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THE ROLE OF ACADEMIC HELP-SEEKING ATTITUDES, ACHIEVEMENT GOAL  
ORIENTATIONS, AND DISSERTATION SELF-EFFICACY IN  
DISSERTATION PROGRESS

by

Tisha Stoll Colvin

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Educational Psychology and Research

The University of Memphis

December 2012

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## DEDICATION

This dissertation is dedicated to my two families: The family in which I grew up (Mom, Dad, sister and brother) and the family with whom I am growing now (husband, and two sons). I thank my parents for being the first to teach me the importance of an education, an open mind, and enjoying the journey. In addition, my husband deserves much appreciation for supporting all my efforts without complaint. Lastly, I am grateful to my sons who unknowingly encouraged me to complete this dissertation because I wanted to set a good example by finishing what I started.

## ACKNOWLEDGEMENTS

I sincerely thank my dissertation committee chairperson, Dr. Christian Mueller, for his unending patience. He consistently supported my work and encouraged me to continue when I was faced with difficulty during the dissertation experience. I also thank my dissertation committee, Dr. Corinna Ethington, Dr. Susan Magun-Jackson, and Dr. Martin Jones, both for my in-class experiences and for their helpful suggestions during the dissertation experience. I hope to provide the same support to future students.

## ABSTRACT

Colvin, Tisha Stoll. PhD. The University of Memphis. December 2012. The Role of Academic Help-Seeking Attitudes, Achievement Goal Orientations, and Dissertation Self-Efficacy in Dissertation Progress. Major Professor: Dr. Christian Mueller.

The current study explored socialization variables (academic discipline, part-time versus full-time enrollment status, and student involvement with research and teaching assistantships) and educational psychological variables (academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy) in relation to dissertation progress. The primary research questions were 1) What is the unique relationship between the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress over and above the socialization variables of academic discipline, enrollment status, and student involvement in research and teaching assistantships? 2) Is there a significant difference between the academic help-seeking attitudes of PhD candidates and PhD graduates? 3) Is there a significant difference in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress based on academic discipline using Holland's theory?

Participants were two groups ( $N = 445$ ) from 92 academic majors and 46 invited universities across the United States: PhD candidates ( $N = 236$ ) who had completed coursework, passed oral and written comprehensive exams and were currently enrolled in a PhD program; and PhD graduates ( $N = 209$ ) who had earned their degrees. The two groups were further divided into the Holland categories of Artistic, Enterprising, Investigative, and Social categories. Respondents completed an on-line survey consisting of 3 previously-validated questionnaires with minimal word modification.

Results for question 1 revealed dissertation self-efficacy to significantly and positively predict dissertation progress over and above teaching assistantship. Further analyses revealed performance-approach and help-seeking approach to significantly and positively predict dissertation self-efficacy. Results for question 2 revealed no significant difference between the academic help-seeking attitudes of PhD candidates and PhD graduates. Results for question 3 revealed that physical and life sciences PhD candidates (Holland category of Investigative) significantly differed from social science PhD candidates (Holland category of Social) and had higher means for mastery and performance-approach. Implications of this study are addressed.

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## CHAPTER 1

### INTRODUCTION

Many doctoral candidates face difficulty during the dissertation experience (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2005, 2007, 2008, 2009, 2010; Gell, 1995; Golde, 1998, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2000, 2001, 2005, 2007, 2008; Mah, 1986; National Science Foundation, 1998; Varney, 2003, 2010). In fact, approximately 20-30% of doctoral candidates do not complete their dissertations (Bowen & Rudenstine, 1992; Gardner, 2009; NSF, 1998) but are academically capable of doing so (Bowen & Rudenstine, 1992; Lovitts & Nelson, 2000; Zwick, 1991). Losing otherwise capable doctoral candidates during the dissertation experience is costly both fiscally and emotionally (Baird, 1990; Bowen & Rudenstine, 1992; Hyun, Quinn, Madon, & Lustig, 2006; Lovitts, 2001; Lunneborg & Lunneborg, 1973).

Many researchers have examined possible reasons for doctoral attrition that focus mainly on student background characteristics (Abedi & Benkin, 1987; Baker, 1998; Berg & Ferber, 1983; Bowen & Rudenstine, 1992; Ehrenberg & Mavros, 1995; Ethington & Smart, 1986; Faghihi, 1998; Lunneborg & Lunneborg, 1973; Mah, 1986; NSF, 2009; Nerad & Cerny, 1993; Pittman, 1997; Seagram, Gould, & Pyke, 1998) and socialization variables (Ethington & Pisani, 1993; Faghihi, 1998; Garcia, Malott, & Brethower, 1988; Gardner, 2005, 2007, 2008b, 2009, 2010; Gardner & Mendoza, 2010; Golde, 1998, 2000, 2005; Harsch, 2008; Lovitts, 2001; Tinto, 1991, 1993; Weidman, Twale, & Stein, 2001). Gardner (2009) proposed a model of doctoral student development that goes beyond previous socialization models (Golde, 1998, 2000, 2005; Lovitts, 2001; Tinto, 1991,

1993; Weidman, et al., 2001). Specifically, Gardner's (2009) model of doctoral student development divides the doctoral programmatic requirements into three phases (Phase I, entry into the program; Phase II, integration; and Phase III, candidacy) with each phase consisting of challenges and support that relate to personal relationships and identity development in addition to professional development (Gardner, 2009).

The current study explores the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships within the framework of Gardner's (2009) model of student development. To date there have been no studies examining the academic help-seeking attitudes or achievement goal orientations of doctoral candidates, and only three studies examining their dissertation self-efficacy relevant to dissertation progress (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010). Furthermore, because academic help-seeking attitudes (Karabenick, 2003), achievement goal orientations (Ames, 1992), and dissertation self-efficacy are malleable (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010) and have proven to be influential with students at levels other than the doctoral level (Ames & Lau, 1982; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler, Ellis, & Bar, 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan, Hicks, & Midgley, 1997; Ryan, Gheen, & Midgley, 1998; Ryan et al., 2001; Ryan et al., 2005; Schunk, 1991; Skaalvik & Skaalvik, 2005) it is imperative to examine these variables in relation to dissertation progress. The purpose of the current study therefore is to provide a better understanding of the academic help-seeking attitudes, achievement goal orientations, and dissertation

self-efficacy that relate to dissertation progress during Phase III of doctoral student development (Gardner, 2009) after controlling for the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships in Phases I and II. The current findings could be used to lower the historic doctoral attrition rate of 50% (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009). Much prior research examines doctoral attrition but focuses mainly on student background and socialization variables (Gardner, 2005), not educational psychological variables (Harsch, 2008; Varney, 2003, 2010).

### **Factors Leading to Doctoral Attrition**

Prior studies outlining the many reasons for doctoral attrition address mainly student background and socialization variables (Gardner, 2005). Student background variables include age (Baker, 1998; Faghihi, 1998; Mah, 1986), family responsibilities (Pittman, 1997), financial circumstances (Abedi & Benkin, 1987; Ehrenberg & Mavros, 1995; Faghihi, 1998; Mah, 1986; Nerad & Cerny, 1993), gender (Baker, 1998; Berg & Ferber, 1983; Bowen & Rudenstine, 1992; Ethington & Smart, 1986; Lunneborg & Lunneborg, 1973; Mah, 1986; NSF, 2009; Seagram, Gould, & Pyke, 1998), and job responsibilities (Mah, 1986). Socialization variables such as academic discipline (Austin 2002; Baird, 1990; Gardner, 2005, 2007, 2010; Golde, 2005; Nerad & Cerny, 1993), part-time versus full-time enrollment status (Pittman, 1997; Tinto, 1991, 1993), and student involvement in research and teaching assistantships (Ethington & Pisani, 1993; Faghihi, 1998; Garcia, Malott, & Brethower, 1988) have proven to be influential with regard to dissertation progress and will therefore be included in the current study. Although

student background variables play a role in doctoral completion rates universities cannot readily influence these variables (Harsch, 2008; Varney, 2003, 2010). However, universities may influence educational psychological variables such as academic help-seeking attitudes (Karabenick, 2003), achievement goal orientations (Ames, 1992), and dissertation self-efficacy (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010) especially during the dissertation experience in Phase III. Socialization (Gardner, 2009) and education psychological variables differ depending on the phase of doctoral student development.

### **Doctoral Student Development**

Socialization is the theoretical perspective that most often guides research pertaining to doctoral education (Gardner, 2005, 2007, 2008b, 2009, 2010; Gardner & Mendoza, 2010; Golde, 1998, 2000, 2005; Harsch, 2008; Lovitts, 2001; Tinto, 1991, 1993; Weidman et al., 2001). Within this framework, socialization is defined as the “process by which persons acquire the knowledge, skills, and dispositions that make them more or less effective members of society (p. 3)” (Brim & Wheeler, 1966; Gardner & Mendoza, 2010). Gardner (2009) posits that the majority of doctoral education research (Golde, 1998, 2000, 2005; Lovitts, 2001; Tinto, 1991, 1993; Weidman et al., 2001) concentrates solely on the programmatic aspects of doctoral coursework, comprehensive exams, and the dissertation within a professional context, missing the cognitive, interpersonal, personal, and moral changes so often discussed at the undergraduate level (Evans, Forney, & Guido-DiBrito, 1998; Gardner, 2009). The current study aims to address the excluded educational psychological variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy during the

dissertation experience after controlling for the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships that occurred prior to the dissertation experience. Before outlining the study variables it is necessary to explore Gardner's (2009) model of doctoral student development in more detail.

**Gardner's model.** As stated by Gardner (2009), her model of doctoral student development goes a step further than previous models (Golde, 1998; Lovitts, 2001; Tinto, 1991, 1993; Weidman et al., 2001) by analyzing doctoral students beyond the perspective that they are only preparing for professional employment. For example, Gardner (2009) includes both student relational issues with peers, faculty, and the broader group of professionals, as well as student identity development while still maintaining socialization into the community of higher education (Golde, 1998) as the focal point (Gardner, 2009). In other words Gardner's model (2009) examines the total development of the student, not just development of the student that relates to obtaining professional expertise (Gardner, 2009). Just as at the undergraduate level (Evans et al., 1998) doctoral students are continuing to grow personally in ways distinct from professional development (Gardner, 2009). Gardner's (2009) model of doctoral student development specifically divides the doctoral programmatic requirements into three phases (Phase I, entry into the program; Phase II, integration; and Phase III, candidacy) with each phase consisting of challenges and support that relate to personal relationships and identity development (Gardner, 2009). Socialization variables throughout the three phases are addressed next.



## **Socialization Variables**

The process of socialization begins in Phases I and II (Gardner, 2009). Although socialization continues through Phase III of doctoral student development it does so in a manner distinct from Phases I and II (Lovitts, 2005, 2007, 2008; Tinto, 1991, 1993). In fact, two very different sets of capabilities are necessary in order for doctoral students to complete coursework during Phase II and independent research during the dissertation experience in Phase III (Lovitts, 2005, 2007, 2008). The dissertation experience in Phase III requires not only greater independence from faculty and peers when compared to Phases I and II, and ambiguity with regard to how to proceed to the next step, but also a shift in cognitive processing (Lovitts, 2005, 2007, 2008).

The socialization variables already shown to be important at the doctoral level include academic discipline (Austin 2002; Baird, 1990; Gardner, 2005, 2007, 2010; Golde, 2005; Nerad & Cerny, 1993), part-time versus full-time enrollment status (Pittman, 1997; Tinto, 1991; 1993), and student involvement in research and teaching assistantships (Ethington & Pisani, 1993; Faghihi, 1998; Garcia et al., 1988). Each variable will be addressed separately in the following section.

**Academic discipline.** When doctoral students reach Phase III, and are considered candidates, they may become isolated from both fellow students and from faculty members (Gardner, 2009). Isolation during the dissertation experience may be more distinct in certain academic disciplines than in others (Gardner, 2005, 2007, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2001, 2008; Nerad & Cerny, 1993). For example, doctoral candidates in arts and humanities and social sciences who do not have the experience of working collaboratively in a laboratory setting are more likely to feel isolated when

compared to doctoral candidates in physical and life sciences who do have the experience of working collaboratively in a laboratory setting (Austin, 2002; Faghihi, 1998; Gardner, 2005; Lovitts, 2001; Nerad & Cerny, 1993). Several more findings highlight differences in the dissertation experience based on academic discipline (Austin, 2002; Baird, 1990; Gardner, 2005, 2007, 2010; Golde, 2005; Nerad & Cerny, 1993). In addition to feeling less isolated than students in arts and humanities and social sciences, students in physical and life sciences are also more likely to choose their dissertation topics earlier in their programs (Austin, 2002; Faghihi, 1998; Gardner, 2005, 2007; Golde, 2005; Nerad & Cerny, 1993). By choosing a dissertation topic earlier in the doctoral process, students in physical and life sciences have more time to devote to their research throughout graduate school rather than having to wait until after coursework is completed and comprehensive exams have been passed to begin the dissertation (Faghihi, 1998; Gardner, 2005, 2007; Golde 2005). Since rates of doctoral completion, and doctoral program structure differ based on academic discipline (CGS, 2007; Gravois, 2007; NSF, 2009) it is important to look at the dissertation experience according to academic discipline (Austin, 2002; Faghihi, 1998; Gardner, 2005, 2007; Golde, 2005; Lovitts, 2001; Nerad & Cerny, 1993).

An established method of grouping academic disciplines uses Holland's (1997) theory of personality, environment, and the congruence of personality and environment (Rosen, Homberg, & Holland, 1989; Smart, Feldman, & Ethington, 2000). Holland's (1997) theory and the application of it to academic disciplines (Rosen et al., 1989; Smart et al., 2000) will therefore be utilized in the current study. Other socialization variables important to consider at the doctoral level include part-time versus full-time enrollment

status (Pittman, 1997; Tinto, 1991, 1993), and student involvement in research and teaching assistantships (Ethington & Pisani, 1993; Faghihi, 1998).

**Part-time versus full-time enrollment.** Tinto's graduate school theory of persistence (1991, 1993) suggests students who are enrolled full-time are more socially integrated into the community of higher education and therefore progress through their graduate programs more so than students who are enrolled part-time and are less socially integrated. Pittman (1997) also sees benefit in full-time enrollment as compared to part-time enrollment mainly because the doctoral student becomes more involved when enrolled full-time. The current study will therefore include enrollment status as a socialization variable.

**Research and teaching assistantships.** Previous researchers have found a positive relationship between the socialization variables of student involvement in research and teaching assistantships and academic success (Ethington & Pisani, 1993; Faghihi, 1998). For example, Faghihi (1998) revealed that doctoral candidates who had some type of graduate assistantship were more advanced in their dissertation progress than doctoral candidates who did not have some type of graduate assistantship. In addition, Ethington and Pisani (1993) found research and teaching assistantships positively predicted professional development. Student involvement in research and teaching assistantships, an example of a socialization variable, will therefore be included in the current study. Although socialization variables have been previously studied at the doctoral level (Ethington & Pisani, 1993; Faghihi, 1998), only three studies have addressed educational psychological variables (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

## **Educational Psychological Variables**

The educational psychological variables of academic help-seeking attitudes (Karabenick, 2003), achievement goal orientations (Ames, 1992), and self-efficacy (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010) are essential to study at the doctoral level because they are malleable, unlike student background characteristics (Harsch, 2008; Varney, 2003, 2010). For example, although universities can counsel students to begin a doctoral program before they have family responsibilities (Pittman, 1997) this advice is not effective for currently-enrolled doctoral candidates who already have family responsibilities. However, if currently-enrolled doctoral candidates have low self-efficacy, Bandura's (1986) social cognitive theory states that self-efficacy can be influenced by modeling, and verbal persuasion, factors that universities can influence (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

Of the researchers who have mentioned motivation during the dissertation experience (Mah, 1986, Sternberg, 1981) none has used a comprehensive framework to study the issue (Gell, 1995). Academic help-seeking attitudes, achievement goal orientations, and self-efficacy (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010) are educational psychological variables that provide a structure in which dissertation progress during Phase III can be examined. Previous research has shown that all three variables are related to each other (Ames & Lau, 1982; Arbreton, 1998; Butler, 1998, 2006; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler, 1991; Nadler et al., 2003; Newman, 1998, 2000; Ryan et al., 1998; Ryan et al., 1997; Ryan, Patrick, & Shim, 2005; Ryan & Pintrich, 1997; Ryan, Pintrich, & Midgley, 2001; Schunk, 1991, 2004; Skaalvik, 1997; Skaalvik & Skaalvik, 2005). In essence, achievement goal

orientation is relevant to academic help-seeking attitudes because it influences students' perception of both the benefits and costs of seeking academic help (Karabenick, 2006). In addition, self-efficacy moderates achievement goal orientations (Schunk, 1991) and academic help-seeking attitudes (Skaalvik & Skaalvik, 2005). Furthermore, all three variables are relevant to students who encounter academic difficulty (Arbreton, 1993; Faghihi, 1998; Finney, Pieper, & Barron, 2004; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Nelson Le-Gall, 1985; Varney, 2003, 2010). Since difficulty during the dissertation experience is an established issue (Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2005, 2007, 2009; Golde, 1998, 2005; Golde & Dore, 2001; Harsch, 2008; NSF, 1998, Varney, 2003, 2010) academic help-seeking attitudes, achievement goal orientations, and self-efficacy should be studied at the doctoral level.

**Academic help-seeking attitudes.** Academic help-seeking research is relevant to the study of doctoral attrition during the dissertation experience because it focuses on the ways that students react when they encounter academic problems (Arbreton, 1993). Academic help-seeking research specifically examines whether or not students are willing to ask for academic help and the types of academic help they ask for (Arbreton, 1993). Although a majority of the academic help-seeking research is conducted among elementary school students (Arbreton, 1993; Nelson Le-Gall, 1981, 1985, 1987; Nelson Le-Gall & Glor-Scheib, 1985; Nelson, Le-Gall & Scott-Jones, 1985), some studies examined college students and employees concluding that the same constructs are still relevant later in life (Karabenick, 2003, 2004; Karabenick & Knapp, 1998a, 1988b, 1991; Lee, 1997; Nadler et al., 2003; Skaalvik & Skaalvik, 2005). In addition, academic help-seeking research is grounded in achievement goal theory (Arbreton, 1998; Karabenick,

2003, 2004). In fact, the types of achievement goal orientation students adhere to can, in part, describe their attitudes toward seeking academic help in an academic environment (Arbreton, 1998; Karabenick, 2003, 2004).

**Achievement goal orientations.** Achievement goal orientation explains why and how a person is motivated to achieve (Ames, 1992). It is a pattern of beliefs that governs one's actions and provides a framework by which students judge their achievements (Pintrich, 2000). Achievement goal orientation is important to consider during the dissertation experience because doctoral candidates are in a less-structured, independent academic setting, compared to the more dependent period of coursework (Lovitts, 2008) in Phase II (Gardner, 2009). Doctoral candidates need reason to persist during this difficult time period. Prior research shows that students with mastery orientation are more likely to persist and use extensive self-regulated strategies when they encounter difficulty than students with performance orientation (Finney et al., 2004; Harackiewicz et al., 2000). Performance goals are positively correlated with help-seeking avoidance and mastery goals are negatively correlated with help-seeking avoidance (Butler, 1998; Middleton & Midgley, 1997; Ryan et al., 1997). The last educational psychological variable relevant to the current study is self-efficacy.

**Self-efficacy.** Self-efficacy, which is part of Bandura's (1986) broader social cognitive theory, is defined as individuals' beliefs that they can achieve success at a certain task. Faghihi (1998) found self-efficacy for research to be the number one contributing factor to dissertation progress. In a similar vein, Varney (2003) considered the issue of self-efficacy during the dissertation experience so essential for further study that he created the Dissertation Self-Efficacy Scale (DSES). Using this new

measurement, Varney (2003, 2010) and Harsch (2008) found dissertation self-efficacy (DSE) to be positively and significantly related to dissertation progress.

It has already been established that academic help-seeking attitudes are related to achievement goal orientations and self-efficacy in students in elementary and middle-school (Arbreton, 1998; Butler, 1998, 2006; Middleton & Midgley, 1997; Ryan et al., 1998; Ryan et al., 1997; Ryan & Pintrich, 1997), college (Ames & Lau, 1982; Karabenick, 2003, 2004; Karabenick & Knapp, 1988a, 1988b, 1991), and in the workplace (Lee, 1997; Nadler et al., 2003). Self-efficacy at the doctoral level needs to be further explored due to the important findings that show it positively contributes to dissertation progress (Faghihi, 1998; Harsch, 2008; Varney 2003, 2010).

## **Conclusion**

Doctoral candidates often face difficulty during the dissertation experience (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2005, 2007, 2008a, 2009, 2010; Golde, 1998, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2000, 2001, 2005, 2007, 2008; Mah, 1986; NSF, 1998; Varney, 2003, 2010) in Phase III of Gardner's (2009) model of doctoral student development. The purpose of the current study is to provide a better understanding of the academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy that relate to dissertation progress over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships. There is a temporal aspect of this research design since the current study focuses primarily on educational psychological variables and how they impact dissertation progress once the socialization variables of how the doctoral candidates reached Phase III are controlled.

Chapter two will provide a review of the literature pertaining to difficulty during the dissertation experience; factors leading to doctoral attrition; doctoral student development; socialization variables including academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships; educational psychological variables including academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy; and the unique educational environment in which doctoral candidates are immersed. A discussion of each topic will be outlined, followed by a synthesis of how the topics relate to dissertation progress.



## CHAPTER 2

### LITERATURE REVIEW

Chapter 2 provides a review of the literature relevant to the goals and objectives of the current study. Specifically, the information is culled from research pertaining to difficulty during the dissertation experience; factors leading to doctoral attrition; doctoral student development; socialization variables including academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships; educational psychological variables including academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy; and the unique educational environment in which doctoral candidates are immersed. A discussion of each topic is outlined, followed by a synthesis of how the topics relate to dissertation progress. If previous research for a given topic has not been conducted with specific regard to the dissertation experience, the topic will be discussed as it relates to academic success in general. Lastly, the statement of the problem, purpose of the study, and research questions will be presented.

#### **Difficulty During the Dissertation Experience**

Many students face difficulty during the dissertation experience (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Garcia et al., 1988; Gardner, 2005, 2007, 2008, 2009, 2010; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2000, 2001, 2005, 2007, 2008; Mah, 1986; NSF, 1998; Varney, 2003, 2010).

Approximately 20%-30% of doctoral candidates do not complete the dissertation requirement and therefore quit their doctoral programs (Bowen & Rudenstine, 1992; Gardner, 2009; Nerad & Cerny, 1993; NSF, 1998). In addition, 35% of 3rd-year doctoral

students feel the coursework in Phase II did not prepare them for the dissertation (Golde & Dore, 2001). Difficulty with the dissertation is so influential that it is cited as one of the main reasons candidates leave doctoral education (Faghihi, 1998; Garcia et al., 1988).

As noted by Lovitts (2001, 2005, 2008), coursework completed during Phase II, and independent research conducted during the dissertation experience in Phase III, require two very different sets of student capabilities. Students who reach doctoral education are typically students who have repeatedly performed well in classes prior to entering doctoral education (Lovitts, 2005). These students understand how to listen to a lecture carefully, read textbooks, and take exams, all of which translates into success during Phase II of coursework and comprehensive exams (Lovitts, 2005). In effect, students follow a set of procedures outlined by course instructors (Lovitts, 2005). Therefore, students are dependent on the faculty and in addition are surrounded by potentially helpful classmates (Lovitts, 2005). In contrast, the dissertation experience requires not only greater independence from faculty and peers and ambiguity with regard to how to proceed to the next step (Golde, 1998, 2005; Gardner, 2008a, 2009; Lovitts, 2001, 2005, 2008; Tinto, 1991, 1993), but also a shift in cognitive processing to being a creator of knowledge rather than a consumer of knowledge (Gardner, 2007; Lovitts, 2008). How doctoral candidates react to the new experience of dissertation work may determine whether they complete or quit their program.

Although there are costs to leaving a doctoral program at any stage, the costs during the dissertation experience are especially high both financially and emotionally, since so much time and effort have already been invested in the program (Baird, 1990; Bowen & Rudenstine, 1992; Gardner, 2010; Harsch, 2008; Lovitts, 2001; Lunneborg &

Lunneborg, 1973). In order to reduce the exodus of doctoral candidates from their programs it is imperative that research focus on malleable reasons (Harsch, 2008; Varney, 2003, 2010) for their departure such as educational psychological variables.

### **Factors Leading to Doctoral Attrition**

Previous studies exploring the many factors of doctoral attrition have focused mainly on student background characteristics and socialization variables (Gardner, 2005). Student background characteristics include age (Baker, 1998; Faghihi, 1998; Mah, 1986), family responsibilities (Pittman, 1997), financial circumstances (Abedi & Benkin, 1987; Delaney, 1981; Ehrenberg & Mavros, 1995; Faghihi, 1998; Mah, 1986; Nerad & Cerny, 1993), gender (Baker, 1998; Benkin, 1984; Berg & Ferber, 1983; Bowen & Rudenstine, 1992; Ethington & Smart, 1986; CGS, 2007; Lunneborg & Lunneborg, 1973; Mah, 1986; NSF, 2009; Seagram et al., 1998), and job responsibilities (Mah, 1986). Although it is helpful to understand influential student background characteristics these are variables over which universities have little impact (Harsch, 2008; Varney, 2003, 2010). Instead it is useful to look at malleable variables, such as educational psychological variables, that may help reduce doctoral attrition over and above the socialization variables already explored (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

Socialization variables previously examined include academic discipline (Austin, 2002; Baird, 1990; Gardner, 2005, 2007, 2010; Golde, 2005; Nerad & Cerny, 1993), part-time versus full-time enrollment (Pittman, 1997; Tinto, 1991, 1993) and student involvement in graduate research and teaching assistantships (Ethington & Pisani, 1993; Faghihi, 1998; Garcia et al., 1988). Self-efficacy, an educational psychological variable, has also been explored in relation to dissertation progress (Faghihi, 1998; Harsch, 2008;

Varney, 2003, 2010). Both socialization (Gardner, 2009) and education psychological variables differ depending on the phase of doctoral student development in which they are examined.

### **Doctoral Student Development**

Researchers (Gardner, 2005, 2007, 2008b, 2009, 2010; Gardner & Mendoza, 2010; Golde, 1998, 2000, 2005; Lovitts, 2001; Tinto, 1993; Weidman et al., 2001) have presented several theories explaining key components of persistence in doctoral programs, all of which highlight the importance of socialization (Gardner, 2005). The term socialization refers to the “process by which persons acquire the knowledge, skills, and dispositions that make them more or less effective members of society (p. 3)” (Brim & Wheeler, 1966; Gardner & Mendoza, 2010).

Tinto (1975, 1987, 1993) first systematically examined student attrition at the undergraduate level (Ethington & Pisani, 1993; Gardner, 2005). Specifically, Tinto (1975) found that academic and social integration into the community of higher education was the most important factor influencing persistence and attrition (Ethington & Pisani, 1993; Gardner, 2005). Tinto (1975) defined academic integration as academic performance and intellectual development, and social integration as student interaction with peers and faculty.

Tinto (1991, 1993) later extended his undergraduate theory of persistence to the graduate level, explaining the graduate school socialization process using three sequential stages: transition, candidacy, and doctoral completion (Gardner, 2005). Transition is the time period, usually the first year, in which graduate students are steadily becoming more and more comfortable as members of their departments in both an academic and social

context (Tinto, 1993). The next stage, dubbed candidacy, is the bulk of the students' time in which they acquire the necessary knowledge to succeed in graduate school (e.g., attending classes, writing papers, and participating in exams) (Tinto, 1993). Lastly, doctoral completion is the time period in which graduate students successfully accomplish all requirements pertaining to the dissertation: securing a doctoral committee; selecting a dissertation topic; preparing a dissertation proposal; conducting the research; writing the dissertation; and finally defending the dissertation (Tinto, 1993).

Important to the current study, Tinto (1991, 1993) specifically notes a distinction between the socialization that occurs in the transition and candidacy stages, compared to the socialization that occurs in doctoral completion stage. In stages one and two, graduate students are interacting with many different faculty members and fellow students. In contrast, during stage three, doctoral candidates are interacting with only a few faculty members. It is this later timeframe that will be examined in the current study since many doctoral candidates find this period to be difficult (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2005, 2007, 2008, 2009, 2010; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2000, 2001, 2005, 2007, 2008; Mah, 1986; NSF, 1998; Varney, 2003, 2010).

Golde (1998) provided her view of a “double socialization” that occurs in graduate school (Gardner, 2005). Not only are graduate students socialized toward their profession, they are also socialized toward being graduate students (Golde, 1998). In describing this “double socialization”, Golde (1998) outlines four tasks which are characterized by key questions. The tasks are intellectual mastery, learning about life as a graduate student, learning about the profession for which one is preparing, and

integrating oneself into the department (Golde, 1998). The corresponding key questions are: Can I do this?; Do I want to be a graduate student?; Do I want to do this work (in the profession)?; and, Do I belong here? (Golde, 1998).

Later, using a four-staged model to describe the graduate school socialization process, Weidman et al. (2001) offer theoretical information similar to Tinto (1993), Gardner (2005), and Golde, (1998) but with more detail (Gardner, 2005). According to Weidman et al. (2001) the four developmental stages that occur sequentially are anticipatory, formal, informal, and personal. The anticipatory stage is a time period in which new graduate students mainly have only stereotypical views of graduate student life that could have been shaped by the media or from limited observation of a graduate student acquaintance (Weidman et al., 2001). In the next stage, dubbed the formal stage, new graduate students learn how experienced graduate students perform their roles (Weidman et al., 2001). The new graduate students are thus formally introduced to procedural activities and begin to solidify an idea of what is expected of them (Weidman et al., 2001). The informal, or third, stage is a bit different in that graduate students now look more closely at their fellow students rather than the more advanced students (Weidman et al., 2001). It is at the informal stage that graduate students take behavioral cues from their own cohort (Weidman et al., 2001). Lastly, the personal stage is one in which the graduate student internalizes the characteristics of a professional academic (Weidman et al., 2001).

Like Tinto (1991, 1993), Golde (1998), and Weidman and colleagues (2001), Lovitts (2001) also recognizes the developmental aspect of graduate student socialization, and uses a four-stage model to describe it (Gardner, 2005). The four stages in Lovitts'

(2001) model are: anticipatory socialization; entry and adjustment; development of competence; and research. The anticipatory socialization stage, dubbed stage zero, begins even before graduate students enter a particular university, when they are researching doctoral programs, preparing applications, and participating in interviews (Lovitts, 2001). The next stage, entry and adjustment, is characterized by graduate students beginning to feel as though they are a part of the university system (Lovitts, 2001). Next, graduate students are immersed in the development of competence while taking courses (Lovitts, 2001). This development of competence stage culminates when the student passes the final comprehensive examination requirements and thus is considered a doctoral candidate (Lovitts, 2001). Lastly, the research stage encompasses all the requirements for the dissertation, just as in Tinto's (1991, 1993) doctoral completion stage, namely: "finding a dissertation topic, constituting a doctoral committee, completing a research project, and writing and defending a dissertation." (p. 72)

Lovitts (2001, 2005) further divides the four-staged graduate student socialization process into two main stages reminiscent of Tinto's (1993) distinction between the types of socialization in his stages 1 and 2, compared to stage 3: a *dependent* stage when socialization occurs amongst students and with faculty members during the entry and adjustment, and development of competence stages; and an *independent* stage when candidates are more likely to be isolated during the research stage. Again, it is the independent stage of the socialization process during the dissertation experience that will be examined in the current study.

Gardner (2009) believes the majority of doctoral education research (Golde, 1998, 2005; Lovitts, 2001; Tinto, 1993; Weidman et al., 2001) fails to include the cognitive, interpersonal, personal, and moral changes so often discussed at the undergraduate level (Evans et al., 1998). In order to address these missing components of doctoral socialization Gardner (2009) proposed a new model.

**Gardner's model.** Gardner's (2009) model of student development, a result of several qualitative studies conducted with 177 doctoral students from across the United States, adds to the previous literature (Golde, 1998; Lovitts, 2001; Tinto, 1993; Weidman et al., 2001) by analyzing the doctoral student beyond merely a professional perspective. While still maintaining socialization into the community of higher education and a specific academic department (Golde, 1998, 2000, 2005; Lovitts, 2001, 2007; Tinto, 1993; Weidman et al., 2001) as the focal point, Gardner's (2009) model examines the *total* development of the doctoral student, including personal and interpersonal changes. These personal and interpersonal changes include issues such as student identity development as well as student relationships with peers, faculty, and the broader group of professionals (Gardner, 2009). Gardner's (2009) model of doctoral student development is divided into three phases, each consisting of challenges and support that relate to changing personal relationships and student identity development.

Gardner's (2009) model of student development is also distinct from the other conceptualizations of the graduate student socialization process because she uses the term 'phases', rather than 'stages' (Gardner, 2009). Phases denote less rigidity than stages and as such students can "visit and revisit" developmental issues (Gardner, 2009).



Phase I of Gardner's (2009) model is entry into the program, with challenges of admission, coursework, learning balance, and transition from the expectations of undergraduate education to the expectations of graduate education. The support offered in Phase I is orientation and initial relationships with peers and faculty. Phase II is integration, with challenges of coursework, examinations, and changing roles. The support offered in Phase II is relationships with peers and faculty. Lastly, and most relevant to the current study, is Phase III, candidacy. The challenges in Phase III include the transition to candidacy marked by successful completion of the comprehensive examinations, the dissertation experience, job search, and transition to a professional role. The support offered in Phase III often comes from the student's dissertation advisor but can also include writing groups, and mentors other than the dissertation advisor. Phase III is distinct from Phases I and II because of the ambiguity surrounding expectations for the dissertation, and the need for self-direction and motivation (Gardner, 2007, 2009, 2010; Lovitts, 2008). In Phases I and II doctoral students are socialized into their programs primarily with peers and faculty members but in Phase III doctoral candidates may become isolated from fellow students, faculty members other than their dissertation advisors (Gardner, 2009), and even their own dissertation advisors (Golde, 2000; Mah, 1986). The role of the doctoral student therefore changes as the student progresses through the doctoral program (Gardner, 2009) and some students find that change difficult (Lovitts, 2000).

### **Socialization Variables**

The socialization variables already shown to be important include academic discipline (Austin, 2002; Baird, 1990; Becher & Trowler, 2001; Gardner, 2005, 2007,

2009 2010; Golde, 1998, 2000, 2005; Lovitts, 2001, 2007; Nerad & Cerny, 1993; Parry, 2007; Tinto, 1993), part-time versus full-time enrollment status (Pittman, 1997; Tinto, 1991, 1993), and student involvement in research and teaching assistantships (Ethington & Pisani; Faghihi, 1998; Garcia et al., 1988). Each variable will be addressed separately below.

**Academic discipline.** There is much research that shows how completion of the doctoral degree is related to academic discipline (Austin, 2002; Baird, 1990; Becher & Trowler, 2001; Gardner, 2005, 2007, 2009 2010; Golde, 1998, 2000, 2005; Lovitts, 2001, 2007; Nerad & Cerny, 1993; Parry, 2007; Tinto, 1993). Tinto (1975, 1987, 1991, 1993), who first highlighted the importance of integration with the institution as a whole at the undergraduate level (Gardner, 2005), stressed that while integration with the institution is important at the graduate level, it is integration with the academic *department* that plays the more critical role (Tinto, 1991, 1993). A large part of being a doctoral student is being socialized into one's academic discipline housed within the department (Austin, 2002; Baird, 1990; Becher & Trowler, 2001; Gardner, 2005, 2007, 2009 2010; Golde, 1998, 2000, 2005; Lovitts, 2001, 2007; Nerad & Cerny, 1993; Parry, 2007). Rates for doctoral completion differ based on academic discipline (CGS, 2007; Golde, 2005; Gravois, 2007; NSF, 2009). The more socialized students are the more likely they will persist in graduate school (Tinto, 1993).

Doctoral candidates in the physical and life sciences are more likely to complete their degrees and do so in a timelier manner when compared to doctoral candidates in the arts and humanities or social sciences (CGS, 2007; Golde, 2005; Gravois, 2007; NSF, 2009). Completion and time-to-degree rates for candidates in the social sciences tend to

fall in between the rates of candidates in the physical and life sciences, and arts and humanities (CGS, 2007; NSF, 2009). There are several possible reasons for this discrepancy when one considers the dissertation experience. First, physical and life sciences doctoral students choose their dissertation topics earlier in their programs than do arts and humanities doctoral students, allowing physical and life sciences doctoral students more time to hone their skills (Austin, 2002; Faghihi, 1998; Gardner, 2005, 2007; Golde, 2005; Nerad & Cerny, 1993). Next, physical and life sciences candidates are more likely to be steered toward a particular dissertation topic based on the funding currently available in their laboratory (Austin, 2002; Gardner, 2005, 2007; Lovitts, 2001, 2007). Arts and humanities candidates, on the other hand, are not tied to specific funding streams and can therefore struggle when looking for a dissertation topic (Austin, 2002; Gardner, 2005, 2007; Lovitts, 2001, 2007). Thirdly, physical and life sciences candidates are afforded the opportunity to work side-by-side with faculty members and fellow students in the laboratory, which can make them feel less isolated (Austin, 2002; Faghihi, 1998; Golde, 2005; Lovitts, 2007; Nerad & Cerny, 1993). In contrast, arts and humanities candidates are not immersed in team research and can therefore feel extremely secluded during the dissertation experience (Austin, 2002; Lovitts, 2007). Lastly, the dissertation product itself is often distinct based on discipline (Austin, 2002; Lovitts, 2007). For example, physical and life sciences candidates may prepare a dissertation that consists of several articles, perhaps ones that have already been published before their degree is completed. On the other hand, arts and humanities candidates, especially those in the English department, are oftentimes expected to write an entire book based on their dissertation (Austin, 2002; Gardner, 2009).

An established method of categorizing the varied academic disciplines uses Holland's theory (1997) (Rosen et al., 1989; Smart et al., 2000). Holland's theory (1997), initially focusing on people and their careers, posits 6 distinct personality types and 6 distinct environments (Smart et al., 2000): Artistic, Conventional, Enterprising, Investigative, Realistic and Social. Additionally, the theory suggests that the persistence, achievement, and satisfaction of employees are determined by the congruence of their dominant personality type and the environment in which they work (Holland, 1997; Smart et al., 2000). In other words, the career one chooses should match one's personality type (Holland, 1997; Smart et al., 2000). Subsequently the career environment socializes employees by rewarding certain behaviors (Holland, 1997; Smart et al., 2000). If the environment is consistent with the employees' personality types the employee will persist, achieve, and feel satisfied (Holland, 1997).

Although Holland (1997) suggested his theory would work in settings other than vocational ones (Rosen et al., 1989), Smart et al. (2000) were the first to validate it in an academic setting (Smart et al., 2000). Using a sample of 2,775 faculty members and 2,309 undergraduate students Smart et al. (2000) found the 3 basic assumptions of Holland's theory (1997) to be true in an academic setting. Namely, students chose the academic environments, or disciplines, that were similar to their dominant personality types (Smart et al., 2000). Secondly, academic environments, or disciplines, reward and thereby strengthen certain patterns of student abilities and interests (Smart et al., 2000). Lastly, students are more persistent, achieve more, and feel more satisfied in environments, or academic disciplines, that "fit" their dominant personality types (Smart et al., 2000). Similar to previous research (Holland, 1997; Rosen et al., 1989; Smart et

al., 2000) the current study will categorize arts and humanities candidates and graduates into the Holland theory (1997) category of Artistic; business candidates and graduates into the Holland category of Enterprising; physical and life science candidates and graduates into the Holland category of Investigative; and, social science candidates and graduates into the Holland category of Social (for a complete list of Holland categories and corresponding academic disciplines used in the current study please see Appendix A). The Holland categories of Conventional and Realistic personalities and environments were not found as abundantly in the academic setting (Smart et al., 2000) and therefore will not be examined in the current study.

When doctoral students encounter difficulty, ultimately deciding to leave their programs, it is interesting to note the disparity in time of departure based on academic discipline (CGS, 2007; Gravois, 2007). Specifically, Gravois (2007) states that in academic disciplines such as mathematics and physical sciences, the majority of doctoral students who choose to leave their programs do so within the first 3 years of starting the doctorate. In contrast, in humanities-related disciplines only 50% of the doctoral students who choose to leave their programs do so within the first 3 years (Gravois, 2007). Instead, students in the humanities who decide to leave do it intermittently throughout the next 7 years of their programs (Gravois, 2007). This timeframe would include the dissertation experience in Phase III. Almost 3% of doctoral students in humanities-related disciplines quit their programs after they have spent nine or 10 years working on their degree (Gravois, 2007). Other socialization variables important to consider at the doctoral level include part-time versus full-time enrollment status (Pittman, 1997; Tinto,

1991, 1993), and student involvement in research and teaching assistantships (Ethington & Pisani, 1993; Faghihi, 1998; Garcia et al., 1988).

**Part-time versus full-time enrollment.** Tinto's graduate school theory of persistence (1991, 1993) suggests students who are enrolled full-time are more socially integrated into the community of higher education and therefore progress through their graduate programs more so than students who are enrolled part-time and are less socially integrated. Pittman (1997) also sees benefit in full-time enrollment as compared to part-time enrollment mainly because the doctoral student becomes more involved when enrolled full-time. The current study will therefore include enrollment status as a socialization variable.

**Research and teaching assistantships.** Previous researchers have found a positive relationship between the socialization variables of student involvement in research and teaching assistantships and academic success (Ethington & Pisani, 1993; Faghihi, 1998). For example, Faghihi (1998) revealed that doctoral candidates who had some type of graduate assistantship were more advanced in their dissertation progress than doctoral candidates who did not have some type of graduate assistantship. In addition, Ethington and Pisani (1993) found research and teaching assistantships positively predicted professional development. Student involvement in research and teaching assistantships, an example of a socialization variable, will therefore be included in the current study. Although socialization variables have been previously studied at the doctoral level, only three studies have addressed educational psychological variables (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

In previous research when a student is thought to be academically capable, yet academically unsuccessful, motivational factors are explored (Pintrich & Schunk, 2002). To date, academic help-seeking attitudes, achievement goal orientations, and self-efficacy have mainly been addressed at levels other than the doctoral level (Ames & Lau, 1982; Arbreton, 1993, 1998; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler et al., 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan et al., 1997; Ryan et al., 1998; Ryan et al., 2001; Ryan et al., 2005; Schunk, 1991; Skaalvik & Skaalvik, 2005). Faghihi (1998), Harsch (2008) and Varney (2003, 2010) are the only three researchers who have addressed the educational psychological variable of self-efficacy during the dissertation experience. One of the reasons they began looking at self-efficacy is because it is malleable (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010). The implications of the current research are that university administrators, faculty members, and even doctoral candidates themselves will be able to affect beneficial change in educational psychological variables during the dissertation experience, ultimately increasing doctoral completion (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

### **Educational Psychological Variables**

There is limited systematic research examining the dissertation experience (Gell, 1995), especially with regard to educational psychological variables (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010). Faghihi (1998), Harsch (2008), and Varney (2003, 2010) used Bandura's (1986) social-cognitive theory to explain dissertation progress. The current study is similar to those studies but adds to their work on dissertation self-efficacy by including the variables of academic help-seeking attitudes, and achievement

goal orientations to explain dissertation progress. Ultimately, the current study assumes that doctoral candidates who are more fully socialized are those candidates who are more likely to feel comfortable seeking academic help, to exhibit a mastery or performance-approach orientation, to show high levels of dissertation self-efficacy, and to progress further in their dissertation work.

Academic motivation is an established area of research that has been shown to impact academic success (Alderman 2004; Pintrich & Schunk, 2002). The vast majority of academic motivational research centers on elementary, middle, high-school and college students (Ames & Lau, 1982; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler et al., 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan et al., 1997; Ryan et al., 1998; Ryan et al., 2001; Ryan et al., 2005; Schunk, 1991; Skaalvik & Skaalvik, 2005). Very limited academic motivational research has been conducted at the graduate level (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010). Because doctoral completion rates still remain near 50% (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009) it is time to better understand these constructs as they pertain to doctoral candidates.

As noted by Varney (2003, 2010) and Harsch (2008) the reason educational psychological variables are so essential to study at the doctoral level is because they are malleable, unlike many of the other factors leading to doctoral attrition. For example, if currently-enrolled doctoral candidates are uncomfortable seeking academic help, one way this attitude can be changed is by influencing personal achievement goal orientations and self-efficacy (Karabenick, 2003). Similarly, mastery, the personal achievement goal orientation most often cited as adaptive (Dweck, 1986; Dweck & Leggett, 1988; Elliot,



2005), can be influenced by the environment, instructors, and students (Ames, 1992). In addition, Bandura's (1986) theory shows that low self-efficacy can be influenced by modeling or verbal persuasion and thus increased to higher self-efficacy. Both educators and doctoral candidates should be interested in uncovering the optimal set of these three constructs.

If there is a certain set of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy that distinguishes between doctoral candidates who successfully complete the dissertation and doctoral candidates who fail to complete the dissertation, then educators should explore the possibility of influencing the latter set of characteristics to lean more toward the former set of characteristics. Each of the variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy are especially important when students encounter difficulty. Since it is agreed that doctoral candidates often find the dissertation to be challenging (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Garcia et al., 1988; Gardner, 2007, 2008, 2009; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Lovitts, 2001, 2007; Mah, 1986; NSF, 1998) it is necessary to examine these constructs at the doctoral level. In the next section each construct will be described separately, followed by a discussion of how the constructs are interrelated.

**Academic help-seeking attitudes.** Doctoral candidates must produce original and independent research as part of the dissertation requirement (Berelson, 1960; Gardner, 2005; Lovitts, 2001, NSF 1998), yet 35% of doctoral candidates do not feel prepared to do so (Golde & Dore, 2001). Conventional wisdom assumes doctoral candidates should

not need to ask for academic help (Gardner, 2008, 2009). Indeed, Gardner (2008) notes Egan's (1989) view of doctoral students' academic help-seeking attitudes:

This level of independence is not consistent with earlier educational experiences, which accept passivity and encourage students' dependence on professors. New students may not be ready for such independence, but the structure does not encourage them to admit this fact. Asking for help may be interpreted by students as an inability to do what is expected of them. (p. 202)

Empirically illustrating Egan's (1989) interpretation of academic help seeking, Mah (1986) provided this quote from surveys administered to 190 doctoral candidates, 153 of whom completed their doctorate, 37 of whom were non-completers: "The most important factor was my own fear to ask questions and for help. I believed I would show everyone my ignorance and be kicked out of the program" (p. 108). Lovitts (2008), in a study of faculty members who have worked with a large number of doctoral graduates, provides the professors' view confirming the fact that doctoral candidates need academic help during the dissertation experience. Many of the 55 faculty members in focus groups touch on the issue of students needing academic help (Lovitts, 2008). For example, one faculty member comments:

I view it as part of my mentoring responsibility to see when a student has hit one of those walls, and if temperamentally they're just not going to be able to move forward, to find a way to help them out of it. But not expect them to be so independent that they can solve all of their own problems. But to work with them so they can have a graceful and productive exit from one of those situations and keep things from getting so bad. Keep students from falling into a trap where they're not

working too long. Careful monitoring of their work to make sure things are really functioning so that they can continue to be reinforced. (p. 317)

Ambiguity is often cited as the most frustrating issue facing doctoral candidates during the dissertation experience (Gardner, 2007; Lovitts, 2008). Both doctoral candidates (Gardner, 2007) and faculty members (Lovitts, 2008) recognize the problems that ensue when doctoral candidates do not know how to move forward. Questions need to be asked, and faculty members need to be willing to answer them. Of course, not all questions are equal (e.g., instrumental versus executive, to be discussed later), and there is a delicate balance between giving a doctoral candidate too much independence and too little independence (Gardner, 2008a).

Just as Gardner's model of doctoral students is developmental (Gardner, 2009) so too is academic help seeking (Arbreton, 1993). Nelson Le-Gall (1981) predicted students would become more adept at adaptive academic help seeking as they grew older. However, Newman (1990) compared the academic help-seeking attitudes of 3<sup>rd</sup>, 5<sup>th</sup>, and 7<sup>th</sup> graders and found that 7<sup>th</sup> graders were more likely to note the costs of asking for academic help such as appearing incapable. Research focusing on the academic help-seeking attitudes of doctoral candidates is non-existent, however there is relevant academic help-seeking literature that provides guidance for the current study.

Originally, academic help seeking was seen in a negative light since students' independence in problem solving was emphasized as an important factor (Arbreton, 1993; Feather, 1962; Fennema & Peterson, 1985; Winterbottom, 1958). Students who were incapable of performing tasks on their own were viewed as students who were more likely to seek academic help (Arbreton, 1993). The then-current wisdom said capable

students did not need to ask for academic help and could perform tasks on their own (Arbreton, 1993). Nelson-Le Gall (1981, 1985, 1987) conducted seminal research with children and reversed the prevailing stigma that academic help seeking was only for students who were less capable. Instead, Nelson-Le Gall found instances in which academic help seeking was an adaptive strategy used by very capable students. Important to this finding is the fact that Nelson Le-Gall differentiated between different types of academic help seeking (Arbreton, 1993). The more adaptive, or instrumental help seeking, involved students asking for hints, rather than direct answers, in order to better understand the information and arrive at the ultimate answer somewhat independently (Arbreton, 1993). In contrast, the maladaptive, or executive help seeking, involved students asking for direct answers, rather than hints, in order to simply perform better, with little interest in learning the material (Arbreton, 1993).

Academic help-seeking research is thoroughly grounded within the frameworks of both self-regulation and achievement goal theory (Karabenick, 1998; Newman, 2006). More specifically, academic help seeking is a form of self-regulation and is influenced by an individual's achievement goal orientation. Achievement goal orientations give meaning to students' views of academic help seeking (Newman, 1990, 1998). Before reviewing the achievement goal literature pertinent to academic help seeking it is important to outline the history of achievement goal orientation itself.

**Achievement goal orientations.** Achievement goal orientation explains why and how a person is motivated to achieve (Ames, 1992). It is a pattern of beliefs that governs one's actions and provides a framework by which students judge their achievements (Pintrich, 2000). As Pintrich (2000) notes, achievement goal orientation theory has many

terms to describe similar constructs. Initially, Nicholls (1984) described two orientations: task-involved and ego-involved. Later, Elliott and Dweck (1988) introduced the terms learning and performance. Now most researchers use the monikers mastery and performance as presented by Ames (1992). In essence, a mastery orientation (task-involved; learning) means a student is interested in learning for learning's sake. Mastery-oriented students are concerned with improving their learning (Elliott & Dweck, 1988). Conversely, performance-oriented students (ego-involved) are concerned with outperforming other students, or proving their learning (Elliott & Dweck, 1988).

Originally, all researchers believed the mastery orientation was the most beneficial because students' cognitive, affective and behavioral outcomes (Pintrich & Schunk, 2002) such as inclination toward challenging work, positive attitudes, higher self-concept, intrinsic motivation, and effective learning strategies (Ames, 1992), were better when compared with students who had performance orientation. However, Elliot and Harackiewicz (1996) found mixed results within the performance orientation research: In previous studies, students with a performance orientation exhibited healthy outcomes such as an increase in intrinsic motivation (Harackiewicz, 1989). At other times, students with a performance orientation exhibited deleterious outcomes such as test anxiety, or an unwillingness to ask for help (Deci & Ryan, 1985). Elliot and Harackiewicz (1996) were therefore perplexed and decided to explore the possibility of two distinct forms of the performance orientation (initially leaving the mastery orientation intact): performance-approach and performance-avoidance.

As such, Elliot and Harackiewicz (1996) conducted two experiments with university undergraduate students in laboratory settings. They found that performance-

approach is students' attempt to achieve competence compared to their peers. In other words, students have a performance-approach orientation if they are mainly interested in outperforming those around them (Elliot & Harackiewicz, 1996). Performance-avoidance, while also based on a comparison with peers, is the students' attempt to avoid looking like a failure amidst their group (Elliot & Harackiewicz, 1996). The approach orientation is characterized by a willingness to act, while the avoidance orientation inhibits students' activity (Elliot & Harackiewicz, 1996). Such a distinction is important because each orientation can result in different outcomes (Elliot & Harackiewicz, 1996). For example, students with performance-avoidance orientation traditionally exhibit more negative outcomes while those with a performance-approach orientation have mixed outcomes (some positive, some negative) (Elliot, 1999). Therefore, rather than relying on the simple mastery versus performance orientations Elliot and Harackiewicz (1996) found the approach-avoidance dichotomy to be a stronger discriminator. Pintrich (2000) later posited the multiple goals approach suggesting that a combination of mastery and performance orientations is the most beneficial as mastery provides interest, while the performance orientation provides the impetus to achieve.

Especially relevant to the current study is the fact that achievement goal orientation has been used to explain persistence in academic efforts. Students with a mastery orientation are more likely to persist, and use extensive self-regulated strategies when they encounter difficulty, than students with a performance orientation (Finney et al., 2004; Harackiewicz et al., 2000). Doctoral candidates have difficulty at some point during the dissertation process (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2005, 2007, 2008, 2008b, 2009; Gell, 1995; Golde, 2005; Golde & Dore, 2001;

Harsch, 1998; Lovitts, 2001, 2007; Mah, 1986; NSF, 1998; Varney, 2003, 2010). To date no research has studied the achievement goal orientations of doctoral candidates. A large amount of research (Zimmerman, 2000) also shows the relationship of self-efficacy to academic persistence and achievement, but very little research has examined self-efficacy of doctoral candidates during the dissertation experience, or dissertation self-efficacy (Faghihi, 1998; Harsch, 2008; Varney, 2003, 2010).

**Self-efficacy.** Self-efficacy, part of Bandura's (1986) broader social cognitive theory, is defined as individuals' beliefs that they can achieve success on a certain task. It denotes students' belief in having the ability to perform the requisite tasks to reach success. Self-efficacy is molded from four main sources (in decreasing order of influence) including past experiences, vicarious experiences, verbal persuasion, and physiological indices (Bandura, 1986). Past experiences are the most influential. If students have previously done well in school, as presumably many doctoral candidates have, those students will have a high self-efficacy for future academic assignments. But as Lovitts (2008) notes, success in the classroom does not translate to success during the dissertation process. Self-efficacy can be especially sensitive to small changes in performance contexts (Zimmerman, 2000). Understandably, doctoral candidates who have traditionally performed well in school will be unusually susceptible to going from a high sense of self-efficacy to a low sense of self-efficacy, especially for research (Faghihi, 1998). Vicarious experiences, although not as strong as past experiences, can still affect self-efficacy (Bandura, 1986). Coping models are particularly important here. For example, a doctoral candidate might see another doctoral candidate, or better yet a doctoral graduate, who had previously struggled but persisted and completed the

dissertation (Varney, 2010). Perhaps the fellow doctoral candidate or doctoral graduate used an adaptive self-regulation strategy, such as academic help seeking, which produced tangible results. The struggling doctoral candidate will then feel more confident about the possibility that improvement is do-able, provided the peer has prestige and is viewed as competent (Bandura, 1986). Positive verbal persuasion (Bandura, 1986) from an advisor, other faculty members, or fellow students could also be viewed as helpful. Lastly, uncontrollable physiological symptoms such as a racing heart beat and sweaty palms can lower students' self-efficacy (Bandura, 1986). Many doctoral candidates describe anxiety and depression (Faghihi, 1998; Harsch, 2008).

Self-efficacy influences three main motivational areas: effort, choice, and persistence (Bandura, 1986, 1997). If students have high self-efficacy they are more likely to expend effort. Motivation therefore feeds into self-efficacy, which in turn feeds back into motivation creating an upward cyclical effect (Bandura, 1997). Conversely, if students have low self-efficacy they will not expend considerable effort (Bandura, 1997). Instead they believe they will fail and therefore have low motivation to try, creating a downward spiral (Bandura, 1997). In the case of doctoral candidates this can mean failure to complete a dissertation (Faghihi, 1998). Secondly, students with high self-efficacy will choose more challenging tasks because they have confidence that they can accomplish the tasks successfully (Pajares, 2001). On the other hand, students with low self-efficacy will choose tasks that are easy. Researchers have found that students with high self-efficacy will continue to work on the problem in order to resolve it (Schunk 1981; Zimmerman, 2000; Zimmerman & Ringle, 1981). According to academic help-seeking research an adaptive strategy to work on the problem is asking for instrumental



help (Arbreton, 1993; Nelson-Le Gall, 1981, 1985, 1987). The student with low self-efficacy may simply give up (Bandura, 1986; Pajares, 2001). Doctoral candidates are unique in this respect. They do not have the opportunity to choose easy tasks. There is no empirical research examining the relationship of dissertation self-efficacy on academic help seeking.

A few studies have considered doctoral candidates' feeling of competence without the component of academic help-seeking attitudes. In her study of faculty members who produced a high number of PhD graduates, Lovitts (2008) noted that students who had difficulty transitioning to independence during the dissertation experience were those who either lacked or lost self-esteem and self-confidence. The following is a relevant quote from a high-PhD-productive faculty member in Engineering (Lovitts, 2008).

You're talking about a period of frustration which can last about a year or more. It's very important during that time that there is interaction. I think that advisors or other students, somebody that they can interact with very regularly [is very important], because there are a lot of little frustrating things. ... I found some students who are ready to drop out of our PhD program because they were getting nowhere. In those cases, when I became their advisor and spent [a] significant amount of time helping them get over the threshold or assigned them to somebody else who spent time, [saw] them on a daily basis, after a few months you could see, all of a sudden, they *regained self-confidence* [italics added] and became fairly good researchers. But there is a period of frustration. You need to go through a period of frustration. But also you have to be able to get that information and someone has to hold their hand and help them get over that period. (p. 312)

Varney (2003, 2010) validates the importance of examining the relationship between dissertation self-efficacy and dissertation progress. In his study of two cohorts at a small Midwestern university, each with 30 doctoral students, he investigated the extent to which students valued three doctoral program components: being in a cohort, being mentored, and participating in research experiences. The results did not reveal a significant or direct relationship between the stated program components and dissertation progress. However, dissertation self-efficacy and dissertation progress were found to be both significant and positively related. Furthermore, the program components were found to be a source of dissertation self-efficacy. In other words, the program components did not in and of themselves relate to dissertation progress but they served as reinforcement of dissertation self-efficacy. In turn, the dissertation self-efficacy then related to dissertation progress: If dissertation self-efficacy is high the doctoral candidate is more likely to progress further in the dissertation experience (Varney, 2003, 2010). Varney (2003, 2010) subsequently suggests universities promote the use of cohorts, mentors, and research experiences within doctoral programs in order to increase doctoral completion rates.

Harsch (2008), like Varney (2003, 2010), examined the dissertation self-efficacy of doctoral candidates but also included two other academic motivational variables: the social-cognitive variables of locus of control and self-handicapping. In a sample of 132 dissertation non-completers and 111 dissertation completers from across the United States, Harsch (2008) found a statistically significant and positive relationship between dissertation self-efficacy and shorter time-to-degree rates, and a statistically significant and positive relationship between dissertation self-efficacy and dissertation completion.

Again, dissertation self-efficacy proved to be an important variable in relation to dissertation progress.

As mentioned earlier, doctoral candidates in the physical and life sciences complete their degrees faster than other candidates (CGS, 2007; Golde, 2005; NSF, 2009; Nerad & Cerny, 1993). One reason that has been cited for the faster time-to-degree rate is the ability to work alongside faculty members, resulting in increased confidence (or self-efficacy) (Faghihi, 1998; Nerad & Cerny, 1993). As noted by Faghihi (1998) the majority of doctoral candidates are not systematically taught how to conduct research. It is merely assumed they will thoroughly understand the process after completing courses in statistics and comprehensive exams. Oftentimes doctoral candidates must infer the necessary activities involved in completing a dissertation such as choosing a topic, conducting a literature review, and selecting the appropriate methodology (Lovitts, 2008). Many students feel frustrated and ill-prepared for the dissertation process (Baird, 1990; Bowen & Rudenstine, 1992; CGS, 2007; Faghihi, 1998; Gardner, 2005, 2007, 2008, 2009; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2001, 2007; Mah, 1986; NSF, 1998; Varney, 2003, 2010), a sign of low dissertation self-efficacy. Faghihi (1998) in her study of doctoral candidates' background characteristics, research training and involvement, self-efficacy for research, and their relationship to dissertation progress found self-efficacy for research to be the number one contributing factor to dissertation progress.

Although not in doctoral education, many studies recognize the interrelatedness of the educational psychological variables of academic help-seeking attitudes, achievement

goal orientations, and self-efficacy. The following section will review findings from this literature.

**Relationship between academic help-seeking attitudes, achievement goal orientations, and self-efficacy.** Just as many academic motivational constructs are intertwined so too are academic help-seeking attitudes, achievement goal orientations, and self-efficacy. Many studies have focused on a combination of two, or all three of these constructs (Ames & Lau, 1982; Arbreton, 1993, 1998; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler et al., 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan et al., 1997; Ryan et al., 1998; Ryan et al., 2001; Ryan, et al., 2005; Schunk, 1991; Skaalvik & Skaalvik, 2005). In essence, achievement goal orientation is relevant to academic help seeking because it influences students' perception of both the benefits and costs of seeking academic help (Karabenick, 2006). In addition, self-efficacy moderates achievement goal orientations (Schunk, 1991) and academic help seeking (Skaalvik & Skaalvik, 2005).

The majority of the existing literature pertains to elementary students. In general, performance goals are positively correlated with help-seeking avoidance and mastery goals are negatively correlated with help-seeking avoidance (Butler, 1998; Middleton & Midgley, 1997; Ryan et al., 1997). In addition, self-efficacy is negatively predicted by performance-avoidance goals (Middleton & Midgley, 1997). Lower self-efficacy is positively correlated with help-avoidance (Ryan et al., 2005). In summary, self-efficacy moderates the effects of achievement goal orientation. A mastery orientation produces positive outcomes whether self-efficacy is low or high (Kaplan & Maehr, 2007). Conversely, a combination of performance-approach goals and low self-efficacy

produces negative outcomes, while a combination of performance-approach goals and high self-efficacy produces positive outcomes (Kaplan & Maehr, 2007).

More relevant to the current study is research conducted with college students, and employees. For example, Karabenick (2003) using a person-centered analysis, studied college students' tendencies to avoid asking for academic help, their achievement goal orientations, learning strategies, and course grades. Beginning with a sample of 883 undergraduates he found four distinct groups: strategic/adaptive, formal help seekers, help-seeking avoidant, and expedient help seekers. Karabenick concluded that students who avoid seeking academic help did less well in terms of exam grades than did college students who had a tendency toward using adaptive help seeking. Strategic/adaptive help-seeking students had higher mastery approach achievement goal levels, used rehearsal as strategy, and received higher course grades. Developmentally, doctoral students are more similar to college students than elementary students therefore the findings that are typical of college students should be reproducible at the doctoral level. In order to stop the continued loss of doctoral candidates during the dissertation experience it is necessary to understand what is occurring psychologically. Doctoral candidates who have a tendency to avoid asking for academic help may have performance orientations and do less well in terms of dissertation progress (take a longer time or even quit) than doctoral candidates who have a tendency toward using adaptive help seeking and mastery orientation. Because adaptive help seeking is a pertinent construct for college students it is a viable construct to be studied at the doctoral level.

Within the academic help-seeking literature, just as in the achievement goal orientation literature, there remains a controversy over the relevant attitudes and

behaviors for performance-oriented students. Butler (2006) believes students with either performance-approach or performance-avoidance orientations will view academic help seeking the same way: threatening. Conversely, other researchers (Karabenick, 2003, 2004; Middleton & Midgley, 1997; Ryan et al., 2001) see performance-approach students using executive help seeking while performance-avoidance students are help-avoidant altogether (Middleton & Midgley, 1997). The current research will provide further evidence either for or against the notion that any type of performance goal orientation, whether it is performance-avoidance or performance-approach, is linked to the view that seeking academic help is threatening.

Although doctoral candidates are no longer in the classroom it is possible to operationalize academic help seeking in a different form. In fact, two non-classroom studies examined help-seeking attitudes of employees in the workplace (Lee, 1997; Nadler et al., 2003). In the first study, Lee (1997) describes three important aspects of help seeking. First, a problem or difficult situation must exist. Secondly, help seeking is fundamentally a social phenomenon since the help-seeker interacts with someone who can provide help. Lastly, the help seeker must be proactive in first identifying the problem and then finding a person who can help remedy the problem. Lee's (1997) study focuses on why employees decide to forego asking for help. She suggests that help avoidance is related to concerns of loss of power due to appearing incompetent, a stance that agrees with previous findings from academic help-seeking literature (Ames & Lau, 1982; Karabenick & Knapp, 1988a, 1988b). She found that individuals were more likely to seek help from people with equal status rather than from superiors. Lee's (1997) study raises an interesting point about who is on the receiving end of help requests. In the case

of doctoral education, candidates can ask advice of fellow doctoral candidates (equal status) or superiors (advisors, other faculty members, or dissertation mentors).

In the second non-classroom help-seeking study, researchers (Nadler et al., 2003) concluded that help seeking and job performance evaluations of employees at a chemical plant were curvilinear just as with help seeking and academic skill level (Newman & Goldin, 1990). In other words, employees with the best and worst performance evaluations were the most likely to seek help. Conversely, employees with average performance evaluations were less likely to seek help. This is relevant to doctoral education since average doctoral candidates may simply decide to quit their programs rather than ask for academic help. On the other hand, the most promising and the least promising doctoral candidates could be the ones who are most willing to seek academic help.

Although much has been learned about the relationship between academic help-seeking attitudes, achievement goal orientations, and self-efficacy, to date no studies have examined all of these constructs with regard to doctoral candidates. The current study will therefore add to the extant literature. Dissertation progress will be used as a dependent variable in order to determine the effects of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy with a new group of students, namely doctoral candidates. In addition to these variables, academic discipline will be included in the current research since the literature states there are distinctions in the dissertation experience and completion rates based on academic discipline (Austin, 2002; Baird, 1990; Becher & Trowler, 2001; CGS, 2007; Faghihi, 1998; Gardner, 2005,

2007, 2010; Golde, 1998, 2005; Gravois, 2007; Lovitts, 2001, 2007; Nerad & Cerny, 1993; NSF, 2009; Parry, 2007).

### **Unique Educational Environment for Doctoral Candidates**

As mentioned earlier, academic help-seeking research concentrates mainly on young children, with a few studies involving college students, or employees (Arbreton, 1993, 1998; Butler, 2006; Karabenick, 1998; 2003, 2004; Karabenick & Knapp, 1988a, 1988b, 1991; Lee, 1997; Nadler et al., 2003; Nelson Le-Gall, 1981, 1985, 1987; Newman, 1990, 1998, 2006; Newman & Goldin, 1990). To date, no studies have been conducted with students at the doctoral level. It is possible that doctoral-level academic help seeking has not been previously studied for several reasons. First, many people may think doctoral candidates are so far advanced in their studies that they do not need academic help (Gardner, 2010). In fact, many advisors believe doctoral candidates should be capable enough to do all the dissertation work on their own without bothering them (Mah, 1986). But, as Lovitts (2008) contends, writing a dissertation is qualitatively distinct from attending doctoral classes and involves a ‘critical transition’ (Etzkowitz, Kemelgor, & Uzzi, 2000) from a dependent stage of coursework to the independent stage of the dissertation. A student who excels in the classroom is by no means guaranteed to succeed during the dissertation experience (Lovitts, 2008; Gardner, 2009). When the doctoral candidate is thrust into an unknown, ambiguous stage of writing the dissertation (Gardner, 2009; Lovitts, 2008) it is not surprising that many students feel the need to seek academic help. Excelling in the classroom raises the issue of doctoral candidates’ self-efficacy now that they are working on the dissertation.



Secondly, because doctoral candidates are no longer in the classroom one might assume performance goal orientations are irrelevant. Doctoral candidates will not be directly comparing their work to the work of other doctoral candidates. However, doctoral candidates who adopt the performance goal orientation could be concerned about appearing incompetent in front of their advisors. If they do choose to seek academic help, doctoral candidates have several academic help-seeking options at their disposal.

Both Butler (2006) and Lee (1997) discuss interpersonal relationships and their influence on academic help seeking. Specifically, mastery-oriented students feel comfortable asking teachers for academic help in front of their classmates (Butler, 2006). In fact, mastery-oriented students would rather ask their teachers for academic help than classmates because mastery-oriented students are interested in getting the most beneficial information and believe the best information comes from their teachers, the experts (Butler, 2006). Additionally, although never studied at the doctoral level one might assume there are not many doctoral candidates with a performance-avoidance orientation. It is difficult to advance so far in the education system with a concern for not appearing “dumb” in front of others. However, this has not been empirically verified.

Another unique issue for the doctoral candidate is that it is difficult to request academic help seeking in the form of direct answers during the dissertation experience. No one can do the work for the doctoral candidate and no direct answer will allow the doctoral candidate to progress quickly. The dissertation experience is just too complex for that scenario to unfold. The current study may therefore only be able to determine whether doctoral candidates who are willing to ask for academic help progress further in

the dissertation phase than doctoral candidates who are unwilling to ask for academic help. In other words, the willingness to ask for academic help versus academic help avoidance could be the most salient concern in the current study, rather than the type of academic help (e.g., instrumental or executive: Nelson Le-Gall, 1981, 1985, 1987) a doctoral candidate is willing to request.

Lastly, as mentioned earlier, doctoral candidates who have reached the dissertation must have excelled in the classroom in order to get to Phase III of their doctoral program (Gardner, 2010; Lovitts, 2008). Due to their past academic success, doctoral candidates are more likely to have high (rather than low) academic self-efficacy at the onset of their dissertation (Faghihi, 1998). Yet as time passes many doctoral candidates realize their particular self-efficacy for research is low (Faghihi, 1998). Seeking academic help may be a way to increase one's dissertation self-efficacy and can be the strategy of a highly capable, self-regulated doctoral candidate.

### **Statement of the Problem**

Attrition rates of 50% at the doctoral level continue to occur (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009). Zwick (1991) ruled out academic ability, as measured by Graduate Record Examination (GRE) scores, as a significant predictor of persistence in a doctoral program. Additionally, Lovitts and Nelson (2000) found no significant difference in academic ability, as measured by undergraduate grade point averages, between doctoral students who complete their programs and those who leave. Therefore, when considering variables that could contribute to high doctoral attrition, academic help-seeking attitudes, achievement goal orientations, and self-efficacy should be thoroughly

examined. Academic help-seeking attitudes, achievement goal orientations, and self-efficacy are especially important when students encounter difficulty (Arbreton, 1993; 1998; Karabenick, 2003; Pintrich & Schunk, 2002; Zimmerman, 2000), and are more malleable than student background characteristics previously studied at the doctoral level (Harsch, 2008; Varney, 2003, 2010). The dissertation experience is the period of time in which many students encounter the greatest difficulty (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Garcia et al., 1988; Gardner, 2005, 2007, 2008, 2009; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2001, 2007; Mah, 1986; NSF, 1998; Varney, 2003, 2010). Although academic help-seeking attitudes, achievement goal orientations, and self-efficacy are important factors in predicting academic persistence for students who encounter difficulty at the elementary, middle school, high school and college levels (and for employees) (Ames & Lau, 1982; Arbreton, 1993, 1998; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler et al., 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan et al., 1997; Ryan et al., 1998; Ryan et al., 2001; Ryan et al., 2005; Schunk, 1991; Skaalvik & Skaalvik, 2005), no studies have examined these three educational psychological variables as they relate to doctoral candidates who encounter difficulty during the dissertation experience.

It is especially important to look at the dissertation experience because it is the most costly point at which students exit programs, both in a financial and emotional sense (Bowen & Rudenstine, 1992; Lovitts, 2001). Most studies at the doctoral level focus on comparing students who have completed the degree versus students who have not completed the degree or completers versus non-completers (Faghihi, 1998). Such a

comparison does not provide the necessary view of what happens to doctoral candidates who may face difficulty during the dissertation experience (Faghihi, 1998). For comparison, the current study will also examine doctoral graduates in order to determine if there is a significant difference in their academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy when compared to doctoral candidates.

### **Purpose of the Study and Research Questions**

The purpose of the current study is to examine doctoral candidates' dissertation progress in relation to academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships. Educational psychological variables that could lower the doctoral attrition rate of 50% (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009) need to be uncovered. It is obvious that doctoral candidates are facing difficulty, especially during the dissertation (Baird, 1990; Bowen & Rudenstine, 1992; Faghihi, 1998; Gardner, 2007, 2008, 2009; Gell, 1995; Golde, 2005; Golde & Dore, 2001; Harsch, 2008; Lovitts, 2001, 2007; Mah, 1986; NSF, 1998; Varney, 2003, 2010). The independent variables of academic help-seeking attitudes, achievement goal orientations, and self-efficacy in the current study have proven to be informative at the elementary, middle school, high school, and college levels, and in the workplace (Ames & Lau, 1982; Arbretton, 1993, 1998; Butler, 1998; Karabenick, 2003, 2004; Lee, 1997; Middleton & Midgley, 1997; Nadler et al., 2003; Newman, 1998; Ryan & Pintrich, 1997; Ryan et al., 1997; Ryan et al., 1998; Ryan et al., 2001; Ryan et al., 2005; Schunk, 1991; Skaalvik & Skaalvik,

2005), but have yet to be examined concurrently at the doctoral level. Recognizing that these academic factors play a role in successful completion of doctoral programs can assist many constituents including doctoral students, advisors, higher education institutions, and dissertation mentors. The current study will therefore focus on the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy and how they impact dissertation progress after controlling for the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships that led doctoral students to the dissertation experience during Phase III. In order to limit confounding variables of various doctoral programs only PhD candidates and PhD graduates will be included (not EdD programs for example). Therefore, the primary research questions and hypotheses for the current study are:

**Research question 1.** What is the unique relationship between the educational psychological constructs of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress over and above the socialization constructs of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships?

**Hypothesis 1.** The educational psychological variables of help-seeking approach, mastery, and dissertation self-efficacy will significantly and positively predict dissertation progress over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and student involvement in research and teaching assistantships.

**Research question 2.** Is there a significant difference between the academic help-seeking attitudes of PhD candidates and the academic help-seeking attitudes of PhD graduates?

**Hypothesis 2.** PhD graduates will be significantly more likely to have help-seeking approach attitudes when compared to PhD candidates.

**Research question 3.** Is there a significant difference in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress based on academic discipline using Holland's (1997) theory?

**Hypothesis 3.** PhD candidates from physical and life sciences disciplines (Investigative) will be more likely to exhibit help-seeking approach, mastery or performance-approach achievement goal orientations, and higher dissertation self-efficacy when compared to PhD candidates from business (Enterprising), social sciences (Social), and arts and humanities (Artistic) disciplines.

## CHAPTER 3

### METHODOLOGY

This chapter outlines the method used to examine the relationship between academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress of PhD candidates and PhD graduates from various academic disciplines represented by the Holland (1997) theory categories of Artistic, Enterprising, Investigative, and Social (see Appendix A for a complete list). In order to limit differences across doctoral programs candidates and graduates from PhD programs only (and not EdD programs) were included. Therefore, all further references will be ‘PhD candidates’ and ‘PhD graduates’ in place of ‘doctoral candidates’ and ‘doctoral graduates’. The specific details provided in this chapter include research design, participants, procedure, measurements, and data analysis plan.

#### **Research Design**

The current research used an on-line survey to examine the relationship between academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress of PhD candidates and PhD graduates from various academic disciplines across the United States.

#### **Participants**

Participants for the current study consisted of two groups ( $N = 445$ ) from 92 academic majors invited from 46 universities across the United States (see Appendix A for a complete list). The first group consisted of PhD candidates ( $N = 236$ ) who had completed coursework, passed oral and written comprehensive exams and were currently enrolled in a PhD program. The second group consisted of PhD graduates ( $N = 209$ ) who

had already earned their PhD degrees. Only respondents who had complete data for all independent and dependent variables were included. The demographics for the PhD candidates and PhD graduates samples are provided in Table 1.

**PhD candidates sample.** PhD candidates ( $N = 236$ ) ranged in age from the category of 21-29 to the category of 60 or older. The number of female respondents (64.4%) outweighed the number of male respondents (35.6%). The majority of the sample was Caucasian (80.9%) with the rest of the sample consisting of Other (9.3%), African American (3.4%), Asian American (3.4%), and Hispanic (2.5%). The academic disciplines, one of the 4 socialization variables, of the PhD candidates as represented by the Holland (1997) categories were Social (40.7%), Investigative (36.9%), Artistic (11.9%) and Enterprising (10.6%). In addition, the 3 remaining socialization variables of part-time versus full-time enrollment status, research and teaching assistantships revealed a majority of the PhD candidates sample were enrolled as full-time students (89.4%), were research assistants (70.8%), and were teaching assistants (74.2%).

**PhD graduates sample.** PhD graduates ( $N = 209$ ) ranged in age from the category of 21-29 to the category of 60 or older. The number of female respondents (58.9%) outweighed the number of male respondents (40.7%). The majority of the sample was Caucasian (82.8%) with the rest of the sample consisting of Other (8.1%), African American (3.8%), Hispanic (2.9%), and Asian American (1.9%). The academic disciplines of the PhD graduates as represented by the Holland (1997) categories were Social (45.9%), Investigative (30.6%), Enterprising (13.9%) and Artistic (9.6%). In addition, the majority of the PhD graduates had been enrolled as full-time



students (84.7%), had been research assistants (65.6%), and had been teaching assistants (72.2%).

Table 1

*Demographics for PhD Candidates and PhD Graduates (N = 445)*

Variables	PhD Candidates ( <i>n</i> = 236)		PhD Graduates ( <i>n</i> = 209)	
	N	(%)	N	(%)
<b>Gender</b>				
Female	152	64.4	123	58.9
Male	84	35.6	85	40.7
<b>Ethnicity</b>				
African American	8	3.4	8	3.8
Asian American	8	3.4	4	1.9
Caucasian	191	80.9	173	82.8
Hispanic	6	2.5	6	2.9
Other	22	9.3	17	8.1
<b>Socialization</b>				
Holland categories				
Artistic	28	11.9	20	9.6
Enterprising	25	10.6	29	13.9
Investigative	87	36.9	64	30.6
Social	96	40.7	96	45.9
Full-time enrollment	211	89.4	177	84.7
Research assistantship	167	70.8	137	65.6
Teaching assistantship	175	74.2	151	72.2

## **Procedure**

Results from an initial pilot study highlighted issues with the order of the survey sections and the need to inform respondents about the amount of survey left to complete. After correcting for these issues, deans were asked via electronic mail if they would be willing to allow their program directors to email survey invitations to both PhD candidates and PhD graduates. Upon approval from deans, the researcher emailed the study purpose and a prepared survey invitation to program directors (see Appendix B). Willing program directors subsequently emailed the provided information to their PhD candidates and PhD graduates. In total, faculty members from 46 universities across the United States were contacted.

Tangible incentives were not offered. Rather, individuals were encouraged to complete the survey because their responses could prove beneficial to future PhD candidates having difficulty during the dissertation experience. Respondents were given the option to request final results from the researcher.

## **Measures**

### **Socialization variables.**

*Academic discipline.* Both groups of PhD candidates and PhD graduates were asked “Which category below best describes your PhD program?” and provided with a list of 87 academic major choices and a space for “Other (please specify)”. Those academic majors were then divided into 4 categories based on Holland’s theory (1997) and research by Rosen et al. (1989) and Smart et al. (2000) (See Appendix A for a complete listing). The 4 personality types previously shown to be relevant to college

students and used in the current study are Artistic, Enterprising, Investigative, and Social (Smart et al., 2000)

***Part-time versus full-time enrollment.*** In order to ascertain enrollment status PhD candidates were presented with the following sentence: “For the majority of your PhD program you have been enrolled as a:” Response choices were “Full-time student (generally defined as 9 or more credit hours per semester or as your institution defines it)” or “Part-time student”. For PhD graduates the question was: “For the majority of your PhD program were you enrolled as a full-time or part-time student” with the same response choices as the PhD candidates. The answers were coded 1 for full-time student and 2 for part-time student.

***Research and teaching assistantships.*** In order to ascertain information about whether or not PhD candidates and PhD graduates were research and teaching assistants they were simply asked the following two questions. “During your PhD program were you a RESEARCH assistant?” and “During your PhD program were you a TEACHING assistant?” Response choices for both questions were: “Yes” and “No”. The answers were coded 1 for yes and 2 for no.

***Educational psychological variables.*** Three main instruments for measuring the educational psychological variables were used: Help-Seeking Scales (Karabenick, 2003; Karabenick & Knapp, 1991), adapted for relevancy to the dissertation experience; the Revised Personal Goal Orientation Scales from the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000), also adapted for relevancy to the dissertation experience; and, the Dissertation Self-Efficacy Scale (DSES; Varney, 2003, 2010), already specifically created for relevancy to the dissertation experience. Slight wording of all

three instruments was changed for relevancy to the 2 types of respondents: PhD candidates and PhD graduates.

*Academic help-seeking attitudes.* Karabenick and Knapp (1991) and Karabenick (2003) used five scales to determine the academic help-seeking attitudes of college students when they were asked to imagine what they would do if they needed academic assistance. The five scales assess five academic help-seeking types of behavior using a total of 14 items: Instrumental/adaptive help-seeking (*Cronbach's alpha* = .62); formal versus informal help-seeking (*Cronbach's alpha* = .66); help-seeking threat (*Cronbach's alpha* = .81); avoidance of help-seeking (*Cronbach's alpha* = .77); and executive help-seeking (*Cronbach's alpha* = .78). The instrumental or adaptive help-seeking scale measures students' willingness to ask for hints (rather than direct answers) in order to better understand the material. The formal versus informal help-seeking scale measures students' willingness to seek academic help from instructors (formal) or fellow students (informal). The help-seeking scale threat measures students' aversion to seeking academic help even if they need it. The avoidance of help-seeking scale measures students' unwillingness to seek academic help. Finally, the executive help-seeking scale measures students' willingness to ask for direct academic help in order to get a quick answer without putting in work or spending time. Respondents choose from a 5-point Likert scale with 1 = "Not at all true," 3 = "Somewhat true," and 5 = "Very true." In order to make the current scales relevant to the PhD level "teacher" and "instructor" were changed to "my advisor", and "in this class" was changed to "during the dissertation experience". The adapted scales were pilot-tested by respondents who were excluded from the final study.

Levels of academic help-seeking attitudes were calculated by averaging each scale. In addition, two distinct patterns were examined: help-seeking approach and help-seeking avoidance. As noted by Karabenick (2004) the help-seeking approach pattern is characterized by a combination of instrumental help-seeking goals from formal sources. The help-seeking avoidance pattern is characterized by help-seeking threat, help-avoidance, and using expedient help in order to minimize effort. Scores for the help-seeking approach and avoidance patterns are obtained by calculating the means of the scales that make up the particular pattern (Karabenick, 2004): Help-seeking approach includes the instrumental and formal scales, and help-seeking avoidance includes threat, avoidance and expedient help scales.

In the current study, the reliability for the academic help-seeking scales was acceptable after removing some items. Specifically, the informal and formal help-seeking questions were removed in order to increase reliability. The help-seeking approach scale therefore consisted of the 2 instrumental questions with a resulting *Cronbach's alpha* of .75 for Artistic, Enterprising, Investigative and Social PhD candidates and *Cronbach's alpha* of .74 for Artistic, Enterprising, Investigative and Social PhD graduates. Similarly, the help-seeking avoidance scale had 1 avoidance item removed and subsequently consisted of the 3 threat questions and 2 remaining avoidance questions. The modified help-seeking avoidance scale resulted in a *Cronbach's alpha* of .83 for Artistic, Enterprising, Investigative and Social PhD candidates and a *Cronbach's alpha* of .85 for Artistic, Enterprising, Investigative and Social PhD graduates.

Academic help-seeking researchers often examine students' academic help-seeking attitudes rather than their academic help-seeking behaviors (Arbreton, 1993;

Karabenick, 2003, 2004; Karabenick & Knapp, 1991; Newman, 1990; Ryan & Pintrich, 1997). Doing so is widely accepted because it allows the researcher to determine what students would do if they encountered academic difficulty (Karabenick, 2004; Karabenick & Knapp, 1991). Students might have yet to encounter academic difficulty, but understanding their feelings about academic help seeking allows the researcher to know how students would react if the situation changed to one in which the students did need academic help (Karabenick, 2004; Karabenick & Knapp, 1991). In addition, when studying academic help seeking, it is important to use self-report, rather than observation, because the absence of academic help seeking could stem from two different circumstances (Arbreton, 1993). For instance, students who do not need academic help oftentimes do not ask for academic help (Arbreton, 1993). Those who do not need academic help but ask for it are using what is called expedient help seeking (Nelson Le-Gall, 1981, 1985). Conversely, students who do need academic help might not ask for academic help because they perceive academic help seeking as a threat (Ryan et al., 2001). If a researcher did not see a student ask for academic help the researcher might wrongly assume the student did not need academic help. The current study therefore focused on student self-report of academic help-seeking attitudes.

***Achievement goal orientations.*** Both the original (Midgley et al., 1998) and revised Personal Goal Orientation Scales from the Patterns of Adaptive Learning Scales (Midgley et al., 2000) have been validated in a multitude of academic motivation studies (Midgley, 2002). The current study used the revised Personal Goal Orientation Scales (Midgley et al., 2000) consisting of three separate scales entitled Mastery Goal Orientation, Performance-Approach Goal Orientation and Performance-Avoid Goal

Orientation for a total of 13 items. The authors of the revised instrument reported a *Cronbach's alpha* of .85 for mastery; .89 for performance-approach; and, .74 for performance-avoidance scales. The current study also reports acceptable reliability for all the achievement goal orientation scales without removing any scale items. Specific reliabilities for Investigative and Social PhD candidates are: *Cronbach's alpha* of .85 for mastery, .71 for performance-approach, and .81 for performance-avoidance.

PALS utilizes a 5-point Likert type scale with 1 = "Not at all true," 3 = "Somewhat true," and 5 = "Very true." The original scale (Midgley et al., 1996) was developed in response to research showing that a mastery orientation is related to adaptive patterns of learning, while a performance orientation is related to maladaptive patterns of learning (Ames, 1992; Dweck, 1986; Maehr, 1984; Nicholls, 1984). Later, mixed evidence of both adaptive and maladaptive patterns for the performance orientation suggested dividing the performance category into two distinct categories: performance-approach and performance-avoidance (Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997). The type of achievement goal orientation was determined by averaging the score for each of the three scales and determining which one was significantly higher.

Ross, Blackburn, and Forbes (2005) in their study about the generalized reliability of the original and revised PALS cite the need for more research using this scale at the college level. Although Ross et al. (2005) did not specifically mention the need for more PALS research at the graduate level it is assumed that an examination of PhD candidates and PhD graduates would be useful since currently no such work has been done with this population. As with the Help-Seeking Scales (Karabenick, 2003; Karabenick & Knapp,

1991), in order to make the current questionnaire relevant to the PhD level the phrase at the end of each statement in the revised Personal Goal Orientation Scales (Midgley et al., 2000) was changed from “in this class” to “during the dissertation experience”. The adapted scale was pilot-tested with respondents who were excluded from the final study.

***Dissertation self-efficacy.*** The Dissertation Self-Efficacy Scale (DSES; Varney, 2003, 2010) consists of 16 items measuring students’ beliefs in their ability to complete a dissertation. The directions ask respondents to “rate how confident you are in your ability to successfully accomplish each of the following tasks”. Examples of tasks include (a) selecting a suitable dissertation topic for study (b) collecting adequate dissertation data records or field notes (c) writing the results section of the dissertation (Varney, 2003, 2010).

Responses to questions about students’ level of self-efficacy about dissertation tasks range from 0 = “No confidence” to 100 = “Total confidence”. The level of dissertation self-efficacy is calculated by adding the responses of all 16 items, then dividing by 16 for an average score. A low level of self-efficacy is characterized by scores in the range of 0 to 33, a moderate level of self-efficacy by scores in the range of 34 to 67, and a high level of self-efficacy by scores in the range of 68 to 100 (Harsch, 2008). In a small Midwestern university sample of 29 first-year and 22 second-year education doctoral students, scale reliability was shown by a *Cronbach’s alpha* of .97 (Varney 2003, 2010). As noted by Varney (2010) the *Cronbach’s alpha* for the DSES is higher than other research self-efficacy scales not specific to dissertation self-efficacy including those by Bako-Okolo (1996), Faghihi (1998), Holt (1992), and Phillips (1992).



As part of a thorough construction and validation process, Varney (2003, 2010) subjected the initial scale to five procedures: (a) submitted DSES to panel of experts, (b) provided DSES to pilot group of doctoral students in education, (c) completed an item analysis of data from the pilot group, (d) completed both exploratory and confirmatory factor analysis on data from the pilot group, and (e) obtained evidence for construct validity based on the findings from aforementioned procedures.

Varney (2003, 2010) found dissertation self-efficacy to be a mediating variable between three doctoral program components and dissertation progress. The three doctoral component programs included doctoral candidates' perceptions of the value of being part of a cohort, being mentored, and being involved in dissertation preparation such as completing a course that requires a mini-dissertation proposal (Varney, 2003, 2010). Although the three doctoral program components were unrelated to dissertation progress they proved to be a source of dissertation self-efficacy (Varney 2003, 2010). In turn, dissertation self-efficacy was statistically significant and positive related to dissertation progress ( $r = .556, p = .000$ ) (Varney, 2003, 2010).

In her dissertation studying the role of self-efficacy, locus of control, and self-handicapping in dissertation completion, Harsch (2008) used the DSES (sometimes called the Dissertation Appraisal Inventory or DAI) from Varney's (2003) dissertation. Harsch (2008) supported Varney's (2003) one-factor solution loading on self-efficacy, and had an internal consistency reliability estimate or *Cronbach's alpha* of .90 (compared to Varney's 2003, 2010 *Cronbach's alpha* of .97) in a sample of 132 dissertation non-completers and 111 dissertation completers from across the United States. The current study reports a similarly high *Cronbach's alpha* of .94 for Investigative and Social PhD

candidates without removing scale items. Harsch (2008) found a statistically significant and positive relationship between dissertation self-efficacy and shorter time-to-degree rates, and a statistically significant and positive relationship between dissertation self-efficacy and dissertation completion.

**Independent and dependent variables.** The primary independent variables examined in the first research question of the current study include the educational psychological constructs of academic help-seeking attitudes, achievement goal orientations (mastery, performance-approach, and performance-avoidance), and dissertation self-efficacy. The secondary independent variables examined in the current study include the socialization constructs of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships. The dependent variable examined in the first research question was dissertation progress, and was measured using a scale developed in a previous dissertation (Faghihi, 1998) and used by Varney (2003, 2010). In order to measure dissertation progress, respondents were asked to check all items that apply to their situation ranging from 0 = “I have not started working on my dissertation” to 17 = “I have turned in the final copy to the university”. Hierarchical regression analysis of the independent and dependent variables in the first research question determined the unique relationship between the educational psychological constructs of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress over and above the socialization constructs of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships.

The independent variable examined in the second research question of the current study was group. Respondents were categorized as either PhD candidate (had completed coursework, passed oral and written comprehensive exams and was currently enrolled in a PhD program) or PhD graduate (had already earned a PhD degree). The dependent variable examined in the second research question was academic help-seeking attitudes. An independent t-test was used to determine whether there was a statistically significant difference between the academic help-seeking attitudes of PhD candidates and the academic help-seeking attitudes of PhD graduates.

Lastly, academic discipline was used as an independent variable in the third and final research question of the current study. Academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress served as the dependent variables. A two-group MANOVA was used to determine whether PhD candidates across various academic disciplines (using the Holland (1997) theory and previous work by Smart et al., 2000) exhibited statistically significant differences in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy and dissertation progress. The data analysis plan for the three research questions is shown in Table 2.

Table 2

*Data Analysis Plan*

Research Question	Variables	Analysis
1. What is the unique relationship between the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy and dissertation progress over and above the socialization variables of academic discipline, part-time involvement in research and teaching assistantships?	<p>IV</p> <p>Block 1 (socialization):            Academic discipline            Part-time vs. full-time            Research assistantship            Teaching assistantship</p> <p>Block 2 (ed psychological):            Ac help-seeking attitudes            Achievement goal orientations            Dissertation self-efficacy</p> <p>DV            Dissertation progress</p>	Hierarchical regression
2. Is there a significant difference between the academic help-seeking attitudes of PhD candidates and PhD graduates?	<p>IV            Group (PhD candidate or PhD graduate)</p> <p>DV            Ac help-seeking attitudes</p>	Independent samples t-test
3. Is there a significant difference in Academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy and dissertation progress based on academic discipline?	<p>IV            Academic discipline</p> <p>DV            Ac help-seeking attitudes            Achievement goal orientations            Dissertation self-efficacy            Dissertation progress</p>	2-group MANOVA

## Summary

Chapter 3 presented the methodology used in the current study. A sample of 445 PhD candidates ( $n = 236$ ) and PhD graduates ( $n = 209$ ) from 92 academic majors invited from 46 universities across the United States were asked to complete an on-line questionnaire assessing their socialization characteristics (academic discipline, part-time versus full-time enrollment status, research and teaching assistantships), and educational psychological characteristics (academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy), and dissertation progress. The three socialization variables were measured separately. Academic discipline was ascertained by asking respondents to select the academic major that best described their PhD program, then categorizing that major into 1 of 4 of the Holland (1997) categories based on previous research (Rosen et al., 1989; Smart et al., 2000). Enrollment status and research and teaching assistantships were ascertained simply by asking yes/no questions. Three instruments were used to measure the educational psychological variables: an adapted version of the Help-Seeking Scales (Karabenick, 2003; Karabenick & Knapp, 1991); an adapted version of the revised Personal Goal Orientation Scales from the Patterns of Adaptive Learning Scales (Midgley et al., 2000); and, the Dissertation Self-Efficacy Scale (Varney, 2003, 2010). Two (Help-Seeking Scales, Personal Goal Orientation) of the three instruments used were adapted for relevancy to the PhD level. All instruments were pilot-tested with respondents who were excluded from the final study. Slight wording of the instruments was changed for relevancy to the two types of respondents: PhD candidates and PhD graduates. Results were analyzed using hierarchical regression in SPSS statistical software in order to predict dissertation

progress based on the educational psychological constructs of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, over and above the socialization constructs of academic discipline, part-time versus full-time enrollment status, and the research and teaching assistantships. In addition, an independent sample t-test was used to determine whether there was a significant difference between the academic help-seeking attitudes of PhD candidates and the academic help-seeking attitudes of PhD graduates. Lastly, a two-group MANOVA was used to determine whether there was a significant difference in the academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy, and dissertation progress of PhD candidates based on academic discipline. Academic disciplines were categorized using 4 of the 6 personality types from Holland's theory (1997) based on research of college students and faculty by Rosen et al. (1989) and Smart et al. (2000). Chapters 4 and 5 include the Results and Discussion sections.

## CHAPTER 4

### RESULTS

This chapter provides study results. Relevant descriptive statistics and findings for each of the three research questions will be provided separately.

#### **Tests of the Hypotheses**

**Results for research question 1.** Research question 1 is: ‘What is the unique relationship between the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships?’ The hypothesis for research question 1 suggested the educational psychological variables of help-seeking approach, mastery and dissertation self-efficacy would positively predict dissertation progress over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships.

***Preliminary analyses.*** Preliminary analyses were conducted including correlational relationships, means and standard deviations for all socialization and educational psychological variables, and internal consistency reliabilities for all scales. The results are provided in Table 3.

As noted in Table 3 all final *Cronbach’s alphas* were acceptable with none below .71. The reliability of the help-seeking scales was acceptable only after removing some items. Specifically, the informal and formal help-seeking questions were removed in order to increase reliability. The help-seeking approach scale therefore consisted of the two instrumental questions with a resulting *Cronbach’s alpha* of .78 for PhD candidates.

Similarly, the help-seeking avoidance scale had one avoidance item removed and subsequently consisted of the three threat questions and two remaining avoidance questions (see appendix for specific items). The modified help-seeking avoidance scale resulted in a *Cronbach's alpha* of .84 for PhD candidates. None of the items from the achievement goal orientation scales of mastery, performance-approach and performance-avoidance or the dissertation self-efficacy scale were removed.

Table 3

*Reliability for Educational Psychological Scales for PhD Candidates (N = 172)*

Scale	No. items	$\alpha$
Help-seeking approach	2	.780
Help-seeking avoidance	5	.835
Mastery	5	.847
Performance-approach	4	.713
Performance-avoidance	4	.806
Dissertation self-efficacy	16	.941

**Main analyses.** Initially, it was anticipated that a hierarchical regression with dummy coding for the four Holland categories representing academic disciplines (Artistic, Enterprising, Investigative, and Social) would be used. However, the Artistic category had missing data points on the dissertation self-efficacy and dissertation progress scales due to the fact that Artistic dissertation requirements often do not include



statistical analyses. The Artistic category was therefore eliminated from the first research question.

The variance inflation factors after using dummy coding for the remaining Enterprising, Investigative, and Social categories were extremely large suggesting the variables were measuring similar items (largest variance inflation factor was dummy code 2 of 88.841). Dummy coding was therefore not a reliable statistical option. In order to eliminate the need for dummy coding only two Holland categories were allowed. The Enterprising category was selected for elimination because the number of respondents was less than twice the number of respondents of either of the Investigative and Social categories. This reduction in the academic disciplines made it possible to conduct a hierarchical regression without the use of dummy coding. According to Holland's (1997) theory, "hexagonal model for defining psychological resemblances among personality types and academic environments" Investigative and Social categories are across from each other and therefore are distinct in characteristics. Thus it is worthwhile to compare the socialization and educational psychological variables of these two groups.

Using hierarchical regression to predict dissertation progress of PhD candidates in the Investigative and Social categories, the socialization variables of academic discipline (Investigative and Social only), part-time versus full-time enrollment status, and research and teaching assistantships were entered first into the equation, followed by the educational psychological variables of academic help-seeking attitudes (help-seeking approach and help-seeking avoidance), achievement goal orientations (mastery, performance-approach, and performance-avoidance), and dissertation self-efficacy. Multicollinearity was not a problem (none of the variance inflation factors exceeded

2.025). In addition, the assumptions of independence, normality and heteroschedasticity were met.

The overall model results were significant,  $F(10, 158) = 1.998, p < .05, R^2 = .112, Adjusted R^2 = .056$ . The second step contributed approximately 7% of the variance in dissertation progress over and above the variance accounted for by the socialization variables,  $F(4, 164) = 1.863, p > .05$ . The two variables that were statistically significant in explaining dissertation progress for PhD candidates in the Holland categories of Investigative and Social were, in order of magnitude, dissertation self-efficacy,  $t(168) = 2.854, p < .01$ ; teaching assistantship,  $t(168) = 2.254, p < .05$ . Part-time versus full-time enrollment status,  $t(168) = -1.976, p = .05$ . Results are provided in Table 4.

Table 4

*Summary of Hierarchical Regression Analysis Predicting Dissertation Progress for PhD Candidates (N = 172)*

Variable	Step 1 $\beta$	Step 2 $\beta$
Step 1		
Academic discipline	-.052	-.036
Enrollment status	-.156	-.158
Research assistantship	-.032	-.051
Teaching assistantship	.171	.181*
Step 2		
Help-seeking approach		-.114
Help-seeking avoidance		.031
Mastery		-.055
Performance-approach		.132
Performance-avoidance		-.108
Dissertation self-efficacy		.234**
<i>Adjusted R<sup>2</sup></i>	.020	.056*
<i>Change in R<sup>2</sup></i>		.069*

\*  $p < .05$ , \*\* $p < .01$ .

The hypothesis for research question 1 was only partially confirmed. Dissertation self-efficacy, one of the six educational psychological variables, significantly and positively predicted dissertation progress over and above the socialization variables for Investigative and Social categories. However, none of the other educational psychological variables of academic help-seeking attitudes or achievement goal orientations significantly predicted dissertation progress over and above the socialization variables. Teaching assistantship, one of the four socialization variables, significantly and positively predicted dissertation progress of Investigative and Social PhD candidates. Part-time versus full-time enrollment, also one of the four socialization variables, was close to being negatively significant at  $p = .05$ . Since dissertation self-efficacy was found to significantly and positively predict dissertation progress in the original hierarchical regression model it is worthwhile to further examine which of this set of independent variables significantly predicts dissertation self-efficacy.

***Additional hierarchical regression results.*** In order to examine which variables predict dissertation self-efficacy a modified version of research question 1 was proposed: ‘What is the unique relationship between the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships?’ Dissertation self-efficacy replaced dissertation progress as the dependent variable in the modified research question. Again, a hierarchical regression was utilized but this time it was done in order to predict dissertation self-efficacy rather than dissertation progress of PhD candidates in the Investigative and Social categories. The socialization variables of

academic discipline (Investigative and Social), part-time versus full-time enrollment status, and research and teaching assistantships were again entered first into the equation, followed by the educational psychological variables of academic help-seeking attitudes (help-seeking approach, and help-seeking avoidance), achievement goal orientations (mastery, performance-approach, and performance-avoidance), and dissertation self-efficacy. Multicollinearity was not a problem (none of the variance inflation factors exceeded 1.948). In addition, the assumptions of independence, normality, and heteroschedasticity were met.

The overall model results were significant,  $F(9, 159) = 3.510, p = .001, R^2 = .166, Adjusted R^2 = .119$ . The second step contributed approximately 15.5% of the variance in dissertation self-efficacy over and above the variance accounted for by the socialization variables,  $F(4, 164) = .440, p > .05$ . Three of the five educational psychological variables were statistically significant for PhD candidates in Investigative and Social categories. They were, in order of magnitude, performance-approach,  $t(168) = 2.424, p < .05$ , performance-avoidance,  $t(168) = -2.237, p < .05$ , and help-seeking approach,  $t(168) = 2.210, p < .05$ . Results are provided in Table 5.

Table 5

*Summary of Hierarchical Regression Analysis Predicting Dissertation Self-Efficacy for PhD Candidates (N = 172)*

Variable	Step 1 $\beta$	Step 2 $\beta$
Step 1		
Academic discipline	-.083	-.003
Enrollment status	.064	.056
Research assistantship	-.021	.000
Teaching assistantship	-.038	-.075
Step 2		
Help-seeking approach		.193*
Help-seeking avoidance		-.028
Mastery		.147
Performance-approach		.245*
Performance-avoidance		-.221*
<i>Adjusted R<sup>2</sup></i>	-.014	.119***
<i>Change in R<sup>2</sup></i>		.155***

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p = .001$ .

When using dissertation self-efficacy as the dependent variable, rather than dissertation progress, performance-approach and help-seeking approach significantly and positively predicted dissertation self-efficacy for Investigative and Social PhD

candidates. In addition, performance-avoidance significantly and negatively predicted dissertation self-efficacy for Investigative and Social PhD candidates. This suggests that although the educational psychological variables do not directly predict dissertation progress they indirectly play a role because of their statistically significant relationship to dissertation self-efficacy. Dissertation self-efficacy predicts dissertation progress as seen in the results for the original research question 1.

**Results for research question 2.** Research question 2 is: ‘Is there a significant difference between the academic help-seeking attitudes of PhD candidates and the academic help-seeking attitudes of PhD graduates?’ The hypothesis suggested PhD graduates would be more likely to have help-seeking approach attitudes when compared to PhD candidates. Independent t-tests were conducted in order to test for mean differences between PhD candidates and PhD graduates for academic help-seeking attitudes. PhD candidates and PhD graduates did not differ on either of the two academic help-seeking attitude scales of help-seeking approach, ( $t(443) = .575, p > .05$ ) or help-seeking avoidance ( $t(443) = .682, p > .05$ ). In fact, when comparing all educational psychological variables of PhD candidates and PhD graduates the only significant t-test was performance-avoidance ( $t(443) = 2.638, p < .01$ ) with PhD candidates having the higher mean ( $M = 2.91$ ) than PhD graduates ( $M = 2.64$ ). The means and standard deviations of all variables relevant to research question 2 are provided in Table 6. As mentioned earlier, in research question 2 the analyses included data from all four Holland categories of Artistic, Enterprising, Investigative and Social for all educational psychological variables except dissertation self-efficacy and dissertation progress. Only

Investigative and Social categories were included when dissertation self-efficacy was analyzed.

Table 6

*Means and Standard Deviations for Educational Psychological Variables*

Variables	PhD Candidates	PhD Graduates
Artistic, Enterprising, Investigative and Social Holland Categories		
	( <i>n</i> = 236)	( <i>n</i> = 209)
Help-seeking attitudes		
Help-seeking approach	4.00 (.91)	3.95 (.95)
Help-seeking avoidance	1.42 (.56)	1.38 (.60)
Achievement goal orientation		
Mastery	4.08 (.72)	4.08 (.75)
Performance-approach	3.13 (.75)	3.08 (.78)
Performance-avoidance**	2.91 (.96)	2.64 (1.15)
Investigative and Social Holland Categories		
	( <i>n</i> = 172)	( <i>n</i> = 142)
Dissertation self-efficacy	8.73 (1.49)	8.54 (1.43)
Dissertation progress	5.66 (4.1)	

\*\**t* (443) = 2.638, *p* < .01.



**Results for research question 3.** Research question 3 is: ‘Is there a significant difference in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress based on academic discipline using Holland’s (1997) theory?’ The hypothesis suggested PhD candidates from physical and life sciences disciplines (represented by the Holland category of Investigative), would be more likely to exhibit help-seeking approach, mastery or performance-approach achievement goal orientations, higher dissertation self-efficacy, and higher dissertation progress when compared to PhD candidates from the social sciences (represented by Holland category of Social).

A two-group multivariate analysis of variance (MANOVA) was conducted in order to determine whether or not there was a significant difference in PhD candidates’ academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress based on academic discipline. The independent variable was academic discipline represented by the Holland categories of Investigative and Social. The dependent variables of academic help-seeking attitudes (help-seeking approach and help-seeking avoidance), achievement goal orientations (mastery, performance-approach, and performance-avoidance), dissertation self-efficacy, and dissertation progress were included simultaneously in the analysis. An  $\alpha = .05$  was used for the statistical tests. The means and standard deviations for the educational psychological variables and dissertation progress of PhD candidates are provided in Table 7.

Table 7

*Means and Standard Deviations for Educational Psychological Variables and Dissertation Progress of PhD Candidates<sup>a</sup>*

Variable	Group		
	Investigative ( <i>n</i> = 84)	Social ( <i>n</i> = 88)	Total ( <i>N</i> = 172)
Help-seeking approach	3.96 (.88)	3.97 (.94)	3.97 (.91)
Help-seeking avoidance	1.48 (.66)	1.43 (.53)	1.46 (.60)
Mastery	4.30 (.63)	3.81 (.77)	4.05 (.74)
Performance-approach	3.31 (.72)	3.05 (.75)	3.18 (.75)
Performance-avoidance	2.99 (.98)	2.89 (.91)	2.94 (.94)
Dissertation self-efficacy	8.85 (1.44)	8.62 (1.53)	8.73 (1.49)
Dissertation progress	5.93 (4.06)	5.40 (4.15)	5.66 (4.10)

<sup>a</sup> Standard deviations are given in parentheses

Preliminary analyses indicated no problems with kurtosis for either Investigative or Social PhD candidates since z values were larger than the critical value of -2.58. There were nine outlying individuals but after using Kirk they were not found to be influential. The Mahal's distances for both the Investigative and Social categories were larger than the critical value of 15.99 ( $Mahal's_{Investigative} = 18.068$ ,  $Mahal's_{Social} = 20.583$ ). For the Investigative group one case was above the critical value. That case was dropped and the new descriptive statistics were compared to the original descriptive statistics that included the one case. Both sets of descriptive statistics were very similar. The case was therefore returned to the analysis. For the Social group two cases were above the critical value. The two cases were dropped and the new descriptive statistics were compared to the original descriptive statistics that included the two cases. Both sets of descriptive statistics were very similar. The two cases were therefore returned to the analysis. The multivariate test for homogeneity of dispersion matrices was non-significant ( $Box's M = 30.547$ ,  $F(28, 100246) = 1.043$ ,  $p > .05$ ). The absence of extreme differences in the sample sizes for the two categories suggests the Wilks test will be robust (Stevens, 1996). The univariate tests for homogeneity of variance were non-significant, except for help-seeking avoidance (Bartlett-Box  $F(1, 86572) = 3.944$ ,  $p > .05$ ). Since the analysis has roughly equal Ns of 84 Investigative PhD candidates and 88 Social PhD candidates the univariate homogeneity of variance was acceptable.

The multivariate test for differences between Investigative and Social PhD candidates was statistically significant ( $Wilks \Lambda = .872$ ,  $F(1, 170) = 3.453$ ,  $p < .01$ ) indicating that the two categories of PhD candidates differed in their academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, or dissertation

progress. As seen in Table 8, the univariate analyses of variance (ANOVA) revealed two of the seven variables to be significant: mastery,  $F(1, 170) = 20.711, p < .001$  and performance-approach  $F(1, 170) = 5.553, p < .05$ . The mean for mastery for Investigative PhD candidates ( $M = 4.30$ ) was larger than the mean for Social PhD candidates ( $M = 3.81$ ). Similarly, the mean for performance-approach for Investigative PhD candidates ( $M = 3.31$ ) was larger than the mean for Social PhD candidates ( $M = 3.05$ ).

The multivariate effect size ( $D^2 = .58, \eta^2 = .13$ ) suggests that the difference between the groups is moderate to large and that 13% of the variance in the set of variables is explained by the differences in mastery and performance-approach orientations for Investigative and Social PhD candidates. The univariate effect size for mastery ( $d = .71$ ) indicates a moderate to large difference between the groups. The univariate effect size for performance-approach ( $d = .35$ ) indicates a small difference between the groups.

Table 8

*Univariate Analyses of Variance, Educational Psychological Variables, PhD Candidates*

Source	<i>df</i>	<i>MS</i>	<i>F</i>
Help-seeking approach			
Between groups	1	141.791	.000
Within groups	170	.834	
Help-seeking avoidance			
Between groups	1	60.472	.264
Within groups	170	.356	
Mastery			
Between groups	1	84.229	20.711***
Within groups	170	.495	
Performance-approach			
Between groups	1	91.842	5.553*
Within groups	170	.540	
Performance-avoidance			
Between groups	1	151.919	.527
Within groups	170	.894	
Dissertation self-efficacy			
Between groups	1	375.768	1.058
Within groups	170	2.210	
Dissertation progress			
Between groups	1	2862.651	.719
Within groups	170	16.839	

\* $p < .05$ , \*\*\* $p < .001$ .

The hypothesis for research question 3 was only partially confirmed. The Investigative category of PhD candidates (which includes physical and life sciences disciplines) exhibited higher mastery, and performance-approach orientations when compared to the Social category of PhD candidates but there were no significant

differences between the two categories of PhD candidates when looking at help-seeking approach, help-seeking avoidance, performance-avoidance, dissertation self-efficacy or dissertation progress.

### **Summary**

In summary, both hypotheses for research questions 1 and 3 were only partially confirmed and the hypothesis for research question 2 was not confirmed.

Specifically, hypothesis 1 suggested the educational psychological variables of help-seeking approach, mastery, and dissertation self-efficacy would positively predict dissertation progress over and above the socialization variables of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships. Results, however, only revealed one of the six educational psychological variables (dissertation self-efficacy) to significantly and positively predict dissertation progress over and above only one of the four socialization variables (teaching assistantship). Enrollment status was also close to being negatively significant meaning full-time enrollment could be beneficial to dissertation progress. An additional regression analysis revealed performance-approach and help-seeking approach to statistically and positively predict dissertation self-efficacy. In addition, performance-avoidance statistically and negatively predicted dissertation self-efficacy.

Hypothesis 2 suggested PhD graduates would be more likely to have help-seeking approach attitudes when compared to PhD candidates. Results, however, revealed no difference between the help-seeking approach and help-seeking avoidance attitudes between the two groups. In fact, when further analyzing all the educational

psychological variables, performance-avoidance was the only variable statistically different between PhD candidates and PhD graduates.

Hypothesis 3 suggested PhD candidates from physical and life sciences disciplines (represented by the Holland category of Investigative), would be more likely to exhibit help-seeking approach, mastery or performance-approach achievement goal orientations, higher dissertation self-efficacy, and higher dissertation progress when compared to PhD candidates from the social sciences (represented by Holland category of Social). Results revealed that the Investigative group statistically differed from the Social group and did indeed have higher means for mastery and performance-approach, but the two groups did not statistically differ on help-seeking approach, dissertation self-efficacy, or dissertation progress. Chapter 5 presents further discussion about the present results described above, as well as limitations and future research.

## CHAPTER 5

### DISCUSSION

The purpose of the current study was to uncover academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy that relate to dissertation progress during Phase III of doctoral student development (Gardner, 2009). Implications of these results could generate ideas in an attempt to reduce the doctoral attrition rate during the dissertation experience. Specifically, the current study first focused on the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy and how they relate to dissertation progress after controlling for the socialization variables of academic discipline, part-time versus full-time enrollment status, and research and teaching assistantships. Next, the current study examined whether there was a significant difference between the academic help-seeking attitudes of PhD candidates and PhD graduates. Lastly, the current study examined whether there was a significant difference in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy and dissertation progress based on academic discipline using the Holland categories of Investigative and Social. Overall, the results of the current study suggest university administrators, educators, and PhD candidates should consider the relationship of all three educational psychological variables in promoting dissertation progress.

#### **Results of the Research Hypotheses**

**Research question 1.** Research question 1 sought to understand the unique relationship between the educational psychological variables of academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy and dissertation



progress over and above the socialization variables of academic discipline, part-time versus full-time student status, and research and teaching assistantships. The hypothesis for research question 1 suggested the educational psychological variables of help-seeking approach, mastery, and dissertation self-efficacy would positively predict dissertation progress over and above the socialization variables. The hypothesis was not fully supported since the educational psychological variable of dissertation self-efficacy and the socialization variable of teaching assistantship were the only significant and positive predictors of dissertation progress. These results are partially consistent with previous literature. First, the author will outline how the results are consistent with previous research followed by a discussion of how the results are inconsistent with previous research.

In general the current findings align with Bandura's (1986, 1997) suggestion that self-efficacy influences effort and persistence since dissertation self-efficacy significantly and positively predicted dissertation progress. Put simply, the more PhD candidates believed they had the ability to complete their dissertations the more progress they in fact made (Varney, 2003, 2010). More precise similarities of the current results are evident when comparing the results with those of Faghihi (1998), Harsch (2008) and Varney (2003, 2010). All three researchers also found dissertation self-efficacy to be significantly and positively related to dissertation progress.

In fact, the structure of the current results closely resembles that of Varney (2010) in that neither of the two educational psychological variables of academic help-seeking attitudes nor achievement goal orientations was directly related to dissertation progress. Instead, academic help-seeking attitudes and achievement goal orientations were directly

related to dissertation self-efficacy. Varney's (2010) three research variables of being in a cohort, being mentored, and participating in research experiences also were not directly related to dissertation progress but were instead found to be directly related to dissertation self-efficacy.

The results of the current study's modified version of research question 1, in which dissertation self-efficacy was used as the outcome variable in place of dissertation progress, revealed a significant relationship between help-seeking approach and dissertation self-efficacy, and the achievement goal orientations of performance-approach and performance-avoidance and dissertation self-efficacy. All three of these relationships are in accordance with previous research. First, the finding that the help-seeking approach attitude significantly and positively predicts dissertation self-efficacy is similar to Nelson Le-Gall's (1981, 1985, 1987) conclusion that academic help-seeking is an adaptive strategy. Next, the finding that the performance-approach orientation significantly and positively predicts dissertation self-efficacy is in accordance with previous findings that the performance-approach orientation can indeed have positive outcomes (Elliot, 1999; Elliot & Harackiewicz's, 1996; Harackiewicz, 1989) such as better grades when compared with students who adopt the mastery orientation (Harackiewicz et al., 1997). Lastly, the finding that the performance-avoidance orientation significantly and negatively predicts dissertation self-efficacy is in accordance with all previous findings that the performance-avoidance orientation has deleterious outcomes (Pintrich & Schunk, 2002).

While a portion of the results from research question 1 are consistent with previous research another portion is not. With regard to the socialization variables it is

surprising that the research assistantship was not a significant predictor of dissertation progress since Ethington and Pisani (1993) found the research assistantship to be beneficial to professional development. The current study did see a negative but non-significant relationship between being a research assistantship and dissertation progress. Using the coding for the current study this negative finding means that if the statistics were significant then having been a research assistantship would benefit a PhD candidate during the dissertation experience. Teaching assistantship, another socialization variable, was positively and significantly related to dissertation progress in the current study but because the answers were coded 1 for being a teaching assistant and 2 for not being a teaching assistant the interpretation is that being a teaching assistant is not beneficial to dissertation progress. The results that neither the research nor teaching assistantship significantly helped dissertation progress disagree with Faghihi's (1998) findings that candidates who had some type of graduate assistantship were more advanced in their dissertation progress than candidates who did not have some type of graduate assistantship. It is important to note that the current study did not ask detailed questions about research or teaching assistantships such as when or for how long they occurred.

Another example of a socialization variable result that does not agree with previous research is the fact that full-time student status was only close to significance (although equal to  $p = .05$ ) in predicting dissertation progress. This current finding is surprising since Tinto's graduate school theory of persistence (1991, 1993) suggests full-time students who are more socially integrated progress more than part-time students who are less socially integrated. These incongruous findings might be explained by the fact that almost all respondents (90.7%) were full-time students and the majority had been

teaching assistants (75%) or research assistants (72%). Future research should try to include a more balanced sample of these relationships.

The current finding that academic discipline, another socialization variable, was not a significant predictor of dissertation progress is also unexpected since there is research highlighting the differences in dissertation experiences (Austin, 2002; Baird, 1990; Gardner, 2005, 2007, 2010; Golde, 2005; Nerad & Cerny, 1993), completion and time-to-degree rates (CGS, 2007; Gravois, 2007; NSF, 2009) based on academic discipline. The need to reduce the current sample to only Investigative and Social Holland categories without the added comparison of Artistic and Enterprising Holland categories could have played a role in this unusual finding.

With regard to the educational psychological variables, it was not anticipated that neither help-seeking approach nor mastery orientation would significantly predict dissertation progress because both of these variables were found to significantly predict better exam grades in college students (Karabenick, 2003). Additionally, mastery has been suggested as an adaptive strategy (Ames, 1992; Elliott & Dweck, 1988; Pintrich & Schunk, 2002) that promotes persistence and the use of self-regulated strategies when students encounter difficulties (Finney et al., 2004; Harackiewicz et al., 2000) yet it was not a significant predictor of dissertation progress in the current study. The idea that mastery does not relate to dissertation progress can be compared to the idea that mastery does not always translate into high performance (Harackiewicz, 1997). For example, Harackiewicz et al. (1997) in a study of undergraduates found mastery to be correlated with interest in class but it was performance goals that correlated with higher levels of achievement. Still other researchers (Pintrich, 2000) suggest a multiple goals approach

combining both mastery and performance-approach. The results from research question 1 of the current study add credence to the idea that performance-approach is beneficial when considering academic performance (in this case operationalized as dissertation progress rather than grades).

In summary, the findings from research question 1 highlight the importance of dissertation self-efficacy in dissertation progress. PhD candidates' beliefs that they can successfully complete dissertations do indeed relate to their dissertation progress and as such should not be discounted. In fact, university administrators and faculty members should work toward ensuring PhD candidates' dissertation self-efficacy is sufficient. According to Bandura (1987) self-efficacy should be just slightly higher than a student's skill level to ensure that the student is striving to improve. Therefore, university administrators and faculty members should bolster PhD candidates' knowledge and skills regarding dissertation requirements while also conveying to PhD candidates that they should have confidence in their own capabilities. In addition to a cooperative advisor-PhD candidate relationship (Baird, 1990; Gell, 1995) some methods of strengthening PhD candidates' knowledge, skills, and dissertation self-efficacy to consider include PhD candidate support groups (Inman & Silverstein, 2003; Varney, 2003, 2010), and the partnering of two PhD candidates with one another in order to hold each other accountable (Monsour & Corman, 1991).

The results from the modified version of research question 1 also highlight the benefit of both help-seeking approach and performance-approach, and the detriment of performance-avoidance. Since help-seeking approach was significantly and positively related to dissertation self-efficacy university administrators and faculty members should

encourage PhD candidates to ask for helpful hints when necessary. PhD candidates should not be made to feel as though they are a burden to their advisors when they ask for clarification regarding unfamiliar issues (Egan, 1989; Gardner, 2008; Mah, 1986). Similarly, since performance-approach was significantly and positively related to dissertation self-efficacy university administrators and faculty members should *consider* promoting this type of achievement goal orientation. It should be noted, however, that the recommendation of promoting performance-approach is controversial. Many researchers believe mastery, or learning for learning's sake (Elliott & Dweck, 1988) is the most beneficial type of achievement goal orientation (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Elliot, 2005; Elliot & Dweck, 1988) and should therefore be promoted more so than performance-approach. Continued research into the benefits and detriments of mastery versus performance-approach orientations, or a combination of both (Pintrich, 2000) with regard to PhD candidates should be conducted. All researchers agree, however, and it is confirmed by the current study, that performance-avoidance is not beneficial with regard to educational outcomes as noted by its significant and negative relationship to dissertation self-efficacy. University administrators and faculty members should therefore actively look for and help reduce PhD candidates' tendencies toward performance-avoidance.

**Research question 2.** In research question 2 PhD candidates and PhD graduates did not differ on either of the two academic help-seeking attitude scales of help-seeking approach or help-seeking avoidance. This result did not confirm the hypothesis suggesting PhD graduates would be more likely to have help-seeking approach attitudes when compared to PhD candidates. Instead, the only significant difference between the

two groups after examining all the educational psychological variables was performance-avoidance with PhD candidates having a higher mean than PhD graduates. At first these results might seem contradictory to the results of Arbretton (1993), Karabenick (2003), and Nelson Le-Gall (1981, 1985, 1987) who found help-seeking approach to be more adaptive than help-seeking avoidance, suggesting PhD graduates should be more likely to exhibit help-seeking approach attitudes than PhD candidates. However, the current author believes the results could be interpreted as similar to previous literature (Arbretton, 1993; Karabenick, 2003; Nelson Le-Gall, 1981, 1985, 1987) if one considers that the PhD candidates who completed this study survey could be the very PhD candidates who will complete their dissertations because they have academic help-seeking attitudes, achievement goal orientations (except for performance-avoidance), and dissertation self-efficacy similar to PhD graduates.

**Research question 3.** In Research question 3 the current author sought to answer whether there is a significant difference in academic help-seeking attitudes, achievement goal orientations, dissertation self-efficacy, and dissertation progress in PhD candidates based on academic discipline using Holland's (1997) theory. The hypothesis suggested PhD candidates from physical and life sciences disciplines (represented by the Holland category of Investigative), would be more likely to exhibit help-seeking approach, mastery or performance-approach achievement goal orientations, higher dissertation self-efficacy, and higher dissertation progress when compared to PhD candidates from the social sciences (represented by Holland category of Social). Only a portion of this hypothesis was confirmed. PhD candidates from the Investigative and Social Holland categories differed in their mastery and performance-approach orientations but not in

their academic help-seeking attitudes, dissertation self-efficacy, or dissertation progress. Investigative PhD candidates had a higher mean in both the mastery and performance-approach orientations. Although the current findings are not in total agreement with previous research that has shown physical and life sciences students (Investigative) to be more likely to complete a degree and to do so in a more-timely manner than other students (CGS, 2007; Golde, 2005; NSF, 2009) because dissertation progress was not shown to differ between Investigative and Social in the current study, the current findings may suggest that mastery and the performance-approach orientation are the most adaptive. The current findings may even suggest that a combination of mastery and performance-approach are the most beneficial, a result that agrees with Pintrich's (2000) multiple goals approach.

### **Limitations and Future Research**

As with any research, there are limitations to this study. With regard to methodology, all respondents self-selected making the sample in no way randomized. Additionally, responses were self-reported which increases the likelihood that answers were influenced by social desirability. The PhD graduates were asked to remember back to the time when they were working on their dissertations which may have distorted their responses (Harsch, 2008). Also, generalizability was reduced since the results are applicable only to the universities involved in the study. Although it is uncertain whether the order of the survey questions affected the overall results future research should reorder the survey questions. The inability to include the Artistic and Enterprising categories in the analyses also limited the conclusions that can be drawn. In future research the dissertation self-efficacy and dissertation progress instruments should be



adapted to more fully align with the dissertation experience for Artistic PhD candidates and PhD graduates. In addition, a larger number of Enterprising PhD candidates and PhD graduates should be included.

The current study did not have an experimental design and therefore causality cannot be claimed. None of the variables can be said to have caused a change in any of the other variables because of the correlational makeup of the research.

Lastly, as noted in both Varney (2003, 2010) and Harsch (2008) the dissertation self-efficacy measure was simply taken at one moment in time. Dissertation self-efficacy, and the other educational psychological variables in the current study, could have been a reflection of the respondents' current mindset without reference to how that mindset had changed or could change in the future.

## **Conclusion**

The current study was the first of its kind to examine academic help-seeking attitudes, and achievement goal orientations of PhD candidates and PhD graduates, while also adding to extant literature regarding dissertation self-efficacy. The results suggest that in order to reduce the current and historical 50% attrition rate of PhD students (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009) it is imperative that university administrators, educators, and PhD candidates understand the implications of the educational psychological variables explored. Specifically, the indication that dissertation self-efficacy directly impacts dissertation progress means everyone must work to increase PhD candidates' dissertation self-efficacy (in addition to PhD candidates' dissertation knowledge and skills). Additionally, educational psychological variables that positively relate to dissertation

self-efficacy include help-seeking approach and performance-approach orientation. Help-seeking approach, or a PhD candidate's willingness and comfort in asking for guidance, should indeed be promoted. It is not yet certain, however, that performance-approach orientation should also be promoted during the dissertation experience since some researchers believe the mastery orientation to be more beneficial than performance-approach (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Elliot, 2005). The current study does suggest the performance-approach orientation may play a supportive role in dissertation progress. A multiple goals approach combining mastery and performance-approach orientations (Pintrich, 2000) should be further explored since the current study found both mastery and performance-approach orientations to be higher in Investigative PhD candidates who have, in other studies, been found to have higher completion and faster time-to-degree rates (CGS, 2007; Golde, 2005; NSF, 2009). Factors leading to the positive environment characteristic of the Investigative group should also be further examined to determine which characteristics are beneficial and can be transferred to the Social group, and all other groups of academic disciplines. Perhaps the partnering of two PhD candidates during the dissertation experience suggested by Monsour and Corman (1991) should partner Investigative PhD candidates with Social PhD candidates. It is certain, however, that the performance-avoidance orientation, the variable that negatively influences dissertation self-efficacy, should be eliminated during the dissertation experience.

As noted in the introduction of this dissertation, failure to complete a doctorate has economical costs for the student, the university, and society (Bowen & Rudenstine, 1992; Lovitts, 2001). By working together to promote the most beneficial academic

help-seeking attitudes, achievement goal orientations, and dissertation self-efficacy university administrators, educators and PhD candidates can reduce the current and historic 50% doctoral attrition rate (CGS, 2007; Gardner, 2010; Golde, 2005; Gravois, 2007; Lovitts, 2008; Lovitts & Nelson, 2000; NSF 2009). This study suggests dissertation self-efficacy, help-seeking approach, mastery and performance-approach orientations are key factors in that goal.

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## APPENDIX A

### ACADEMIC DISCIPLINES GROUPED BY HOLLAND (1997) CATEGORY (Rosen et al., 1989; Smith et al., 2000)

#### Artistic

- English
- Foreign Languages
- Music
- Theatre & Dance
- Art History
- Hispanic Linguistics
- Languages and Literatures
- Linguistics
- Literary Discourses
- Rhetoric & Composition
- Second Language Studies
- Spanish Literature
- Writing and Rhetoric
- Writing Studies

#### Enterprising

- Business Administration
- Communication Studies
- Communications
- Human Resource Management
- International Development
- Journalism
- K-12 Educational Administration
- Management
- Management Information Systems
- Marketing
- Park, Recreation & Tourism, College of Agriculture
- Public Administration
- Public Policy Analysis
- Retailing
- Strategic Management

#### Investigative

- Anthropology
- Economics
- Biochemistry
- Biological Sciences
- Civil Engineering
- Chemical Engineering
- Chemistry
- Earth Science

Geography  
Geological Sciences  
Mathematics  
Physics  
Sociology  
Statistics  
Agricultural Economics  
Agriculture  
Biomedical Engineering  
Community, Agriculture, Recreation and Resource  
Comparative Medicine  
Crop and Soil Sciences  
Epidemiology  
Genetics  
Horticulture  
Interdisciplinary Studies on Environment  
Kinesiology  
Math Education  
Mathematical Sciences  
Microbiology & Immunology  
Neuroscience  
Pathobiology  
Pathology  
Pharmacology  
Physiology & Biology  
Plant Physiology  
Science Education  
Toxicology  
Zoology

#### Social

African American Study  
American Studies  
Athletic Training  
Communication Sciences and Disorders  
Counselor Education  
Criminal Justice  
Education  
Educational Psychology  
English Education  
Family Therapy  
Food Science  
Health Professions Education  
History

Human Development and Family  
Studies  
Instructional Technology  
Interdisciplinary Social Sciences  
Nursing  
Nutrition and Medical Dietetics  
Philosophy  
Physical Education  
Political Science  
Psychology  
Public Health Sciences  
School Psychology  
Social Work  
Special Education

APPENDIX B

SURVEY INVITATION LETTER

My name is Tish Colvin. I am a PhD candidate in Educational Psychology & Research at the University of Memphis. I have successfully defended my dissertation proposal, have an approval from my IRB, and am now ready to collect data for my dissertation. My dissertation examines the relationship between academic help-seeking attitudes and motivation, and dissertation progress. I need to collect data from at least 150 PhD candidates (who have successfully completed their comprehensive exams and are currently working on their dissertations) and 150 PhD graduates (who have received a PhD degree) from across all academic disciplines.

The reason for my email is to ask your help in inviting both PhD candidates and PhD graduates to complete my anonymous on-line survey. Would you be willing to send an email to potential respondents? The survey should take approximately 10 minutes to complete. Information regarding participants' demographics, academic help-seeking attitudes, motivation (including achievement goal orientation and dissertation self-efficacy), and dissertation progress will be collected. Names of participants and universities will NOT be gathered.

If you're willing to send an email invitation I've written a sample below. Please feel free to use this or create your own.

\*\*\*\*\*

As part of her dissertation Tish Colvin is interested in identifying academic help-seeking attitudes and motivational factors that relate to dissertation progress. She anticipates that the results will provide suggestions on how to further enhance the dissertation experience. If you are a PhD candidate (have completed your comprehensive exams and are working on your dissertation) or a PhD graduate (have your degree) please complete the 10-minute survey at <https://www.surveymonkey.com/s/dissprogress> Also, if you know PhD candidates and/or PhD graduates please forward this survey invitation to them as it is beneficial to have as many respondents as possible.

Thank you for helping a PhD candidate.

Sincerely,

\*\*\*\*\*

I would greatly appreciate it if you could reply to this email to let me know about your willingness to invite potential participants. If you have any concerns regarding this study or about the survey please feel free to contact me via email at [tscolvin@memphis.edu](mailto:tscolvin@memphis.edu) or you can contact my advisor, Dr. Christian Mueller, at [cemuellr@memphis.edu](mailto:cemuellr@memphis.edu).

Thank you so much for your time.

-Tish Colvin