; Lovitts & Nelson, 2000; Malmberg, 2000; Stallone, 2003).This conclusion is widely supported in

the literature. The relationship between a doctoral student and his/her faculty adviser is the most fundamental aspect of doctoral education (Fagen & Suedkamp Wells, 2004).

Doctoral Persistence and Doctoral Peers

The fourth component that will be included in the research is the role that doctoral peers play in the formation of students' cognitive maps. Bauer (2004) in her research found a number of attributes contributed positively to degree completion. One attribute was the role that peer support played in doctoral persistence. Bauer's research showed that there was a consistent indication that where strong peer support prevailed, student cohesiveness and degree completion increased. Bauer indicated that all participants cited peer relationships as a key component of the student doctoral experience (Bauer, (2004). Perhaps the item of most critical importance during the doctoral years is support. Stallone (2003) found that one of the human factors that were important to successful doctoral degree completion was collegial relationships between students and their peers. The level of interaction with not only faculty but also other doctoral students on two levels—social and academic—can make the difference between doctoral degree completers and non-completers (Stallone (2003).

The graduate experience is both an intellectual as well as an interpersonal one and supportive and congenial relationships with fellow students are one of the keys to successful dissertation completion (Parent, 2002). Golde (2005) stresses the importance of peer relations by pointing out that isolation from peers and faculty and the resulting absence of collegial and supportive relationships contributed to doctoral attrition.

Laden (2002) in her research describes what she calls "peer effect" on doctoral persistence. In examining the roles that doctoral peers play in ABD students' degree completion, Laden makes the point that it is important that they stay connected to peers for three reasons: (1) to maintain a sense of identification, (2) share problems (3) to keep lines of communications open. She points out that maintaining doctoral identification helps a student to continue to stay focused on the ultimate goal the PhD. A lost of this identification according to Laden can cause the student to lose the camaraderie that is shared with fellow students, and this camaraderie is essential to degree completion. She feels that a student needs to stay connected to peers to enable them to share problems and concerns. Acquiring the PhD is no small task. Peers can serve as sounding boards to help fellow graduate students get through the doctoral enterprise. Lastly, it is important to keep lines of communication open to enable the student to stay motivated, acquire information and share ideas. Laden concludes her discussion regarding the role of peers in the doctoral process by pointing out that a sense of connection with peers, particularly in the ABD stage, is important because many doctoral students attribute degree completion to peers who enabled them to stay focused, stay motivated , and make progress toward degree completion (Laden,2002).

Doctoral Persistence and the University's Religious Identity

The last area that will be covered in the research is the relationship between a university's religious identity and doctoral persistence. As mentioned earlier in the chapter, there are no research studies that speak to the association between religious identity and doctoral persistence. In addition, there is uncertainty in just what constitutes

the religious identity of a university. The above two statements make it doubly exigent to make an assessment of just how doctoral persistence is related to a university's religious identity. Daley (1993) indicates that today the issue of religious identity is the "most, problematic, troublesome, and indescribable question for a university that has a religious affiliation" (p. 7).

Rittof (2001) points out that a review of the literature on religiously affiliated higher education institutions published during the last 30 years suggests that the most prevalent and dominant issue being discussed among those American higher education institution is that of "Religious identity." In fact, it is considered to be the single most significant issue facing religiously affiliated higher education institutions in the United States (Allen, 1999; Dodge, 1991; Gleason, 1992; Gleason, 1995; Houston, 1995; Introcaso, 1996; Janosik, 1996; O'Brien, 1994; Salvaterra, 1990; Savage, 1991; Steinfels, 1995). The identity crisis in religiously affiliated higher education institutions that exists today has been widely debated for some time in both scholarly work and the popular press (Allen, 1999; Gleason, 1992). What is "Religious identity"? How is it defined? How is it maintained (Rittof, 2001)?

Michael Buckley (1993) among others contends that the fundamental proposition of the religiously affiliated university is that the religious and the academic are intrinsically related. Neither is subordinate to or fully contained in the other, and each agenda is independent but interactive with the other (Novak, 1993). Hollenbach (1993) suggests that achieving greater integration of the two, while preserving the integrity of each, may be the greatest challenge facing religiously affiliated higher education today

(Janosik, 1996). Numerous studies have been done that are related to the issue of religious identity of a university (Dodge, 1991; Dwyer and Zech, 1996; Ford and Roy, 1968; Galvin, 1971; Houston, 1995; Lucey, 1978; Maloney, 1973; Murphy, 1991; Preville, 1985; Salvaterra, 1990), what has not specifically been studied is whether doctoral persistence is in anyway impacted by the religious identity of a university (Galvin, 1971; Lucey, 1978; Maloney,-1973).

Review of Relevant Research

While the overall attrition rate has not changed to a great extent over the past 40 years, economic conditions and academic restructuring have brought this issue to the forefront in both the popular (Haynes, 2004) and scholarly presses (Denecke, 2004; Denecke & Stewart, 2003; Smallwood, 2004). This high level of interest in doctoral student attrition necessitates more accurate and up-to-date data on the doctoral education process and doctoral student outcomes (Golde & Dore, 2001, 2004; Smallwood, 2004). The literature on postgraduate education in the last decade has expanded, reflecting growing critical interest in the experience and fate of the postgraduate student (Lovitts, 2001; Golde, 2005; Nettles & Millett, 2006). The literature includes quantitative data, --time-to complete (TTC), attrition rates and student satisfaction, as well as qualitative data on innovative practices (Latona and Browne, 2001). Studies of graduate attrition and degree attainment can range from the theoretical studies that aim to build or test models of student persistence to empirical studies that rely on scientific samples from carefully framed populations (National Research Council, 2010).

Three studies that are related to this research and address the doctoral persistence are the studies of Stolzenberg (2006), Harsch, (2008); and Wao. (2008). Stolzenberg (2006), focused on one of the key aspects of doctoral education, the doctoral student-faculty advising relationship across academic divisions in an attempt to improve the understanding of the intricacies of graduate education. The study was done on a single-institution that offered the student perspective in an effort to gain insight into how students experience their doctoral education and how the student-faculty relationship impacts this experience (Stolzenberg, 2006). Specifically the study addressed the following: Adviser selection, career goals, emotional/personal, students' views of advisers as mentors, challenges faced with advisers and the doctoral program (Stolzenberg, 2006).

In Stolzenberg's study and on-line survey instrument was used and it was distributed to more than 4,000 doctoral students at a major research institution in the western United States. The final sample included 1,087 students enrolled in 81 doctoral programs in 14 academic divisions (Stolzenberg, 2006). This quantitative study analyzed the data using both descriptive and multivariate analyses, such as frequency distributions, correlations, analysis of variance (ANOVA), factor analysis, and blocked, stepwise linear regression (Stolzenberg, 2006).

Stolzenberg (2006) found 1) significant differences in the experiences of Life Science and Academic Health Science students in such areas as adviser support for a nonacademic career, the struggle to secure funding, and the extent to which students relied on their peers. 2) Being in the Academic Health Sciences was a significant

predictor of being less likely to consider leaving before completing the degree, while being in the Life Science was not a significant predictor of whether a student would leave before degree completion. 3) Doctoral students who were comfortable with their advisers were significantly less likely to seriously consider leaving before completing the degree. This comfortable relationships with an advisor was significant predictor of persistence (Stolzenberg, 2006).

Studies that delineate the factors most often cited by students who do not persist in their doctoral studies include the research of Harsch (2008) and Wao (2008). Harsch (2008) examined the relative roles of status variables and social cognitive variables in explaining dissertation completion status in doctoral level Counselor Education programs. In Harsh's study, the specific status variables investigated were emotional support, financial security, structural demands, satisfaction with the dissertation, and time limit related to doctoral dissertation completion. Specifically this study focused on how the social cognitive factors of self-efficacy, locus of control, and self-handicapping differentiated between those individuals who completed their dissertations and those who were All but Dissertation (ABD) (Harsch, 2008).

Harsch (2008) included in her research132 dissertation non-completers and 111 dissertation completers. Participants in this study were doctoral level Counselor Education students who had either completed their doctoral dissertation or were All but Dissertation (ABD). The data for the study was obtained from the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Data collection for this study was conducted by an online survey. This study utilized a non-

experimental survey with convenience sampling (Plonsky, 1997). To obtain data three measurement instruments and a demographic questionnaire were utilized: 1) the Dissertation Appraisal Inventory (DAI; Varney, 2003), 2) the Dissertation Responsibility Scale (DRS; Kluever & Green, 1998), 3) the Self-Handicapping Scale (SHS; Jones & Rhodewalt, 1982), and 4) a demographic questionnaire (e.g., age, sex, state of residence, dissertation status, and status variables such as satisfaction with the dissertation process) (Harsch, 2008).

The results of Harsch's (2008) study showed that lower levels of emotional support, financial concerns, feeling overwhelmed with the structural demands (e.g., literature review, data collection, etc.) involved in completing a dissertation, and feeling dissatisfied with the dissertation were related to delays in dissertation completion or increasing the TTD completion. Results indicated that completers possessed higher levels of self-efficacy and lower levels of self-handicapping, whereas non-completers possessed lower levels of self-efficacy and higher levels of self-handicapping (Harsch, 2008). Harsch (2008) found that there were statistically significant differences between dissertation completers and non-completers on the dependent variables of self-efficacy, locus of control, and self-handicapping, and that two variables that were statistically significant in explaining length of TTD were self-efficacy and locus of control. Further, this investigation revealed that when the status variables financial security, advisor support, family/friend support, structural demands, satisfaction, and time limit were considered together, they were shown to play a role in explaining potential reasons as to why some doctoral students finished their dissertations in a short period of time versus

those who did not finish their dissertations in a relatively reasonable period of time.

Harsh concludes that the above findings affirmed that the presence of a solid support

system could decrease the period of time to doctoral degree completion (Katz, 1997).

Harsch indicates that the above finding is supported by Lenz's (1997) research which

found that a supportive and caring dissertation advisor who was perceived as a mentor

could aid in reducing the length of time spent as ABD (Harsch, 2008)..

Wao (2008) employed a mixed methods approach to understand the timing of

doctorate (either Ed. D. or Ph. D.) attainment in a College of Education and the factors

related to this timing. Wao used a systems approach to aid the understanding of the

structures and processes that underlie the timing of doctorate attainment. In this study,

doctorate attainment was viewed as a system consisting of inputs (students), process

(integration into the doctoral program), and output (time to degree) elements (Wao,

2008). Discrete-time multilevel hazard analysis was employed to determine the

relationship between various factors and the timing of doctorate attainment in a College

of Education (Wao, 2008). In the qualitative component of the study, four student focus

groups (followed by individual interviews) and two faculty focus groups were employed

to investigate students' and faculty members' opinions and experiences regarding factors

they perceive influence time to attainment of the doctorate (Wao, 2008).

The venue for this research is a southeastern state university classified as a

research university with very high research activity (The Carnegie Foundation for the

Advancement of Teaching, 2008). Instructional programs such as Adult Education,

Counselor Education, Educational Psychology, Instructional Technology, Mathematics

Education, and Special Education were among the 24 programs of this university that were included in the study (Wao, 2008).. The quantitative component consisted of a level-1 sample size and a level-2 sample size. The level-1 sample included 1, 028 students who were admitted to the College between Spring of 1990 and Spring of 2006, whereas the level-2 sample consisted of 24 programs (18 Ph.D. and 6 Ed. D.) offered in the College (Wao, 2008).A multiple (collective) case study design was employed to collect and analyze the qualitative data (Yin, 2003). A constructivist paradigm (Tashakkori & Teddlie, 1998) guided the qualitative analyses. Constructivists assume that meaning and values that constitute knowledge are inseparable from the knower; that is, meaning is constructed rather than discovered (Wao, 2008).

Quantitative findings revealed that; students were most likely to attain the doctorate in the seventh year of study (Wao, 2008). Wao also found that in each year during the observation period, students' master's grade point average (GPA) score at admission, percentage of female students in the program, and mean graduate record examination (GRE) quantitative score in the program were each positively associated with the odds of doctorate attainment; whereas the size of the department housing the program was negatively associated with the odds of doctorate attainment (Wao, 2008). Female students were more likely than males to attain the doctorate in each year during the observation period; however, the difference disappeared when clustering of students into programs was considered (Wao, 2008).

According to students in qualitative portion of Wao's study, the way the program expectations and requirements are communicated, the nature of the dissertation committee formed, and dissertation topic chosen each had a strong association with TTD (Wao, 2008). From the faculty perspective, according to Wao's research, whether a student enrolls part-time or full-time, the amount and quality of academic preparation received, and the nature of academic guidance, mentoring and supervision received, each had a strong association with TTD. Both students and faculty concurred that the nature and arrangement of program tasks and resources and the desire to work and attain goals despite obstacles encountered had strong associations with TTD (Wao, 2008).

The research of Galvin (1971), Rittof (2001), and Devlin (1998) on religious identity of American higher education institutions serves as pertinent research for the present study. Galvin, while studying the secularizing trends among 30 American Catholic colleges between 1960 - 1970, was able to identify several variables that serve as a basis for defining a university's religious identity, or the loss of it (Rittoff, 2001). The variables Galvin (1971) used to measure religious identity included: 1) the number of full time students of the same religion and the number of full time faculty of the same religion, 2) the ratio of religious to lay faculty members, 3) percent of faculty who obtained their highest degree from a religiously affiliated university, 4) the number of board members of the same religion, 5) the percentage of full time nondenominational lay faculty, 6) the percentage of religious that serve on the board of trustees, 7) theology requirements, 8) religious activities, 9) state and federal funding, 10) relationship to

religious bodies, and 11) inter-institutional involvement in nondenominational private or public colleges and universities.

The results of Galvin's study indicated that the overriding conclusion that could be drawn was that during the 1960 -1970 decade, religious affiliated colleges and universities throughout the continental United States have become collectively and severely secularized (Galvin, 1971). Galvin reached this conclusion after his findings painted a picture that there was a decrease in religious on campus, a decrease in opportunities for students to practice their faith through rituals and organizations, an increase in the number of non-Catholic lay faculty and administrators, and an increase in non-Catholic students enrolled at the institution (Rittof, 2001).

Rittof (2001) in his research attempted to discover if the chief academic affairs officer perceived the religious identity of an institution differently if there was a lay or religious president. The study was designed to answer three main research questions that dealt with small religiously affiliated colleges and universities in the United States: 1) Did a lay president and a religious president identify the same set of variables related to distinctive religious identity?, 2) What institution variables predict strength of religious identity?, and 3) What are small religious affiliated colleges and universities doing to intentionally increase or strengthen their distinctive religious identity (Rittof, 2001)?

Rittof (2001) used both quantitative and qualitative approaches in his research. The quantitative approach used discriminant analysis and multiple regression analysis to analyze the data. A 28-item survey was used to survey 159 four-year chief academic officers of religious affiliated colleges or universities that enrolled 5,000 students are less.

The survey resulted in 109 useable responses. The qualitative methodology used thematic analysis to analyze research question three that dealt with the steps that the colleges and universities were taking to maintain or increase their religious identity.

Rittof's (2001) research found that there was a strong positive relationship between religious identity, and six variables: 1) the number of full-time religious faculty 2) the number of full-time lay faculty that identified with the predominant "faith" of the college 3) number of religion and theology courses, 4) current relationship with founders, 5) the number of full-time students that identified with the predominant "faith" of the college, 6) having a religious president that identified with the predominant "faith" of the college.

The focus of Devlin's (1998) investigation was to identify, describe, and analyze the concept of religious identity in one religiously affiliated college in transition. This study's analysis was through the perceptions and lived experiences of senior administrators and faculty, and was focused on four major frameworks: a) Identity and Mission, b) the Congregation of religious brothers, c) Student Centeredness, and d) Service and Academics (Devlin, 1998).

Using a qualitative case study methodology, Devlin (1998) attempted to discover and interpret how an American religiously affiliated college perceives religious identity as a definition of its own cultural identity and to what degree it is identified and functioning in academic activities. Focus groups and interviews were used to gather information for the study. Triangulation was used on the data collected to ensure that more than one type of method was used to arrive at the findings. Data was collected from

two small focus groups, one-to-one interviews with key present and former administrators, a study of institutional literature, and finally participant observations (Devlin, 1998). Using the case study approach, Devlin (1998).found that there are a number of factors that affect religious identity: 1) Identity reflects a tradition or legacy; 2) Identity is found in the religious heritage and the sponsoring religious community; 3) Religious Studies Department is a necessary component of the institutions religious identity.

<u>Summary and Observations</u>

This literature review tried to portray a vivid picture that universities/ departments, faculty and students are concerned over the high attrition rate in doctoral programs. The review attempted to show that researchers understood this concern and have put forth persistence models and recommendations to abate doctoral attrition. Further, the review sought to point out that there is still much needed research that addresses doctoral persistence from the perspective of how students come to understand the doctoral process. The latter research is important because there is a paucity of research that deals with what factors of the doctoral process help students to understand how to successfully achieve the doctorate. Lastly, the review engaged in a discussion regarding the role that the religious identity of a un'versity might play in doctoral persistence. There is no research that addresses this area, so the above research will be breaking virgin ground. Galvin (1971) speaks to the need for additional research on the importance of religious identity of a higher education institution. He points out that a researcher might try to

ascertain if the religious identity of a university or a college influences retention and admission rates, alumni-giving, and the like.

It is evident from the review that researchers have shown that the components of the doctoral process: students' characteristics, university/department' documents outlining policy and procedures, faculty, and doctoral peers all play a role in helping students achieve successful doctoral completion (Lovitts, 2001; Tinto, 1993; Golde, 2005;); Bridgmon, 2007, Corkrell, 2008; Harsch, 2008, Kittell-Limerick, 2008; McLaughlin, 2006). Their role in doctoral persistence has been demonstrated empirically. However, there is a dearth of research that attempts to address in what manner does the university/department documents, faculty, doctoral peers, and student characteristics assists students in the formation of cognitive maps (conceptual understanding) that help them understand the doctoral process. Such research is needed because the department, faculty, doctoral peers, and student characteristics play a role in the doctoral process, and the role they play are interconnected and complex (Berge & Huand, 2004). Parent (1998) indicates the doctoral journey is lengthy, complex, rigorous, and will take place in a complex physical and social world. Additional research will shed light on the interconnections and the complexity of this physical and social world that involves departments, faculty, and students and the role that each play in this process (Haworth & Sandfort, 2004).

It is also evident from the review that there is a need for research that addresses the impact that the religious identity of a higher education institution has on doctoral persistence. Janosik (1996) contends that the religious identity of higher education

institutions should be explored to determine its impact on the various constituencies:
governing boards, student affairs, campus ministry personnel, admissions, public
relations staff, faculty, students, and alumni. Each constituency may view elements of
religious identity in significantly different ways. Janosik indicates that insight into
these different views may be helpful in building consensus on religious institutional
identity.

Tinto (1993) indicates that we need to invest in a range of research studies that
empirically document the scope and varying character of the graduate persistence
process. This research will be heeding the call to undertake research that will provide
new information that is valuable to the understanding of doctoral persistence and
attrition. This research shifts the research lens to how students come to understanding the
doctoral process and how do the university/department documents, faculty, doctoral
peers, and student characteristics factor in helping the student develop successful
roadmaps that guide students to their ultimate goal of obtaining the PhD. Additionally,
because there is lack of research on the influence that the religious identity of a university
or college has on doctoral persistence, this study becomes a springboard for many future
studies, thus filing a gap in the literature (Bickel, 2001).

Chapter 3

Methodology

Chapter Overview

      This chapter is divided into four sections: participant selection, instrumentation, procedures, and design and data analyses. The participation selection section includes the research venue, schools/departments included in the study, number of respondents included in the study, and the sampling procedure used in the study. The instrumentation section will address the instruments used in the study and the rationale for using each instrument. The procedure section addresses how the data were obtained for the study, how the survey was disseminated, and the survey return rate. The last section of the chapter covers the analyses of the data. The analyses' section details the statistical procedures used to treat the data from each group that is a part of the research.

Participant Selection

      The sample of participants was drawn from the population of individuals who received their doctoral degree during the years 1997 through 2007, and from individuals who achieved All But Dissertation (ABD) status during the above years, but did not complete degree requirements. University announcements for the above period indicated that approximately 971 graduates received their PhDs. Added to the above population were an additional 107 individuals (an estimate) who completed comprehensive exams but did not acquire the PhD. The above estimate is based on a national average that 11%

of students who complete comprehensive exams do not achieve the doctorate. Therefore, the total "n" representing the population of interest is approximately 1078 individuals.

The research focuses on a private research religiously affiliated university in an urban metropolitan setting. The study surveyed PhD graduates and students identified as having ABD status (non-completers). Surveys were received from respondents associated with seven Schools: School of Arts & Sciences, School of Engineering, School of Music, School of Nursing, School of Philosophy, School of Social Service, and School of Religious Studies. The School of Arts & Sciences had eleven departments represented in the study, and the School Engineering had four departments represented in the study (Appendix D). The study only included Schools that require a dissertation to obtain the doctorate.

Instrumentation

A retrospective survey methodology was used to capture events and experiences that have occurred over an eleven year span. An eleven year period was covered to ensure that a representative sample is obtained for the research. Survey research typically seeks to reconstruct influences and consequences by means of verbal reports from their respondents in self-administered questionnaires, face-to-face interviews, or telephone interviews (Levin & James, 2002). Consequently, the study is limited by the well-known shortcomings of retrospective surveys, most notably the subjective, selective, and reconstructive memories of past experiences (Lovitts, 1996).

The data for the study were obtained from respondents who completed the survey (Appendix A). The survey measured the following: Students' University Cognitive Map, Faculty Cognitive map, Peer Cognitive Map, and Religious Identity Cognitive Map to determine their impact on doctoral persistence. Janosik (1996) *Institutional Identity Index* was a major source used to develop the portion of the survey that deals with religious identity: Thirteen items from Janosik's index were used to assess the impact that religious identity has on doctoral persistence. The 13 items were reviewed by graduate faculty and graduate students to ensure that the items were appropriate for this research.

The survey instrument contains 33 questions with many qu'estions having multiple response items. Questions 1 to 22 were demographic questions. Question 23 had 15 sub-items all associated with identifying the amount of understanding that the University Documents provided to students with respect to the doctoral process. Question 24 had 15 sub-items all associated with identifying the amount of understanding that Faculty provided to students with respect to the doctoral process. Question 25 had 15 sub-items all associated with identifying the amount of understanding that Peers provided to students with respect to the doctoral process. Questions 26, 27, 28, and 29, provided respondents' opportunities to address issues that they felt were not covered in the survey. Question 30 contained three sub-items. The items addressed the importance of religious identity to doctoral persistence. Question 31 contained five sub-items. The items addressed the importance of religious identity to doctoral persistence. Question 32 contained five sub-items. The items addressed the importance of religious identity to doctoral persistence. Question 33 spoke directly to the role that religious identity played

in doctoral persistence. The Likert scale continuum for the understanding scales is from 1 to 4. Response 5, not applicable, is not part of the continuum and is coded as a missing value for any analyses for which mean scores are calculated. The survey can be found in Appendix A.

Procedures

The initial plan was to send to the entire population of 1078 individuals letters to determine their willingness to participate in the study. However, to ensure confidentiality all correspondence to perspective participants in the research originated from the Office of Planning and Institutional Research (OPIR). The letter of introduction (Appendix B) was generated by the researcher and OPIR, and the letter of introduction was approved by the Office of the Provost. With OPIR in charge of sending out the all correspondence associated with the research, only e-mail correspondence could be sent to perspective participants. OPIR had a total of 356 current e-mail addresses. A total of 356 surveys were e-mailed. After a month, a second e-mail was sent to all 356 perspective participants. As a result of the two e-mailings, a total of 122 surveys were returned for a return rated of 34%.

The respondents were placed into one of three categories: Completers, At-Risk Completers, and Non-Completers (ABD). Completers are those doctoral candidates who received their PhD within a five year period. The University's requirement is that a doctoral candidate must complete his/her degree within five years of completing Comprehensive Exams. At-Risk Completers are those doctoral candidates who received their PhD but did not complete degree requirements in five years the time period

specified by the university. They were granted an extension by the Department to complete their degree. Non-completers are doctoral candidates who completed comprehensives but did not obtain their degree.

<u>Design And Data Analysis</u>

The study's methodology uses quantitative methods to examine the amount of conceptual understanding (cognitive maps) that students acquired from university documents, faculty, and peers with respect to the doctoral process, and the impact of religious identity on doctoral persistence. The types of statistical procedures used to treat the research data were descriptive statistics, Pearson product moment correlations, Chi-Square, Analysis of Variance (ANOVA), and Regression analysis. The above methods were used to address the following statistical hypotheses.

<u>Hypotheses</u>

- Completers (received Ph.D. within a five year period) will have more favorable mean scores on the university, faculty, and peer components of the survey instrument indicating that Completers acquired more understanding of the doctoral process from the university, faculty, and peers than at-risk completers and non-completers.
- More favorable mean understanding scores will occur on the faculty component of the survey instrument indicating that Completers, At-risk-completers, and Non-completers rely more on faculty to acquire an understanding of the doctoral process.
- Student characteristics of age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, and parental status, and previous enrollment in a doctoral program are important predictors of completion of degree requirements.
- Non-Completers amount of understanding of the doctoral process received from university, faculty, and peers will be related to number of years that they persist.
- There will be a significant difference between the scores of Completers, At-Risk Completers and Non-completers on the religious identity portion of the survey

The hypotheses were tested at the .05 level of significance.

- Hypothesis 1: Completers will have more favorable mean scores on the university, faculty, and peer components of the survey instrument indicating that completers acquired more understanding of the doctoral process from the university, faculty, and peers than at-risk completers and non-completers.

The above hypothesis deals with the independent variable degree classification. Degree classifications have three levels: Completers, At-Risk-Completers and Non-Completers (ABD). According to the hypothesis, completers will have more favorable mean scores on the university, faculty, and peer components of the survey instrument than At-Risk Completers and Non-Completers. The direction of the scale values equates lower mean scores as being the more favorable score.

Hypothesis 1 involves the use of a one-way between-groups ANOVA. One-way ANOVA was used to determine if there are significant differences in the mean scores of completers on each of the items of the survey that measured the university documents, faculty, and peer understanding scores. The one independent grouping in the study is Degree Classifications. The three levels of Degree Classification are Completers, At-Risk, Completers, and Non-completers. The dependent continuous variables are the Understanding scores on the survey instrument.

- Hypothesis 2: The more favorable mean understanding scores will occur on the faculty component of the survey instrument indicating that Completers, At-Risk-Completers, and Non-Completers rely more on faculty to acquire an understanding of the doctoral process.

According to hypothesis 2, Completers, At-Risk-Completers, and Non-Completers' faculty mean understanding scores will be more favorable than their mean understanding scores on the university and peer components of the survey instrument. Hypothesis 2 attempts to determine if the faculty is the major source for students to acquire

information regarding the doctoral process. A one way ANOVA repeated-measures

(this is also referred to as a within-subjects design) analysis of variance was used to

address hypothesis 2. A repeated —measures design was used to compare the same

respondents' responses to three different items. These items were measured on the same

scale (e.g., 1=complete understanding to 4 = no understanding (Pallant 2004). The

within-subjects factor has three levels. The first level is the amount of understanding

provided by University documents in understanding university's policy and procedures

for acquiring the PhD. The second level is the amount of understanding provided by

Faculty with respect to understanding the university's policy and procedures for

acquiring the PhD. The third is the amount of understanding provided by Peers with

respect to understanding the university's policy and procedures for acquiring the PhD.

The scores on the fifteen items of the University, Faculty and Peer sections of the survey

are the dependent variables.

- Hypothesis 3: Student characteristics of age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, and parental status, and previous enrollment in a doctoral program are important predictors of completion of degree requirements.

Regression analysis was used to address hypothesis 3. Regression was used to

determine which students' characteristics are the best predictors of completion of degree

requirements. The independent variables (students' characteristics) in the study are age,

gender, race, marital status, full or part-time student, religion, financial support, parental

status, and previous enrollment in another doctoral program. All variables were entered

into the regression equation.

- Hypothesis 4: There will be significant relationship been the mean conceptual understanding scores on the survey instrument of Non-completers and the number of years that they persist.

Hypothesis 4 was analyzed using Pearson product moment correlations.

Pearson's correlation coefficient (r) was used to determine the strength and the direction of the relationship between mean conceptual understanding scores of Non-completers and the number of years that they persist.

- Hypothesis 5: There will be a significant difference between Completers, At-Risk Completers and Non-completers' scores on the religious identity portion of the survey instrument.

Hypothesis 5 was analyzed using one-way between-groups ANOVA. A One-way ANOVA was used to determine if there are significant differences in the mean scores of Completers, At-Risk Completers, and Non-Completers on the dependent variable religious identity importance scores. The one independent grouping in the study is Degree Classifications. Degree Classification has three levels: Completers, At-Risk, Completers, and Non-completers. The one dependent continuous variable is the religious identity scores on survey.

Chapter 4

Results

The focus of this chapter is to explain the major findings of the study as they relate to how students come to a conceptual understanding (cognitive maps) of the doctoral process, and how this understanding of the doctoral process impacts doctoral persistence at a private, religiously affiliated research university. In addition, the findings present the relationship between the religious identity of a university and doctoral persistence. Toward the above end, this chapter is divided into three sections. In the first section, descriptive statistics are used to describe the demographic characteristics of the individuals who participated in the study, and to describe how the participants viewed the role that religious identity played in doctoral persistence. In the second section, the results of the statistical analysis are presented and discussed in the context of how it relates to each research question. As part of the statistical analysis, data are presented that attempts to shed light on how students come to understanding the doctoral process. This study postulates that this understanding assist students in the formation of their cognitive maps which impacts their doctoral persistence. The chapter concludes with a summary of the major findings with respect to the roles that university documents, faculty, and peers play in enabling students to come to a conceptual understand (cognitive map) of the doctoral process and how this understanding impacts doctoral persistence.

Descriptive Analysis

The study used an ex post facto research design where data were collected after the fact - in this case, after the student has either dropped out or graduated. Ex post facto research is also referred to as retrospective research, in that the events have already occurred in the past and can only be studied from the present (Bair, 1999). The data for this study were obtained from a survey that was completed by doctoral graduates who attended a private, religiously affiliated research university.

The participants were divided into three degree classifications: Completers (received Ph.D. within a five year period), At-Risk-Completers (more than five years to complete degree requirements), and Non-Completers (ABDs) (completed comprehensives but are no longer enrolled in a PhD program). See Table 1.

Table 1

Degree Classification Groups

Degree Classifications		Frequency	Percent
Valid	Completer	31	25.4
	At-Risk Completer	77	63.1
	Non-Completer	14	11.5
	Total ..	122	100.0

Participants in the study represented seven schools within the University. See Table 2.

The above table contains the main participants in the study. It contains the degree classifications: Completers, At-Risk Completers, and Non-Completers (ABD). Completers are those doctoral candidates who received their PhD within a five year period. The University's requirement is that a doctoral candidate must complete his/her

degree within five years of completing Comprehensive Exams. At-Risk Completers are those doctoral candidates who received their PhD but did not complete degree requirements in five years the time period specified by the university. They were granted an extension by the Department to complete their degree. Non-completers are doctoral candidates who completed comprehensives but did not obtain their degree. Table 2 shows the distribution of schools in the university represented in the study. More than half of the respondents are from the School of Arts and Sciences, which is the largest school in the university.

Table 2

Schools Represented in the Study

Degree Status	Music	Nursing	Social Service	Engineering	Arts and Sciences	Philosophy	Theology	Totals
Completer	3	2	3	3	16	1	3	31
At-Risk Completer	4	4	5	0	39	5	20	77
Non-Completer	0	0	0	0	11	1	2	14
Totals	7	6	8	3	66	7	25	122

The variables addressed in this study are age, gender, race, religion, full or part-time student, financial support, marital status, parental status (number of children), and previous enrollment in another doctoral program. The data are presented with respect to the total group and the three groups in the study: Completers, At-Risk Completers, and Non-Completers (ABD).

Demographic Characteristics

Table 3

AGE

		AGE				Total
		20-30	31-40	41-50	51-60	
Completer	Count	5	12	10	4	31
	% within Completer At-Risk Non-Completer	16.1%	38.7%	32.3%	12.9%	100.0%
At-Risk Completer	Count	5	37	20	15	77
	% within Completer At-Risk Non-Completer	6.5%	48.1%	26.0%	19.5%	100.0%
Non-Completer	Count	4	4	4	2	14
	% within Completer At-Risk Non-Completer	28.6%	28.6%	28.6%	14.3%	100.0%
Total	Count	14	53	34	21	122
	% within Completer At-Risk Non-Completer	11.5%	43.4%	27.9%	17.2%	100.0%

Table 3 shows that the age group 31-40 is the most represented in the study (43%).

Table 4

Gender

		Gender		Total
		Male	Female	
Completer	Count	17	14	31
	% within Completer At-Risk Non-Completer	54.8%	45.2%	100.0%
At-Risk Completers	Count	39	38	77
	% within Completer At-Risk Non-Completer	50.6%	49.4%	100.0%
Non-Completer	Count	5	9	14
	% within Completer At-Risk Non-Completer	35.7%	64.3%	100.0%
Total	Count	61	61	122
	% within Completer At-Risk Non-Completer	50.0%	50.0%	100.0%

Table 4 shows the total group contained sixty-one males and sixty-one females.

Seventeen males and fourteen females fell in the completer's category. Thirty-nine males

and thirty-eight females comprised the at-risk completer's category. Non-completers' category contained five males and nine females.

Table 5

Ethnicity

		Ethnicity				Total
		White	African American	Asian/ Oriental	Hispanic	
Completer	Count	21	5	1	4	31
	% within Completer At-Risk Non-Completer	67.7%	16.1%	3.2%	12.9%	100.0%
At-Risk Completer	Count	69	1	3	4	77
	% within Completer At-Risk Non-Completer	89.6%	1.3%	3.9%	5.2%	100.0%
Non-Completer	Count	9	3	1	1	14
	% within Completer At-Risk Non-Completer	64.3%	21.4%	7.1%	7.1%	100.0%
Total	Count	99	9	5	9	122
	% within Completer At-Risk Non-Completer	81.1%	7.4%	4.1%	7.4%	100.0%

Table 5 shows that the majority of the participants in the study were White (81%) Twenty-one of the completers were White, five African Americans, one Asian/Oriental and four Hispanic. In the at-risk completer category, sixty-nine were White, one African American, and four were Hispanic. In the non-completer category, nine were White, 3 were African Americans, one was Asian/Oriental, and one were Hispanic.

Table 6

Religious Affiliation

		1	No Religion	4	Episcopal		7	Protestant			
		2	Catholic	5	Jewish		8	Non-denominational			
		3	Christian	6	Later Day Saint		9	Buddhist			Total
		1	2	3	4	5	6	7	8	9	
Completer	Count	6	18	1	2	2	0	2	0	0	31
	% within Completer At-Risk Non-Completer	19.4%	58.1%	3.2%	6.5%	6.5%	.0%	6.5%	0%	0%	100.0%
At-Risk Completer	Count	9	50	4	2	1	1	6	2	2	77
	% within Completer At-Risk Non-Completer	11.3%	64.9%	5.2%	2.6%	1.3%	1.3%	7.8%	2.6%	2.6%	100.0%
Non-Completer	Count	2	8	1	0	0	0	2	0	1	14
	% within Completer At-Risk Non-Completer	14.3%	57.1%	7.1%	0%	.0%	.0%	14.3%	0%	7.1%	100.0%
Total	Count	17	76	6	4	3	1	10	2	3	122
	% within Completer At-Risk Non-Completer	13.9%	62.3%	4.9%	3.3%	2.5%	.8%	8.2%	1.6%	2.5%	100.0%

Table 6 shows that the majority of the participants in the study were Catholic (62%) The religious affiliation of the completers in the study was as follows: six completers had no religious affiliation, seven were Catholic, one was Christian, two were Episcopalians, two were Jewish, and two were Protestant. The at-risk completers comprised nine who had no religious affiliation, fifty Catholics, four Christians, two Episcopalians, two Jews, one

Latter Day Saint, 6 Protestants, two Non-denominational, and two Buddhist. Two of the

non-completers had no religious affiliation, eight were Catholic, one was Christian, two

were Protestant, and one was Buddhist.

Table 7

Full or Part Time Student

		Full or Part Time Student		Total
		Full Time Student	Part-Time Student	
Completer	Count	22	9	31
	% within Completer At-Risk Non-Completer	71.0%	29.0%	100.0%
At-Risk Completer	Count	42	35	77
	% within Completer At-Risk Non-Completer	54.5%	45.5%	100.0%
Non-Completer	Count	12	2	14
	% within Completer At-Risk Non-Completer	85.7%	14.3%	100.0%
Total	Count	76	46	122
	% within Completer At-Risk Non-Completer	62.3%	37.7%	100.0%

Table 7 shows that the majority of the participants in the study were full time students

(62%).Twenty-two of the completers were full time students, and nine were part-time

students. Forty-two of the at-risk completers were full time students, and thirty-five were

part-time students. Twelve non-completers were full time students and two were part-

time students.

Table 8

Financing Education

		Financing Education					Total
		Grants	Loans	Scholarships	Personal Finances	Other means Finance Educ	
Completer	Count	4	9	10	1	7	31
	% within Completer At-Risk Non-Completer	12,9%	29.0%	32.3%	3.2%	22.6%	100.0%
At-Risk Completer	Count	5	16	15	13	28	77
	% within Completer At-Risk Non-Completer	6.5%	20.8%	19.5%	16.9%	36.4%	100.0%
Non-Completer	Count	3	3	2	1	5	14
	% within Completer At-Risk Non-Completer	21.4%	21.4%	14.3%	7.1%	35.7%	100.0%
Total	Count	12	28	27	15	40	122
	% within Completer At-Risk Non-Completer	9.8%	23.0%	22.1%	12.3%	32.8%	100.0%

Table 8 indicates that (33%) of the participants in the study used other means to finance their education. The category "used other means to finance education" could indicate that students used a combination of grants, loans, scholarships, and personal finances to finance their education. Thirty-two percent of completers used scholarships to finance their education. Four completers financed their education from grants, nine financed their education using scholarships, one used personal finances, and seven used other means to finance their education. Thirty-six percent of at-risk completers used other means to finance their education. Five at-risk completers used grants to finance their education, sixteen used loans, fifteen used scholarships, thirteen used personal finances, and twenty-

eight used other means to finance their education. Thirty-six percent of non-completers used other means to finance their education. Three non-completers used grants to finance their education, three used loans, two used scholarships, one used personal finances, and five used other means to finance their education.

Table 9

Marital Status

		Marital status					Total
		Single	Married	Widowed	Separated	Other	
Completer	Count	13	15	1	1	1	31
	% within Completer At-Risk Non-Completer	41.9%	48.4%	3.2%	3.2%	3.2%	100.0%
At-Risk Completer	Count	28	43	0	0	6	77
	% within Completer At-Risk Non-Completer	36.4%	55.8%	.0%	.0%	7.8%	100.0%
Non-Completer	Count	4	9	0	0	1	14
	% within Completer At-Risk Non-Completer	28.6%	64.3%	.0%	.0%	7.1%	100.0%
Total	Count	45	67	1	1	8	122
	% within Completer At-Risk Non-Completer	36.9%	54.9%	.8%	.8%	6.6%	100.0%

Table 9 shows that the majority of the participants in the study were married (55%) Thirteen completers were single, fifteen were married, one was widowed, one was separated, and one had a marital status different than the choices listed. Twenty-eight at-risk completers were single, forty-three were married, and 6 had a marital status different than the choices listed. Four non-completers were single, nine were married, and one had a marital status different from the choices listed.

Table 10

Parental Status (Number of children)

		Number of Children					Total
		Zero	One	Two	Three	Four	
Completer	Count	18	5	4	4	0	31
	% within Completer At-Risk Non-Completer	58.1%	16.1%	12.9%	12.9%	.0%	100.0%
At-Risk Completer	Count	43	14	10	6	4	77
	% within Completer At-Risk Non-Completer	55.8%	18.2%	13.0%	7.8%	5.2%	100.0%
Non-Completer	Count	7	3	3	1	0	14
	% within Completer At-Risk Non-Completer	50.0%	21.4%	21.4%	7.1%	.0%	100.0%
Total	Count	68	22	17	11	4	122
	% within Completer At-Risk Non-Completer	55.7%	18.0%	13.9%	9.0%	3.3%	100.0%

Table 10 shows that the majority of the participants in the study had no children (56%)

Eighteen completers had no children, five had one child, four had 2 children, and four

had three children. Forty- three at-risk completers had no children, fourteen had one

child, ten had 2 children, six had three children and four had four children.

Table 11

Attended another PhD program

| | | Attended another PHD program | | Total |
		Did not attend another PhD program	Attended another PhD Program	
Completer	Count	27	4	31
	% within Completer At-Risk Non-Completer	87.1%	12.9%	100.0%
At-Risk Completer	Count	74	3	77
	% within Completer At-Risk Non-Completer	96.1%	3.9%	100.0%
Non-Completer	Count	14	0	14
	% within Completer At-Risk Non-Completer	100.0%	.0%	100.0%
Total	Count	115	7	122
	% within Completer At-Risk Non-Completer	94.3%	5.7%	100.0%

Table 11 shows that the majority of participants in the study did not attend another PhD program prior to enrolling in this university (94%)

Chi-square Test for Independence

The Chi-square test was use to examined the relationship between the categorical variables in the study: Age, Gender, Ethnicity/Race, Religion, Full/Part-time student, Financing Education, Martial Status, Parental Status, and attending another doctoral program. This study attempted to determine if the three levels of the independent variable degree status's classifications: Completers, At-Risk Completers, and Non-Completers are related to the above dependent study variables. Stated another way degree status classifications Completers, At-Risk Completers, and Non-Completers are independent of the study variables. Table 12 shows the recoding of the variables for the Chi-Square analysis.

Table 12

Recoded Variables

Variable	Recoded Variable
Age	Age 20-40= 1
20- 30	Age 41-60= 2
31-40	
41-50	
51-60	
Variable	Recoded Variable
Attended other PhD program	Yes = 1 2 = No
Religious Affiliation	
Catholic	Catholic =1
Christian	Non-Catholic = 2
Episcopal	
Jewish	
Latter Day Saint	
Protestant	
Buddhist	
Non-denominational	
No Religion	
Financing Education	Grants, Loans, Scholarships = 1
Grants	Personal Finances, Other means to Finance Education = 2
Loans	
Scholarships	
Personal Finances	
Other means to Finance Education	
Full or Part Time Student	Full time = 1
	Part time = 2

Table 12 (continued)

Recoded Variables

Variable	Recoded Variable
Gender,	Male = 1
	Female = 2
Marital Status	
Single	Single, Widowed, Separated = 1
Married	Married, Other = 2
Widowed	
Separated	
Other	
Parental Status (Number of Children)	Zero = 1
Zero	One, Two, Three Four = 2
One	
Two	
Three	
Four	
Race/ Ethnicity	
White	White = 1
African American	Non- White = 2
Asian/Oriental	
Hispanic	

Two of the variables showed a significant relationship with degree status. There was a significant relationship between Ethnicity/Race and degree status X^2(2, n=122) = 9.848, p<.007. There was also a significant relationship between student status (Full/Part-Time) and degree status X^2(2, n=122) = 6.231, p<.044.

Table 13

Race * Completer At-Risk Non-Completer Crosstabulation

			Completer At-Risk Non-Completer			Total
			Completer	At-Risk Completer	Non-Completer	
Race	White	Count	21	69	9	99
		% within Race	21.2%	69.7%	9.1%	100.0%
	Non-White	Count	10	8	5	23
		% within Race	43.5%	34.8%	21.7%	100.0%
Total		Count	31	77	14	122
		% of Total	25.4%	63.1%	11.5%	100.0%

$$X^2 = 9.848, p<.007$$

Non-White students are more likely than white students to complete the

dissertation within the expected time frame or not complete the dissertation at all, and are

less likely to be an At-Risk Completer.

Table 14

Full or Part Time Student * Completer At-Risk Non-Completer Crosstabulation

		Completer At-Risk Non-Completer			Total
		Completer	At-Risk Completer	Non-Completer	
Full Time Student	Count	22	42	12	76
	% within Full or Part Time Student	28.9%	55.3%	15.8%	100.0%
Part-Time Student	Count	9	35	2	46
	% within Full or Part Time Student	19.6%	76.1%	4.3%	100.0%
Total	Count	31	77	14	122
	% of Total	25.4%	63.1%	11.5%	100.0%

$$X^2 = 6.231, p<.044.$$

The results indicate that degree status: Completers, At-Risk Completers, Non-Completers is not independent of the variables Ethnicity/Race and Full/Part-Time student. Further the results indicate that full-time students are more likely than part-time students to complete their dissertation within the expected time frame or not complete their dissertation at all, and are less likely to be At-Risk Completers.

Statistical Analysis: Summary of Findings Related to each Research Question

The study's research questions were evaluated using quantitative data analysis techniques. The research questions were as follows:

- Do Completer's acquire more understanding (cognitive maps) of the doctoral process from University documents, Faculty, and Peers than At-Risk Completers and non-completers (ABD),
- Do Students acquire more understanding (cognitive maps) of the doctoral process from University documents, Faculty, or Peers?
- What student characteristics (age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, parental status, and previous enrollment in a doctoral program) are important predictors of completion of degree requirements
- .What is the relationship between non-completers' conceptual understanding of the doctoral process (cognitive maps) and the number of years of persistence at the university?
- Does Religious Identity of the university play a role in doctoral persistence?

Hypothesis: 1 addressed Research Question I.

Completers (received Ph.D. within a five year period) will have more favorable mean scores on the university, faculty, and peer components of the survey instrument indicating that completers acquired more understanding of the doctoral process from the university, faculty, and peers than at-risk completers and non-completers.

A one-way between-groups analysis of variance was conducted to determine if completers receive more understanding of the doctoral process from university documents, faculty and peers than at-risk completers, and non-completers.

There were significant differences between the groups (Completers, At-Risk Completers, Non-Completers) on two items of the amount of understanding that faculty provided with respect to the doctoral process: 24A) Worked required for the PhD (p = .028), and 24E) Comprehensive Guidelines (p = .005),In addition, two other items approached significance on the Faculty understanding items 24H) Major advisor selection (p = .071) and 24K) dissertation guidelines (p = .062). Post-hoc comparisons using Bonferroni test indicated that on "worked required for the PhD" the mean score for Completers (M=1.35, SD=.551) was significantly different from Non-Completers (M=2.00, SD=1.11). At-Risk Completers (M=1.66, SD= .771) did not differ significantly from Completers or Non-Completers. Post-hoc comparisons using Bonferroni test indicated that on "comprehensive guidelines" the mean score for Completers (M=1.21, SD= .491) was significantly different from At-Risk Completers (M=1.66, SD=.809) and Non-Completers (M=2.00, SD=1.18). At-Risk Completers (M=3.86, SD=1.24) and Non-Completers did not differ significantly on the understanding that Faculty provided on comprehensive guidelines. There were no significant differences between the groups (Completers, At-Risk Completers, Non-Completers) on items measuring university understanding and peer understanding. See Tables 15 and 17.

Table 15

Comparisons of Means of University Understanding Items of Completers, AT-Risk
Completers, and Non-Completers

Descriptives

University Understanding	Completer	At-Risk Completer	Non-Completer	F	Sig
23A University's policies and procedures	1.90	1.92	2.42	2.40	.095
23B Work required for the PhD	1.65	1.68	1.86	.441	.645
23C Degree requirements for the PhD	1.48	1.46	1.64	.507	.604
23D Course selection for the PhD	1.77	1.69	2.00	.832	.438
23E Comprehensive exam guidelines	1.59	1.81	2.08	1.51	.226
23F Course outlines	1.80	1.85	2.00	.217	.805
23G Grading	2.13	2.04	2.29	.384	.628
23H Major advisor selection	2.31	2.11	2.58	1.23	.296
231 Mentoring guidelines	2.43	2.78	2.85	1.17	.313
23J P&D guidelines	1.97	2.10	2.40	.765	.468
23K Dissertation guidelines	1.90	1.88	2.27	1.19	.308
23L Dissertation defense	1.86	2.06	2.11	.509	.603
23M Financial aid guidelines	2.42	2.60	2.23	820	.443
23N Support groups available	2.96	3.32	3.08	1.27	287
230 Technology available for studies	2.56	2.85	3.17	1.59	.208

Table 16

Comparisons of Means of Faculty Understanding Items of Completers, AT-Risk
Completers, and Non-Completers

Descriptives

Faculty Understanding	Completer	At-Risk Completer	Non-Completer	F	Sig.
24A University's policies and procedures	1.71	1.79	2.21	1.82	.166
24B work required for the PhD	1.35	1.66	2.00	3.67	.028
24C degree requirements for the PhD	1.29	1.48	1.71	1.86	.160
24D course selection for the PhD	1.42	1.65	1.92	2.32	.103
24E comprehensive exam guidelines	1.21	1.66	2.00	5.47	.005
24F course outlines	1.48	1.61	1.86	1.23	.291
24G grading	1.61	1.72	2.00	.903	.408
24H major advisor selection	1.80	1.97	2.54	2.70	.071
241 mentoring guidelines	2.03	2.36	2.69	1.87	.159
24J P&D guidelines	1.50	1.84	1.91	1.52	.224
24K dissertation guidelines	1.40	1.80	1.83	2.85	.062
24L dissertation defense	1.47	1.82	1.78	1.81	.168
24M financial aid guidelines	2.52	2.79	2.50	752	A74
24N support groups available	2.81	3.03	3.08	. 447	.641
240 technology available for studies	2.24	2.60	2.82	1.40	.250

Table 17

Comparisons of Means of Peer Understanding Items of Completers, AT-Risk
Completers, and Non-Completers

Descriptives

Peer Understanding	Completer	At-Risk Completer	Non-Completer	F	Sig.
25A University's policies and procedures	2.10	2.26	2.17	.381	.684
25B Work required for the PhD	1.97	2.06	2.25	.435	.648
25C Degree requirements for the PhD	1.97	2.17	2.17	.571	.567
25D Course selection for the PhD	2.06	2,23	2.33	.445	.642
25E Comprehensive exam guidelines	1.93	2.16	1.82	1.06	.349
25F Course outlines	2.32	2.35	2.67	.644	.527
25G Grading	2.29	2.35	2.67	.794	.455
25H Major advisor selection	2.13	2.41	2.50	.970	.383
251 Mentoring guidelines	2.48	2.82	2.58	1.20	.305
25J P&D guidelines	1.93	2.39	2.00	2.50	.087
25K Dissertation guidelines	2.00	2.37	1.90	2.24	.111
25L Dissertation defense	2.07	2.27	2.11	.487	.616
25M Financial aid guidelines	2.53	2.91	2.88	1.30	.278
25N Support groups available	2.79	2.95	2.42	1.22	297
250 Technology available for studies	2.59	2.67	2.60	055	.946

Hypothesis: 2 addressed Research Question 2

The more favorable mean conceptual understanding scores will occur on the faculty
component of the survey instrument indicating that Completers, At-Risk-Completers,
and Non-Completers rely more on faculty to acquire an understanding (cognitive
maps) of the doctoral process then on University documents and Peers.

Hypothesis 2 was evaluated using a one-way repeated measures ANOVA. A one-way

within subjects (or repeated measures) ANOVA was conducted to compare the

understanding items associated with University documents, Faculty, and Peers to

determine if the faculty component of the survey had more favorable means. More favorable means on the faculty component would indicate that faculty provided more understanding of the doctoral process to Completers, At-Risk Completers and Non-completers.

The results of the analysis showed that in the Tests of Within-Subjects Effects there was a significant difference between University understanding items, Faculty understanding items, and Peer understanding on all 15 items. All significance values are <.05. Table 17 lists the comparisons. On 13 of the items, students had a more favorable rating of the help provided by faculty in understanding the doctoral process when compared to the help in understanding of the doctoral process provided by university documents and peers. Students indicated that university documents assisted them in understanding financial aid guidelines and their peers helped with identifying available support groups.

The comparison also revealed that the Faculty provided the most information with respect to "Degree requirements for the PhD" and "Comprehensive guidelines." Further, the results indicate that Faculty provided the least amount of information with respect to "Support groups" and "Financial aid available to students."

Table 18

Understanding Items - Test within Subject Effects

Understanding Items	University	Faculty	Peers	Sig.
A Policies and procedures	2.05	1.88	2.19	.037
B Work required for the PhD	. 1.75	1.67	2.09	.002
C Degree requirements for the PhD	1.55	1.50	2.10	.001
D Course selection for the PhD	1.86	1.66	2.20	.001
E Comprehensive exam guideline	1.89	1.65	1.93	.053
F Course outlines	1.86	1.66	2.20	.001
G Grading	2.23	1.84	2.43	.001
H Major advisor selection	2.33	2.05	2.33	.039
I Mentoring guidelines	2.65	2.33	2.61	.017
J P&D guidelines	2.14	1.77	2.01	.049
K Dissertation guidelines	2.01	1.68	2.08	.010
L Dissertation defense	2.04	1.68	2.06	.013
M Financial aid guidelines	2.24	2.58	2.68	.014
N Support groups available	3.09	2.95	2.71	.004
0 Technology available for studies	2.85	2.52	2.56	018

Note: Lower scores show more agreement than higher scores

Hypothesis: 3 addressed Research Question 3.

Student characteristics of age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, and parental status, and previous enrollment in a doctoral program will be important predictors of completion of degree requirements

Multiple regression was used to address hypothesis 3.

All of the above variables listed in the research question were used in the regression

analysis. Research Question 3 examined which of the independent (predictor) variables

age, gender, race/ethnicity, marital status, full or part-time status, religion, financial

support, parental status, and previous enrollment in a doctoral program is the best

predictor of the dependent variables. The dependent (criterion) variable in the analysis is

degree completion.

The results of the regression analysis in Table 18 shows that our model using the

above independent variables did not reach statistical significance (P = .33).

Table 19

Regression of age, gender, race/ethnicity, marital status, full or part-time status, religion,
financial support, parental status, and previous enrollment in a doctoral program

Model Summary(b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.273(a)	.074	.009	.31861

a Predictors: (Constant), Attended other PHD program, Parental Status, Catholic Non-Catholic,
Race, Full or Part Time Student, Gender, AGE, Marital Status
b Dependent Variable: DEGREE

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
I	Regression	.922	8	.115	1.136	.345(a)
	Residual	11.471	113	.102		
	Total	12.393	121			

a Predictors: (Constant), #6 Attended other PHD program, Parental Status, Catholic Non-
Catholic, Race,19 Full or Part Time Student, Gender, AGE, Marital Status
b Dependent Variable: DEGREE

Table 19 (continued)

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.077	.205		5.250	.000		
	AGE	-.030	.062	-.046	-.479	.633	.873	1.145
	Gender	-.049	.060	-.077	-.819	.415	.923	1.083
	Race	-.122	.076	-.150	-1.618	.108	.952	1.051
	Catholic Non-Catholic	-.012	.061	-.018	-.193	.848	.938	1.066
	Full or Part Time Student	.117	.063	.178	1.861	.065	.894	1.118
	Marital Status	-.027	.067	-.041	-.398	.691	.780	1.282
	Parental Status	-.028	.064	-.043	-.438	.662	.834	1.199
	Attended another PHD program	.141	.129	.103	1.088	.279	.920	1.087

a Dependent Variable: DEGREE Completion

Hypothesis 4: Addressed Research Question 4.

There will be a significant relationship between the mean understanding scores on the survey instrument of non-completers and the number of years that they persist.

The variables correlated in the study were years of persistence and total university, faculty, and peer understanding scores. Years of persistence were determined by identifying the year that comprehensives were completed and subtracting it from the year when the Non-Completer stopped pursing their PhD. The results of the correlations between years of persistence and total understanding scores produced no significant correlations.

- The correlation of years of persistence and Total University understanding scores with respect to its impact on doctoral persistence was non- significant, $r = .019$, p $= .961$.
- The correlation of years of persistence and Total Faculty understanding scores with respect to its impact on doctoral persistence was non- significant, $r = -.045$, p $= .909$.
- The correlation of years of persistence and Total Peer understanding scores with respect to its impact on doctoral persistence was non- significant, $r = -.686$, p $= .089$.

Hypothesis 5: Addressed Research Question 5.

There will be a significant difference in the mean importance scores of Completers, At-Risk Completers, and Non-Completers on the Religious Identity component of the survey instrument.

To address Hypothesis 5, a one-way between groups analysis of variance was used to investigate if the students in the degree classifications (Completers, At-Risk Completers, Non-Completers.) differed on their mean importance scores on the religious identity component of the survey instrument. The dependent variables were the importance scores which measured the importance of religious identity to doctoral persistence.

The results of the analysis showed that the religious importance scores differed significantly on only one item of the religious identity component of the survey. The significant result was on: Promoting racial and ethic equality to your doctoral persistence. There was a statically significant difference in importance scores for Completers, At-Risk Completers $[F(2,109)= 3.43$ p $= .036]$. Post-hoc comparisons using Bonferroni test indicated that the mean score for Completers 0=3.07, SD=1.36) was

significantly different from At-Risk Completers (M=3.86, SD=1.24). Non-Completers

(M=3.54, SD-1.81) did not differ significantly from Completers or At-Risk Completers.

The religious identity items in the survey listed items that comprise the religious

identity of a university. The participants in the survey were asked to stipulate which

items played a role in their doctoral persistence. The significant difference found on the

religious identity item "The University's use of educational resources to promote racial

and ethic equality to your doctoral persistence" could indicate that the participants in the

survey felt that the use of university resources to promote racial and ethic equality was

related to their doctoral persistence. The significant difference was found between

Completers and At-Risk Completers. The complete results are shown in Table 19.

Table 20

Comparisons of Means of Religious Importance Items of Completers, AT-Risk
Completers, and Non-Completers

Descriptives

Religious Importance	Completer	At-Risk Completer	Non-Completer	F	Sig.
30 Support of other faiths to your doctoral persistence	3.14	3.59	3.31	.981	.378
30 Providing places of worship to your doctoral persistence	3.57	3.74	3.77	.136	.873
30 Providing pastoral care to your doctoral persistence	3.70	4.00	3.69	.520	.596
30 Providing personal development to your doctoral persistence	3.57	3.82	3.69	266	.767
31 Maintaining a faculty who identify themselves as faith base to your doctoral persistence	3.68	3.60	4.08	.592	.555
31 Importance of the University's including moral consideration in research to your doctoral persistence	3.69	3.61	3.91	.176	.839
31 Importance of the University's reference to faith in mission statements to your doctoral persistence	3.75	3.65	4.15	.588	.557
31 Creating interaction between different ethic backgrounds to your doctoral persistence	3.39	3.67	3.85	.668	.515
32 Social teachings based on Faith to your doctoral persistence	3.44	3.67	3.84	363	.696
32 Importance of the University's multicultural activities to your doctoral persistence	3.56	3.97	3.77	1.04	.356
32 Importance of the University's educating whole person to your doctoral persistence	3.07	3.52	3.54	1.08	.343
32 Promoting racial and ethic equality to your doctoral persistence	3.07	3.86	3.54	3.43	.036
32 Providing inter-denominational resources to your doctoral persistence	4.00	4.26	3.85	846	.432
33. Religious Affiliation Importance	4.16	4.17	3.69	.711	.493

<u>Summary</u>

This chapter presents the key findings of the study. The findings in Chapter 4 indicate that there was a significant difference between Completers, At-Risk Completers, and Non-Completers on two items of the amount of understanding that faculty provided with respect to the doctoral process: The groups differed on the amount of understanding that faculty provided with respect to worked required for the PhD and the amount of understanding that faculty provided with respect to Comprehensive Guidelines. In addition, two other items approached significance on the Faculty understanding items. The participants felt that faculty provided more information on advisor selection and dissertation guidelines. Further, the results of the analysis indicate that university documents and peers did not produce any significant results with respect to the amount of understanding that they provided with respect to the doctoral process to Completers, At-Risk Completers and Non-Completers. In addition, the results indicate that Completers received more information from faculty with respect to the doctoral process than At-Risk Completers and Non-Completers on two items: Worked required for the PhD and Comprehensive guidelines.

The second research hypothesis was supported. It stated that Completers, At-risk Completers, and Non-Completers would obtain the majority of their information with respect to the doctoral process from faculty. The analysis used in the hypothesis 2 showed that there was a significant difference in the amount of understanding that faculty provided to Completers, At-risk completers, and Non-Completers with respect to the

doctoral process. In addition, analysis revealed that Completers and At-Risk Completers received most of their information with respect to the doctoral process from faculty.

The third hypothesis that used regression and dealt with the variables age, gender, race/ethnicity, marital status, full or part-time student, religion, financial support, and parental status, and previous enrollment in a doctoral program produced no significant predictor of completion of degree requirements.

Hypotheses 4 generated no significant correlations between the mean understanding scores on the survey instrument of non-completers and the number of years that they persist.

Lastly, hypothesis 5 results showed that the religious importance scores differed significantly on one item of the religious identity component of the survey. The significant result was on: Using resources to promote racial and ethic equality. Completers, At-Risk completers and Non-Completers indicated that there was some connection between their doctoral persistence and the university's use of educational resources to promote rachial and ethnic equality. Further, the results showed that the significant diference on the above item was between Completers and Non-Completers.

The analysis also revealed that there is a connection between degree status (Completer, At-Risk Completer, and Non-Completer) and Ethnicity/Race and student status (full/part-time). This connection can be seen with respect to ethnicity/race because the results show that Non-White students are more likely than white students to complete the dissertation within the expected time frame or not complete the dissertation at all, and are less likely to be an At-Risk Completer. The above results could have been generated

because of sample size of the various ethnic groups and intervening variables such as traits of the ethnic groups in the study. Further the results revealed the connection between student status (full/part-time) and degree status. Full-time students are more likely than part-time students to complete their dissertation within the expected time frame or not complete their dissertation at all, and are less likely to be At-Risk Completers.

Chapter 5

Summary

This chapter is divided into four sections. The first section, presents a summary of the findings in light of how doctoral students acquire information regarding the doctoral process from university documents, faculty and peers and how this information impacts doctoral persistence. In addition, the chapter presents findings that illustrate the relationship between the religious identity of a university and doctoral persistence. The next section of the chapter discusses the major findings of the study. The third section of the chapter focuses on the conclusions that evolved from this research. This chapter concludes with specific recommendations for further research that will assist the university in developing techniques and strategies that will enhance doctoral student persistence.

This research attempted to understand how university documents, faculty, and peers help doctoral students understand the doctoral process. Further, the research sought to determine the relationship between understanding of the doctoral process acquired from university documents, faculty and peers and degree completion. Research has shown that low attrition is consistently correlated with academic disciplines and departments providing clear information and expectations regarding the student's and the faculty's roles in the degree process (King 2004). As Benkin (1984) points out, a goal of doctoral persistence research is to identify aspects of the doctoral process that can assist

students in receiving adequate understanding of the process that enables them to complete their doctoral studies and assist them in fulfilling their potentials. This research attempted to follow the above maxim. In addition, this research examined whether the religious identity of the university facilitated doctoral persistence. A number of studies have dealt with doctoral persistence. However, the approach of trying to determine how doctoral students come to understand the doctoral process has not been found in the review of the literature. To assist in this determination, the study used attributes that research has identified comprise the religious identify of a university. Examples of the attributes are as follows: establishing a welcoming environment for all faiths; maintaining a critical mass of faculty who identify themselves as faith based; providing multicultural programs and activities; and providing education for the whole person (Janosik, 1996). Also in reviewing the literature, no study was discovered that sought to determine if the religious identity of a university impacts doctoral persistence.

The underlining premise of this study is if doctoral students come to understand the doctoral process, they will persist until degree completion. The term cognitive map is used to characterize this understanding that students acquire regarding the doctoral process from university documents, faculty and peers. To address the above premise, the participants in the study were placed in classifications according to their degree status. Degree status had three divisions: Completers, At-Risk Completers, and Non-Completers (ABD). The study focused on determining if Completers acquired more information regarding the doctoral process from university documents, faculty and peers than At-Risk

Completers and Non-Completers. It was hoped that if this study could demonstrate that Completers acquired more information regarding the doctoral process from university documents, faculty, and peers that this would be the first step in establishing a connection between doctoral persistence and the development of cognitive maps. Establishing that Completers' cognitive maps were more developed than At-Risk Completers and Non-Completers could lead to the conclusion that this increased development is related to their doctoral persistence. Completers' cognitive maps were addressed because Completers constituted the one group that met the university's requirement of completing their degree within five years of completing comprehensives. In addition, Completers' cognitive maps were examined because students who demonstrate a more complete understanding (cognitive map) of the doctoral process are more likely to complete doctoral requirements within the university's five year timeframe.

The results of the study showed that the positive score for Completers indicated that they received the majority of their information with respect to the doctoral process from faculty. Research has shown that faculty is the linchpin that determines doctoral persistence. This research also showed that Completers and At-Risk completers received more information from faculty regarding the doctoral process than Non-Completers. This was an important finding for this study and was further addressed in a subsequent research question.

After examining the amount of understanding of the doctoral process that was acquired from university documents, faculty and peers, it was found that the faculty had the greatest impact on providing Completers with an understanding of the doctoral

process. This reliance by Completers on faculty to provide guidance in understanding the doctoral process supports this research's contention that faculty is the key component to ensure that doctoral students persist until to degree completion. Additional support was giving to faculty's role in the development of students' understanding of the doctoral process because the analysis showed that Completers and At-Risk Completers depended more on faculty for information regarding the doctoral process than Non-Completers.

The student characteristics used in the study were Age, Gender, Race/Ethnicity, Full or Part-Time Student, Financial Support, Martial Status, Parental Status (number of children), and previous enrollment in another PhD program prior to enrolling in this university. The student characteristics were used to determine if they are important predictors of completion of degree requirements. As the results in Chapter 4 showed, the none of student characteristics were important predictors of completion of degree requirements.

Another research question addressed the relationship between the years of persistence of Non-Completers and their total university, faculty and peer understanding scores. The study wanted to see if years of persistence of Non-Completers correlated with the amount of understanding of the doctoral process that they received from university documents, faculty, and peers. The results of the analysis between years of persistence and Non-Completers' understanding scores produced no significant inter-correlations. In short, Non-Completers years of persistence were not related to the amount of understanding of the doctoral process that they received from university documents, faculty, and peers.

The last research question addressed in the study was the relationship between the religious identity of the university and doctoral persistence. To test this relationship a comparison was made between the mean scores of Completers, At-Risk Completers and Non-Completers on the Religion Identity part of the survey. The results of the analysis of religious identify and mean scores of the above produced a significant result on only one item of the religious identity component of the survey. Completers more than At-Risk Completers and Non-Completers felt that the university's use of educational resources to promote racial and ethic equality was important to their doctoral persistence.

Discussion

The results of this study paint a clear picture, as perceived by the participants in this study that faculty play a major role in doctoral persistence. Research has shown that there is no single factor that determines if a student will persist until degree completion. Bair (1999) indicated that doctoral student attrition and persistence is a very complex, multi-faceted phenomenon. Ramos (1994) supports that above by suggesting that there is no single reason but rather a series of factors that account for doctoral students' persistence or attrition. It is clear from this research that faculty are a powerful, major, and an essential component to doctoral persistence.

This study found that faculty was the key component in providing information regarding the doctoral process to students. This finding supports that doctoral students acquiring essential information regarding the doctoral process from faculty increases the likelihood of their acquiring the doctorate. This research found that there is a paramount connection between student's perceptions of how faculty helped them to understand the

doctoral process and their perceptions of how this help assisted in degree completion. The analysis in Chapter 4 found that the Post-hoc comparison of the mean score for Completers with respect to the amount of understanding that faculty provided regarding work required for the PhD was significantly different from Non-Completers. In addition, the Post-hoc comparison found that the mean score for Completers with respect to the amount of understanding that faculty provided with respect to comprehensive guidelines was significantly different from Completers and Non-Completers. The above findings are consistent with the findings of other studies. In numerous studies, faculty-student relationships were found to be a key factor in doctoral student retention (Bair, 1999; Miller, 1995; Hales, 1998). Stallone (2003) in his research found that after his individual questionnaire items were computed into the four scales that influence completion, the faculty-student relationships had the highest mean which indicated that students placed a great deal of emphasis on how this factor contributed to their doctoral program completion. When positive faculty-student relationships are present, students are significantly more likely to complete their doctoral degrees than when such relationships are absent (Bair, 1999). Additional research also supports this study's findings that faculty are pivotal in enabling doctoral students to achieve success in the academe (Katz, 1997; Kerlin, 1997). The relationship between doctoral students and faculty/advisors is described by researchers (Golde, 1996; Lovitts, 1997) as a key component of doctoral experience.

This research did not find a correlation between years of persistence and Non-Completers understanding scores. The above finding could be an indication that Non-Completers' years of persistence did not allow them enough time to acquire the necessary information regarding the doctoral process. A possible reason that Non-Completers might not have acquired the doctorate is because they did not spend enough time in the doctoral program to acquire the necessary understanding of the doctoral process. This lack of understanding of the doctoral process could be associated with their withdrawal and less associated with the abandonment of their academic dream because of academic shortcomings. In truth, academic failure accounts for a very small percentage of departures because departures are more likely to be attributed to a poor understanding of program requirements or a lack of adequate advising that bring students to the realization that have to assume responsibility for their success or failure in a doctoral program (Lovitts, 1997; Tinto, 1993). In addition, their failure could be an inability to settle on a dissertation topic, develop and adequate proposal, or conduct the research needed to complete the dissertation.

A finding of this research was that the participants in the study felt that an aspect of the religious identity of the university, the university using resources to promote racial and ethic equality, was significantly related to their doctoral persistence. The above result speaks to students perceptions of the religious identity of the university and the role that it plays in their doctoral persistence. Only one item of the 15 items on religious identity part of the survey was important to the doctoral persistence of the participants.

Conclusions

Doctoral persistence is a complex issue and that there are a myriad of factors that determine if students will persist or leave prior to completion of doctoral studies. Bair (1999) points out that the circumstances surrounding both attrition and persistence are highly complex, and no single variable explains doctoral student attrition or persistence; rather, several variables are at play in determining attrition or persistence. Jacks, Chubin, Porter, and Connolly (1983) underscored in their narrative study across 18 departments at 15 universities that the phenomena of attrition and persistence are highly complex issues for students. Lovitts (1997) also addresses the many-sided issues of doctoral persistence and attrition by making the point that students who leave normally do not leave for a single reason, but often leave for multiple reasons.

From the results of this research, a number of conclusions emerged concerning the degree classification groups: Completers, At-Risk Completers and Non-Completers. These conclusions could shed light on ways to assist doctoral students' conceptual understanding of the doctoral process which in turn could lead to increase doctoral persistence. The analysis of the data showed that Completers perceptions of the amount of understanding that they received from faculty with respect to work required for the PhD was significantly different from Non-Completers and the amount of understanding that they received from faculty with respect to comprehensive guidelines was significantly different from At-Risk Completers and Non-Completers. These significant differences give some indication that Completers received a better understanding of the doctoral process from faculty than did At-Risk Completers and Non-Completers. The

results showed that faculty play instrumental role in providing conceptual

understanding(cognitive map) of the doctoral process. The above conclusion supports the

premise of this study that doctoral students who acquired most of their information with

respect to the doctoral process from faculty will persist until they achieve their goal of

degree completion. The inverse to this conclusion is that Non-Completers, who depend

less on faculty for their information with respect to the doctoral process were hindered in

their attempts to achieve their goal of degree completion.

A second conclusion from the analysis is that faculty played a major role in

helping all students understand the doctoral process. The degree of help that faculty

provided differed for Completers, At-Risk Completers, and Non-Completers in this

study. However, this study reveled that all groups in this study relied on faculty to

provide understanding of the doctoral process, and this help was more favorable than the

help provided by university documents and peers. This conclusion was supported by

other researchers who found that faculty-student relationships were key factors in

program success (Bair, 1999; Parent, 1998). Each of the three degree classifications

Completers, At-Risk Completers, and Non-Completers received most of their information

regarding the doctoral process from faculty.

The third conclusion is that student characteristics that were used as predictors of

doctoral persistence do not have an impact on doctorial persistence. The student

characteristics did not affect how they acquired information regarding the doctoral

process. This conclusion was surprising because data for the various categories of

demographic variables often showed in a number of studies that certain demographic

variables play a role in predicting persistence or attrition, and this holds true for age, number of children, marital status, part-time versus full-time enrollment, sex, and race or ethnicity (Skudlarek, 1992; Harris, 1976; Hagedorn, 1993; Presley, 1996; California Postseconday Education Commission, 1990; Zwick, 1991; Bowen and Rudenstine, 1992).

A fourth conclusion reached by this study was that Non-Completers understanding scores are not related to their years of persistence. Their persistence is not determined by or related to the amount of understanding that they acquire with respect to the doctoral process from university documents, faculty or peers. Non-Completers years of persistence were not significantly related to the amount of understanding that they received regarding the doctoral process from university documents, faculty and peers. The correlation between non-completers years of persistence and their understanding scores were not significant.

The fifth conclusion reached is that the majority of the participants in this study felt that the religious identity of the university did not play a role in their doctoral persistence. This conclusion was reached because only one item out of 14 on the religion identity portion of the survey was important to the respondent's doctoral persistence.

Recommendations for Future Research

This study reveals that additional research is needed to assist students in understanding the doctoral process. If research can produce insights to help students understand the doctoral process, this understanding will enhance their chances of having a challenging, rewarding, and meaningful doctoral experience. King (2004) opines that

further research is needed that will help universities better meet-and exceed-doctoral students' expectations. Based on the need for additional research on doctoral persistence and the results of this study, a list of research areas were developed that could help shed light on the complex phenomenon of doctoral persistence.

The first recommendations for further research is based on the findings in this study involve roles that faculty play in doctoral persistence. Faculty are singled out for future research because taken together, it is apparent that doctoral degree completion is related to the experiences and interactions that students have with faculty, each other, and the colleges and universities of which they become a part (Bair, 1999). The first area where further study is recommended revolves around faculty because this studies finding showed that faculty play a key and vital role in helping students move through the doctoral process. Research could involve identifying best practices that faculty could engage in with students to ensure that they complete there degree. Both quantitative and qualitative research should be conducted from both student and faculty perspectives. Studies involving students could be conducted to determine from their perspective what type of information they need to ensure doctoral completion. Faculty studies could be conducted to determine their perspective of what type of information they think students need to ensure doctoral completion. The research would attempt to meld the two perspectives to devise a straightforward plan for doctoral student's success. Often faculty expectations differ from students' expectations on what type of information is needed for degree completion. Stallone (2003) indicates that when a positive relationship is absent between doctoral students and faculty progress toward the PhD may be hindered.

Any research that could identify those salient features of the doctoral process that need to be disseminated to the students from the faculty with respect to the doctoral process would be a bonanza that would help to ensure that more students would persist until degree completion. Lending additional credence to the need for additional research to examine the relation between the faculty and student is Tinto's (1993) assertion that doctoral student persistence in the last stage of their work is primarily the result of the student relationship with the faculty advisor. At the doctoral level, faculty need to go beyond the advising role; indeed, research on advising indicates that students who have a mentoring relationship with their advisors feel professionally affirmed and are more productive after graduation (Heinrich, 1991; Subotnik & Arnold, 1995).

The next recommendation that is made for further research results from this researcher's difficulty in acquiring the necessary data to complete this study. Research should be undertaken to find ways that needed data can be obtained from the university that would facilitate research studies. Research in this area is highly recommended because having adequate data will enable research to evolve that can guide policy, procedures, and practices that can assist all doctoral students in obtaining the doctorate in an efficient and timely manner. Research is needed to determine effective ways that universities can use to collect data on all aspects of doctoral students' progression through the doctoral process from initial enrollment, withdrawal, and degree completion. In addition, the study could be used to determine how information on doctoral students can be disseminated to a researcher without compromising the privacy of students. This data collection module would be applied to all schools of the university, and the

collection of the data would be consistent throughout the university. Of paramount importance is that any research that focuses on data collection should search for ways that can ensure that accurate records are maintained on students who withdraw from the program and students who are placed in an ABD status. Students who withdraw and the ABD population are of critical importance to researchers if they hope to develop a paradigm that will reduce attrition and increase persistence of all doctoral students. The research could also focus on what are the barriers that prevent universities from maintaining accurate records on doctoral students' matriculation. Of critical importance is for research to focus on determining what are the barriers that prevent department and schools from providing needed information to a researcher who is attempting to examine the ways that can best help doctoral students acquire the doctorate.

One population that universities are highly sensitive to is the ABD population, and they have to very cautious in providing information on this population. Universities have to be very cautious about releasing information about students because of the Family Educational Rights and Privacy Act (FERPA), so it is understandable why they cannot release certain information about students. This is the population that is in most need of having policy and procedures developed that will assist in their degree completion. In addition, if adequate records are provided for all doctoral students, it would enable researchers to utilize the data that will be of benefit to all students entering doctoral programs. Further, a standard set of institutional benchmarks should be established for collecting data on doctoral student persistence and attrition to ensure that such data are available to be compared across programs, departments, and institutions

(Bair, 1999). In summation, the goal of the institution should be to maintain accurate records on the doctoral process of its doctoral students, and make the records available to enable researchers to conduct research that will benefit all doctoral students across all schools and all departments.

The last recommendation for further research which is based on the study's findings is associated with religious identity of the university. This research would involve administration, faculty and students. This study found one item on the religious identity part of the survey was important to respondent's doctoral persistence. A researcher could possibly rephrase the questions in this study that would more precisely address the relationship that may exist between the religious identity and doctoral persistence. If the university's identity is associated with certain values, it is important that the university demonstrate those values in such a way that doctoral students see a major connection between the values and doctoral persistence. The research could assist the administration in determining what policy and procedures are needed to ensure that the values of the university are imparted to the students to enable them to see the relationship between the religious identity of the university and doctoral persistence. The research would assist in determining how these values could be woven in all aspects of the curriculum, policies, procedures, and the instructional process. The research would determine if the values espoused by the faculty are aligned with the religious identity of the university, and determine how the faculty could best transmit the religious identity to the students. If this study found that the religious identity of the university has minor importance to doctoral persistence, the research could seek to determine how students

feel about the religious identity of university and what policy and procedures should be put in place to enable students to comprehend the significance of the identity of the university and its relation to doctoral persistence. The research could seek to determine from a students' point of view just how the religious identity of the university can be included in all aspects of the doctoral process.

Appendix A

Survey Instrument

THE CATHOLIC UNIVERSITY OF AMERICA

Doctoral Persistence Survey

1. Enter Survey Code Emailed to you_____

2. What year did you begin your doctoral studies at the University? Year_____

3. What year did you complete Comprehensive exams?   Year_____

4. Your department or school _____

5. Your doctoral major _____

Indicate Your Choice by placing a check mark in the box.

6. Did you attend another doctoral program prior to enrolling at the University?

❑Yes   ❑ No

7. What is your gender?   ❑ Female   ❑ Male

8. What is your primary ethnicity?

❑White   ❑ African American ❑ Asian/Oriental   ❑Hispanic

❑Native American_____ ❑ Other Specify_____

9. What was your age range when you received your PhD?

❑ 20- 30 0 31- 40   0 41 — 50   O 51- 60   0 61- 70   0 Over 70

10. Year of Graduation

01997 01998 01999 ❑ 2000   ❑ 2001   ❑ 2002 ☐2003
❑2004 ❑ 2005 ❑ 2006 ❑ 2007   ❑ Not applicable

11. How long did it take you to receive your PhD?

❏ 3 years ❏ 4 years ❏ 5 years ❏ More than 5 years
❏ Not Applicable ❏ Other

12. If you did not graduate, indicate the year when you stopped pursuing your PhD?

01997 ❏1998 01999 ❏2000 ❏2001 ❏2002
❏2003 ❏2004 ❏2005 ❏2006 ❏Not applicable

13. If you did not graduate, what was your age range when you stopped pursuing your PhD?

❏20- 30 ❏ 31- 40 ❏) 41— 50 ❏ 51- 60 O 61- 70 ❏ Over 70
❏ Not applicable

14. If you did not graduate, check the reasons why you think you did not receive your PhD. **Check all that apply**

❏ Financial issues ❏ Lack of faculty support ❏ Family issues
❏ Lost interest ❏ Job issues ❏ Personal issues
❏) Frustration with the doctoral process ❏ Philosophical conflicts
❏ Other (Please specify) _____ ❏ Not applicable

15. If you did not graduate, what was the **number one** reason why you think you did not receive your PhD.
❏ Financial issues ❏ Lack of faculty support ❏ Family issues
❏ Lost interest ❏ Job issues ❏ Personal issues
❏ Frustration with the doctoral process ❏ Philosophical conflicts
❏ Other (Please specify) _____ ❏ Not applicable

16. Your martial status after completing comprehensives:

❏ Single ❏ Married CI Widowed ❏ Separated
❏ Other (Please Specify)_____

17. Indicate the number of children that were part of your family during your doctoral studies_____

18. What is you religious affiliation? _____
19. Your student status during the majority of your doctoral studies:

❏ Full time ❏Part time

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20. What was your employment status during your doctoral studies?

❑Full time_____❑ Part time 0 Other (Please Specify)_____

21. How did you finance your doctoral studies?

❑Grants 0 Loans   ❑Scholarships 0 Personal finances
❑Combination of methods (Specify) _____

22. After leaving graduate school, how much money did you owe from all educational sources?

❑Still enrolled   0 None ❑ $10,000 or less
❑$10,000 - $20,000 ▭$20,000 - $30,000   0 $30,000 - $40,000
❑$40,000 - $50,000 ▭More than $50,000

Department /University: Understanding the Doctoral Process

23. Overall how did the university/department's written documents (i.e. Graduate handbook, university announcements, University's website) help you understand the process of obtaining the Ph.D.

Items	Complete Understanding	Some Understanding	Little Understanding	No Understanding	Not Applicable
a) University/ department policies and procedures	❑	❑	❑	❑	❑
b) Work required for PhD					
c) Program/degree requirements					
d) Course selection guidelines			CI		
e) Comprehensive exam guidelines	❑				❑
f) Faculty course outlines			❑		
g) Faculty grading procedures			❑	❑	❑
h) Choosing a Major advisor	❑	❑	❑	❑	❑
i) Mentoring guidelines				❑	❑
j) Proposal defense (P&D)	❑	❑	❑	❑	❑
k) Dissertation guidelines	❑	❑	❑	❑	❑
l) Dissertation defense	❑	❑	❑	❑	❑
m) Financial aid guidelines	❑	❑	❑	❑	❑
n) Graduate support groups	❑	❑	❑	❑	❑
o) Technology used in doctoral studies	❑	❑	❑	❑	❑

Faculty: Understanding the Doctoral Process

24. Overall how did the faculty help you understand the doctoral process of obtaining the Ph.D. by providing information regarding the items below?

Items	Complete Understanding	Some Understanding	Little Understanding	No Understanding	Not Applicable
a) University/ department policies and procedures	❏	❏	❏	❏	❏
b) Work required for PhD	❏	❏	❏	❏	❏
c) Program/degree requirements	❏	❏	❏	❏	❏
d) Course selection guidelines	❏	❏	❏	❏	❏
e) Comprehensive exam gridlines	❏	❏	❏	❏	❏
1) Faculty course outlines	❏	❏	❏	❏	❏
g) Faculty grading procedures	❏	❏	❏	❏	❏
h) Choosing a Major advisor	❏	❏	❏	❏	❏
i) Mentoring guidelines	11	❏	❏	❏	❏
j) Proposal defense (P&D)	❏	❏	❏	❏	❏
k) Dissertation guidelines	❏	❏	❏	❏	❏
I) Dissertation defense	❏	❏	❏	❏	17
m) Financial aid guidelines	❏	❏	❏	❏	O
n) Graduate support groups	❏	❏	❏	❏	❏
o) Technology used in doctoral studies	❏	❏	❏	❏	❏

Graduate Peers: Understanding the Doctoral Process

25. Overall how did your graduate peers help you understand the doctoral process of obtaining the Ph.D. by providing information regarding the items below?

Items	Complete Understanding	Some Understanding	Little Understanding	No Understanding	Not Applicable
a) University/ department policies and procedures	❑	❑	❑	❑	❑
b) Work required for PhD	❑	❑	❑	❑	❑
c) Program/degree requirements	❑	❑	❑	❑	❑
d) Course selection guidelines	❑	❑	❑	❑	❑
e) Comprehensive exam guidelines	❑	❑	❑	❑	❑
f) Faculty course outlines	❑	❑	❑	❑	❑
g) Faculty grading procedures	❑	❑	❑	❑	❑
h) Choosing a Major advisor	❑	❑	❑	❑	❑
i) Mentoring guidelines	❑	❑	❑	❑	❑
j) Proposal defense (P&D)	❑	❑			❑
k) Dissertation guidelines	❑	❑	❑	❑	❑
l) Dissertation defense	❑	❑	❑	❑	❑
m) Financial aid guidelines	❑	❑	❑	❑	❑
n) Graduate support groups	❑	❑	❑	❑	❑
o) Technology used in doctoral studies	❑	❑	❑	❑	❑

26. If the university/department, faculty, and peers helped you understand the doctoral process in ways that were not covered in the above survey items, please indicate those ways below. If you have no comment, please enter Not Applicable (N/A).

_____

_____

27. Do you know any students who completed comprehensives and did not acquire their PhD? ❑ Yes   ❑ No

28. If your answer is yes, please indicate their names and the reason (s) you think they did not acquire the PhD. If your answer is no, please write Not Applicable (N/A)

_____

_____

29. What do you think is the **number 1** reason a student once enrolled in the doctoral program would fail to receive their PhD? **Check only one**

❑ Financial issues   ❑ Lack of faculty support   ❑ Family issues
❑ Lost interest ❑ Job issues   ❑ Personal issues
❑ Frustration with the doctoral process   ❑ Philosophical conflicts
❑ Other (Please specify)_____

Institutional Identity Index

This part of the survey is an attempt to determine if the religious identity of the University had an impact on your doctoral persistence. The religious identity of the University being studied derives its identity from each of the characteristics listed in items 30 through 32.

Using the university's characteristics listed in items 30 through 32, please rate each of the following characteristics within the context of the question. How important was this characteristic to your doctoral persistence?

Doctoral persistence is defined as a student's postsecondary education continuation behavior that leads to graduation.

30. University Characteristics	Critically Important	Very Important	Important	Somewhat Important	Not Important	Unsure	Not Applicable
Creating a welcoming, supportive environment for members of all faiths	❏	❏	❏	❏	❏	❏	❏
Maintaining places of sacred worship (e.g., chapels, churches, other spaces for reflection, prayer or group assembly)	❏	❏	❏	❏	❏	❏	❏
Promoting the pastoral care of all campus community members	❏	❏	❏	❏	❏	❏	❏

Institutional Identity Index (continued)

31 University Characteristics	Critically Important	Very Important	Important	Somewhat Important	Not Important	Unsure	Not Applicable
Facilitating personal development in a faith based context	❏	❏	❏	❏	❏	❏	❏
Maintaining a critical mass of faculty and other employees who identify themselves as faith based.	❏	❏	❏	❏	❏	❏	❏
Including moral, spiritual and religious considerations in scientific and technological research	❏	❏	❏	❏	❏	❏	❏
Maintaining clear references to the faith baseness of the institution in mission statements, course catalogues, student handbooks and other publications	❏	❏	❏	❏	❏	CI	❏
Creating opportunities to learn about and interact with peoples of diverse ethnic and religious backgrounds	❏	❏	❏	❏	❏	❏	❏

Institutional Identity Index (continued)

32. University Characteristics	Critically Important	Very important	Important	Somewhat Important	Not Important	Unsure	Not Applicable
Considering institutional policies and practices in light of the social teaching of a faith based community	❏	❏	❏	❏	❏	❏	❏
Providing multicultural programs and activities	❏	❏	❏	❏	❏	❏	❏
Providing education for the whole person	❏	❏	❏	❏	❏	❏	❏
Using the educational resources of the institution to promote racial and ethnic equality	❏	❏	❏	❏	❏	❏	❏
Providing access to a variety of inter-denominational religious resources	❏	❏	❏	❏	❏	❏	❏

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Question 33below speaks directly to the question of the role that the religious affiliation of the university played in your doctoral persistence?

33. How important do you think your doctoral persistence was due too this institution because you believed that an institution with this religious affiliation would be more likely to insure that you completed your degree than non-sectarian schools?

❏) Critically Important   ❏ Very Important   ❏ Important
❏ Somewhat Important   ❏ Not Important   ❏ Unsure   ❏ Not Applicable

Interviews

To further gather additional information regarding doctoral persistence, would you be willing to particiapate in a focus group.

0 Yes   ❏ No

If you answered yes, please indicate your email address below, so we can contact you.

Email address_____

Appendix B

Letter of Introduction

The Catholic University of America
620 Michigan Avenue, NE
Washington, DC 20064

Dear Student:

We are aware that graduate education is one of the most intense experiences you have had. For instance, statistics show that half of all students who enter doctoral programs never receive the Ph.D. Shockingly little is known about why some students persist until degree completion and others do not.

A doctoral student has undertaken the task to learn more about the factors that enable graduate students to successfully persist until they complete their degrees. This research also hopes to provide guidelines to assist future students in their successful acquisition of the graduate degrees.

Your cooperation in participating in this research will provide crucial information for improving graduate education for all students. Your participation in the research may also benefit you by helping you to understand your experiences as a graduate student.

The survey instrument for this study is online and is secure and will insure your anonymity. The site is https://surveys.cua.edu/soundings?srv—persistcand you will/will not need to use a log-in code.

You should understand that this is research for a doctoral dissertation. Your cooperation is completely voluntary, but it is most needed to enable the researcher to acquire the information he needs to complete his research study..

If you have trouble accessing the website, please contact Dr. Mindy Wang at wangm@cua.edu. If you have questions about the survey itself, contact Dr. William Lantry at lantry@cua.edu. The researcher's name is Mr. Leo Johnson and he can be reached at 04jolmson@cua.eduif you have any additional questions.

Thank you in advance for your participation.

References

Albert, A.A.& Wheeten, D.A. (1985). Organizational identity. *Research in Organizational Behavior,* 7, 263-295

Allan, P. & Dory, J. (2001). WORKING PAPERS No. 195, *Understanding doctoral program attrition: An empirical study,* Retrieved September 16, 2005 from http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1032&context—lubinfaculty_workingpapers

Anastas W. J.; & Kuerbis, N. A. (2009). Doctoral education in social work: What we know and what we need to know? *Social Work;* 54(1) 71-81.

Anderson, M. S. & Swazey, J. P. (1998). Reflections on the graduate student experience: An overview. In M. S. Anderson (Ed.), The experience of being in graduate school: An exploration. (New Directions for Higher Education,101). San Francisco CA: Jossey-Bass.

Association of American Universities. (1990). *Institutional Policies to Improve Doctoral Education.* Washington, D.C.: Association of American Universities/Association of Graduate Schools.

Association of American Universities. (1998). *Committee on graduate education: Report and recommendations.* Washington, DC. Retrieved November 20, 2005 from http://www.aau.edu/reports/GradEdRpt.html

Association of Catholic Colleges and Universities. (1993). *Catholic higher education: An American profile.* Washington, D.C. Association of Catholic Colleges and Universities.

Astin, A.W. (1975). *Preventing students from dropping out.* San Francisco: Jossey- Bass.

Astin, A.W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel,* 25:297-308.

Astin, A.W. (1985). *Achieving educational excellence.* San Francisco, CA: Jossey-Bass.

Astin, A.W. (1993). *What matters most in college? Four critical years revisited.* San Francisco, CA: Jossey-Bass.

Astin, A.W. (1999) Student involvement: A development theory for higher education. *Journal of College Student Development,* 40: 518-529.

Atwell, R. H. (1996). Doctoral education must match the nation's needs and the realities of the marketplace. *The Chronicle of Higher Education,* 4-5.

Bair, C. R. (1999) *Doctoral student attrition and persistence: A meta-synthesis.* (Doctoral dissertation, Loyola University Chicago). *Dissertation Abstracts International,* AAT 9917754.

Bair, C. R., Haworth, J. G (1999). Doctoral student attrition and persistence: A Meta-Synthesis of research. *Association for the Study of Higher Education.* San Antonio, TX: University of Northern Iowa.

Bair, C. R., Haworth, J. G. & Sandfort, M. (2004). Student learning and development: A shared responsibility. *NASPA Journal* 41 (3): 709-727.

Baird, L. L. (1990). Disciplines and doctorates: The relationships between program characteristics and duration of doctoral study. *Research in Higher Education, 31(4),* 369-385.

Baird, L. L. (1992, April). *The stages of the doctoral career: Socialization and its consequences.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.

Baird, L.L. (1993). Increasing Graduate Student Retention and Degree Attainment. *Using research and Theoretical models of graduate student progress.* (no. 80, pp 3-12. San Francisco: Josey-Bass.

Bandura, A. (1998). Self efficacy: The exercise of control. New York, NY: W. H. Freeman.

Bauer, E. R. (2004). An examination of the effect of departmental factors on student completion of doctoral requirements. (Doctoral dissertation, University of Massachusetts Boston, MA.). *Dissertation Abstracts International,* 65(05), 1685A. (UMI No. 3133568)

Bartels, G.B. (1963). Criteria relating to the success and failure of candidates at the university of Nebraska in completing doctor of education degrees. Dissertation Abstract International 23(10). 3709A (UMI NO. AAT 6302635) Retrieved April 4, 2009, from Dissertation and Theses database.

Bartolini A. E. (2009) Measuring perceived dissertation-completion stress factors within school psychology doctoral students. *Dissertation Abstracts International* 70(08A) (University Microfilms No AAT 33-70609).

140

Bean, J. P. (1982). Conceptual model of student attrition: How theory can help the institutional researcher. In E.T. Pascarella (Ed.), *Studying student attrition* (pp. 17-33). San Francisco, CA: Jossey-Bass.

Bean, J. P. (1983) The application of a model of turnover in work organizations to the student attrition process. *Review of Higher Education,* 6: 129-148.

Bean, J.P., (1985a). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal,* 22(1), 35-65.

Bean, J. P. (1990). Why students leave: Insights from research. In D. Hoissler, J. Bean, & Associates (eds.), *The strategic management of college enrollments* (pp. 147-169). San Francisco, CA: Jossey-Bass.

Bean, J. P. & Eaton, S. B. (1995). An approach/avoidance behavioral model of college student attrition. *Research in Higher Education.* (36)6: 617-645.

Bean, J. P., & Eaton, S. B. (2002). A psychological model of college student retention. In J. M. Braxton, (Ed.). (2000). *Reworking the student departure* puzzle. Nashville, TN: Vanderbilt University Press.

Bean, J. P., & Metzner, B. S. (1985). A conceptual model on nontraditional undergraduate student attrition. *Review of Educational Research,* 55 (4), 520-539.

Beaty, M. (1998). Models for higher christian education: Strategies for Success in the Twenty-first Century. *Journal of Church and State.* Waco: Winter, .40(1); 200 2003.

Becher, T., & Trowler, P. R. (2001). *Academic tribes and territories: intellectual enquiryand the culture of disciplines* (2nd ed.). Buckingham: The Society for Research into Higher Education & Open University Press.

Bell, N. E. (2008). *Graduate enrollment and Degrees: 1997 to 2000. Retrieved March 4, 2008,* from *from7http: //www. cgsnet. org/Default.aspx?tabid=168*

Benkin, E. M. (1984). *Where have all the doctoral students gone?: A study of doctoral attrition at UCLA.* (Doctoral dissertation, University of California, Los Angeles). *Dissertation Abstracts International,* AAT 8428480.

Berg, B.L. (1989). Quantitative research methods for the social sciences. Boston, MA: Allyn and Bacon.

141

Berg, H. and Ferber, M. (1983). Men and Women Graduate Students: Who Succeeds and Why? *Journal of Higher Education,* 54: 629-648.

Berge, Z. L. & Huang, Y (2004). Dropout Problem with special attention to e-learning. Deosnews, (13)5: 1-26.

Berger, J.B. & Braxton, J.M. (1998). Revising Tinto's interactionalist theory of student departure through theory elaboration: Examining the role of organizational attributes in the persistence process. *Research in Higher Education,* 39(2), 103-119.

Berger, J. B. & Milem, J. F. The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education,* 40(6), 641-664

Berelson, B. (1960). *Graduate education in the United States.* New York: McGraw Hill.

Berkenkotter, C., Huckin, T. N., & J. Ackerman. (1991). Social context and socially constructed text: The initiation of a graduate student into a writing research community. In C. Bazerman & J. Paradis (Eds.), *Textual dynamics of the professions* (pp. 191-215). Madison, WI: U. Wisconsin Press.

Bickel, J. (2000). *The perceptions of Higher Education administrators as they relate to student retention issues.* (Doctoral dissertation, Indiana State University) *Disseration Abstraxts International,* UMI 9965714.

Biglan, A. (1973a).The characteristics of subject matter in different academic areas. Journal of Applied Psychology, 57: 195-203.

Biglan, A. (1973b).Relationships between subject matter characteristics and the structure and output of university departments. Journal of Applied Psychology, 57: 204-213.

Bolker, J. (1998). *Writing your dissertation in fifteen minutes a day: A guide to starting revising, and finishing your doctoral thesis.* New York, NY: Henry Holt.

Bowen, W. G., & Rudenstine, N. L. (1992). *In pursuit of the PhD.* Princeton, NJ: Princeton University Press.

Boyle, P., & Boice, B. (1998). Best practices for enculturation: Collegiality, mentoring,and structure. In M. Anderson (Ed.), *The experience of being in graduate school: An exploration* (New Directions in Higher Education,101, pp. 87-94). San Francisco: Jossey-Bass.

Braxton, J. M. (Ed.). (2000). *Reworking the student departure* puzzle. Nashville, TN: Vanderbilt University Press.

Braxton, J.M., Sullivan, A.V.S. & Johnson, R.M. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed,), *Higher education: Handbook of theory and research,* 12, New York: Agathon Press.

Bridgmon, D. K. (2007). All but dissertation stress among counseling and clinical psychology students. *Dissertation Abstracts International* 70(08A). (University Microfilms No AAT 33-70609).

Brooks, L. R. & Heiland, D. (2007) Accountability, Assessment and doctoral education: Recommendations for moving forward. *European Journal of Education,* 42(3), 351-362.

Brower, A. M. (1992). The "second half' of student integration: The effects of life task predominance on student persistence. *Journal of Higher Education,* 63(4), 441-462.

Cabrera, A. F., Castaneda, M. B., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *Journal of Higher Education, 63(2),* 143-164.

Campbell, R.B. (1992). A study of the completion and non-completion of the Doctor of Education degree in Educational Leadership at the University of Delaware. *Dissertation Abstract International,* 53(06), 1813A. (UMI No. AAT 9232596) Retrieved April 4, 2009, from Dissertation and Theses database.

Carnegie Foundation for the Advancement of Teaching. (1994). *A classification of institutions of higher education: A technical report.* Princeton, NJ

Chamberlain, P. C. (1995). That special something: How can you identify what makes your institution distinctive? *Case Currents, 14* (July/August), 16.

Chase, C. I. (1985). *Elementary statistical procedures (3rd ed.)* New York NY: McGraw-Hill.

Church, E. S. (2009). Facing reality: What are doctoral students' chances for success? *Journal of Instructional Psychology* 36(4), 307 316

Clark, B. R. (1997). Small worlds, different worlds: The uniqueness and troubles of American academic professionals. *Daedelus, 126(4),* 21-42.

Clark, B. (1993). *The research foundations of graduate education.* Berkeley: University of California Press.

Clark, C.K. (1999) *Determinants of overall satisfaction of a summer transition program at the University of Michigan* (Doctoral dissertation, University of Toledo, 1999) .*Dissertation Abstracts International,* AAT 9953956

Clewell, B.C. (1987). Retention of Black and Hispanic doctoral students. Princeton: Educational Testing Service.

Cockrell, C. N. (2008). Support systems, isolation, and intended persistence in doctoral education. *Dissertation Abstracts International* 69(08A). (University Microfilms No AAT 33-26697)

Committee on Science, Engineering, and Public Policy (COSEPUP) of the National Academy of Sciences, The National Academy of Engineering, and the Institute of Medicine. (1995). Reshaping the graduate education of scientists, Washington, DC: National Academy Press.

Cohen, P. (2006). The writing on the wall. *Change•38(6),* 42-48.

Cooke, D. J. Sims, R. L., & Peyrefitte (1995) The relationship between graduate student attitudes and attrition. *Journal of Psychology. 129(6),* 677-689.

Curran, C. (1994). The elusive idea of a Catholic university. *National Catholic Reporter,* 30(43), 12-15.

Curran, C. (1997, March). The Catholic identity of Catholic institutions. *Theological Studies,* 58, 90-108.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* Thousand Oaks, CA: Sage

D'Arms, J. H. (1994). Pursuing--and getting--the Ph.D.: Another look at how to improve the process. *Change,* 52- 53.

Davis, B. G. & Parker, C. A. (1997). *Writing the doctoral disseratation: A systematic approach.* New York, NY: Barrons.

Davis, G, & Fiske, P. (2001). Results of the 1999 PhDs graduate school s. survey. *Making Strides* 3(1): 1-12.

144

Davis, K. S. (1999). Why science? Women scientists and their pathways along the road less traveled. *Journal of Women and Minorities in Science and Engineering,* 5(2): 129 - 153.

Daley, B. E. (1993, September 11). Christ and the Catholic university. *America, 169 (5),* 6-14.

Denecke, D. (2004). The ph.d. attrition challenge in U.S. graduate programs. Retrieved August 8, 2005 from http://www.ostina.org/html/bridges/article.htm?article=1185

Devlin, J. K. (1998). The identity of an American Catholic college in transition: A study of Iona college (Doctoral dissertation, Fordham University, 1998). *Dissertation Abstracts International,* AAT 9839525.

Dillman, D. A. (1978). *Mail and telephone surveys: The total design method,* New York: Wiley.

Dinham S. and Scott C. (1999) *The doctorate: Talking about the degree,* University of Western Sydney, Nepean: Kingswood NSW.

DiPierro, M. A (2002) *Call to a revolutionary cultural change in doctoral education.* Retrieved September 24, 2004 from http://www.hiceducation.org/Edu_Proceedings/Marianne%20Di%20Pierro.pdf

Dolph, R.F. (1984). Factors relating to success or failure in obtaining the doctorate. *Dissertation Abstract International, 44(11),* 3298A. (UMI No. AAT 8403341) Retrieved April 4, 2009, from Dissertation and Theses database.

Donald, J. G. (2002). *Learning to think: Disciplinary perspectives.* San Francisco: Jossey Bass.

Dorn, S.M., & Papalewis, R. (1997, October). *Improving doctoral student retention.* Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Ducette, M. O. (1990). Variables influencing doctoral student graduation: A path analytic test of Tinto's process model. *Dissertation Abstract International, 52(06),* 1960A. (UMI No. AAT 9134627) Retrieved April 4, 2009, from Dissertation and Theses database.

Dunnerstick, R. (1990). Do the admission criteria to the doctor of education in
educational administration program predict completion? *Dissertation Abstract
International,* 51(01), 32A. (UMI No. AAT 9015303) Retrieved April 4, 2009,
from Dissertation and Theses database.

Durkheim, E. (1951). Suicide: A study in sociology. (IA. Spaulding & G. Simpson,
Trans.). Glencoe, IL: The Free Press.

Earl-Novell, S. (2006). Determining the extent to which program structure features and
integration mechanisms facilitate or impede doctoral student persistence in
mathematics. *International Journal of Doctoral Studies.* 1, 45 57.

Elgar, F. J. (2003). *PhD degree completion in Canadian universities.* Retrieved
November 22, 2005 from
http://wwvv.cags.ca/pdf/completion_grad_studies_2004.pdf

Ethington, C. (1990). A psychological model of student persistence. *Research in Higher
education,* 31(3) 279-293.

Ex Corde Ecclesiae Apostolic Constitution on Catholic Universities..Promulgated By His
Holiness John Paul II On August 15, 1990. Retrieved Saturday June 19, 2010
fromhttp://www.nd.edui-nasccu/ECE.txt

Ferrer de Valero, Y. (1996). Departmental factors affecting time to degree and
completion rates of doctoral students at one land grant, research institution.
Dissertation Abstract International 57(09). 3060A (UMI No. AAT 9707245)
Retrieved April 4, 2009, from Dissertation and Theses database.

Flores, L. J. (1984) A study of successful completion and attrition among chicana title
VII bilingual education doctoral fellows at selected southwestern universities.
Dissertation Abstract International 31(11). 3810A (UMI No. AAT 8504151)
Retrieved April 4, 2009, from Dissertation and Theses database.

Fishbein, M. & Ajzen, I. (1975). *Belief attitude, intention and behavior: An Introduction
to theory and research.* Reading, MA: Addison-Wesley.

Franklin, J. B. (1971). Attrition and success of doctoral students in the educational
administration department at Arizona State University Dissertation Abstract
International 31(11). 3810A (UMI No. AAT 7103686) Retrieved April 4, 2009,
from Dissertation and Theses database

Frasier, E. R. M. (1993). Persistence of doctoral candidates in the College of Education, University of Missouri-Columbia. *Dissertation Abstract International* 54(11). 4001A (UMI No. AAT 9412483) Retrieved April 4, 2009, from Dissertation and Theses database.

French, B. & Oakes, W. (2004). Reliability and validity evidence for the institutional integration scale. *Educational and Psychological Measurement,* (64)1, 88-98.

Gallin, A. (ed.) (1992). *American Catholic higher education: Essential documents, 1967 — 1990.* Notre Dame, IN: University of Notre Dame Press.

Gay, L. R. & Airasian (2000). *Educational research: competencies for analysis and application (6*th*ed.).* Upper Saddle River, NJ: Prentice-Hall.

Geiger, R. (1997). Doctoral education: The short-term crisis vs. long-term challenge. *The Review of Higher Education,* 20(3): 239-251.

Geiger, R. (1998). *The old era in American graduate education.* Paper presented at the NISE Forum on Graduate Education, Washington, DC.

George, D. & Mallery P. (2003). *SPSS for windows step by step: A simple guide and reference (4*th*ed.).* Boston, MA: Allyn and Bacon.

Girves, J. E., & Wernmerus, V. (1988). Developing models of graduate student degree progress. *Journal of Higher Education,* 59 (2): 163-199.

Gittings, A. G. (2010). The effect of student attributes and program characteristics on doctoral degree completion. *Dissertation Abstracts International* 71(08A). (University Microfilms No AAT 34-15203).

Gleason, K. (2003). *College Student Retention at a Midwestern Two-Year College.* (Doctoral, Saint Mary's University of Minnesota, Minneapolis, MI.). *Dissertation Abstracts international,* 65(12), 4430A. (UMI No. 3159186).

Gleason, P. (1992).American Catholic higher education, 1940 — 1990: The ideological context. In G. M. Marsden & B, J, Longfield (eds.), *The secularization of the academy* (pp. 234-258). New York: Oxford University Press.

Gleason, P. (1994). What has made Catholic identity a problem? In T.M. Hesburg (ed.), The *challenge and promise of a Catholic university* (pp. 91 — 102). Notre Dame, IN: Notre Dame University Press.

Golde, C. M. (1994). Student descriptions of the doctoral attrition process. Paper presented at the annual conference of the Association for the Study of Higher Education, Tucson, AZ.

Golde, C. M. (1996). *How departmental contextual factors shape doctoral student attrition.* (Doctoral dissertation, Stanford University, Stanford). ATT 9702896

Golde, C. M. (2000). Should I stay or should I go? Student descriptions of the doctoral attrition process. *Review of Higher Education, 23(2),* 119-227.

Golde, C. M. (2005). The role of the department and discipline in doctoral student attrition: Lessons from four departments. *Journal of Higher Education, 76(6),* 27: 669-700

Golde, C. M., & Dore, T. M. (2001). *At cross purposes: What the experiences of doctoral students reveal about doctoral education* [On-line]. Available: www.phd-survey.org. Philadelphia, PA: A report for The Pew Charitable Trusts.

Golde, C. M., & Dore, T. M. (2004). *The survey of doctoral education and career preparation: The importance of disciplinary contests.* In Wulff, D. H. , Austin, A. E. (Eds.), (2004). Path to the Professoriate: *Strategies for enriching the preparation of future faculty.* San Francisco, CA: Jossey-Bass.

Graduate Focus (2000) *Doctoral recipients rate their dissertation chairs: analysis by gender: Issues in graduate education at UCLA.* Retrieved September 6,2005. http://www.gdnet.ucla.edu/asis/library/focus200002.pdf

Guba, E. G. & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-177). Thousand Oaks, CA: Sage.

Gumport, P. J. (1993a). Graduate education and organized research in the United States.In B. R. Clark (Ed.), *The research foundations of graduate education: Germany, Britain, France, United States, Japan* (pp. 225-260). Berkeley, CA: University of California Press.

Gumport, P. J. (1993b). Graduate education and research imperatives: Views from American campuses. In B. R. Clark (Ed.), *The research foundations of graduate education: Germany, Britain, France, United States, Japan* (pp. 261-296). Berkeley: University of California Press.

Hadjioannou, X., Shelton, N. R., & Fu, D. (2007). The road to a doctoral degree: Co-travelers through a perilous passage. *College Student Journal,* 41,160-177.

Hales, K. S. (1998), An analysis of factors relating to the attrition rate of doctoral students at the dissertation level at the School of Education and Human Development of the George Washington University. *Dissertation Abstracts International, 44* (04). Retrieved July 16, 2009, from Dissertation and Theses database.

Hartnett, R. T. (1981), Sex differences in the environments of graduate students and faculty. *GRE Board Research Report,* (77-26R): 81-15.

Hartnett, R. T. & Centra J. A. (1977). The effects of academic departments on student learning. *Journal of Higher Education,* 48: 491-507.

Haworth, B. C., & Sandfort, M. (2004). Doctoral student learning and development: A shared responsibility. *NASPA Journal,* 41(3).

Haworth, J. G. (Ed) (1996). *Assessing Graduate and Professional Education: Current Realities, Future Prospects.* San Francisco: Jossey-Bass.

Hawley, P. (1993). *Being bright is not enough: The unwritten rules of doctoral study.* Springfield, IL: Charles C. Thomas.

Heinrich, K. T. (1991). Loving partnerships: Dealing with sexual attraction and power in doctoral advisement relationships. Journal of Higher Education, 62(5): 515 — 538).

Herzig, A. H. (2002). Where have all the students gone? Participation of doctoral students in authentic mathematical activity as a necessary condition for persistence toward the Ph.D. *Educational Studies in Mathematics,* 50: 177-212.

Hodgson, C. S. & Simoni, J. M. (1995). Graduate Student Academic and Psychological Functioning. *Journal of College Student Development.* (36)3 244-253.

Hollenbeck, J., Williams, C. R.; Klein, H. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal ofApplied Psychology,* 74(1): 18-23.

Hollenshead, C., Younce, P. S., & Wenzel, S. A. (1944). Women graduate students in mathematics and physics: Reflections on success. *Journal of Women and Minorities in Science and Engineering,* 1(1): 63 — 88.

Hoskins, C. M. (2002). *Doctoral student persistence in counselor education programs: Student-program match and the decision making process.* (Doctoral dissertation, Syracuse University, Syracuse, NY.). Dissertation Abstracts International 63(03), 868A. (UMI No. 3046834).

Howard, J. A. (1995). Social cognition. In K. Cook, GA. Fine, & J. House (Eds.), Social perspectives on social psychology (pp. 90-117): Boston, MA: Allyn & Bacon.

Huber, M. T., & Morreale, S. P. (Eds.). (2002). *Disciplinary styles in the scholarship of teaching and learning: Exploring common ground.* Washington, DC: American Association for Higher Education and The Carnegie Foundation for the Advancement of Teaching.

Hutley, K. (2002) *Alexander Astin's theory of involvement: A summary.* Illinois State University. Retrieved October, 2005) from http://www.cat.ilstu.edu/additional/tips/astin.php

Isaac, P. D., Quinlan, S. V., & Walker, M. M. (1999). Faculty perceptions of thedoctoral dissertation. *Journal of Higher Education,* 63(3), 241-268.

Ivankova, V. N., &Sheldon L. Stick, L. S. (2007). Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study *Research in Higher Education,* Vol. 48(1), 93‒135.

Jacks, P., Chubin, D. E., Porter, A. L., & Connolly, T. (1983). The ABCs of ABDs: A study of incomplete doctorates. *Improving College and University Teaching, 31(2),* 74‒81.

Janosik, C. M. (1996). An examination of presidential perceptions concerning elements of "institutional identity" in American catholic higher education, *Dissertation Abstract International,* 57(08). 347A (UMI No. AAT 9701174) Retrieved April 4, 2006, from Dissertation and Theses database.

Johnson-Bailey; J., Valentine, S. T., Cervero M. R.; & Bowles, A. T (2008). Lean on me: The support experiences of black graduate students. *The Journal of Negro Education;* 77(4); 365-381.

Katz, J. (1976). Development of mind. In J. Katz and R. T. Hartnett (eds.), <u>*Scholars in the making.*</u>(pp 330- 345). New York: Ballinger, 1976.

Katz, E. (1995). *The dissertation: Academic Interruptus.* Paper presented at a symposium at the annual meeting of the American Educational Research Association, San Francisco, CA.

Kearns, H., Gardiner, M., & Marshall, K. (2008). Innovation in PhD completion: the hardy shall succeed (and be happy!) *Higher Education Research & Development,* 27(1), 77-89.

Kerr, C. (1994). *Allegiances: the nation-state and the world of learning.* C. Kerr (1994). *In higher education cannot escape history: Issues for the Twenty-first Century.* Albany: State University, New York Press.

King, G., Bruce, J. M., & Gilligan, M. (1993). The science of political science graduate admissions. *PS: Political Science & Politics, 26(4),* 772-778.

King, J. E. (2004). *A study of doctoral student-advisor satisfaction: Considering gender and ethnic grouping at a private research university.* (Doctoral dissertation, University of Southern California). Dissertation Abstracts International, 65(07), 2443A. (UMI No. 3140498).

Kittell-Limerick, P. (2005). Perceived barriers to completion of the academic doctorate: A Delphi Stud. *Dissertation Abstracts International* 66(11A). (University Microfilms No AAT 31-96394).

Kerlin, R. A. (1997) Breaking the silence: Toward a theory of women's doctoral persistence, *Dissertation Abstract International* 59(11). 4078A (AAT NQ32750) Retrieved April 4,2009, from Dissertation and Theses database.

Kerlin, S. P. (1995). *Surviving the doctoral years: critical perspectives* Retrieved August 26,2005 from http://epaa.asu.edu/epaa/v3n17.htm1

Kerlin, S. P., & Kerlin, B. S. *(1994).Electrifiling stories: Research communities in Graduate Education. Retrieved August 26, 2005 from* http://epaa.asu.edu/epaa/v3n17.*html*

Kerr, C. (1994). Troubled times for higher education: The 1990s and beyond. Albany, N.Y.: State University of New York Press.

Klein, H. J., Wesson, M.J., Hollenbeck, J. R., Wright, P. M., & DeShon, R. P. The assessment of goal commitment: A measurement model meta-analysis (2001) *Organizational Behavior and Human Decision Processes,* (85)1, pp. 32-55,

Kluever, R. (1995). A.B.D's and graduates from a college of education: Responsibility, barriers and facilitators. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Kluever, P. C. ,L. F., Green, K. L., and Katz, E. L. (1997) , *Rethinking the dissertation process: Tackling personal and institutional obstacles.(* New Directions for Higher Education, 99). San Francisco: Jossey-Bass.

Latona, K. & Browne, M. (2001).Factors associated with completion of research higher degrees. Retrieved August 26, 2005 from http://www.dest.gov.au/archive/higherecl/hes/hes37/hes37.pdf

Laden, B.V. (2002). *Lessons from the assessment of a summer workshop for ABD students.* Paper presented at the annual meeting of the Association for the Study of Higher Education, Sacramento, CA

Laden, B. V. (2001). *In pursuit of the Ed D.: Helping ABD students move toward degree completion.* Paper represented at the Association for the Study of Higher Education annual meeting, Richmond, VA

Lazarus, R. S., Averill, and Opton, E. (1974). The psychology of copint: Issues of research and assessment. In G. V. Coehlo, D. A. Hamburg and J. E. Adams (Eds.), *Coping and adaptation,* pp 249-315, New York, NY: Basic Books.

Lenz, K. (1995).Factors affecting the completion of the doctoral dissertation for non-traditional aged women. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Levin, I.P. (1999). Relating statistics and experimental design. Thousand Oaks, CA: Sage.

Levin, J., & Fox, J. A. (2002). *Elementary statistics in social research. (9th ed.).* Boston, MA: Allyn and Bacon.

Lieberman, B. (ed). (1971). *Contemporary problems in statistics.* NY: Oxford.

Lipschutz, S. D. (1993). *Enhancing success in doctoral education: From policy to practice.* In Baird, L. L. (Ed.), (1993). *Increasing graduate student retention and degree attainment.* New Directions for higher education. San Francisco, CA: Jossey-Bass.

Long, T. J., Convey, J. J. & Chwalek, A. R. (1985). *Completing dissertations in the behavioral sciences and education.* San Francisco, CA: Jossey-Bass.

Lott, J., Gardner, S., & Powers, A. D. (2010). Doctoral student attrition in the stem fields: an exploratory event history analysis *Journal of College Student Retention, 11(2),* 247-266.

Lovitts, B. E. (1996). *Leaving the ivory tower: A sociological analysis of the causes of departure from doctoral study.* (Doctoral dissertation, University of Maryland, College Park). Disseration Abstracts International, AAT 9718277

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study (1st* ed.). New York: Rowman and Littlefield.

Lovitts, B. E & Nelson, C. (2000). The hidden crisis in graduate education: Attrition from Ph.D. programs. Academe, *86(6):44‑50.* American Association of University Professors (AAUP). Washington, D.C., Retrieved February, 2006 from http://www.aaup.org/publications/Academe/2000/00nd/NDOOLOVIIITM

Mah, D. M. (1986). The process of doctoral candidate attrition: a study of the all but dissertation (abd) phenomenon.. *Dissertation Abstract International 47(12).* 4302A (UMI No. AAT 8706625) Retrieved April 4, 2009, from Dissertation and Theses database.

Maloney, E.F. (1973). *A study of the religious orientation of the Catholic colleges and universities in New York State from 1962-1972.* Unpublished doctoral dissertation, New York University.

Manathunga, C. (2005). Early warning signs in post-graduate research education: a different approach to ensuring timely completions. *Teaching in Higher Education,10(2,)* 219‑233.

Mannan, M. A. (2001).An assessment of the academic and social integration as perceived by the students in the University of Papua New Guinea. *Higher Education, 41,* 283-298.

Marshall, C., & Rossman, G. (1989). Designing qualitative research. Newbury Park, CA: Sage.

Matchett, M. W. (1988). Determinants of completion in doctoral education: An evaluation of a social work program. *Dissertation Abstract International* 39(06). 3846A (UMI No. AAT 7817118) Retrieved April 4, 2009, from Dissertation and Theses database.

Maxwell, J.A. (1941). Qualitative research design: An interactive approach (2[nd]ed.). Thousand Oaks, CA; Sage.

McCloskey, D. N. (1994). In pursuit of the Ph.D.: A bible for graduate deans or an 'apocryphal scandal'? *Change,* 46-51.

McEwen, M. K. (2003). The nature and uses of theory. In S.R. Komives & D. B. Woodard, Jr., (Eds), *Students services: A handbook for the profession (4thed.).* San Francisco; Jossey-Bass.

McGee, G. W. & Ford, R. C. (1987). Two (or more?) Dimensions of organizational commitment: Reexamination of the affective and continuance commitment scales. *Journal of Applied Psychology,* (74)4: 638-641.

McKeown, B., MacDonnell, A., & Bowman, C. (1993). The point of view of the student in attrition research. *Canadian Journal of Higher Education,* 23: 65-85.

McLaughlin, G. (2006). Data mining analysis of the effect of educational, demographic, and economic factors on time from doctoral program entry to degree completion in education. *Dissertation Abstracts International* 68(02A). (University Microfilms No AAT 32-52149).

Measor, L (1985) Interviewing: a Strategy in Qualitative Research. In R. Burgess (Ed.), *Strategies of Educational Research: Qualitative Methods,* (pp. 117-130. New York, NY: Lewes, Falmer Press.

Menard, L. (1996). How to make the Ph.D. matter. *New York Times Magazine,* 78-81.

Meyer, J.P. & Allen, N. J. (1984). Testing the 'side-bet theory" of organizational commitment: Some methodological considerations. *Journal of Applied Psychology,* (69): 373-378.

Miller, M. (1995). *ABD status and degree completion: A student's perspective.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Miller, S. M. (1987). Monitoring and blunting: Validation of questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology* 52: 345-353.

MIT Computer Science (1983) *Female graduate students and research staff Barriers to equality in academia: Women in computer science at M.I.T.* Unpublished manuscript, Cambridge, Massachusetts, 1983.

Morgan, D. L. & Schwalbe, M. L. (1990). Mind and self in society: Linking social structure and cognition. *Social Psychology Quarterly,* (53) 2 148-164.

Most, E. D. (2008). Patterns of doctoral student degree completion: a longitudinal analysis. *Journal of College Student Retention,* 10(2), 247-266.

Moustakas, C. (1994). *Phenomenological research methods.* Thousand Oaks, CA; Sage.

National Opinion Research Center (2000). *Summary report 1999. Doctorate Recipients from United States Universities,* Chicago, NORC Press. http://norc.uchicago.edu/studies/sed/sed9899.pdf

National Research Council. (1995). *Research-Doctorate programs in the United States: Continuity and Change.* Washington, DC: National Academy Press.

National Research Council. (1996). *Summary report 1995: Doctorate recipients from United States universities.* Washington, DC: National Academy Press.

National Research Council. (2005). *Summary report 2005: Doctorate recipients from United States universities.* Washington, DC: National Academy Press.

National Science Foundation. (1998, December). Summary of workshop on graduate student attrition *Retrieved February, 2006 from http://www.nsfgov/statistics/nsf99314/pdf/summary.pdf*

National Science Foundation. (2000, May). Modes of financial support in the graduate education of science and engineering doctorate. *Retrieved February, 2006 from recipientshttp:/lwww.nsfgov/statistics/nsf00319/pdfstart.htm*

Nerad, M. (1991). *Doctoral education at the University of California and factors Affecting time-to-degree.* University of California, Office of the President.

Nerad, M. & Cerny, J. (1991). From facts to action: Expanding the educational role of the graduate division. *Communicator.* Council of Graduate Schools.
Nerad, M. & Cerny, J. (1993). From facts to action: Expanding the educational role of the graduate division. In L. L. Baird (Ed.) Increasing graduate student retention and degree attainment (pp. 27-39). (New Directions for Institutional Research, 80). San Francisco, CA: Jossey-Bass.

Nerad, M., June, R. & Miller, D. S. (1997). *Graduate education in the United States in the book series Contemporary Higher Education: Graduate education in the United States,* Retrieved August 15, 2005 from http://depts.washington.edu/coe/cirge/pdfs%20for%20web/grad_ed_us.pdf

Nerad, M., & Miller, D. S. (1996). Increasing student retention in graduate and professional programs. *Assessing graduate and professional education* (pp. 61-76), (New Directions in Institutional Research, 92).

Nyquist, J. & Wulff, D.H. (2000) Re-envisioning the Ph.D. Project Resources. Retrieved July 1, 2005 fromhttp://www.grad.washington.edu/envision/project_resources/national_recommend.html

O'Bara, C. C. (1993) Why some finish and why some don't: Factors affecting PhD completion *Dissertation Abstract International* 54(06). 2070A (AAT 9330356) Retrieved April 4, 2009, from Dissertation and Theses database.

O'Brien, D. J. (1994). *From the heart of the American Church: Catholic higher education and American culture.* Maryknool, NY: Orbis Books.

Ott, M. D., & Markewich, T. S. (1985) *Logit analysis of graduate student retention and graduation.* Paper presented at the 1985 Association for Institutional Research (AIR) Forum, Portland, Oregon.

Pallant, J. (2004). *SPSS survival manual.* New York , NY: McGraw-Hill Education.

Parent, E. R. (1998). *What We Know — And Don't Know: Factors Determining the Outcomes of Doctoral Experience.* Retrieved January 15, 2006 from http://wwvv.geocities.com/CollegePark/Den5501/DA text.html

Pascarella, Ernest T. (1980).Student-Faculty Informal Contact and College Outcomes. *Review of Educational Research.* 50: 545‑595.

Pascarella, E. T. & Chapman, D. W. (1983) A Multi-institutional, path analytic validation of Tinto's Model of College Withdrawal: *American Educational* Research. (20)1: 87-102.

Pascarella, E. T., Duby, P. B. & Iverson, B. K. (1983). A test and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. *Sociology of Education.* (56)2: 88‑100.

Pascarella, E. T. & Terenzini, P.T. (1980) Student/faculty relationship and freshman year educational outcomes: A further investigation. *Journal of College Student Personnel* 21: 521-528.

Pascarella, E. T. & Terenzini, P.T. (1983) Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Higher Education.* 75: 215-226.

Paschal, C. E. (2009). Factors influencing attrition in U.S. universities: examining transitional cognitive dissonance in a new meta-model for analysis. *Dissertation Abstracts International* 70(02A). (University Microfilms No AAT 33-44447).

Pearson M. (1991) Professionalising PhD education to enhance the quality of student experience', *Higher Education.* 22(3), 303-320.

Pierce, C.A. (1985) Mentoring, gender, *and* attainment: The professional development of academic psychologists *Dissertation Abstract International* 45(03). 793A (UMI No. AAT 8414432) Retrieved April 4, 2009, from Dissertation and Theses database.

Polkinghorne, D. E. (1989). Phenomenological research methods. In R. S. Valle & S. Hailing (Eds.) *Existential phenomenological perspectives in psychology* (pp. 41-60). New York: Plenum.

Popham, A. J. (1993). *Educational evaluation. (3ʳᵈed.).* Needham,, MA : Allyn and Bacon.

Presley, C. L. (1996). Individual and institutional factors that affect the success of African-American graduate and professional school students. *Dissertation Abstract International* 56(08). 2971A (UMI No. AAT 9542939) Retrieved April 4, 2009, from Dissertation and Theses database.

Quinn, E.L.C. (1991). Doctoral student retention and selected personal factors.*Dissertation Abstract International* 52(09). 3200A (UMI No. AAT 9206183) Retrieved April 4, 2009, from Dissertation and Theses database.

Ramos, B. (1994). *Understanding the ABD (All But Dissertation) doctoral candidate: A phenomenological approach.* (Doctoral dissertation, University of Kansas). Disseration Abstracts International. AAT 9508680.

Rapoport, A. I. (1998). *Summary of workshop on graduate student attrition.* Washington, DC: National Science Foundation

Rubin, H. J. & Rubin, I. S. (1995). *Qualitative interviewing.* Thousand Oaks, CA: Sage.

Rudestam, K. E. & Newton, R.R. (2001). *Surviving your dissertation : A comprehensive guide to content and process.* Thousand Oaks, CA: Sage.

Sanford, M. (1976). *Making it in graduate school.* Berkeley, CA: Montaigne

157

Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. In N.K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 118-137). Thousand Oaks, CA: Sage Publications.

Seagram, B.C., Gould, J. & Pyke, S.W. (1998), An investigation of gender and other variables on time to completion of doctoral degrees. *Research in Higher Education,* 39(3): 319-335

Sheridan, P. M., & Pyke, S. (1994). Predictors of time to completion of graduate degrees. *Canadian Journal of Higher Education,* 24: 68-88.

Shavelson, R. J.(1996). *Statistical reasoning for the behavioral sciences. (3ʳ¹ed.).* Boston, MA: Allyn and Bacon.

Shea, W. M. (1993). Catholic higher education and the enlightenment: On the borderlines and roots. *Horizons, 20* (Spring), 99-105.

Smart, J. C. & Elton, C. F. Validation of the Biglan Model. *Research in Higher Education,* 17: 213-229.

Smith, L. R., Maroney, K., Nelso, K., Label, A., & Abel. S. H. (2006). Doctoral programs: Changing high rates of Attrition. *Journal of Humanistic Counseling, Education and Development,* 45(17), 17-31.

Sonnert, G., & Holton, G. (1996). Career patterns of women and men in the sciences. *American Scientist, 84,* 63 — 71.

Sowel, R. S., Zhang, T., Bell, N., & King, M. F. (2008). *PhD completion and attrition: Analysis of baseline demographic data from the PhD completion project.* Washington, DC , Council of Graduate Schools.

Sowel, R.S., Zhang, T., Bell, N. E., & Kirb, N. K. (2010). *PhD completion and attrition: Policies and Practices to promote student success.* Washington, DC , Council of Graduate Schools.

Sowel, R.S., Zhang, T., Bell, N. E., & Kirb, N. K., & Naftel, S. (2009). *PhD completion and attrition: Findings from exit surveys of PhD Completers.* Washington, DC , Council of Graduate Schools.

Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange,* 1: 64-65.

Stallone, N. M. (2002). Factors associated with student attrition and retention in an educational leadership doctoral program *Journal of College Teaching & Learning,* 1(6), 17-24.

Stallone, M. N. (2003) Factors associated with student attrition and retention in an educational leadership doctoral program. *Dissertation Abstracts International* 64(11. 3977A. (UMI No. AAT 3111386) Retrieved April 4, 2009, from Dissertation and Theses database.

Stein, E., & Weidman, J. (1990). *The socialization of doctoral students to academic norms.* Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Steinfels, M. 0. (1995, August). *Catholic higher education: practice and promise. diverse expressions of catholic identity.* Paper presented at the Meeting of the Association of Catholic Colleges and Universities,St. Paul, MN.

Sternberg, D. (1981). *How to complete and survive a doctoral dissertation.* New York: St. Martin's Press.

Stevens, J. (1996). *Applied multivariate statistics for the social sciences* $(3^{rd}ed.)$. Mahway, NJ: Lawrence Erlbaum.

Stolzenberg, B. E. (2006). The dynamics of the doctoral student-faculty advising relationship: A study across academic fields. *Dissertation Abstracts International* 67(11A). (University Microfilms No AAT 32-40946).

Strayhorn, L. T. (2005). More than money matters: an integrated model of graduate student persistence. *Dissertation Abstracts International* 66(A02), 519. (University Microfilms No AAT 31-64184).

Stricker, L. J (1994). Institutional factors in time to the doctorate. *Research in Higher Education* 35, 569-587.

Subotnik, R. F., & Aronold, L, S. (1995). Passing through the gates: Career establishment of talented women scientists. *Roeper Review,* 18(1): 55 — 61.

Tabachnick, B.G., & Fidell, L. S. (1996). *Using multivariate statistics* $(3^{rd}ed.)$. New York, NY: HarperCollins

The Woodrow Wilson National Fellowship Foundation (2005). Diversity & the PhD: A review of efforts to broaden race & ethnicity in U.S. doctoral education. Retrieved Saturday June 19, 2010 from http://www.woodrow.org/images/pdf/resphd/WW_Diversity_PhD_web.pdf

The Woodrow Wilson National Fellowship Foundation (2005). The responsive PhD. Retrieved Saturday June 19, 2010 from http://www.woodrow.org/images/pdf/resphd/ResponsivePhD_overview

159

Thomas, S. L. (2000). Ties that bind: A social network to understanding student integration and persistence. *Journal of Higher Education,* 71 (5): 591-604

Tinto, V. (1986). Theories of student deparature revisted. In J. C. Smart (ed.) *Higher education: Handbook of theory and research,* (2) (pp. 359 384) New York: Agathon Press.

Tinto, V. (1987). Dropout from higher education; *Leaving college: Rethinking the causes and cures of student attrition .* Chicago: University of Chicago Press.

Tinto, V. (1991). *Toward a theory of graduate persistence.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, ILL.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Tluczek, J. L. (1994). *Obstacles and attitudes affecting graduate persistence in completing the doctoral dissertation.* (Doctoral dissertation, Wayne State University). *Dissertation Abstracts International,* AAT 9530587

Townsend, B.K., Newell, L. J., & Wiese, M.D. (1992). *Creating distinctiveness: Lessons from uncommon colleges and universities* (ASHE ERIC Higher Education Report No. 6). Washington, DC: The George Washington University, School of Education and Human Development.

Tucker, A., Gottlieb, D., & Pease, J. (1964). *Factors related to attrition among doctoralstudents.* East Lansing, MI: Michigan State University.

Tuckman, H. P. (1991). Measuring, understanding, and doing something about the rise in doctorate completion time. *Higher Education: Handbook of Theory and Research,* (7): 223-260.

Vacc, N. N., & Picot, R. (1984) Predicting succes in doctoral study. College *Student Journal, 18(2).* 113 116.

Vaquera, G. (1999) *Persistence in doctoral programs: A test of a theoretical model at a Hispanic serving institution.* Retrieved March 12, 2005 http://72.14.207.104/search?q= cache:F9M8EHkHnUMJ:www.ashe.ws/fellowship /summary_Vaquera.pdf+2003+ASHE/Lumina+Fellow&h1=en

van Gennep, A. (1960). *The rites of passage.* (M. B. Vizedom & G. I. Caffee, Trans). Chicago: University of Chicago Press.

Valentine, N. L. (1986). Factors related to attrition from doctor of education programs in the college of human resources and education at West Virginia University (nongraduates, dropouts, *students).Dissertation Abstract International* 47(06). 2053A (UMI NO. AAT 8620843) Retrieved April 4, 2009, from Dissertation and Theses database.

Viswesvaran, C. & Ones, D. S. (1995). Theory testing: Combining psychometric meta-analysis and structural equations modeling. *Personnel Psychology,* 48, 865-885.

Wang, H. (2003). *What matters in graduate school? Exploring patterns of student engagement, academic and personal development.* Retrieved August 26, 2005 from http://www.umsystem.eduhimsidepartments/fa/planning/students/research/gssartic leairtampa2003.pdf

Wao, H. 0. (2008) A mixed methods approach to examining factors related to time to attainment of the doctorate in education. *Dissertation Abstracts International* 70(02A). (University Microfilms No AAT 33-47379).

Whitt, E. J. (1991). Artful Science: A primer on qualitative research methods. *Journal of College Student Development,* 32: 406 415.

Whitt, E. & Kuh, G. D. (1991). The use of qualitative methods in a team approach to multiple institution studies. *Review of Higher Education, 14(3): 317-337*

Woodward R. (1993) *Factors affecting research student completion.* Paper presented to the 15th Annual Forum of the European Association for Institutional Research, Turku, Finland.

Zanna, M. P & Darley, J. M.(1987). The compleat academic. (1st ed.) New York, NY: McGraw-Hill.

Zwick, R. (1991). *An analysis of graduate school careers in three universities: Differences in graduate school attainment patterns across academic programs and demographic groups.* Princeton, NJ: Educational Testing Service.