

University of the Incarnate Word

## The Athenaeum

---

Theses & Dissertations

---

5-2021

# The H.E.R.O. Within: An Examination of Psychological Capital and Intent to Graduate Among Doctoral Students

Tiffany Stange

University of the Incarnate Word, [drtiffanystangephd@gmail.com](mailto:drtiffanystangephd@gmail.com)

Follow this and additional works at: [https://athenaeum.uiw.edu/uiw\\_etds](https://athenaeum.uiw.edu/uiw_etds)



Part of the [Higher Education Commons](#), [Other Education Commons](#), [Other Psychology Commons](#), [Other Social and Behavioral Sciences Commons](#), [Social and Philosophical Foundations of Education Commons](#), and the [Theory and Philosophy Commons](#)

---

### Recommended Citation

Stange, Tiffany, "The H.E.R.O. Within: An Examination of Psychological Capital and Intent to Graduate Among Doctoral Students" (2021). *Theses & Dissertations*. 385.

[https://athenaeum.uiw.edu/uiw\\_etds/385](https://athenaeum.uiw.edu/uiw_etds/385)

This Dissertation is brought to you for free and open access by The Athenaeum. It has been accepted for inclusion in Theses & Dissertations by an authorized administrator of The Athenaeum. For more information, please contact [athenaeum@uiwtx.edu](mailto:athenaeum@uiwtx.edu).

THE H.E.R.O. WITHIN: AN EXAMINATION OF PSYCHOLOGICAL CAPITAL  
AND INTENT TO GRADUATE AMONG DOCTORAL STUDENTS

by

TIFFANY STANGE

A DISSERTATION

Presented to the Faculty of the University of the Incarnate Word  
in partial fulfillment of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF THE INCARNATE WORD

December 2020

Copyright by  
Tiffany Stange  
2020

## ACKNOWLEDGMENTS

I wish to acknowledge and thank my dissertation committee, who provided the support, guidance, and collaboration needed to complete this dissertation. I am grateful for my dissertation committee chair, Dr. Norman St. Clair, who provided thoughtful advice and much encouragement along the way. I give thanks to Dr. Teresa Harrison and Dr. Charita Ray-Blakely, both of whom shared their time, knowledge, and expertise as members of my dissertation committee. I would also like to recognize Dr. David Fike as an unofficial member of my dissertation committee for his knowledge, guidance, and support during this endeavor.

Tiffany Stange

## DEDICATION

To my wonderful husband, Jason, and my two beautiful sons, Oliver & Archer, for it was your love and support that made it all possible.

# THE H.E.R.O. WITHIN: AN EXAMINATION OF PSYCHOLOGICAL CAPITAL AND INTENT TO GRADUATE AMONG DOCTORAL STUDENTS

Tiffany Stange

University of the Incarnate Word, 2020

Understanding the factors contributing to a student's ability to persist toward graduation is paramount to the success of an institution's doctoral program. This study explored specific psychological factors (psychological capital) as they relate to persistence factors for doctoral students. Additionally, this study expands upon the research and literature on psychological capital using an established instrument, Compound Psychological Capital scale (CPC-12), in a new context. Finally, this study expands the research and literature on doctoral student persistence by applying the College Persistence Questionnaire (CPQ), designed for undergraduate students, to the doctoral student population. A quantitative, cross-sectional research design was used to examine the relationship between variables using statistical analyses such as one-way ANOVA and multiple regression.

## TABLE OF CONTENTS

LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
INTRODUCTION TO THE RESEARCH .....	1
Statement of the Problem.....	2
Purpose of Study .....	4
Research Questions and Design.....	4
Significance.....	5
Definition of Key Terms .....	6
Theoretical Framework.....	8
Concluding Thoughts.....	12
LITERATURE REVIEW .....	13
Retention .....	14
Persistence.....	15
College Persistence Questionnaire (CPQ) .....	16
Psychological Capital.....	17
Hope.....	18
Efficacy .....	19
Resiliency.....	21
Optimism.....	22
Psy/Cap and Academia .....	23

## Table of Contents—Continued

## LITERATURE REVIEW

Behavioral Intention.....	25
Summary .....	26

## METHODOLOGY .....27

Research Design.....	27
Pilot Study.....	28
Data Collection .....	28
Study Site .....	29
Research Protocols.....	29
Participants.....	30
Research Instruments and Variables .....	31
Independent variable: PsyCap.....	31
Moderating variable: Persistence .....	34
Dependent variable: Intent to graduate .....	36
Phenomenological items .....	37
Researcher Bias.....	37
Summary .....	38

## RESULTS .....39

Introduction.....	39
Data Analysis .....	39
Validation Techniques .....	41



## Table of Contents—Continued

## RESULTS

Quantitative Results .....	41
Participant demographics.....	41
Psychological capital .....	44
Persistence.....	44
Intent to graduate .....	44
Test of hypotheses.....	45
Open-ended questions.....	51
Qualitative Results .....	54
Interview 1 .....	54
Interview 2 .....	55
Interview 3 .....	56
Researcher Self-reflection.....	57
Summary .....	59
DISCUSSION .....	60
Framing the Results .....	62
Conclusion and Implications.....	67
Delimitations and Limitations.....	71
Recommendations for Future Research.....	73
Conclusion .....	74
REFERENCES .....	75

## Table of Contents—Continued

APPENDICES .....	84
Appendix A: Institutional Review Board Approval .....	85
Appendix B: Institutional Review Board Amendment Approval 02/24/2020 .....	86
Appendix C: Institutional Review Board Amendment Approval 03/06/2020 .....	87
Appendix D: Institutional Review Board Amendment Approval 03/23/2020 .....	88
Appendix E: Permission to use the CPC-12 .....	89
Appendix F: Permission to use the CPQ .....	90
Appendix G: Informed consent (Survey).....	91
Appendix H: Demographics Questionnaire .....	92
Appendix I: CPC-12 Questions .....	93
Appendix J: CPQ Items .....	94
Appendix K: Behavioral Intention Scale .....	96
Appendix L: Qualitative Component.....	97
Appendix M: Interview Protocol .....	98
Appendix N: Informed Consent (Interviews) .....	100

## LIST OF TABLES

Table	Page
1. Descriptive Statistics for Participant Demographic Data .....	43
2. Pearson Correlations Between Independent and Demographic Variables and Persistence Factors .....	47
3. One-way Analysis of Variance of Persistence Factor Scores for Three Degree Programs .....	48
4. One-way Analysis of Variance of PsyCap Factor Scores for Three Degree Programs .....	49
5. Predictors of Intent to Graduate .....	50
6. One-way Analysis of Variance of Intent to Graduate Degree Progress .....	51

## LIST OF FIGURES

Figure	Page
1. A Psychological Model of College Student Retention .....	9
2. Proposed Partial Model of Bean and Eaton's (2001) Psychological Model of College Student Retention.....	12

## **Introduction to the Research**

On average, it takes up to 10 years for doctoral students to complete their studies (Ampaw & Jaeger, 2012). The years dedicated to the completion of the doctoral degree and the sacrifices made by doctoral students are costly, and when unrealized, a waste of financial and human capital resources (Gillingham, Seneca, & Taussig, 1991; Metzner & Bean, 1987). Perhaps not so surprising, doctoral student retention levels are lower than any for any other group of students pursuing higher education (Gardner, 2009a; Gardner & Gopaul, 2012; Ivankova & Stick, 2007; Jiranek, 2010; Kim & Otts, 2010; Nettles & Millett, 2006; O'Bara, 1993). In fact, only about 50%-60% of students, across disciplines, who start a doctoral program, will graduate (Ampaw & Jaeger, 2012; Bair, 1999; Cugno, 2015; Gittings, 2010; Kennedy, Terrell, & Lhole, 2015; Lott, Gardner, & Powers, 2009; Maher, Wofford, Roksa, & Feldon, 2017; Malone, Nelson, & Van Nelson, 2004; O'Bara, 1993; Savage, Strom, Hubbard & Aune, 2017; Stallone, 2003; Stallone, 2011; Wolff, 2016. Malone et al. (2004) share that administrators are shocked at the high attrition rate of doctoral students, describing it as a scandal as it is a waste of the resources, time, and energy on the part of the students, as well as the university. Researchers agree that the toll on students who do not complete a doctoral program is the most significant reason to care about retention, as it can take years for those students, many of whom have been academically successful in prior degree programs, to get over the emotional wounds left by the failure to obtain the doctoral degree.

Since doctoral students are regarded as well-educated and highly motivated, as well as having the academic aptitude and personal characteristics needed to complete a doctoral program resulting in a doctoral degree (Gittings, 2010), ascertaining a student's ability to persist is paramount to the success of an institution's doctoral program. Wolff (2016) explains that prior

research has mainly focused on predicting doctoral student success using standardized tests scores, while other studies have examined it using personality type, student satisfaction, and other factors that are related to self-efficacy, motivation, coping skills, and social and academic integration. Cugno (2015) states, however, that no single factor or combination of factors is responsible for doctoral student attrition or persistence to degree, although Smallword (as cited in Malone et al., 2004) has proclaimed that many of the issues related to doctoral student attrition can be ascribed to poor selections at the time of admission.

### **Statement of the Problem**

Tinto (1975) states that undergraduate students enter university with specific characteristics that contribute to their reasons for leaving or quitting college. These characteristics include aspects such as familial background traits like parental educational level and individual attributes like ability, race, and gender. He further explains that these characteristics directly affect students' initial commitments to the university and the goal of graduation. The same characteristics that can predict a student's departure can also be said to predict a student's ability to persist to graduation. Bray, Braxton, and Sullivan (1999) further elaborate that there is also an emphasis on the role individual psychological characteristics play in decisions to persist or drop out. These characteristics include such attributes as motivation, life task dominance, and self-efficacy, as well as how students cope with stress, which is supported by Bean and Eaton's (2001) psychological model of student retention. These traits are also closely linked with what Luthans, Youssef, and Avolio (2007) describe as psychological capital, or PsyCap, which describes an individual's state of positive psychological development through the attributes of hope, efficacy, resiliency, and optimism (H.E.R.O. factors), all of which are shown to be good predictors of workplace retention.

Consequently, the decision to persist or drop out appears to be an interplay of institutional and student factors (Bair, 1999). According to Bair, success in a doctoral program is measured by a student's ability to persist through the program and earn a doctoral degree, although the author explains further research is needed to understand why some students persist to graduation while others do not. A problem for higher education researchers, academic institutions, and students is identifying key success factors for doctoral students, in any discipline, that persist through a doctoral program. Park, Boman, Care, Edwards, and Perry (2008) recommend additional research to develop a shared understanding of the attributes or components of persistence. Wolff (2016) also suggests that the relationships between the characteristics of the situational environment and an individual's characteristics, and how those relationships influence a doctoral candidate's decision to persist with the program, also be studied.

Caison (2007) reinforces the importance of admissions officers and researchers having an effective means of assessing the trends in the circumstances of students persisting to graduation at their institutions. While establishments of higher learning regularly obtain a wide range of information regarding their "students' backgrounds, socioeconomic status, academic progress, and in many cases their academic goals and social involvement . . . the comparability of [those] findings to results of survey-based studies has not been empirically established" (p. 436). Having a better understanding of the factors associated with students being able to complete a doctoral program will not only fill a gap in doctoral student literature it will also allow admission officers to refine admission practices, employ a more comprehensive search for program applicants, fine-tune their program structures (Wolff, 2016, and most importantly, effectively identify and provide the resources doctoral students need to complete their program successfully.

## **Purpose of Study**

The purpose of this survey study was to test the portion of Bean and Eaton's (2001) psychological model of college student retention to examine the relationship between psychological capital and the intent to graduate, as moderated by participant persistence scores for doctoral students at a private, faith-based university in southwest Texas. The independent variable was identified as the participants' psychological capital scores, which includes the factors of hope, efficacy, resiliency, and optimism. The dependent variable was defined as the participants' intent to graduate, which is assessed using a behavioral intention scale. The moderating variable was defined as the participants' persistence scores, which includes academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness.

## **Research Questions and Design**

The proposed study will use a quantitative, cross-sectional design paired with a qualitative component to answer the following research questions:

1. Is Psychological Capital (PsyCap) associated with persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness)?
2. Are each of the PsyCap factors (hope, efficacy, resiliency, and optimism) associated with persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness)?
3. Are covariates (degree progress, degree program, gender, race, and age) associated with persistence factors (academic integration, social integration, supportive services



satisfaction, degree commitment, institutional commitment, and academic conscientiousness)?

4. Are covariates (degree progress, degree program, gender, race, and age) associated with PsyCap factors (hope, efficacy, resiliency, and optimism)?
5. Does persistence moderate the relationship between PsyCap and Intent to graduate?
6. What challenges to psychological capital do doctoral students experience in their program of study?

### **Significance**

There are several reasons why this study is significant and timely. It contributes to the gap in the literature on possible success factors for doctoral students' intent to graduate, specifically related to psychological capital. This study also adds to the research on doctoral student retention and persistence. It expands the literature on psychological capital to include doctoral students. Finally, it expands the application of the Compound Psychological Capital scale (CPC-12) (Lorenz, Beer, Pütz, & Heinitz, 2016) to a new audience, as well as supports the instrument as useful in non-organizational settings such as academia. This study also expands the application of the College Persistence Questionnaire (CPQ) (Davidson, Beck, & Milligan, 2009) to doctoral students by modifying the scale to only include measures relating to that population. Additionally, it expands the application of Bean and Eaton's (2001) psychological model of college student retention to a new population, doctoral students. Furthermore, this study supports a partial application of Bean and Eaton's (2001) model that focuses on the relationship between psychological capital and the intent to graduate as moderated by persistence. It also demonstrates that the relationship between psychological and persistence factors could have a significant impact on the admissions selection process for doctoral programs, particularly when it comes to

identifying students who are likely to complete a doctoral program and those who may need additional support in developing their psychological factors so they may complete a doctoral degree program. Finally, it shows how a university can contribute to a doctoral student's decision to persist to graduation by implementing psychological capital interventions as studies have found no difference in how students and professionals respond to such mediations (Dello Russo & Stoykova, 2015).

### **Definition of Key Terms**

Specific terms are defined below as a means to enhance the readers' understanding of this study.

**Age.** The age of the participant completing the survey.

**Degree program.** The doctoral student's program of study.

**Degree progress.** The number of hours the participant has completed within his or her program.

**Efficacy.** "The individual's convictions (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998, p. 66). PsyCap uses the terms self-efficacy, efficacy, and confidence interchangeably.

**Hope.** "A positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)" (Snyder, Irving, & Anderson, 1991, p. 287).

**Optimism.** "An explanatory style that attributes positive events to personal, permanent, and pervasive causes and interprets negative events in terms of external, temporary, and situation-specific factors" (Luthans, Youssef, et al., 2007, pp. 90-91).

**Persistence.** The determination to complete a doctoral degree (Gardner, 2009b).

**Positive organizational behavior (POB).** “The study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace” (Luthans, 2002, p. 698).

**Positive psychology.** “A science of positive subjective experience, positive individual traits, and positive institutions promises to improve quality of life and prevent the pathologies that arise when life is barren and meaningless” (Seligman & Csikszentmihalyi, 2000, p. 5).

**Psychological capital (PsyCap).** “An individual’s positive psychological state of development that is characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success” (Luthans, Youssef, et al., 2007, p. 3). These four constructs are also known as the H.E.R.O. factors.

**Race.** “A grouping of humans based on shared physical or social qualities into categories generally viewed as distinct by society” (Barnshaw, 2008, p. 1091).

**Resiliency.** “The positive psychological capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility” (Luthans, 2002, p. 702).

**State-like capacities.** “Relatively malleable and open to development; the constructs could include not only efficacy, hope, resilience, and optimism, but also a case has been made

for positive constructs such as wisdom, well-being, gratitude, forgiveness, and courage as having state-like properties as well” (Luthans, Avolio, Avey, & Norman, 2007, p. 544).

**Trait-like capacities.** “Relatively stable and difficult to change; represents personality factors and strengths. Examples could include the Big Five personality dimensions, core self-evaluations, and character strengths and virtues (CSV)” (Luthans, Avolio, et al., 2007, p. 544).

### **Theoretical Framework**

Tinto’s (1975, 1993) theory of college student departure contends that successful students enter an institution of higher education with background characteristics (e.g., familial background, personal attributes, academic aptitude, and motivation). These characteristics set the foundation for how students initially interact with the institution. Interactions with the university environment influence the students’ commitment and intentions to the point where the more integrated they feel, the greater their goal commitment and the likelihood of continued enrollment and vice versa.

Caison (2007) shares that numerous researchers have based their studies of student retention on Tinto’s theory (Knight, 2002; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1980; Terenzini et al., 1981; Tinto, 1982) including Ampaw and Jaeger (2012) and Wolff (2016) in more recent years. Although, as Johnson, Wasserman, Yildirim, and Yonai (2014) explain, other researchers have looked to revise or expand upon Tinto’s theory. Bean and Eaton (2001) are such researchers as they revised Tinto’s theory by considering the psychological aspects of student retention. Their psychological model of college student retention is based on four psychological theories: attitude-behavior theory (Fishbein & Ajzen, 1975) that provides the overall structure for the model; coping-behavior model (French, Rodgers, & Cobb, 1974); self-efficacy theory (Bandura, 1997); and, the locus of control aspect

of attribution theory (Rotter, 1966; Weiner, 1986). Davidson et al. (2009) explain that the connection between undergraduate student character and adjustment variables to retention has received more attention over the last 10 years and that Bean and Eaton's (2001) psychological model supports their role in undergraduate students' decisions to persist to graduation. The framework for this study was based on Bean and Eaton's (2001) psychological model of college student retention (Figure 1), which is based on Tinto's (1975, 1993) theory of college student departure.

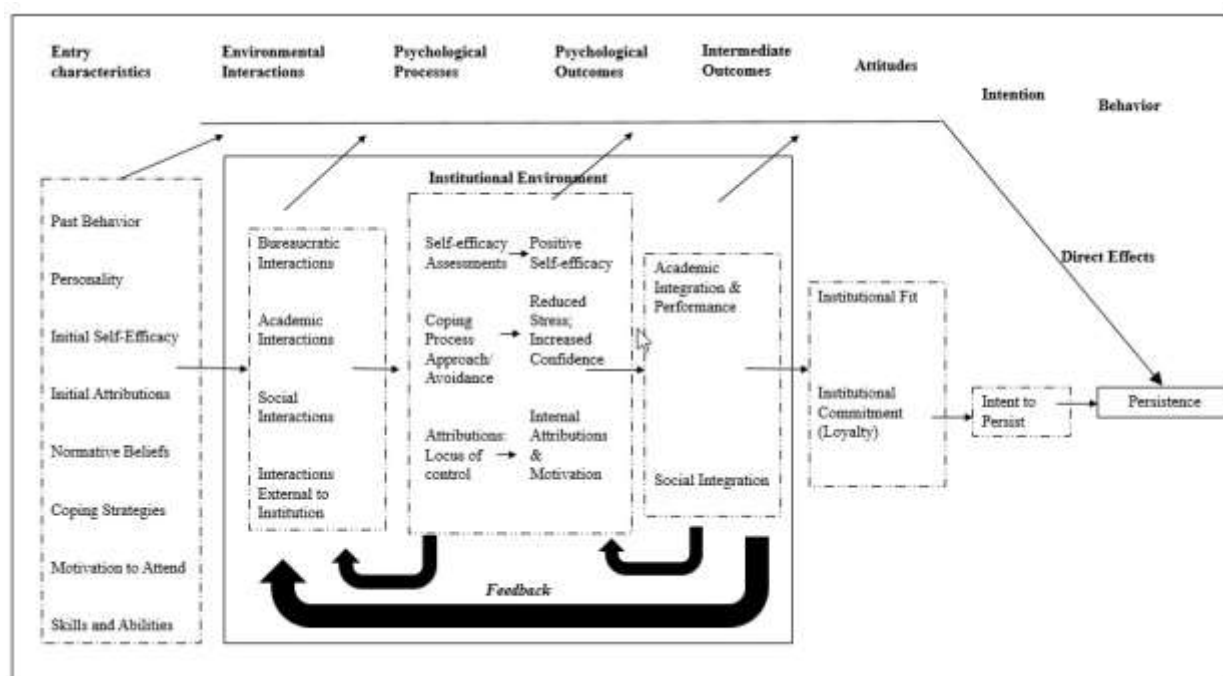


Figure 1. A psychological model of college student retention (Bean & Eaton, 2001, p. 76).

Reason (2009) shares that compared with the volume of inquiry on other sociodemographic factors, relatively little is documented about the role of student dispositions in persistence, although research has shown a direct connection between disposition and persistence. The author goes on to share that research found in psychology literature has shown that academic goals, self-efficacy, and a sense of academic-related skills are all related to

persistence. Bean and Eaton's (2001) model is further supported by Brown et al. (2008, as cited in Reason, 2009, p. 665), who found strong, positive associations between self-efficacy, educational goals, and persistence. Tinto (2017) further posits that a student must want to persist and expend the effort needed to do so even when faced with adversity. This is explained by Bean and Eaton's (2001) psychological model of student retention as the ability of students to persist to graduation, with a specific focus on factors related to persistence like goal commitment, completion, and self-efficacy.

The overarching principle of Bean and Eaton's (2001) model is Fishbein and Ajzen's (1975) attitude behavior theory, which Johnson et al. (2014) summarize as undergraduate students having many psychological reactions to a university environment that affects their academic and social integration, as well as academic achievement. A student's experiences will influence his or her sense of commitment, intentions to persist, and ultimately, the actual persistence to graduation. Bean and Eaton (2001) state that the most important psychological factors are those of self-efficacy, normative beliefs, and past experiences, which are also the components of psychological capital, or PsyCap.

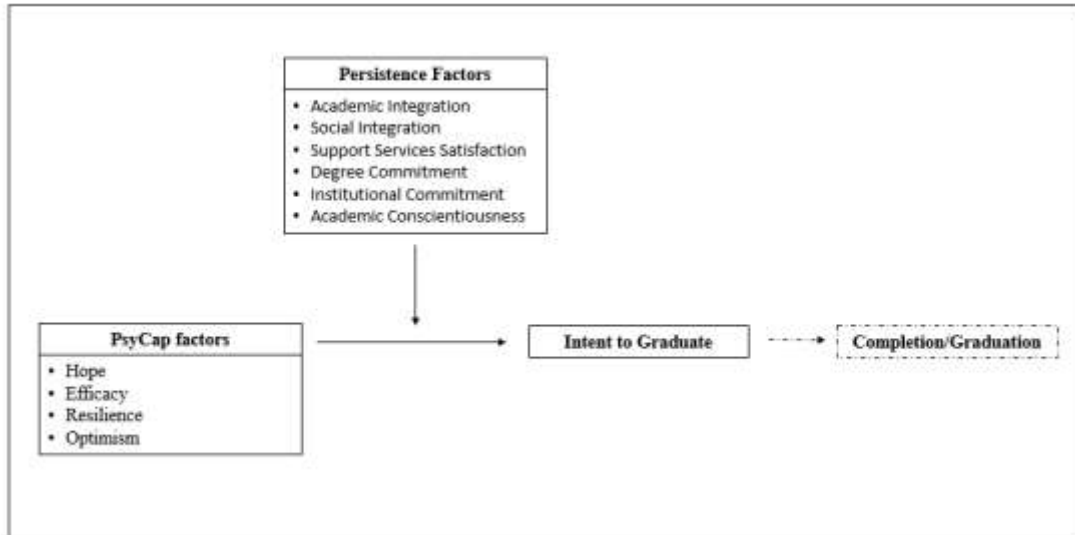
More specifically, Bean and Eaton (2001) utilize Bandura's (1997) theory of self-efficacy, describing it as "an individual's perception of his or her capacity to effectively act in a certain way to achieve a specific outcome, which is based on observation and past experiences" (p. 75). The authors further assert that when students believe they are competent, their self-confidence increases, as does their level of persistence. Furthermore, where adaptation is described as the process by which a student learns to cope with a situation, the coping behavior theory (French et al., 1974) component of Bean and Eaton's (2001) model suggests that through an evaluation of a specific environment and adaptation to that environment, one adjusts to new

circumstances. In the instance of undergraduate students and universities, one adapts to the school and becomes integrated into a new environment.

Doctoral students do not typically receive the same introduction to the university as undergraduate students, so the current study may provide a unique contribution to the literature applying Bean and Eaton's (2001) theory to this student population that has not been studied in previous research. Additionally, the way doctoral students are treated by the institution, as well as their personal factors (psychological capital and persistence), may predict retention, which leads to program completion. Finally, there is the aspect of attribution theory (Rotter, 1966; Weiner, 1986), or more specifically, the locus of control component of attribution theory. Bean and Eaton (2001) define locus of control as the degree to which an individual sees past outcomes and experiences as being caused by either internal or external forces. Those who have an internal locus of control believe that he or she is responsible for his or her own successes or failures. Those with an external locus of control believe prior outcomes and experiences are a result of outside forces, like fate or change. It is thought that students with a high, versus low, internal locus of control will be more likely to act in such a way to complete their doctoral program successfully.

In summary, the psychological processes and outcomes of Bean and Eaton's (2001) model encompass the psychological capital factors identified by Luthans, Youssef, et al. (2007), which are hope, efficacy, resiliency, and optimism. Similarly, the intermediate outcomes and attitudes portion of the model encompasses the persistence factors identified by Davidson et al. (2009). Additionally, the research shows that there is a strong correlation between behavioral intentions (e.g., intent to graduate) and the actual behavior (completion/graduation) (Ajzen, 1991; Ajzen, 2012). For those reasons, this study proposes an adapted model of Bean and

Eaton's (2001) model (Figure 2) to focus solely on the psychological capital and persistence factors that affect a student's ability to complete his or her doctoral program. The relationship for intent to persist to completion/graduation is shown as a dotted line because subjects for this study are still enrolled in their doctoral program and have not yet graduated.



*Figure 2.* Proposed partial application of Bean and Eaton's (2001) psychological model of college student retention.

### Concluding Thoughts

In summary, this chapter introduced a significant dilemma many higher education institutions face today, which is the high attrition rate of doctoral students. This chapter explained the problem of doctoral student persistence and the difficulties in identifying the psychological factors of students who are likely to persist to graduation, as well as presented a theoretical framework for the study. This section also addressed the significance of this study, along with definitions of key terms.



## **Literature Review**

This chapter reviews the key areas of literature related to the focus of this study. An overview of the problem and the research on student retention is shared, which is the basis for Bean and Eaton's (2001) psychological model of college student retention. Then, to explain their role in identifying success factors, the research on the psychological processes and outcomes (psychological capital), as well as the intermediate outcomes and attitudes (persistence) of Bean and Eaton's model (2001) is discussed, followed by an explanation of the behavioral aspect of their model.

Ampaw and Jaeger (2012) state that over the past 20 or so years, research about retention and persistence has focused primarily on undergraduate students, even with doctoral student attrition across disciplines being approximately 50% (Lott et al., 2009; Maher et al., 2017). Moreover, while several models have been developed to examine undergraduate retention and persistence, the approaches may not be as effective when applied to doctoral students. Key reasons are the difference in goals for obtaining the degree along with how long it takes to complete the degree requirements. Ampaw and Jaeger posit that for undergraduates, the primary task is to complete the course work needed to earn the degree. In contrast, for doctoral students, it is not only the completion of course work, but also the development and proposal of research topics, the conducting of research, and the reporting of findings. The authors further explain that at any point during a doctoral program, a student may drop out for a multitude of reasons.

Stallone (2003) declares that it is very concerning to know that students who fail to complete a doctoral program have finished their coursework for the degree and have taken comprehensive examinations, only to remain in the phase of their studies known as all-but-dissertation (ABD). Previous research has not supported undergraduate grade point average

(GPA) as a consistent, significant predictor of degree completion and persistence, nor are grades received in graduate school predictors of doctoral student persistence (Ampaw & Jaeger, 2012); therefore, other factors for identifying doctoral student persistence to graduation need to be considered.

## **Retention**

According to Tinto (2006), retention is one of the most extensively studied areas in higher education. There are now more than 40 years of research and literature on the topic, which includes numerous theoretical models that profess to better define the student retention process. In its infancy, research on student retention was viewed through a psychological lens, with an emphasis on individual attributes, skills, and motivation. It was not until the 1970s that the theory of student retention began to evolve to include the role that environment played regarding whether a student decided to drop out or persist. This transition saw the development of Tinto's (1975) Student Attrition Model that states students enter university with a variety of traits, pre-college experiences, and family backgrounds, which have both a direct and indirect effect on the students' performance in college as well as the likelihood of whether the student will drop out or persist to graduation.

The theories surrounding student retention continued to evolve as the understanding of students' varied backgrounds increased, as did the appreciation for how other forces (i.e., cultural, economic, and social) affected retention levels (Tinto, 2006). The more that has been learned about retention, the more complex the topic has revealed itself to be, which has created an awareness about the limitations of early student retention models and opened the door for additional models that address other factors of retention, such as sociological, psychological, and economic determinants (Tinto, 2006; Aljohani, 2016).

Lotkowski, Robbins, and Noeth (2004) state that retention is dynamic and includes an intricate relationship between academic and non-academic factors; and to ensure student persistence and success, both should be examined. Non-academic factors (e.g., academic-related skills, academic self-confidence, academic goals, institutional commitment, social support, institutional selectivity, financial support, and social involvement) have a positive association with retention, with academic-related skills (i.e., time management and study habits), academic self-confidence, and academic goals being the strongest factors. Therefore, institutions of higher education need information on the non-academic factors that relate to the retention and performance of doctoral students.

### **Persistence**

Persistence is defined as “the action or fact of persisting in a particular state, opinion, purpose, or course of action, esp. despite opposition, setback, or failure” (“Persistence,” 2020). To be more contextually specific, for this dissertation, Gardner’s (2009b) definition of persistence will be used, which is that persistence is the determination to complete a doctoral degree. Seidman (2012) argues that the ability for students to persist to graduation is an essential factor for both student and university success, yet research has shown that retention remains a challenge across the United States. Tinto (2017) explains that while it is the goal of an institution to retain its students (focus on retention), students aim to persist (graduate). Reason (2009) reiterates this explanation by stating that the terms retention and persistence are erroneously used interchangeably when it must be noted that retention is an institutional phenomenon and persistence is an individual phenomenon.

Falconer (2016) shares that while past research has focused on academic factors such as grade point averages, nonacademic factors are also used to influence student persistence, which

include: family factors, career planning, and individual psychosocial factors. Malone et al. (2004) explain that while a student should possess specific academic skills to obtain his or her degree, “affective traits such as persistence in achievement and desire are also important to degree completion” (p. 34). The authors reiterate that there is little research on graduate-level retention and few studies contain the analysis of factors that can be used to predict which students will persist to graduation.

Bair (1999) explains that psychological variables signify a relatively new direction for the research of doctoral student attrition and persistence but have been found to relate to both topics. Some researchers, although not many, have sought to understand the effects of psychological variables, like perfectionism, independence, masculinity, socialization, procrastination, time to completion, and counseling interventions, as they relate to doctoral student persistence. Bair explains that while those factors are beyond the control of institutions, they may help to explain how some internal characteristics may hinder or better enable students to persist to graduation. Farrugia, Han, Watson, Moss, and Bottoms (2016) state that there is work being done to lessen the emphasis placed on standardized test scores during the undergraduate college application process in support of considering nonacademic factors such as perseverance and academic-related mindsets (i.e., self-efficacy), as they have shown to be relatively strong predictors of student success.

### **College Persistence Questionnaire (CPQ)**

Davidson et al. (2009) developed the CPQ with three areas of focus: identifying undergraduate students at risk of dropping out of school, discovering why a student might discontinue his or her education, and determining the factors that best differentiate those who will persist from those who will not. Although the CPQ was designed with undergraduate

students specifically in mind, there is not an available measure explicitly designed for doctoral students. Since the focus of this study is to identify factors that may predict a doctoral student's intent to persist to graduation, the same three areas of focus apply to this population, as well.

Davidson et al. (2009) used many retention theories for developing their scale, including those developed by both Tinto (1975, 1993) and Bean and Eaton (2001), which supports this researcher's selection of Davidson et al.'s (2009) measurement for this study. Based on the literature, Davidson et al. focused on the following factors for the development of their scale: academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness.

### **Psychological Capital**

The positive psychology movement began when Seligman and Csikszentmihalyi (2000) challenged the field of psychology to stop looking at people to ascertain what is wrong or dysfunctional about them and instead consider what is right and good (Luthans, Luthans, & Luthans, 2004). This movement brought about another change that Luthans (2002) described as positive organizational behavior (POB), which is a shift from looking at the negative aspects of organizational behaviors and instead focuses on the strengths and positive capacities of the workforce that can improve performance. Through POB came the construct of psychological capital (PsyCap), which is essentially moving beyond economic, human, and social capital (the what you have, what you know, and who you know), and looking at who you are (Luthans, Luthans, & Luthans, 2004). According to Luthans, Youssef, et al. (2007),

PsyCap is an individual's positive psychological state of development that is characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) to succeed; and (4) when beset by problems and

adversity, sustaining and bouncing back and even beyond (resilience) to attain success.  
(p. 3)

Luthans, Youssef, et al. (2007) required that including PsyCap factors are based in theory and research, quantifiable, state-like or open to development, and made an impact on workplace performance. These four elements are also known as the H.E.R.O. factors.

According to Bauman (2014), the PsyCap factors were not the only potential operationalizations to be included in the model, as positive organizational research offers a plethora of other concepts that show potential in their application to the workplace. However, Luthans and his colleagues (Luthans, Youssef, et al., 2007) excluded overly positive variables, as well as those that were negatively oriented, trait-like, or unrelated to workplace performance.

Luthans, Youssef, et al. (2007) developed an instrument to measure PsyCap using questions from well-known measures of the four attributes (hope, efficacy, resiliency, and optimism), of which six items for each construct were carefully selected based on content and face validity. The authors adapted the verbiage of each item to align with an organizational setting and leveraged a 6-point Likert scale ranging from *strongly disagree* to *strongly agree*.

**Hope.** Snyder et al. (1991) defines hope as “a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-oriented energy) and (b) pathways (planning to meet goals)” (p. 541). Snyder (1994) elaborates on the construct of hope by illustrating it through a formula, “Hope = mental willpower + waypower for goals” (as cited in Koontz, 2016, p. 22). Hope is one’s ability to set and meet realistic goals (willpower), as well as finding alternative routes for achieving those goals should obstacles present themselves (waypower). According to Bauman (2014), hope and efficacy may be theoretically similar but are conceptually different as efficacy is a perception that an individual has about his or her ability to accomplish a task or achieve a goal. In contrast, hope is about the belief that the goal

will be achieved. Luthans, Luthans, and Luthans (2004) state that there is considerable evidence of hope's positive impact on academic performance.

Aligning with the challenges that many doctoral students face, Snyder et al. (1991) explain that people with higher levels of hope tend to have more goals that span across multiple areas of their life, in addition to being willing to take on more complex goals. Peterson and Byron (2008) went on to explain that those who possess more hope plan for and construe success and failure in a different way than do those that are less hopeful, as they can develop multiple strategies for reaching their goals, as well as devise contingency plans for possible impediments along the way. Each of these components of hope is key to student persistence.

By having higher levels of hope, students are more likely to set realistic goals that they can achieve. Additionally, the ability to find alternative paths for reaching goals may ensure the student does not give up at the first sign of resistance but instead perseveres. According to Bauman (2014), recent studies conducted in academia have found that hope predicted undergraduate final course grades, college GPA, and high school GPA. Additionally, a longitudinal study that evaluated the Hope Scale scores of undergraduate students entering college found that higher scores were predictive of higher cumulative GPAs and an increased likelihood of graduating from college (Snyder et al., 2002).

**Efficacy.** The PsyCap construct of efficacy is grounded in Bandura's (1997) definition of efficacy, a "person's estimate that a given behavior will lead to certain outcomes" (p. 193). Stajkovic and Luthans (1998) further explain that efficacy is an individual's belief in his or her own abilities to activate the motivation, intellectual resources, and methods of execution needed to achieve a specific goal successfully. Luthans, Youssef, et al. (2007) share five characteristics of those with high PsyCap efficacy: typically sets lofty goals for themselves, keen to taking on

challenging tasks, welcoming of challenges, self-motivated and eager to devote the necessary effort to accomplish their goals, and finds a way to overcome obstacles and persevere. Luthans, Luthans, and Luthans (2004) explain that efficacy as a positive psychological capital component has been established as having a strong positive relationship with work-related performance.

Stajkovic and Luthans (1998) conducted a study that analyzed the relationship between self-efficacy and work-related performance resulting in a significant weighted average positive correlation, as well as Peterson and Byron (2008), who also found a significant positive correlation between the two. Bandura (1997) states

Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences. The stronger the perceived self-efficacy, the more active the efforts. Those who persist in subjectively threatening activities that are in fact relatively safe will gain corrective experiences that reinforce their sense of efficacy, thereby eventually eliminating their defensive behavior. Those who cease their coping efforts prematurely will retain their self-debilitating expectations and fears for a long time. (p. 194)

Doctoral student performance may likely benefit when the individual possesses confidence attributes that enable them to persist when faced with adversity, especially when enrolled in a program, such as a research-focused doctoral program, that may take much longer to complete than an undergraduate or masters level graduate degree.

According to Bauman (2014), the effects of self-efficacy on student motivation and education has been the focus of numerous studies (e.g., Bouffard-Bouchard, 1990; Hsieh, Sullivan, & Guerra, 2007; Lent, Brown, & Hackett, 2002; Linnenbrink & Pintrich, 2003; Pintrich & De Groot, 1990; Schunk, 2003; Zimmerman, 2000a; Zimmerman et al., 1992) with findings that suggest that the degree to which students remain concerned and committed to tasks, developed goals, and used varied coping strategies were influenced by motivation and reason, both of which are themselves influenced by self-efficacy. Multon, Brown, and Lent (1991)



reviewed the results of 39 different studies on student self-efficacy and academic performance or persistence, finding both positive and statistically significant relationships between beliefs of self-efficacy, academic performance, and persistence across a vast array of subject matters, as well as research design and assessment methods. The results of these studies support Bandura (1977) and Schunk and Pajares's (2005) assertion that students with higher self-efficacy engage more willingly in the education process, work harder, self-evaluate regularly, and implement self-regulatory strategies that encourage success in school.

**Resiliency.** According to Masten and Reed (2002), resiliency is “a class of phenomena characterized by patterns of positive adaptation in the context of significant adversity or risk” (p. 75). There are many facets to one's resiliency, including cognitive abilities, self-perceptions, faith, emotional stability, and self-regulation (Staples, 2014). PsyCap resiliency is described as “the capacity to rebound or bounce-back from adversity, conflict, failure, or even positive events, progress, and increased responsibility” (Luthans, 2002, p. 702). Avey, Luthans, and Youssef (2010) explain that resiliency is reactive in nature and uses external resources like social support when internal resources are lacking. On the other hand, the other PsyCap variables are proactive and tend to be derived from internal sources such as motivation and effort.

Bauman (2014) states that “there exists an interactive effect when the components of efficacy, hope, optimism, and resilience are functioning together” (p. 87). More specifically, those with a greater sense of self-efficacy are more resilient when faced with challenges (Bandura, 1997), and those with increased hope demonstrate more efficacy in their ability to complete specific tasks leading to faster recovery times from momentary bouts of hopelessness (Snyder, 2000). Koontz (2016) further explains that “PsyCap resilience is the ability to use past experiences as a springboard to new successes” (p. 5). For college students, especially doctoral

students, the ability to rebound from a setback is critical to their success as they will find themselves faced with not just academic obstacles, but likely barriers in their professional and personal lives as well. It is those students “who respond to such events with renewed effort” that will be successful (Peterson & Barrett, 1987, p.603) as setbacks are going to happen, in varying degrees of difficulty. Still, it is the ability to rebound that matters.

**Optimism.** Luthans, Youssef, et al. (2007) describe optimism as “an explanatory style that attributes positive events to personal, permanent, and pervasive causes and interprets negative events in terms of external, temporary, and situation-specific factors” (pp. 90-91). Snyder (2002) noted that like hope, “optimism is a goal-based cognitive process that operates whenever an outcome is perceived as having substantial value” (p. 257). Additionally, Koontz (2016) explains that PsyCap optimism looks to measure how a person describes why a positive or negative event happens to them. In other words, someone who is optimistic will take credit for positive events and attribute negative events to external factors.

PsyCap optimism is comprised of self-discipline, analysis of past events, contingency planning, and preventive care (Luthans, Youssef, et al., 2007). Additionally, optimism includes a mental appraisal of what an individual is or is not able to accomplish at any given time, which contributes to the individual’s feelings of hope and beliefs of efficacy (Luthans, Avolio, et al., 2007). Furthermore, optimists approach life and problems very differently than pessimists as they tend to implement different coping mechanisms when confronted with challenging situations, and deploy other resources as needed (Scheier & Carver, 1985). Bauman (2014) explains that optimists generally experience positive emotions such as eagerness and exhilaration because they expect good things to happen even in challenging situations. Optimistic students

will embrace challenges and take credit for their triumphs instead of shying away and potentially withdrawing from the experience.

### **PsyCap and Academia**

Luthans, Luthans, and Avey (2014) state that existing research shows strong empirical support for the belief that those who possess the psychological resources of PsyCap are “generally more hopeful in terms of the will and the way to accomplish their goals, are realistically optimistic about attaining positive outcomes, have efficacy beliefs to confidently pursue new objectives, and resiliently bounce back and beyond from setbacks” (p. 193). Furthermore, while the effects of PsyCap have been mostly examined in the workplace, theoretically, the same psychological resources can relate to academic success. This has been proven true, as Luthans, Luthans, and Palmer (2016) state that exploratory studies with undergraduate business students have shown positive relationships between PsyCap and academic success, as well as with the ability to develop PsyCap. The authors further explain that interest in PsyCap has garnered significant attention in the fields of human resource management and organizational behavior over the past decade, and more recently, in business education. These authors further explain that “although PsyCap as a core construct predicts workplace attitudes and performance better than any of the individual components that make it up, studies testing this higher-order construct in the academic realm have just begun to emerge” (p. 1104).

There are previous research studies that have looked at the components making up PsyCap individually (i.e., hope, efficacy, resilience, or optimism), or in pairs, as it relates to student academic performance measured by grade point average, but not all four together (Luthans, Luthans, & Jensen, 2012). There is no literature found that relates PsyCap to doctoral students as it relates to persistence. These authors did find that the GPA of business students was

significantly correlated to their self-reported PsyCap scores. Because of their study, which was the first to demonstrate a relationship between PsyCap and the academic performance of business students, these authors believe further research should be conducted to measure the impact of PsyCap development on academic outcomes. More recent studies (Bauman, 2014; Koontz, 2016; Luthans, Luthans, & Palmer, 2016) have shown PsyCap can be used to predict student outcomes through positive correlations with GPA, institutional commitment, and student satisfaction, as well as positively impacting their psychological well-being and overall engagement.

Organizational research shows that each of the four factors encompassing PsyCap is linked to desirable employee performance and intention to stay (Choi & Lee, 2014; Luthans & Jensen, 2005). Research conducted by Luthans and Jensen (2005), as well as Avey et al. (2010), concluded that PsyCap was negatively correlated with an intention to quit, which warrants further exploration of PsyCap as a determinant of persistence. Additionally, when reframing examples of the four factors to align with student performance versus employee performance, the factor descriptions still apply. Using Choi and Lee's (2014) examples of the four factors of PsyCap and substituting employee/employee performance with student/student performance, the descriptions become as follows:

- Hope contributes to student performance because hopeful students have the will to accomplish their goals and the ability to find alternative ways to reach the goals.
- Efficacy enables the student to contribute to their academic performance by accepting challenging tasks and goals proactively and exerting necessary efforts to achieve them persistently.
- Resilience can lead to positive results in times of adversity because resilient students adapt flexibly to unexpected problems or setbacks and bounce back more readily.
- Optimistic expectations and interpretations that are realistic help students increase or maintain their level of motivation, efforts, and performance in uncertain situations.

In other words, students with high PsyCap possess the confidence (efficacy) to create positive results, the hope to achieve his or her goals, optimistic yet reasonable expectations about goal attainment, and the ability to rebound from various challenges (Luthans, Avolio et al., 2007). As described here, the associations to Bean and Eaton's (2001) psychological model for student retention are evident, as the authors' model stresses the importance of self-efficacy, coping strategies, and locus of control, which are found within the four factors of PsyCap.

### **Behavioral Intention**

Ajzen (1991) explains that many factors, internal and external, can impair or facilitate the performance of a given behavior: the extent to which people possess the requisite information; mental and physical skills and abilities; the availability of social support, emotions and compulsions; and, the absence or presence of external barriers and impediments. All the factors that Ajzen shares can be seen in the adapted theoretical model for this study through the psychological capital and persistence factors.

Even more so, per Ajzen's (1991) Theory of Planned Behavior (TPB) model, the more favorable people's attitudes and subjective norms, and the more they believe that they are capable of performing the behavior, the stronger should be their behavioral intention. Thus, one could argue that the higher a doctoral student's PsyCap and persistence scores, the greater their intention to graduate will likely be.

In support of this argument, Ajzen (1991) shares the empirical evidence of the TPB model that shows a strong correlation between a direct measure of perceived behavioral control and a composite of control beliefs. This connects to the psychological factors of this study in examining the student's beliefs around their psychological capital and persistence.

## Summary

The psychological processes and outcomes of Bean and Eaton's (2001) model encompass the psychological capital factors identified by Luthans, Youssef, et al. (2007), which are hope, efficacy, resiliency, and optimism, as well as the intermediate outcomes and attitudes which encompass the persistence factors identified by Davidson et al. (2009). For these reasons, this study uses a portion of Bean and Eaton's (2001) model setting boundary conditions to focus solely on the psychological capital and persistence factors that affect the students' ability to complete his or her doctoral program successfully. As such, this study proposed the following hypotheses:

- Hypothesis 1: There is a positive relationship between PsyCap and persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness).
- Hypothesis 2: There is a positive relationship between the PsyCap factors (hope, efficacy, resiliency, and optimism) and persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness).
- Hypothesis 3: There is a positive relationship between the covariates (degree progress, degree program, gender, race, age) and persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness).
- Hypothesis 4: There is a positive relationship between the covariates (degree progress, degree program, gender, race, and age) and PsyCap factors (hope, efficacy, resiliency, and optimism).
- Hypothesis 5: The relationship between PsyCap and intent to persist will be moderated by persistence factors.

## **Methodology**

The intent of this section is to describe the methodology for the research topic presented in the previous section. The methodology includes a description of the study population and study setting, as well as the research design.

### **Research Design**

A cross-sectional research design was used to examine the relationship between variables using statistical analyses such as Pearson correlations, one-way ANOVAs, and multiple linear regression tests. A cross-sectional study is a type of observation that involves the analysis of data collected from a population at one specific point in time (Vogt, 2005). Unlike longitudinal studies that make observations over an extended period, cross-sectional studies describe what is happening in the present. For this reason, cross-sectional design is typically used to determine the chief characteristics in a population at a certain point in time. According to Cherry (2018), “by learning more about what is going on in a specific population, researchers are better able to understand relationships that might exist between certain variables and develop further studies that explore these conditions in greater depth” (para. 18).

This study is also correlational as it is testing the strength of relationships between variables. As Creswell (2012) describes, a correlational study is a quantitative method of research in which a researcher uses two or more variables from the same group of subjects and tries to determine if there is a relationship between the variables. This study assessed data obtained from survey instruments to determine if psychological capital is associated with doctoral students’ intent to graduate.

Following a constructivist design process, this study included a qualitative aspect to the research. More specifically, an empirical phenomenological research approach was used to better

understand the phenomenon of doctoral students' intention to graduate. Empirical phenomenological research "involves a return to experience to obtain comprehensive descriptions that provide the basis for a reflective analysis that portrays the essence of the experience" (Moustakas, 1994, p. 13). The addition of the qualitative component also serves to augment survey results due to the size of the target population.

### **Pilot Study**

Before the final form of the survey was developed, a pilot study was conducted upon receiving approval from the University's Institutional Review Board (see Appendix A). The purpose of the pilot study was to ensure the survey instructions were understandable, and the wording of the survey was clear, as well as to check the reliability and validity of the results and confirm the effectiveness of the statistical and analytical processes (Simon, 2011). According to Baker (1994), obtaining a pilot sample size of 10%-20% of the targeted sample size for the actual study is reasonable for a pilot study. Pilot study participants were not included in the final sample. A description of the pilot study procedures and results follows.

A small group of 10 doctoral students at a large southwestern university was asked to review the study materials. There were minor issues with the wording and variability with the dependent measure in the questionnaire. Based on feedback from the pilot study, revisions were made to the wording of the materials and two items were added to the intent to graduate measures. The minor wording changes made the text clearer and more concise.

### **Data Collection**

The questionnaire was administered via a web-based survey platform, Survey Monkey®, to provide easy access to a higher number of students and anonymity. The instrument gathered demographic information, as well as measured student psychological capital and persistence



factor levels, along with the intention to graduate. Additionally, the survey collected participant views on their program experiences. The instrument was sent to the target population's University email addresses. It took respondents, on average, 13 minutes, 42 seconds to complete the survey.

### **Study Site**

The study site was a private, faith-based university located in southwest Texas. The University offers over 20 graduate and postgraduate programs from 11 schools and colleges. The number of doctoral students enrolled as of the Fall 2019 semester was 1,540.

### **Research Protocols**

After obtaining IRB approval, the researcher submitted a request to the Associate Provost for Institutional Effectiveness for permission to e-mail the survey to doctoral students, in various disciplines, as well as to send a follow-up email one week later. Participant consent (see Appendix G) and survey instructions were provided at the beginning of the survey. Participants were informed that the survey was voluntary, anonymous, and would not affect their status in their respective program and institution. If at any time a participant decided to no longer participate, the participant could stop without any penalty or consequence. Appropriate protocols were followed to ensure the rights and privacy of participants were protected as defined by the Institutional Review Board.

Furthermore, participants were subjected to no more than minimal risk during this study. No personal identifying information was obtained during the survey, thus providing participants with anonymity and confidentiality. The data collected from the survey instrument is stored on a computer that requires facial recognition and is password protected.

In appreciation for their time and participation, those participants who completed the survey in its entirety were eligible to receive one of four \$10 Amazon gift cards. Per the instrument instructions (see Appendix H), to be eligible to receive a gift card, participants must have provided an email address via a second survey link that was presented on the *Thank you* page of the study survey. Gift card recipients were chosen at random. A spreadsheet with a numbered list of the email addresses provided by participants via the second survey link was created. A random number was generated and was matched to the corresponding email address in the spreadsheet to identify the winner. This process was completed four times to generate four random winners. All four winners have received their gift cards.

### **Participants**

To reach a significant sample size, the researcher sought permission to email participants from all of the University's doctoral programs. The total number of students enrolled across these programs was 1,540 as of the fall 2019 semester. While the inclusion of participants of both practitioner-based and research-based programs may not seem comparable, the scope of the study is the individual's Psychological Capital and persistence levels as it relates to their intention to graduate, which is a common thread across all programs, regardless of program style and execution.

According to G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009), a statistical power analysis tool that can also be used to compute effect sizes, a minimum of 123 participants was needed for this study. The sample size was calculated using the following criterion: (a) F tests, Linear multiple regression: Fixed model,  $R^2$  deviation from zero, (b) Effect size  $f^2$ : 0.15, (c)  $\alpha$  err prob: 0.05, (d) Power (1- $\beta$  err prob): 0.8, and (e)

Number of predictors: 11 (number of subscales in regression model (PsyCap = 4; Persistence = 6; Behavioral intention = 1).

A singular university doctoral student population was selected for this study because Metz (2004) has encouraged leaders of institutions of higher education to formulate an understanding of the student characteristics that occur within their own schools. Additionally, Reason (2009) states that “researching student persistence is a multi-institutional task; increasing student persistence is local...that increasing student persistence must be an institution-specific enterprise” (p. 678). This study, however, may be of interest outside of this University, particularly other private institutions. It may also provide a template for conducting similar studies at other institutions.

### **Research Instruments and Variables**

To examine the relationship between PsyCap and intent to graduate, participants were asked to complete a short demographic questionnaire (see Appendix H) along with the Compound PsyCap Scale (CPC-12) (Lorenz et al., 2016), the College Persistence Questionnaire (CPQ) (Davidson et al., 2009), and the Behavioral Intention scale, which were provided through one electronic survey link. Along with the quantitative items, the survey instrument also included several open-ended qualitative questions to provide descriptive context regarding a doctoral student’s intention to graduate.

**Independent variable: PsyCap.** The independent variable is the participant’s psychological capital (PsyCap) score which was measured using the CPC-12 scale that was designed by Lorenz et al. (2016). The CPC-12 consists of four subscales: hope, efficacy, resiliency, and optimism. Each subscale was measured using three items for a total of 12 items

on the survey. All 12 items were measured using a 6-point Likert scale with responses ranging from *strongly agree* (6) to *strongly disagree* (1). Samples of the items on the CPC-12 include:

- Hope
  - If I should find myself in a predicament, I could think of many ways to get out of it.
  - I can think of many ways to reach my current goals.
- Optimism
  - I am looking forward to the life ahead of me.
  - Overall, I expect more good things to happen to me than bad.
- Resiliency
  - Sometimes I make myself do things whether I want to or not.
  - When I'm in a difficult situation, I can usually find my way out of it.
- Efficacy
  - I am confident that I could deal efficiently with unexpected events.
  - I can solve most problems if I invest the necessary effort.

The authors of the CPC-12 completed two studies to create and validate the self-report scale to measure PsyCap. Confirmatory factor analyses, as well as correlations with other positive psychological paradigms, on the data of two samples ( $N_1 = 321$ ;  $N_2 = 202$ ), were completed. The resulting 12-item scale showed the predicted factorial structure has good model fit and associations to other paradigms that agree with previous results from other measures of PsyCap.

Lorenz et al. (2016) used five scales (the State Hope Scale, the Affective Valence of the Orientation toward the future-questionnaire (Affektive Valenz der Zukunftsorientierung (AFF)), Life Orientation Test – Revised, Resilience Scale, and the General Self-Efficacy Scale) to comprise the items from which the Compound-Psychological-Capital questionnaire (CPC-12) was developed. All four factors (i.e., hope, resilience, optimism, and self-efficacy) were given equal weight; therefore, the best three items of each factor regarding content and face validity were considered.

Additionally, the authors, using the concept of rational construction, only included the items that met their claim of universality and were not solely relevant to an organizational setting. Lorenz et al. (2016) state that the subscales for hope, optimism, resilience, and self-efficacy are distinguishable as subcomponents of the full measure while the higher-order factor can incrementally describe further variance in the data. The authors further explain that

[t]he moderate to high correlations to other work-related (meaning of work, job satisfaction and engagement;  $r = .28-.40$ ) and more general constructs of positive psychology (i.e., subjective well-being, proactive attitude, and gratitude;  $r = .22-.58$ ) are comparable to previous research on PsyCap and speak for the external validity of the CPC-12. (p. 12)

Furthermore, the study conducted by Lorenz et al. (2016) to validate their scale found a strong positive relationship ( $r = .70$ ,  $p < .001$ ) between the Psychological Capital Questionnaire (PCQ), which is widely recognized as the standard scale measuring PsyCap (Dawkins, Martin, Scott, & Sanderson, 2013), and their scale (CPC-12). They also found that the correlation between CPC-12 and general self-efficacy was higher compared to the PCQ, though the correlation between CPC-12 and occupational self-efficacy was lower. The Cronbach  $\alpha$  for the CPC-12 is 0.82. To examine the factorial structure of the PCQ, Lorenz et al. (2016) used confirmatory factor analysis (CFA). The authors used Hu and Bentler's (1999) cutoff criteria for fit indexes in covariance structure analysis for interpreting the results of the CFA. They found that the estimates of model fit (SRMR = .062, RMSEA = .061, CFI = .841) were not acceptable according to Hu and Bentler. Lorenz et al. conducted CFA to check the expected higher-order factor of PsyCap in the CPC-12, using data like the first CFA test. The results of that test showed estimates of model fit to be: SRMR = .046, RMSEA = .042, CFI = .962. Again, using Hu and Bentler's cutoff criteria to assess the results, Lorenz et al. found their model to be of good fit.

Permission to use the instrument for research purposes can be found in Appendix E. See Appendix I for the scale questions.

**Moderating variable: Persistence.** The moderating variable is the participant's persistence factor score. Persistence was measured using the College Persistence Questionnaire (CPQ) designed by Davidson et al. (2009). The College Persistence Questionnaire consists of six subscales: Academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. The subscales vary from three to eight questions, with a total of 53 items for the instrument measured using a 5-point Likert scale with an n/a option. For this study, 26 questions from the CPQ were not used as they did not apply to the target population, leaving 27 total questions from the CPQ for this study's survey instrument applicable to the doctoral student population. The ability to remove items was provided in the permission statement from Dr. Davidson (Appendix F) where he states researchers are free to assemble only the relevant questions to some of the scales and post them in the order preferred by the investigator. Depending on the wording of the questions, the response choices varied. For example, response choices ranged from *very satisfied* (5) to *very dissatisfied* (1) if the question was asking about *how satisfied* the student is, or it ranged from *very much* to *very little* if the question was asking about *how much* a student likes something.

Examples of the items on the CPQ include:

- Academic Integration
  - How well do you understand the thinking of your instructors when they lecture or ask students to answer questions in class?
  - How satisfied are you with the extent of your intellectual growth and interest in ideas since coming here?
- Social Integration
  - How much have your interpersonal relationships with other students had an impact on your personal growth, attitudes, and values?

- How much have your interpersonal relationships with other students had an impact on your intellectual growth and interest in ideas?
- Supportive Services Satisfaction
  - How satisfied are you with the academic advisement you receive here?
  - How well does this institution communicate important information to students such as academic rules, degree requirements, and individual course requirements?
- Degree Commitment
  - When you think of the people who mean the most to you (friends and family), how disappointed do you think they would be if you quit school?
  - How supportive is your family of your pursuit of a doctoral degree, in terms of their encouragement and expectations?
- Institutional Commitment
  - How likely is it that you will earn a degree from here?
  - How confident are you that this is the right university for you?
- Academic Conscientiousness
  - How often do you miss class for reasons other than illness? (reverse-scored)
  - How often do you turn in assignments past the due date? (reverse-scored)

The subscale scores were added together to obtain subscale scores. The overall persistence score was obtained by adding together all of the subscale scores. The mean for each CPQ subscale was calculated by adding up the score for each subscale response and then dividing by the number of items contained within the subscale. Per Davidson et al. (2009), responses labeled *not applicable* are not scored/counted. The reliability and predictive validity of the scales have been supported in previous research (Beck & Davidson, 2015; Beck & Milligan, 2014; Davidson, Beck, & Grisaffe, 2015; Davidson et al., 2009). The original research conducted by Davidson et al. (2009) included a series of exploratory factor analyses, which ultimately resulted in the six-factor, 53-item scale mentioned above. The selected factors yielded eigenvalues greater than 1.4. Cronbach's  $\alpha$  for the persistence factors within the CPQ (2009) range from .63 to .82. Furthermore, validity was measured using the six factors as predictors and

retention as the outcome variable using logistic regression which had statistically significant results:  $\chi^2(6, N = 257) = 38.03, p < .001$ , Nagelkerke  $R^2 = .19$ .

Permission to use the instrument for research purposes can be found in Appendix F. See Appendix I for survey items contained within the questionnaire.

**Dependent variable: Intent to graduate.** The dependent variable for this study was the intent to graduate. The two questions that comprise the Behavioral Intention Scale for the dependent variable intention to graduate are based on Ajzen's (1991) Theory of Planned Behaviors (TPB). A 7-point Likert-type scale was used, ranging from *strongly agree* (7) to *strongly disagree* (1). The items were reverse-scored. It had a Cronbach's  $\alpha$  score of .904. The items included in the scale were:

- I intend to quit my doctoral program. (reverse scored)
- I plan to drop out of my doctoral program. (reverse scored)

**Demographic variables.** The demographic variables for this study were degree progress, degree program, gender, race, and age, all of which were used to describe the nature of the sample of the population within this study.

- Degree progress. Degree progress was measured by having respondents select the number of hours they have completed so far in their doctoral program; for example, 12 to 18 hours.
- Degree program. Degree program was measured by having respondents select their program of study from the list of available doctoral programs offered at the university; for example, Doctor of Business Administration or Doctor of Pharmacy.
- Gender. Gender was measured by having respondents select whether they were female, male, or other.
- Race. Race was measured by having respondents select their race from the list of provided races; for example, White or Caucasian or Hispanic or Latino.
- Age. Age was measured by having respondents select their applicable age range; for example, 36-40 or 41-45.



**Phenomenological items.** Moustakas (1994) explains that an “empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience” (p. 13). The topics and questions within a phenomenological inquiry have both social meaning and personal significance to the researcher. The quest to understand the phenomenon “grows out of an intense interest in a particular problem or topic [as] the researcher’s excitement and curiosity inspire the search [and their] personal history brings the core of the problem into focus” (p. 104).

As part of the data collection for this study, the autobiographical significance of the research topic was explored by the researcher describing her background and relationship to the topic through reflexive journaling. In addition, the survey instrument included open-ended questions that focus on the characteristics of the program, as well as the student’s experiences within the program that may affect whether or not they complete their program (Appendix L) as a means to “seek to uncover the qualitative rather than the quantitative factors in behavior and experience” (Moustakas, 1994, p. 105) as it related to this study’s research topic.

### **Researcher Bias**

The researcher attempted to avoid any bias in this study through multiple approaches. First, the researcher tried to avoid design and measurement bias by using previously validated instruments within the study, as well as verifying assumptions for all inferential statistical tests (including Pearson correlations, one-way ANOVA, and multiple regression). Second, the researcher attempted to avoid sampling/selection bias by including all doctoral students within the institution regardless of demographic information or degree program. Third, the researcher

tried to avoid procedural bias by ensuring that participants understood their participation was wholly voluntary, and there were no perceived consequences should they choose not to participate.

### **Summary**

This cross-sectional study aimed to add to the research and literature on doctoral student persistence as it pertains to specific psychological factors, specifically PsyCap, by deploying a survey via Survey Monkey© that collected participant responses on items related to psychological capital, persistence, and behavioral intention. Additionally, participants were asked to answer five open-ended questions that looked to obtain additional perspectives regarding doctoral students' experiences within their respective programs and the traits they identified within themselves that attribute to their desire to graduate. Finally, semi-structured interviews were conducted to gain additional insight into the experiences of doctoral students within their program as it relates to their psychological capital. In the next chapter, the results of the study are shared, including the survey results and interview details.

## **Results**

### **Introduction**

A cross-sectional research design was used for this study to examine the relationship between variables using statistical analyses such as Pearson correlations, one-way ANOVAs, and multiple linear regression tests. Additionally, this study was correlational as it tested the strength of relationships between variables. Following a constructivist design process, this study also included a qualitative aspect. More specifically, an empirical phenomenological research approach was used to better understand the phenomenon of doctoral students' intention to graduate using semi-structured interviews.

This chapter begins by describing the data analysis process followed by the validation techniques used in this study. Next, a presentation is included of the quantitative results followed by qualitative findings. The descriptive data is provided for participant demographics; the independent, moderating, and dependent variables; and, the open-ended questions. The focus of the chapter will then turn to the statistical tests used to address this study's hypotheses, followed by the qualitative findings. Finally, a conclusion is shared to summarize the chapter.

### **Data Analysis**

Descriptive and inferential statistics, using the program SPSS (IBM, 2017), was conducted for the data analysis. The data analysis included the creation of a data set and codebook for the instrument results, which included the following variables for each participant: age, race, gender, degree program, degree progress, and their PsyCap and persistence scale and subscale scores, as well as their intent to graduate scores. Once the data set was created, descriptive statistics for the demographic variables were produced.

The next step of analysis included conducting multiple statistical tests. Tables of correlation coefficients were used to determine if there were any significant relationships between PsyCap and the persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness), as well as between the PsyCap factors (hope, efficacy, resiliency, and optimism) and the persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). One-way ANOVAs were used to determine if there were any significant relationships between the categorical covariates (degree program, gender, race, age, and degree progress) and the persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). To examine whether persistence factors moderated the relationship between PsyCap and intent to graduate, a multiple regression model was used. Since the survey instrument required an answer for each question before moving forward, the need to address missing data was negated.

Correlations that were significant at the .05 level are indicated by an asterisk (\*) in the correlation matrix (presented in Table 2). If the correlation coefficients are close to 1.0 or -1.0, then a strong relationship is represented; however, if the correlation coefficients were close to 0, then a weak relationship is represented. According to Cronk (2012), absolute values less than .3 are considered weak, and absolute values greater than .7 are considered strong.

Coding and analysis for the qualitative data gathered through the open-ended questions of the survey instrument were analyzed using a basic interpretative approach. According to Kahlke (2014), this type of data analysis employs concurrent, constant comparative methods—iterative

methods that attempt to generate a broad understanding of the data, rather than a detailed line-by-line understanding of minutiae that serve to locate the findings within the framework of the existing body of knowledge and in locating explanatory factors that might arise from the analysis within that larger perspective (p. 13).

### **Validation Techniques**

Cronbach's alpha was used to assess the internal consistency reliability of the instruments within this study where values above .7 are considered acceptable and above .8 are preferable (Pallant, 2013). Additionally, the regression models were validated by checking the assumptions [using the Correlations table, Coefficients table, and inspecting the Normal Probability Plot (P-P) of the Regression Standardized Residual and the Scatterplot], by evaluating the models through goodness of fit tests using Adjusted R Square, and by evaluating each of the independent variables in the Coefficients output box (Pallant, 2013). To reduce shared error variance, the questions from each scale were randomly ordered so that questions for the same construct were not listed together. Finally, a sample size calculator, G\* Power, was used to ascertain the minimum number of participants needed for this study to achieve statistical power of 80%.

### **Quantitative Results**

In this section, the descriptive information about the study participants is shared along with a descriptive analysis of the independent variables (psychological capital and persistence), as well as the dependent variable, intent to graduate, and the five open-ended questions. Additionally, the data from the statistical tests used and the results for each research question are included.

**Participant demographics.** Over 1,000 doctoral students were sent the link to the survey created using Survey Monkey© via their University email address from the Office of the

Associate Provost for Institutional Effectiveness. A reminder email was sent two weeks after the initial invitation was sent out. While the population of doctoral students totals 1,540, the 495 students that comprise a newly established terminal degree program at the University were excluded from the target population per a University protocol shielding the population from all research surveys, during the program's early years of accreditation. Of the 1,045 students who were sent the survey invitation, 92 responded, or 8.8% of the target population. The demographic information obtained in the survey related to participant gender, age, race, degree program, and number of program hours completed. Table 1 shows the frequencies and percentages for each of those demographic variables.

Of the 92 participants, 66 (71.7%) were female, 25 (27.2%) were male, and one (1.1%) identified as other. In regards to years of age, 27 (29.3%) were 25 to 30 years old, 10 (10.9%) were 31-35 years old, five (5.4%) were 36-40 years old, 10 (10.9%) were 41-45 years old, three (3.3%) were 46-50 years old, two (2.2%) were 51-55 years old, six (6.5%) were 56-60 years old, and 29 (31.5%) identified as other. For race, 26 (28.3%) identified as White or Caucasian, seven (7.6%) as Black or African American, 37 (40.2%) as Hispanic or Latino, 13 (14.1%) as Asian or Asian American, two (2.2%) as American Indian or Alaska Native, one (1.1%) as Native Hawaiian or other Pacific Islander, and six (6.5%) identified as *Another* race. Regarding participant degree programs, seven (7.6%) were enrolled in the Doctor of Business Administration program, eight (8.7%) in the Doctor of Nursing Practice program, 21 (22.8%) in the Doctor of Optometry program, 26 (28.3%) in the Doctor of Pharmacy program, seven (7.6%) in the Doctor of Physical Therapy program, 22 (23.9%) pursuing one of the three specialties (Higher Education, International Education/Entrepreneurship, and Organizational Leadership) within the Doctor of Philosophy in Education program, and one (1.1%) in the Doctor of

Philosophy in Vision Science program. Finally, for degree progress, or the number of hours completed within a doctoral program, four (4.3%) had completed three to nine hours, 10 (10.9%) had completed 12 to 18 hours, 15 (16.3%) had completed 21 to 27 hours, 13 (14.1%) had completed 30 to 36 hours, nine (9.8%) had completed 39 to 45 hours, 19 (20.7%) had completed 48 to 54 hours, and 22 (23.9%) identified as completing hours outside of the ranges provided in the survey.

Table 1

*Descriptive Statistics for Participant Demographic Data*

Variable		Frequency	Percentage
<b>Gender</b>			
	Female	66	71.7
	Male	25	27.2
	Other	1	1.1
<b>Age</b>			
	25-30	27	29.3
	31-35	10	10.9
	36-40	5	5.4
	41-45	10	10.9
	46-50	3	3.3
	51-55	2	2.2
	56-60	6	6.5
	Other	29	31.5
<b>Race</b>			
	White or Caucasian	26	28.3
	Black or African American	7	7.6
	Hispanic or Latino	37	40.2
	Asian or Asian American	13	14.1
	American Indian or Alaska Native	2	2.2
	Native Hawaiian or other Pacific Islander	1	1.1
	Another race	6	6.5
<b>Degree Program</b>			
	Doctor of Business Administration	7	7.6
	Doctor of Nursing Practice	8	8.7
	Doctor of Optometry	21	22.8
	Doctor of Pharmacy	26	28.3
	Doctor of Physical Therapy	7	7.6
	Doctor of Philosophy in Education	22	23.9
	Doctor of Philosophy in Vision Science	1	1.1
<b>Degree Progress (hours completed)</b>			
	3 to 9	4	4.3
	12 to 18	10	10.9
	21 to 27	15	16.3
	30 to 36	13	14.1
	39 to 45	9	9.8
	48 to 54	19	20.7
	Other	22	23.9

*Note.* ( $N = 92$ )

**Psychological capital.** The psychological capital of doctoral students was measured using the CPC-12 (Lorenz et al., 2016), which is comprised of four subscales (hope, efficacy, resiliency, and optimism) with three questions per subscale for a total of 12 items that use a 6-point Likert-style scale with a Cronbach  $\alpha$  of 0.82. The total score, as well as each subscale score, were examined. The values of the 12 items were added to obtain the participant's total PsyCap score. Total PsyCap scores for the CPC-12 can vary from a minimum of 12 to a maximum of 72. The mean for each subscale was calculated by adding up the values for each subfactor response and then dividing by three. The mean of the summed psychological capital total score for participants was 20.25 ( $sd = 2.25$ ), with scores ranging from 12.33 to 24.00. The higher the score, the higher the participant's perceived psychological capital.

**Persistence.** Persistence scores for doctoral students were measured using a modified CPQ scale (Davidson et al., 2009) with the persistence factors having a Cronbach's  $\alpha$  ranging from .63 to .82. It consisted of 27 items using a 5-point Likert-style scale and an N/A option with six subscales: academic integration, social integration, social services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. The mean summed persistence score for participants was 23.48 ( $sd = 2.88$ ). The higher the score, the higher the participant's perceived ability to persist.

**Intent to graduate.** The intent to graduate was measured using a behavioral intention scale based on Ajzen's (1991) theory of planned behaviors consisting of two items on a 7-point Likert style scale with a Cronbach's  $\alpha$  of .904. The mean summed intent to graduate score for participants was 13.47 ( $SD = 1.34$ ), with scores ranging from 6.0 to 14.00. The higher the score, the higher the participant's intent to graduate. Of the 92 participants, 69 (75.0%) suggested that they had very strong intentions of graduating.



**Test of hypotheses.** The current study had five quantitative research questions, which led to five hypotheses. These research questions were addressed with Pearson correlations and one-way ANOVAs, as well as multiple linear regression tests. The results of the correlation analysis are presented in Table 2. The results of the regression analyses are in Table 5. Each hypothesis is presented and discussed below. The significant results were in the intended and expected direction.

The first research question examined whether PsyCap was associated with persistence factors (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). Hypothesis 1 argued that there would be a positive relationship between PsyCap and persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). This was tested using correlation coefficient tables as shown in Table 2. A weak positive correlation was found ( $r(90) = .229, p < .05$ ), indicating a significant relationship between the participants' PsyCap score and academic integration (AI) persistence score. Participants with higher PsyCap scores tend to have higher academic integration persistence scores. The remaining factors had weak correlations that were not significant; therefore, this hypothesis is only partially supported.

The second research question examined whether the PsyCap factors (hope, efficacy, resiliency, and optimism) were associated with persistence factors. Hypothesis 2 predicted that there would be a positive relationship between the PsyCap factors and persistence factors. This was tested using correlation analysis (see Table 2). A weak positive correlation was found ( $r(90) = .234, p < .05$ ), indicating a significant relationship between the efficacy PsyCap factor and the academic integration persistence factor. A weak positive correlation was found ( $r(90) = .249, p$

$< .05$ ), indicating a significant relationship between the optimism PsyCap factor and the academic integration persistence factor. A weak positive correlation was found ( $r(90) = .263, p < .05$ ), indicating a significant relationship between the optimism PsyCap factor and the institutional commitment persistence factor. Hope was not associated with any of the persistence factors, and the other PsyCap factors had weak, non-significant correlations. This hypothesis was only partially supported.

The third research question examined if the covariates (age, gender, race, degree program, and degree progress) were associated with persistence factors (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). Hypothesis 3 stated that there would be a significant positive relationship between the covariates (degree progress, degree program, gender, race, and age) and the persistence factors (academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). This was tested using Pearson correlations and one-way ANOVAs.

The demographic variables Age and degree progress are not related to the persistence factors in this study. A weak, negative correlation was found ( $r(90) = -.231, p < .05$ ), indicating a significant relationship between the participants' gender and academic integration scores. A weak positive correlation was found ( $r(90) = .228, p < .05$ ), indicating a significant relationship between the participants' race and social integration scores. A weak negative correlation was found ( $r(90) = -.214, p < .05$ ), indicating a significant relationship between degree program and degree commitment. Gender, race, and degree program did not have significant correlations with the other persistence factors (see Table 2). This hypothesis was partially supported.

Table 2

*Pearson Correlations Between Independent and Demographic Variables and Persistence Factors*

	AI	SI	SSS	DC	IC	AC	Hope	Efficacy	Resiliency	Optimism
PsyCap	<b>.229*</b>	0.065	0.151	0.136	0.179	-0.045	--	--	--	--
Hope	0.123	-0.020	0.090	0.129	0.075	-0.045	--	--	--	--
Efficacy	<b>.234*</b>	0.102	0.168	0.106	0.185	-0.067	--	--	--	--
Resiliency	0.135	-0.003	0.117	0.046	0.047	-0.016	--	--	--	--
Optimism	<b>.249*</b>	0.120	0.117	0.157	<b>.263*</b>	-0.014	--	--	--	--
Age	.117	-.042	.171	-.034	.015	.128	-.103	.015	.091	-.138
Gender	<b>-.231*</b>	-.009	-.169	-.061	-.042	-.012	.052	.100	.002	.046
Race	-.092	<b>.228*</b>	-.040	-.165	-.127	-.096	.020	-.024	.013	.044
Degree Program	.103	-.084	-.039	<b>-.214*</b>	.049	.095	.076	.009	-.035	-.092
Degree Progress	.037	.147	-.029	.057	.154	.144	.068	.030	-.030	-.056

*Note.* ( $N = 92$ ) \*. Correlation is significant at the 0.05 level (2-tailed).

Further analysis was conducted to see what differences there may be between the degree programs, so an analysis of variance (ANOVA), as shown in Table 3, was conducted to compare the persistence factor scores for participants who completed the survey from three of the offered doctoral programs: Doctor of Optometry (DOP), Doctor of Pharmacy (DPharm), and Doctor of Philosophy in Education (PhD). These three programs had the most similar population sizes based on the survey results (see Table 1). A significant difference was found among degree

commitment scores ( $F(2, 66) = 5.990, p < .05$ ). This analysis revealed that participants in the Doctor of Optometry program scored higher ( $m = 4.50, sd = .61$ ) in degree commitment than students in the Doctor of Philosophy in Education program ( $m = 4.02, sd = .85$ ). Participants' degree commitment scores in the Doctor of Pharmacy program ( $m = 4.65, sd = .44$ ) were not significantly different from the scores of those in the Doctor of Optometry program. Participants' degree commitment scores in the Doctor of Pharmacy program were also higher ( $m = 4.65, sd = .44$ ) than participants in the Doctor of Philosophy in Education program. No significant difference was found between the other persistence factor scores and the three degree programs. These results also partially support the hypothesis.

Table 3

*One-Way Analysis of Variance of Persistence Factor Scores for Three Degree Programs*

Measure	DOP		DPharm		PhD		$F(2, 66)$	Sig.
	$M$	$sd$	$m$	$sd$	$m$	$Sd$		
AI	3.61	.86	4.07	.53	3.97	.81	2.481	.091
SI	3.75	.81	3.98	.71	3.48	.65	2.854	.065
SSS	3.28	.96	3.76	.61	3.30	.80	2.900	.062
DC	4.50	.61	4.02	.85	4.02	.85	5.990	<b>.004*</b>
IC	3.76	1.02	4.09	.68	3.77	.90	1.116	.334
AC	4.00	.88	3.88	1.10	4.12	.90	.350	.706

*Note.*  $N = 68$ . \*. The mean difference is significant at the 0.05 level.

The fourth research question examined whether the covariates (degree progress, degree program, gender, race, and age) were associated with PsyCap factors (hope, efficacy, resiliency, and optimism). Hypothesis 4 stated that there would be a significant positive relationship between the covariates and the PsyCap factors. The Pearson correlations showed the five

demographic variables (age, gender, race, degree program, and degree progress) are not related in this study as seen in Table 2. This hypothesis was not supported.

An analysis of variance (ANOVA) was also conducted to compare the PsyCap factor scores for participants who completed the survey from three of the offered doctoral programs: Doctor of Optometry (DOP), Doctor of Pharmacy (DPharm), and Doctor of Philosophy in Education (PhD), as shown in Table 4. These three programs had the most similar population sizes based on the survey results (see Table 1). A significant difference was found among efficacy scores ( $F(2, 66) = 3.937, p < .05$ ). ANOVA was used to determine the nature of the differences between the three programs. This analysis revealed that participants in the Doctor of Pharmacy program scored higher ( $m = 5.08, sd = .71$ ) in efficacy than students in the Doctor of Optometry program ( $m = 4.54, sd = .60$ ). No significant difference was found between the remaining PsyCap factor scores and degree programs: Hope ( $F(2, 66) = 1.339, p > .05$ ), resiliency ( $F(2, 66) = .665, p > .05$ ), and optimism ( $F(2, 66) = .045, p > .05$ ). These results partially support the hypothesis based on degree program.

Table 4

*One-Way Analysis of Variance of PsyCap Factor Scores for Three Degree Programs*

Measure	DOP		DPharm		PhD		F(2, 66)	Sig.
	<i>M</i>	<i>sd</i>	<i>M</i>	<i>sd</i>	<i>m</i>	<i>sd</i>		
Hope	4.78	.57	4.95	.66	5.12	.81	1.339	.269
Efficacy	4.54	.60	5.08	.71	5.05	.81	3.937	<b>.024*</b>
Resiliency	4.83	.59	5.03	.62	4.98	.63	.665	.518
Optimism	5.14	.51	5.14	.73	5.20	.83	.045	.956

*Note.*  $N = 68$ . \*. The mean difference is significant at the 0.05 level.

The fifth research question examined whether persistence moderated the relationship between PsyCap and intent to graduate. Hypothesis 5 stated that the relation between PsyCap and intent to graduate would be moderated by persistence factors. This was tested using multiple linear regression.

Multiple linear regression was calculated to predict the participants' intent to graduate based on their PsyCap score. A significant regression equation was found ( $F(1, 90) = 6.909, p = .01$ ) with an  $R^2$  of .071 as shown in Table 5. A second regression tested to see if persistence moderated the relationship between PsyCap and intent to graduate. A significant regression equation was found ( $F(2, 89) = 7.408, p < .01$ ) with an  $R^2$  of .143. Participants' intent to graduate increased when their PsyCap scores were moderated by persistence. This hypothesis was supported.

Table 5

*Predictors of Intent to Graduate*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
PsyCap <sup>1</sup>	.159	.086	.267	2.629	<b>.010*</b>
PsyCap X Persistence <sup>2</sup>	.006	.002	.395	2.723	<b>.001*</b>

*Note.*  $N = 91$ . \*  $p < .01$ . 1)  $R^2 = .071$ . 2)  $R^2 = .143$ .

*Supplemental analysis.* An analysis of variance (ANOVA) was also conducted to compare the intent to graduate scores for participants based on degree progress: 3-36 hours and 39+ hours. The results are reflected in Table 6. Dividing the degree progress hours into these two groups provided the most similar population sizes based on the survey results (see Table 1). A significant difference was found ( $F(1, 90) = 4.733, p < .05$ ). The PsyCap scale total score and subfactor scores, as well as the persistence scale total scores and subfactor scores, were also analyzed based on degree progress, and no significant results were found.

Table 6

*One-Way Analysis of Variance of Intent to Graduate for Degree Progress*

Measure	3 to 36 hours		39 or more hours		<i>F</i> (1, 90)	Sig.
	<i>m</i>	<i>Sd</i>	<i>m</i>	<i>sd</i>		
Intent to graduate	13.14	1.77	13.74	.72	4.733	<b>.032*</b>

*Note.* *N* = 91. \*. The mean difference is significant at the 0.05 level.

**Open-ended questions.** The responses for each of the five open-ended survey questions were imported into QDA Miner Lite for coding and analysis. The five questions asked in the survey were related to program characteristics (positive and negative), participant experiences (positive and negative), and participant characteristics.

1. What characteristics of your doctoral program have convinced you to complete your doctoral degree?
2. What characteristics of your doctoral program may cause you to quit?
3. What experiences in your doctoral program, up to now, have positively affected your view of the program?
4. What experiences in your doctoral program, up to now, have negatively affected your view of the program?
5. What personal characteristics do you possess that may drive you to complete your doctoral degree?

A separate document was created for each question above in QDA Miner Lite where the themes based on participant responses were identified. The overarching themes for the first four questions were centered on the faculty, the program, and the student. Each overarching theme was then broken down into sub-themes; for example, tuition cost is a sub-theme of the program theme, and stress is a sub-theme of the student theme. The major theme for the fifth question was centered on PsyCap, which was broken down into its four subfactors: hope, efficacy, resiliency,

and optimism. Each participant response, for each open-ended question, was marked with the applicable code; then, the coding frequency was analyzed.

*Question 1.* In responding to what characteristics of their program have convinced them to graduate, 34% of participant responses were related to their own characteristics, not the program itself. More specifically, of that 34%, achieving a personal goal and the career options available after graduation, each had 5.7% of the responses, along with 4.3% each for being passionate about the subject and having to pay back student loans. On the other hand, 33.2% of the characteristics that have convinced participants to complete their doctoral program are related directly to their program. Of that 33.2%, the greatest contributors were the structure of their program (8.5%), sense of community within the program (7.8%), and the reputation of the program (5.7%). Another 14.2% stated that a positive relationship with the professors is a characteristic that has convinced them to complete their program, and another 5% identified the quality of the instruction they receive. Additionally, 5.7% of the respondents provided a generic response, like nothing or everything, for the program characteristics that have convinced them to finish.

*Question 2.* Participants responded that program-related themes accounted for 38.4% of the reasons they may quit their program. More specifically, the rules, expectations, and requirements of the program as well as program structure and course availability (8.8% each) being the most recurring theme, was followed by the rigor of the work and the cost of tuition (6.4% each). Another 31.2% of respondents state that there is nothing related to their program that would cause them to quit. Of the student-related themes, 20% of responses, 5.6% state the stress of the program may cause them to quit, while 4% state the uncertainty of obtaining a job post-graduation may be a cause for quitting. For the faculty-related responses (10.4%), 4% state



that the indifference from faculty shown toward students may cause them to quit, as well as the lack of advising they receive (3.2%).

*Question 3.* Faculty-related themes accounted for 43.5% of participant responses regarding experiences within their programs that have positively affected their view of the program. More specifically, 26.1% of the faculty-related experiences are about having a positive relationship with their professors, and another 11.3% relate it to the quality of instruction they receive. For the responses to this question, 39.1% stated that program-related themes have positively affected their view of their programs, with a strong sense of community (16.5%) and offering courses that are applicable to the real world (8.7%) being the top contributors. Generic responses, like none or everything, and the student's sense of achievement both account for 8.7% of responses.

*Question 4.* Program-related themes (37.5%) accounted for the most participant responses regarding experiences that negatively affected respondent views of their program, with the attitude and behavior of other students in their respective programs being the largest factor (11%), followed by poor course content (6.4%), program rules and expectations (5.5%), and tuition cost (4.6%). Faculty-related themes negatively affected student perspectives of their program for 31.1% of respondents with ineffective or ill-prepared faculty at 12.8%, faculty indifference toward student success at 6.4%, and lack of advising at 4.6%. The student-related themes, like personal performance and grades, as well as stress, negatively affected participant views of their program for 6.4% of respondents.

*Question 5.* The personal characteristics that respondents believe will help them complete their program were all closely related to PsyCap. Upon examining participants' responses, the identified characteristics were either an exact identification of one of the four subfactors of

PsyCap (hope, efficacy, resiliency, and optimism) or a synonym of a subfactor. Respondents identified efficacy as the greatest personal characteristic at 48.9%, with hope following at 19%, optimism at 15.3%, and resiliency at 9.5%. Having a strong support system (4.4%) was also an identified response.

### **Qualitative Results**

From the pool of survey participants, an email invitation was sent seeking volunteers for the qualitative component of this study, which included semi-structured interviews focused on the challenges to psychological capital experienced by doctoral students within their program of study. The invitations resulted in six students agreeing to participate in the interviews, of which three were selected based on the selection criteria (as identified in Appendix M). The interviews were conducted and recorded using Zoom following the interview protocol in Appendix M.

Interview participants received the Informed Consent form (Appendix N) via email before their scheduled interview. Additionally, the author of the current study provided a self-reflection on the challenges to psychological capital faced during her program of study, as she is a member of the target population.

**Interview 1.** The first interview was conducted with a white female doctoral student, age 45-55, who passed the qualifying exam for her program (PhD in Education) on her second attempt and successfully defended her dissertation in order to graduate in the fall of 2020. When asked what role she felt PsyCap played in a doctoral student's intention to graduate, she shared that efficacy and resiliency were the greatest contributors in her opinion, "as you have to have a strong belief in your abilities academically and in yourself to overcome challenges." In addition, she felt that having a strong support system, both at home and at school, is critical to making it to graduation.

The interviewee went on to explain that making it to graduation is a personal endeavor – it is not something the school can do for the student except for encouraging the development of relationships with other students and providing academic advising. “You have to believe in yourself and your abilities. It comes from within more than anything external or extrinsic.”

The experience that most challenged her PsyCap during her program was taking the qualifying exam. Upon leaving the oral examination component, she felt a huge drop in all the psychological factors. When asked why the exam took such a toll on her hope, efficacy, resiliency, and optimism, she explained that the questions and expectations of the exam were too ambiguous, and she struggled to connect them to what they really wanted from her in her responses. The way she felt leaving the oral examination left her feeling defeated. She did not pass the exam the first time. She stressed that she felt the unclear instructions given for the exam played a large part in her not passing, along with feeling like the questions asked in the oral examination went beyond the scope of the paper, and, to that point, was not told they might be off-topic, so she felt unprepared to answer them. When discussing how she overcame that challenge to reach the point where she is now graduating, she said it took a lot of reflection and reinvigorating herself. She took the time to reflect on the entire process, to try and glean what she could from the experience so she could be successful the next time, and gave herself a pep talk – she can do it, and she will do it. She reaffirmed that when it came down to it, making it to graduation really boiled down to efficacy and resiliency

**Interview 2.** The second interview was conducted with a Hispanic male, age 55-65, who began his program in the spring of 2016 and is scheduled to take the qualifying exam for the PhD in Education program in the fall semester of 2020. When asked what role he felt PsyCap played in doctoral students reaching graduation, he shared that optimism and hope are not realistic – it’s

not the real world. You must believe in yourself more than anything. Additionally, the interviewee believes resiliency is a subset of efficacy – it's about bouncing back and overcoming adversity. "You've got to have the endurance to stick it out."

The experience that most challenged his PsyCap, although he said there were several, was early on in his program when he took his first qualitative course. He had never experienced that sort of research before as his prior academic work had been purely quantitative. He always considered himself a numbers person and that "intangible, subjective thinking" made him feel unsure if he wanted to continue in the program. So much so, he considered switching to the Doctor of Business Administration program. However, with the help of his professors, he was able to "get past that painful point" and embrace a new way of thinking.

When asked what advice he had to help other doctoral students who may experience similar pain points in their program, he shared some key insights.

You need to have confidence in yourself. There's a saying in Spanish, actually in Puerto Rico, it's a cultural expression. Say there's a pool, jump in tennis shoes and all and don't worry about it. It can be intimidating. It can be scary but jump in tennis shoes and all – worry about the rest later, and more than likely, everything will be just fine.

**Interview 3.** The third interview was conducted with a black female, age 45-55, who began the PhD in Education program in the fall of 2017, and is scheduled to take the qualifying exam in the fall 2020 semester. When asked what role she felt PsyCap has in doctoral students graduating, she said it has everything to do with it. "It's probably the most important thing."

The experience that most challenged her PsyCap was a time when she felt maybe she was too old or not cut out to pursue a doctoral degree. But then, through having supportive conversations with her professors and doing some self-reflection, she overcame that mindset.

I thought, straighten up, girl. You know, a lot of my inspiration and motivation comes from within. So, I read my aspirations. I have my goals set. I've always been a goal setter, and I learned over the years to adapt. My spirituality is a huge help. I feel that faith is

directly tied into having that hope and being optimistic about things and knowing you can work things out.

In reflecting over her time in the program thus far, she shared that it comes down to having a strong support system that bolsters your hope and optimism, which feeds your belief in yourself and enables you to overcome anything that may present itself.

### **Researcher Self-reflection**

As a member of the target population for this study, I needed to consider the autobiographical significance of the research by describing my relationship to the topic. The purpose of the self-reflection was to help me avoid researcher bias in how I conducted the interviews by acknowledging my own experiences upfront; thus allowing me to focus solely on the interviewees without using my experience to guide the conversation to align with my feelings or experiences. To do this, I considered how I would respond to the questions I defined as part of the interview protocol for the qualitative component of my study.

The first point of reflection was on the role PsyCap plays in a doctoral student's intent to graduate. The entire premise of this study was based on my assumption that PsyCap plays a significant role in a doctoral student's ability to see their program through to graduation. This outlook stems mostly from my belief that without high levels of efficacy and resiliency, I would not have made it this far in my program. Furthermore, without hope and optimism, a desire to continue would fade even though one has the mental/cognitive capacity to do so. With that in mind, I became curious about whether the same was true for other doctoral students.

When considering what experience within the program challenged my H.E.R.O. factors (hope, efficacy, resiliency, and optimism), one specific event came to mind immediately - the qualifying exam, which is the benchmark for the PhD in Education program that determines if a student may move on to candidacy. It was something that challenged my belief in whether I

could or even wanted to make it to graduation. It tested my resiliency and nearly wiped out any sense of hope and optimism that I previously held for what came after graduation. It took journaling about the experience, over and over and over again, to finally move past the visceral response I had any time I thought about it or was asked about it. It had that profound of an effect on me. It is also why reflecting on my own experience before I began the interview process or analyzing any of the results was crucial to this study. It would be irresponsible of me as a researcher to allow my personal experience to influence how I conducted the interviews or how I interpreted or perceived the interviewees' experiences.

As I reflected on the exam process, I can say now that it was not the written exam itself that posed the challenge to my PsyCap, but the oral examination component. To be completely honest, upon turning in my exam, I felt a lift in my self-efficacy and a heightened sense of optimism about taking on the next steps in the program to reach graduation. I think this heightened sense of confidence contributed to part of my reaction to the oral examination, but it was not the only factor.

I genuinely believe that if I did not have a strong sense of self, a deep belief in myself, and the ability to come to terms with obstacles and push forward, I would be an ABD – all but dissertation. This is not a passive process. This is not something you just “do.” This is not something you can wing. It takes effort. It takes commitment. It takes determination. It takes accepting a serious blow to your self-efficacy and then saying you are ready for more.

As a result of my experience, I came to realize, for myself, that intrinsic levels of hope and optimism bolster efficacy and resiliency, but when it comes down to it, making it to the end comes down to having high levels of efficacy and resiliency. You are going to face challenges;

you are going to want to stop. But you do not because you believe in yourself and your ability to succeed. You do not let anything stop you – not even the qualifying exam.

## **Summary**

This chapter examined the factors associated with students' perceptions of their intent to complete a doctoral program as it relates to specific psychological factors. In summary, the results of the present study provided partial support for the first three hypotheses.

- Hypothesis 1: There is a positive relationship between PsyCap and persistence factors.
- Hypothesis 2: There is a positive relationship between the PsyCap factors and persistence factors.
- Hypothesis 3: There is a positive relationship between the covariates and persistence factors.

Hypothesis 4 stated that there would be a positive relationship between the covariates and PsyCap factors, and it was not supported. However, supplemental analysis did find a significant difference in efficacy scores between degree programs. Finally, Hypothesis 5 stated that persistence moderated the relationship between PsyCap and intent to graduate, and that hypothesis was supported. All of these findings are considered in the following chapter, which also includes a summary of the study, along with implications of the results and recommendations for further research on doctoral student intention to graduate through the lenses of psychological capital and persistence.

## Discussion

Following a quantitative survey approach, data was gathered to examine the relationship between psychological capital and the intent to graduate by doctoral students as moderated by persistence. The survey instrument included three scales (CPC-12, CPQ, and Behavioral Intention) along with five open-ended questions.

The relationship between the independent variable, Psychological Capital, and the dependent variable, intent to graduate, was analyzed to see if a significant relationship was found, using student persistence scores as a moderating variable. The results of the multiple regression found a significant positive relationship. Participants' intent to graduate increased and were further enhanced when their PsyCap scores were moderated by persistence. Supplemental analysis conducted using a one-way ANOVA compared the intent to graduate scores for participants based on degree progress: 3-36 hours and 39+ hours, and a significant difference was found.

The statistical (Pearson) results found no correlations between PsyCap and the demographic variables, but supplemental analysis using a one-way ANOVA found a significant difference between the PsyCap subfactor efficacy and degree program. More specifically, students in the Doctor of Pharmacy program had a significantly greater efficacy score than those in the Doctor of Optometry program. Additionally, significant correlations were found between persistence subfactors and demographic variables, including academic integration and gender, social integration and race, and degree commitment and degree program. Supplemental analysis found a significant difference between degree commitment scores and degree programs, with both the Doctor of Pharmacy and Doctor of Optometry programs scoring higher than the PhD in Education program students. The statistical (Pearson) results also found a significant relationship



between PsyCap and persistence factors, along with significant results between the PsyCap factors and persistence factors.

Further, the multiple linear regression tests supported the partial application of Bean and Eaton's (2001) model as the relationship between PsyCap and the intent to graduate was moderated by persistence. Those specific components address the psychological processes and outcomes, as well as the intermediate outcomes and attitudes of the original model.

Additionally, the participant responses to the open-ended questions, along with the interviews, demonstrate the connection between the variables and the theoretical framework for this study. Their responses tie to the entry characteristics, institutional environment that encompasses the psychological processes and outcomes, along with the intermediate outcomes and attitudes that relate to persistence. The five open-ended questions asked in the survey were related to program characteristics (positive and negative), participant experiences (positive and negative), and participant characteristics.

Participants responded that the characteristics of their program that have convinced them to graduate are closely related to the student themselves, such as achieving personal goals and career options, as well as the structure of their program and overall sense of community within the program. Furthermore, participants identified program-related themes, such as the rules, expectations, and requirements of their program, as a potential cause for quitting their program. In contrast, others felt nothing related to the program would cause them to quit.

When it came to the experiences that most positively affected the view of their respective programs, participants identified faculty-related themes as crucial factors. These include having a positive relationship with professors and the quality of instructions, and program-related themes such as a strong sense of community within their programs. Program-related themes accounted

for the most participant responses regarding experiences that negatively affected respondent views of their program, with the attitude and behavior of other students in their respective programs being another contributor. Faculty-related themes also negatively affected student perspectives of their program with ineffective or ill-prepared faculty, faculty indifference toward student success, and lack of advising being the most common factors.

The personal characteristics that respondents believe will help them complete their program were all closely related to PsyCap. Upon examining participants' responses, the identified characteristics were either an exact identification of one of the four subfactors of PsyCap (hope, efficacy, resiliency, and optimism) or a synonym of a subfactor with hope being the largest attributor.

The qualitative aspect of the study (interviews) revealed that efficacy and resiliency were the keys to making it through a doctoral program, with hope and optimism being underlying contributing factors to their higher levels of efficacy and resiliency. Additionally, even with varied experiences that challenged their PsyCap during their program, from the qualifying exam, to not feeling like the program was a good fit at first, to feeling like they were too old to do the work, they all brought it back to efficacy – to a belief in their ability to complete the program, and resiliency – their belief that they could overcome whatever came their way. The self-reflection of the researcher for this study also shared similar conclusions.

### **Framing the Results**

Reason (2009) shares that research has shown a direct connection between disposition and persistence, as well as academic goals, self-efficacy, and a sense of academic-related skills also being related to persistence. Furthermore, Brown et al. (2008, as cited in Reason, 2009, p. 665) found strong, positive associations between self-efficacy, educational goals, and

persistence. Tinto (2017) suggests that a student must want to persist and expend the effort needed to do so even when faced with adversity. Bean and Eaton (2001) assert that, “the factors affecting retention are ultimately individual, and that individual psychological processes form the foundation for retention decisions” (p. 73). As such, this study used Bean and Eaton’s psychological model of college student retention (Figure 1) as the theoretical framework in that it encompasses disposition and persistence, as it relates to intention. For the purposes of this study, a partial application of Bean and Eaton’s model was proposed (Figure 2), narrowing the focus of the original model to the psychological processes and outcomes (PsyCap), as well as the intermediate outcomes and attitudes (persistence) as they relate to intent to graduate.

The first research question for this study examined whether PsyCap was associated with persistence factors (academic integration, social integration, support services satisfaction, degree commitment, institutional commitment, and academic conscientiousness). A weak positive correlation was found ( $r(90) = .229, p < .05$ ), indicating a significant relationship between the participants’ PsyCap score and academic integration (AI) persistence score. More specifically, participants with higher PsyCap scores tend to have higher academic integration persistence scores. The PsyCap components, which are encompassed within the psychological processes and outcomes of Bean and Eaton’s (2001) model, precede the intermediate outcomes, including academic integration. The correlation between PsyCap and academic integration support the premise that an individual’s psychological processes lay the groundwork for intent to persist decisions, or intent to graduate, in this study. This is of importance as those who have greater psychological well-being may have greater engagement with their program, thereby increasing the likelihood of graduation (Bauman, 2014; Koontz, 2016; Luthans, Luthans, & Palmer, 2016).

The second research question examined whether the PsyCap factors (hope, efficacy, resiliency, and optimism) were associated with persistence factors. The results showed several weak positive correlations were found, specifically between the efficacy PsyCap factor and the academic integration persistence factor, the optimism PsyCap factor and the academic integration persistence factor, and the optimism PsyCap factor and the institutional commitment persistence factor. Results revealed that a participant with higher efficacy and optimism scores tends to have higher academic integration scores – meaning that those who tended to have higher beliefs in themselves and were more optimistic about the future showed greater connectedness to their academic environment. Both Bean and Eaton (2001) and Davidson, Beck, and Milligan (2009) correlate this to a greater intent to persist. This perspective is further reinforced by the correlation between optimism and institutional commitment because those with higher optimism scores tend to also have higher institutional commitment scores. This can be viewed as those who are more optimistic about their future will be more loyal to the program in which they are currently enrolled instead of quitting or transferring out to another school. According to Davidson, Beck, and Grisaffe (2015), this is of great value to most colleges and universities. Again, in comparing the results to Bean and Eaton's (2001) model, the psychological processes and outcomes and the intermediate outcomes and attitudes precede intention, further supporting the foundational role those factors play in a student's decision to graduate.

The third research question examined the relationship between the covariates (degree progress, degree program, gender, race, and age) and the persistence factors, which found a weak negative correlation between gender and academic integration, a weak positive correlation between race and social integration, and a weak negative correlation between degree program and degree commitment. The results of this correlational test demonstrate the interplay of the

entry characteristics of the participants with the intermediate outcomes and attitudes, as shown in Bean and Eaton's (2001) model that asserts "that an individual enters an institution with psychological attributes shaped by particular experiences, abilities, and self-assessments" (p. 75). The experiences an individual has, as related to their race or gender prior to entering a program, may influence their ability to persist. For example, the results of this study show that one's race influences social integration. Consequently, universities may want to consider what sort of programs they offer to help students feel connected with one another in order to increase the likelihood of persistence to graduation. Additionally, based on these results, universities may want to explore how one's gender influences a student's ability to feel connected to his or her program. It may be worth exploring whether there is a disparity in support for one gender versus another when looking at professional versus research-based doctoral programs.

The fourth research question examined the relationship between the covariates (degree progress, degree program, gender, race, and age) and the PsyCap factors; no significant relationships were found. Since this study focused on the psychological capital of participants as it relates to an intention to graduate, the lack of demonstrated relationship between the covariates and the psychological processes and outcomes support the use of the proposed partial application of Bean and Eaton's (2001) model (Figure 2), as it narrows the scope of the original model by excluding the entry characteristics.

The fifth research question examined whether persistence moderated the relationship between PsyCap and intent to graduate, and a significant regression equation was found. The results of this test support Bean and Eaton's assertion that, "the factors affecting retention are ultimately individual, and that individual psychological processes form the foundation for retention decisions" (2001, p. 73), as well as the connection between disposition and persistence

(Reason, 2009). It also supports Brown et al.'s (2008, as cited in Reason, 2009, p. 665) findings, which found strong, positive associations between self-efficacy, educational goals, and persistence. This study also supports Luthans, Luthans, and Avey's (2014) assertion that those who possess the psychological resources of PsyCap are "generally more hopeful in terms of the will and the way to accomplish their goals, are realistically optimistic about attaining positive outcomes, have efficacy beliefs to confidently pursue new objectives, and resiliently bounce back and beyond from setbacks" (p. 193).

The participant responses to the open-ended survey questions, along with the interviews, demonstrate the connection between the entry characteristics, the institutional environment that encompasses the psychological processes and outcomes, and the intermediate outcomes and attitudes as they relate to intention, as shown in Bean and Eaton's (2001) model. Additionally, the interview responses support Tinto's (2017) position that a student must want to persist and expend the effort needed to do so even when faced with adversity as the most recurring themes were related to efficacy and resiliency, while the survey results address the importance of hope in making it to graduation.

While Davidson et al. (2009) explain that Bean and Eaton's (2001) psychological model supports the role of undergraduate student character and adjustment variables to retention, this study supports the use of Bean and Eaton's model for another audience: doctoral students. As with undergraduate students, the results of this study support the idea that doctoral students also complete a series of self-assessments, or psychological processes, to help them connect their experiences within their programs to their feelings about continuing their studies (Bean and Eaton). Within the context of this study, these self-assessments examine the psychological capital and persistence levels of the students, which influence their intent to graduate.

## Conclusions and Implications

While the results of this study cannot be generalized to the entirety of the doctoral student population, because it was conducted within a private, regional university, the findings provide additional insight into the role psychological factors and persistence play in a doctoral student's ability to complete their program and graduate. Gaining a better understanding of the student's efficacy and resiliency can aid in determining the best way to support a student as they progress through their program so that they can reach graduation.

Existing research shows strong empirical support for the belief that those who possess the psychological resources of PsyCap are “generally more hopeful in terms of the will and the way to accomplish their goals, are realistically optimistic about attaining positive outcomes, have efficacy beliefs to confidently pursue new objectives, and resiliently bounce back and beyond from setbacks” (Luthans, Luthans, & Avey, 2014, p. 193). Furthermore, while the effects of PsyCap have been examined mostly in the workplace, theoretically, the same psychological resources can relate to academic success. This has proven true in exploratory studies with business students resulting in positive relationships between PsyCap and academic success, as well as with the ability to develop PsyCap (Luthans, Luthans, & Palmer, 2016). These implications could impact the graduation rate of doctoral students by having universities implement a means of monitoring the students' PsyCap as they progress through their programs through periodic PsyCap assessments using the CPC-12 and providing appropriate training and support to bolster their PsyCap levels when drops are detected.

More specifically, PsyCap training can offer a significant return on investment (Luthans, Avey, Avolio, Norman, & Combs, 2006) as demonstrated in the study conducted by Luthans, Avey, Avolio, and Peterson (2010) to develop a psychological capital intervention (PCI). The

results of their pilot and main studies showed evidence that PsyCap can be developed through the use of short training interventions, which seem to have a positive impact on participant job performance. Luthans et al. (2010) explain that an effective PCI should be conducted in two phases with the first being a “series of exercises specific to each of the four constructs [hope, efficacy, resiliency, and optimism] to impact development...[as well as] more integrative, writing, discussion, and reflective exercises” (pg. 51) in phase two.

Ohlin (2020) provided several examples for developing each of the four constructs; for example, setting goals that focus on tasks or behavioral changes to develop hope, focusing on past successes to bolster efficacy, improvising solutions to various issues to increase resiliency, and reframing past experiences to foster optimism. Lupşa, Vîrga, Maricutoiu, and Rusu (2019) conducted a meta-analysis of controlled PCIs, which found that “interventions that aim to increase PsyCap variables seem to work well in the organizational and academic domains” (p. 37). Dello Russo and Stoykova’s (2015) study found “there was no difference in the way students and professionals responded to the workshop” (p. 342) and “both the short duration of the training and its durability underscore the efficient contribution” (p. 344) of these workshops in positively affecting the PsyCap of participants. By having faculty and staff within a doctoral program attend PsyCap workshops, there is the potential to gain a better understanding of the four constructs. This may enhance an ability to identify students who may be seeing a drop in their PsyCap and enable them to recommend some form of remediation before levels drop too low and considerations of quitting the program rise. Faculty and staff may also be able to help students overcome obstacles and restore their self-efficacy through one-on-one interactions.

Luthans, Avey, and Patera (2008) found that using web-based training as a way to bolster PsyCap is an effective way to increase PsyCap, as shown in their study of 364 working adults



from a cross-section of industries. Luthans and Youseff-Morgan (2017) argue that gamification is an effective way to train the four constructs of PsyCap, while Ohlin (2020) expands upon this by stating that, “the use of positive video games, inspirational YouTube videos, and apps such as ‘Happify’ [are] being tested to increase engagement and sustainability of PsyCap development” (PsyCap greater than its parts section, para. 3). Whether it be through workshops or web-based training, instituting a psychological capital intervention can bolster the PsyCap of doctoral students, which may lead to greater graduation rates. In fact, based on the studies by Lupşa, et al. (2019) and Della Russo and Stoykova (2015), PCIs are not specific to any specific degree plan or program, so they can be used to increase the PsyCap of all university students and potentially increase graduation rates across the board for any university. Additionally, based on the significant results of the ANOVA for intent to graduate and degree progress, implementing a PCI earlier in the program may increase the likelihood of graduation as those who completed 3 to 36 hours showed a lower intent to graduate than those who had completed 39 or more hours.

Furthermore, these studies supports Lorenz et al.’s (2016) assertion that the CPC-12 can be used in a field such as academia to gain an understanding of one’s psychological capital. Additionally, using a shorter scale to measure student PsyCap may increase the likelihood of completion when presented to students. This study also shows that the Lorenz et al. study, which was conducted initially in the German language, is effective once translated and delivered in English. Additionally, Davidson et al.’s (2009) CPQ scale was not designed for the doctoral student population. Still, this study has shown that by selecting only the items that are relevant to the doctoral student population versus the undergraduate population, essential data can be gathered that can help assess a student’s intent to graduate as it relates to the multiple facets of persistence. The PsyCap and persistence of doctoral students have not been extensively

researched, so this study expands the current body of research on the subject. It also shows how two existing scales can be used or modified to suit the target population to gain valuable information about the psychological state of students completing doctoral programs.

Another implication of this study was revealed through the individual interviews, which showed that age, culture, and spirituality are all factors contributing to their intent to graduate, all of which tie back to the four factors of PsyCap. Specifically, one interviewee explained that, at one point, she felt her age was an obstacle to staying the course; that she was too old to keep going, but her belief in self helped her to overcome that concern. This assertion further supports the importance of having high levels of efficacy in achieving graduation as not all challenges to PsyCap are program or course-related. Further, another interviewee shared that his culture plays a large part in completing the program, as you just go for it, don't stop – and figure it out as you go, which is another way of conveying the importance of efficacy and resiliency in graduating. Finally, another shared how her spirituality has helped her continue with the program and believes it is that spirituality that keeps her levels of hope and optimism up. With PCIs being able to effectively increase the PsyCap levels of participants (Lupşa, et al., 2019; Della Russo & Stoykova, 2015), a university could increase the diversity of their programs, whether by age, culture, or religion, by offering PsyCap interventions that can help them overcome any challenges they face, even before starting their programs. A part of orientation could be a PsyCap workshop that provides students with the tools and resources they need to stay the course to graduation, and then have their advisors or program mentors regularly check-in and recommend interventions as needed. Expanding even beyond doctoral students, this same strategy could be applied to all students, undergraduate through post-graduate, to help them build

their PsyCap before starting their programs of study and increasing their likelihood of graduating.

### **Delimitations and Limitations**

As with any study, there were delimitations. The characteristics defining boundaries of this study were that it was confined to multi-disciplinary doctoral programs offered at a specific university and that current doctoral degree students at the university would be the sole participants of this study. This approach excluded the perspectives of program graduates, faculty, staff, and administrators, as well as those who did not complete the program (i.e., failed, transferred out, or dropped out). Additionally, the participant responses were confined to their self-report scores on the survey instrument, thereby excluding other student data, such as grade point averages or personal experiences.

The limitations of this study also need to be addressed. First is possible response bias, or socially-desirable response bias, considering the students are currently in their programs and may have consciously or subconsciously provided responses believed to be desired. Additionally, there is the possibility of non-response bias as those who choose not to participate (non-response) may have differed from those who did participate. Third, the CPQ was not explicitly designed for doctoral degree-seeking students, which needs to be taken into consideration when reviewing and interpreting the results. Fourth, this was the first study to leverage the CPC-12 beyond the original study, where it was designed and developed, as well as being the first time it was applied to an academic setting. Fifth, since professional doctoral degree programs (i.e., biomedical sciences) vary significantly from research-based doctoral programs, the results may only apply to the respective programs (professional vs. research-based) instead of both. Sixth, the participants from the University's doctoral degree programs may not be representative of

students in other doctoral degree programs at other institutions, particularly public institutions, as the institution involved in this study was a private University. Therefore, the findings of this study cannot be used to draw conclusions about a larger population of doctoral students. Additionally, the results of this study should be viewed with caution due to the low sample size, which was lower than the number of respondents dictated by the power analysis, which could have resulted in Type I or Type II errors.

Furthermore, the quantitative research design used in this study limited the findings to the constructs that the researcher had selected to test and measure. Additionally, the responses of students who were no longer enrolled in a doctoral degree program at the university were not collected so their responses could not be compared with those currently enrolled.

It is noted that Lorenz et al.'s (2016) study regarding the CPC-12 was conducted in German, but this study used their English translation of the scale. Also, the participant responses were anonymous; and, therefore, self-report data could not be validated. Additionally, with the research design being cross-sectional with no manipulation and no random assignment to conditions means this study cannot capture causality. Furthermore, this study did not include an intervention, so any potential effects an intervention may have had on the participants' scores could not be assessed. In addition, only one follow-up email to remind participants to complete the survey was permitted by the University, as well as not being permitted to survey doctoral students within a newly created terminal degree program population at the university. Also, the survey was delivered online. If participants had questions, they were not able to ask me or their email(s) may have been delivered to spam. Finally, with regard to the qualitative component, the only volunteers for the interviews were from the same program so the experiences of doctoral students in other programs were not able to be captured.

## **Recommendations for Future Research**

The results of this study provide many opportunities for continued research on ways to improve the doctoral student attrition rate. First, by having access to a larger sample size than the current study (e.g., all private universities in the region or state), the results could be more generalizable. Additionally, since this study was conducted at a private, faith-based university, additional research should be considered using a public university population or a combination of private and public universities to compare the results between the two. Furthermore, this study did not include an intervention. Therefore, a future study could present a pre-test, intervention, and post-test approach to compare how a doctoral student's PsyCap was affected by an intervention versus a control group. This approach would provide the means for a university to develop an effective support structure to aid their doctoral students in reaching graduation.

This study also observed differences in PsyCap based on degree program, so another possible study would be to identify and compare elements of certain programs to see their effects on doctoral student PsyCap. Additionally, this study observed a difference in the intent to graduate based on degree progress, or credit hours completed. Another potential study would be to explore what causes the differences in intent to graduate between those students in the earlier stages of their program (less than 36 hours completed) and those in the latter stages (more than 36 hours completed).

Alternatively, a prospective study would be to conduct a longitudinal study to follow the same cohort from admission to graduation. Tracking PsyCap and persistence scores throughout the program and examining the experiences that may contribute to spikes or drops in either psychological factor may provide some interesting results.

Although this study focused on currently enrolled doctoral students, another avenue for research would be to examine the PsyCap of students when they indicate plans to withdraw from or quit a program. This would potentially assist in understanding the contributing factors better and determine what types of remediation may be able to help the student continue in the program. Another recommendation is to conduct a qualitative study that focuses on the reasons some students do not make it to graduation while others do. By understanding the differences in PsyCap levels between those students, universities would be better prepared to help their students progress to graduation.

Finally, additional research should be done to explore the application of CPC-12 and CPQ scales used in this study in other contexts. Additional application of the CPC-12 in academic settings would further support Lorenz et al.'s (2016) assertion that the construct is suitable for environments beyond organizational settings. Also, future research in the application of modified CPQ scales within the doctoral populations could yield interesting results as to which persistence factors may best contribute to a greater likelihood of graduating.

## **Conclusion**

This study examined the relationship between PsyCap and the intent to graduate as moderated by persistence. The results showed a significant relationship does exist. Participants' intent to graduate increased when persistence moderated their PsyCap scores. The results of this study contributed to the research on doctoral student retention, specifically on how psychological factors such as PsyCap can predict a student's intent to reach graduation. Suggestions for future research were also generated to help researchers and universities better understand how the psychological capital of their doctoral students may attribute to their ability to graduate.

## References

- Aljohani, O. (2016). A review of the contemporary international literature on student retention in higher education. *International Journal of Education and Literacy Studies*, 4(1), 40-52.
- Ampaw, F. & Jaeger, A. (2012). Completing the three stages of doctoral education: An event of history analysis. *Research in Higher Education*, 53(6), 640-660. doi:10.1007/s11162-011-9250-3
- Avey, J. B., Luthans, F., & Youssef, C. M. (2010). The additive value of psychological capital in predicting workplace attitudes and behaviors. *Journal of Management*, 36, 430-452.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50, 179-211. Reprinted in H. Landström & F. T. Lohrke (Eds.) (2012). Intellectual roots of entrepreneurship research (pp. 184-216). Cheltenham, UK: Edward Elgar.
- Ajzen, I. (2012). The theory of planned behavior. In P. A. M. van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 438-459). London, UK: Sage Publications.
- Bair, C. R. (1999). Doctoral student attrition and persistence: A meta-synthesis (Order No. 9917754). Available from ProQuest Dissertations & Theses Global. (304513048). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/304513048?accountid=7139>
- Baker, T. L. (1994). *Doing social research* (2<sup>nd</sup> ed). New York, NY: McGraw-Hill Inc.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review* 84(2), 191-215. Retrieved from <http://www.ou.edu/cls/online/LSPS5133/pdfs/bandura.pdf>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Barnshaw, J. (2008). Race. In R. Schaefer (Ed.), *Encyclopedia of race, ethnicity, and society* (Vol. 1), pp. 1091-1093. Thousand Oaks, CA: Sage Publications.
- Bauman, L. V. (2015). *The impact of a psychological capital intervention on college student well-being* (Order No. AAI3666479). Available from APA PsycInfo®. (1724444333; 2015-99190-108). Retrieved from <https://uiwtx.idm.oclc.org/login?url=https://www-proquest-com.uiwtx.idm.oclc.org/docview/1724444333?accountid=7139>
- Bean, J., & Eaton, S. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention*, 3(1), 73-89.

- Beck, H. P., & Davidson, W. B. (2015). Improving the retention of first-year college students: A temporal model of assessment and intervention. *Journal of the First-Year Experience and Students in Transition*, 27(2), 75-91.
- Beck, H. P., & Milligan, M. (2014). Factors influencing the institutional commitment of online students. *The Internet and Higher Education*, 20, 51-56. doi:0.1016/j.iheduc.2013.09.002
- Bray, N. J., Braxton, J. M., & Sullivan, A. S. (1999). The influence of stress-related coping strategies on college student departure decisions. *Journal of College Student Development*, 40(6), 645-57.
- Caison, A. (2007). Analysis of institutionally specific retention research: A comparison between survey and institutional database methods. *Research in Higher Education*, 48(4), 435-451.
- Cherry, K. (2018). Cross-sectional research method: How does it work? Retrieved from <https://www.verywellmind.com/what-is-a-cross-sectional-study-2794978>
- Choi, Y., & Lee, D. (2014). Psychological capital, big five traits, and employee outcomes. *Journal of Managerial Psychology*, 29(2), 122-140.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4<sup>th</sup> ed.). Boston, MA: Pearson Education, Inc.
- Cronk, B. C. (2012). How to use SPSS statistics: A step-by-step guide to analysis and interpretation (7<sup>th</sup> ed.). Glendale, CA: Pyrczak Pub.
- Cugno, G. E. (2015). *Factors that enable or inhibit dissertation completion* (Order No. 3718043). Available from ProQuest Dissertations & Theses Global; Social Science Premium Collection. (1707901880). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/1707901880?accountid=7139>
- Davidson, W. B., Beck, H. P., & Grisaffe, D. B. (2015). Increasing the institutional commitment of college students: Enhanced measurement and test of a nomological model. *Journal of College Student Retention: Research, Theory & Practice*, 17(2), 162-185.
- Davidson, W., Beck, H., & Milligan, M. (2009). The College Persistence Questionnaire: Development and validation of an instrument that predicts student attrition. *Journal of College Student Development*, 50(4), 373-390.
- Dawkins, S., Martin, A., Scott, J., & Sanderson K. (2013). Building on the positives: A psychometric review and critical analysis of the construct of psychological capital. *Journal of Occupational and Organizational Psychology*, 86, 348-370.
- Dello Russo, S., & Stoykova, P. (2015). Psychological Capital Intervention (PCI): A Replication and Extension. *Human Resource Development Quarterly*, 26(3), 329-347.



- Falconer, A. A. (2017). *Personality types and persistence in doctoral students: A mixed-methods study* (Order No. AAI10248594). Available from APA PsycInfo®. (1937520846; 2017-16343-087). Retrieved from <https://uiwtx.idm.oclc.org/login?url=https://www-proquest-com.uiwtx.idm.oclc.org/docview/1937520846?accountid=7139>
- Farrugia, S. P., Han, C., Watson, L., Moss, T.P., & Bottoms, B. L. (2016). Noncognitive factors and college student success. *Journal of College Student Retention: Research, Theory & Practice*, 1-20. Retrieved from <http://doi:10.1177/1521025116666539>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149-1160.
- Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.
- French, J. R., Rodgers, W., & Cobb, S. (1974). Adjustment as person-environmental fit. In G. V. Cochlo, D. A. Hamburg, & J. E. Adams, (Eds.), *Coping and adaptation* (pp. 316–333). New York, NY: Basic Books.
- Gardner, S. K. (2009a). Student and faculty attributions of attrition in high and low-completing doctoral programs in the United States. *Higher Education: The International Journal of Higher Education and Educational Planning*, 58(1), 97-112. Retrieved from <http://dx.doi.org.uiwtx.idm.oclc.org/10.1007/s10734-008-9184-7>
- Gardner, S. K. (2009b). Conceptualizing success in doctoral education: Perspectives of faculty in seven disciplines. *The Review of Higher Education*, 32(3), 383-406. Retrieved from <https://doi:10.1353/rhe.0.0075>
- Gardner, S. K., & Gopaul, B. (2012). The part-time doctoral student experience. *International Journal of Doctoral Studies*, 7, 63–78.
- Gillingham, L., Seneca, J. J., & Taussig, M. K. (1991). The determinants of progress to the doctoral degree. *Research in Higher Education*, 32, 449-468.
- Gittings, G. A. (2010). *The effect of student attributes and program characteristics on doctoral degree completion* (Order No. 3415203). Available from ProQuest Dissertations & Theses Global. (734607439). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/734607439?accountid=7139>

- Hu, L. T., & Bentler, P. M. (2009). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternative. *Structural Equational Modeling: A Multidisciplinary Journal*, 6(1), 1-55.
- IBM Corp. (2017). IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.
- Ivankova, N. V., & Stick, S. L. (2007). Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed-methods study. *Research in Higher Education*, 48(1), 93-135. doi:10.1007/s11162-006-9025-4
- Jiranek, V. (2010). Potential predictors of timely completion among dissertation research students at an Australian faculty of sciences. *International Journal of Doctoral Studies*, 5, 1-13.
- Johnson, D., Wasserman, T., Yildirim, N., & Yonai, B. (2014). Examining the effects of stress and campus climate on the persistence of students of color and white students: An application of Bean and Eaton's Psychological Model of Retention. *Research in Higher Education*, 55(1), 75-100. Retrieved from <https://doi-org.uiwtx.idm.oclc.org/10.1007/s11162-013-9304-9>
- Kahlke, R. M. (2014). Generic Qualitative Approaches: Pitfalls and Benefits of Methodological Mixology. *International Journal of Qualitative Methods*. Retrieved from <https://journals.sagepub.com/doi/pdf/10.1177/160940691401300119>
- Kennedy, D. H., Terrell, S. R., & Lohle, M. (2015). A grounded theory of persistence in a limited-residency doctoral program. *Qualitative Report*, 20(3), 215.
- Kim, D., & Otts, C. (2010). The effect of loans on time to doctorate degree: Differences by race/ethnicity, field of study, and institutional characteristics. *Journal of Higher Education*, 81(1), 1-32. Retrieved from <http://doi:10.1353/jhe.0.0079>
- Koontz, R. D. (2016). *Psychological capital as a predictor of student performance and persistence: An exploratory study* (Order No. 10594730). Available from ProQuest Dissertations & Theses Global; Social Science Premium Collection. (1896654217). Retrieved from <https://uiwtx.idm.oclc.org/login?url=https://www-proquest-com.uiwtx.idm.oclc.org/docview/1896654217?accountid=7139>
- Lorenz, T., Beer, C., Pütz, J., & Heinitz, K. (2016) Measuring psychological capital: Construction and validation of the compound PsyCap scale (CPC-12). *PLOS ONE*, 11(4): e0152892. Retrieved from <https://doi.org/10.1371/journal.pone.0152892>
- Lotkowski, V.A., Robbins, S. B., & Noeth, R. J. (2004). The role of academic and nonacademic factors in improving college retention. *A C T Policy Report*. Retrieved from [http://www.act.org/research/policymakers/pdf/college\\_retention.pdf](http://www.act.org/research/policymakers/pdf/college_retention.pdf)

- Lott, J., Gardner, S., & Powers, D. (2009). Doctoral student attrition in the STEM fields: An exploratory event history analysis. *Journal of College Student Retention: Research, Theory & Practice*, 11(2), 247-266.
- Lupșa, D., Vîrğa, D., Maricuțoiu, L. P., & Rusu, A. (2019). Increasing psychological capital: A pre-registered meta-analysis of controlled interventions. *Applied Psychology: An International Review*, 2019, 1–51. Retrieved from <https://doi.org/10.1111/apps.12219>
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695-706. Retrieved from <http://doi.org/10.1002/job>
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior*, 27(3), 387-393. doi:10.1002/job.373
- Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, 7(2), 209–221. Retrieved from <https://doi.org/10.5465/AMLE.2008.32712618>
- Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, 21(1), 41–67. Retrieved from <https://doi.org/10.1002/hrdq.20034>
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60, 541-572.
- Luthans, K. W., & Jensen, S. M. (2005). The linkage between psychological capital and commitment to organizational mission: A study of nurses. *The Journal of Nursing Administration*, 35(6), 304-310. Retrieved from <http://doi.org/10.1097/00005110-200506000-00007>
- Luthans, B. C., Luthans, K.W., & Avey, J. B. (2014). Building the leaders of tomorrow: The development of academic psychological capital. *Journal of Leadership and Organizational Studies*, 21(2), 191-199.
- Luthans, F., Luthans, K., & Luthans, B. C. (2004). Positive psychological capital: beyond human and social capital. *Business Horizons*, 47(1), 45-50. <http://doi.org/10.1016/j.bushor.2003.11.007>
- Luthans, B. C., Luthans, K.W., & Jensen, S.M. (2012). The Impact of Business School Students' Psychological Capital on Academic Performance. *Journal of Education for Business*, 87, 253-259.

- Luthans, K. W., Luthans, B. C., & Palmer, N. F. (2016). A positive approach to management education: The relationship between academic PsyCap and student engagement. *Journal of Management Development*, 35(9), 1098-1118.
- Luthans, F., Youssef, C., Avolio, B. (2007). *Psychological capital: Developing the human competitive edge*. New York, NY: Oxford University Press.
- Luthans, F., & Youssef-Morgan, C. M. (2017). Psychological capital: An evidence-based positive approach. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 339-366.
- Maher, M., Wofford, A., Roksa, J., & Feldon, D. (2017). Exploring early exits: Doctoral attrition in the biomedical sciences. *Journal of College Student Retention: Research, Theory & Practice*, 0(0), 1-22. Retrieved from <http://doi:10.1177/1521025117736871>
- Malone, B., Nelson, J., & Van Nelson, C. (2004). Academic and affective factors contributing to degree completion of doctoral students in educational administration. *The Teacher Educator*, 40(1), 33-55. Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/220630032?accountid=7139>
- Masten, A. S., & Reed, M. J. (2002). Resilience in development. In C. Snyder & S. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 74-88). New York, NY: Oxford University Press.
- Metz, G. W. (2004). Challenge and changes to Tinto's persistence theory: A historical review. *Journal of College Student Retention: Research, Theory & Practice*, 6(2), 191-207.
- Metzner, B. S., & Bean, J. P. (1987). The estimation of a conceptual model of non-traditional undergraduate education. *Research in Higher Education*, 27(1), 15-38.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage Publications.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38, 30-38.
- Nettles, M. T., & Millett, C. M. (2006). *Three magic letters: Getting to Ph.D.* Baltimore, MD: John Hopkins University Press.
- O'Bara, C. C. (1993). *Why some finish and why some don't: Factors affecting Doctoral completion* (Order No. 9330356). Available from ProQuest Dissertations & Theses Global. (304020063). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/304020063?accountid=7139>

- Ohlin, B. (2020, April 14). *Psycap 101: Your guide to increasing psychological capital*. Positive Psychology. Retrieved from <https://positivepsychology.com/psychological-capital-psycap/>
- Pallant, J. (2013). *SPSS survival manual: A step by step guide to data analysis using SPSS for windows*. London, UK: McGraw-Hill.
- Park, C., Boman, J., Care, W., Edwards, M., & Perry, B. (2008). Persistence and attrition: What is being measured? *Journal of College Student Retention*, 10(2), 223-233.
- Persistence. (2019). In *Oxford English Dictionary*. Retrieved from <https://www-oed-com.uiwtx.idm.oclc.org/view/Entry/141466?redirectedFrom=persistence&>
- Peterson, C., & Barrett, L. C. (1987). Explanatory style and academic performance among university freshman. *Journal of Personality and Social Psychology* 53(3), 603-607. doi:10.1037/0022-3514.53.3.603
- Peterson, S. J., & Byron, K. (2008). Exploring the role of hope in job performance: Results from four studies. *Journal of Organizational Behavior*, 29, 785-803.
- Reason, R. (2009). An examination of persistence research through the lens of comprehensive conceptual framework. *Journal of College Student Development*, 50(6), 659-682.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1), 1-28.
- Savage, M., Strom, R., Hubbard, A., & Aune, K. (2017). Commitment in college student persistence. *Journal of Collect Student Retention: Research, Theory & Practice*. Retrieved from <https://doi.org/10.1177/1521025117699621>
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219-247. <http://doi:10.1037/0278-6133.4.3.219>
- Schunk, D. H., & Pajares, F. (2005). Competence perceptions and academic functioning. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 141-163). New York, NY: Guilford Press.
- Seidman, A. (Ed.) (2012). *College student retention: Formula for student success* (2<sup>nd</sup> ed.), New York, NY: ACE/Rowman & Littlefield.
- Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14. Retrieved from <http://doi:10.1037/0003-066X.55.1.5>

- Simon, M. (2011). *Dissertation and scholarly research: Recipes for success, 2011 Edition*. Seattle, WA: Dissertation Success, LLC. Retrieved from <http://dissertationrecipes.com/wp-content/uploads/2011/04/AssumptionslimitationsdelimitationsX.pdf>
- Snyder, C. R. (2000). *Handbook of hope*. San Diego, CA: Academic Press.
- Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry*, 13, 249-275.
- Snyder, C. R., Irving, L. M., & Anderson, J. R. (1991). *Hope and health*. Oxford, England: Pergamon Press.
- Snyder, C. R., Shorey, H. S., Cheavens, J., Mann Pulvers, K., Adams, V. H., & Wiklund, C. (2002). Hope and academic success in college. *Journal of Educational Psychology*, 94(4), 820-826.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124(2), 240-261. Retrieved from <http://doi:10.1037/0033-2909.124.2.240>
- Stallone, M. N. (2003). *Factors associated with student attrition and retention in an educational leadership doctoral program* (Order No. 3111386). Available from ProQuest Dissertations & Theses Global. (305231549). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/305231549?accountid=7139>
- Stallone, M. N. (2011). Factors associated with student attrition and retention in an educational leadership doctoral program. *Journal of College Teaching and Learning*, 1(6), 17-24.
- Staples, H. L. *The generational divide: Generational differences in psychological capital* (Order No. AAI3673069). Available from Social Science Premium Collection. (1767331539; 201607082). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/1767331539?accountid=7139>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: The University of Chicago Press.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, 8(1), 1-19. Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/196740186?accountid=7139>

- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254-269.
- Vogt, W. P. (2005). *Dictionary of statistics & methodology* Thousand Oaks, CA: Sage Publications, Inc. doi:10.4135/9781412983907
- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York, NY: Springer-Verlag.
- Wolff, K. (2016). *Understanding success criteria for PhD candidates: A grounded theory study* (Order No. 10143362). Available from ProQuest Dissertations & Theses Global; Social Science Premium Collection. (1823549299). Retrieved from <http://uiwtx.idm.oclc.org/login?url=https://search-proquest-com.uiwtx.idm.oclc.org/docview/1823549299?accountid=7139>

## Appendices



## Appendix A: Institutional Review Board Approval



January 14, 2020

To: Mrs Tiffany Stange

From: University of the Incarnate Word Institutional Review Board, FWA00009201

Tiffany:

Your request to conduct the study titled The H.E.R.O. Within: An Examination of Psychological Capital and the Intent to Graduate Among Doctoral Students (full study) was approved by exempt review on 01/14/2020. Your IRB approval number is 20-01-002. You have approval to conduct this study through 1/14/2021.

Please keep in mind the following responsibilities of the Principal Investigator:

1. Conducting the study only according to the protocol approved by the IRB.
2. Submitting any changes to the protocol and/or consent documents to the IRB for review and approval prior to the implementation of the changes. Use the **IRB Amendment Request** form.
3. Ensuring that only persons formally approved by the IRB enroll subjects.
4. Reporting immediately to the IRB any severe adverse reaction or serious problem, whether anticipated or unanticipated.
5. Reporting immediately to the IRB the death of a subject, regardless of the cause.
6. Reporting promptly to the IRB any significant findings that become known in the course of the research that might affect the willingness of the subjects to participate in the study or, once enrolled, to continue to take part.
7. Timely submission of an annual status report (for exempt studies) or a request for continuing review (for expedited and full Board studies). Use either the **IRB Study Status Update** or **IRB Continuing Review Request** form.
8. Completion and maintenance of an active (non-expired) CITI human subjects training certificate.
9. Timely notification of a project's completion. Use the **IRB Closure** form.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol.

If you need any assistance, please contact the UIW IRB representative for your college/school or the

Office of Research Development. Sincerely,

Mary Jo Bilicek  
 Research Compliance Coordinator  
 University of the Incarnate Word  
 (210) 805-3565  
[bilicek@uiwtx.edu](mailto:bilicek@uiwtx.edu)

## Appendix B: Institutional Review Board Amendment Approval 02/24/2020



February 24, 2020

PI: Mrs Tiffany Stange

Protocol title: The H.E.R.O. Within: An Examination of Psychological Capital and the Intent to Graduate Among Doctoral Students (full study)

Tiffany:

Your request for revisions to exempt protocol 20-01-002 was approved. The following revisions to your protocol have been approved:

- Recruitment materials, flyers, etc.

Please keep in mind these additional IRB requirements:

- Either a study status update (for exempt studies) or a request for continuing review (for expedited and full Board studies) must be completed for projects extending past one year, and closure of completed studies must be reported. Use either the **IRB Study Status Update**, **IRB Continuing Review Request** or **IRB Closure** form.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **IRB Amendment Request** form.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol. Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research and Sponsored Projects Operations.

Sincerely,

Mary Jo Bilicek  
Research Compliance Coordinator  
University of the Incarnate Word  
(210) 805-3565  
[bilicek@uiwtx.edu](mailto:bilicek@uiwtx.edu)

## Appendix C: Institutional Review Board Amendment Approval 03/06/2020



March 6, 2020

PI: Mrs Tiffany Stange

Protocol title: The H.E.R.O. Within: An Examination of Psychological Capital and the Intent to Graduate Among Doctoral Students (full study)

Tiffany:

Your request for revisions to exempt protocol 20-01-002 was approved. The following revisions to your protocol have been approved:

- Research procedure(s) including manipulations, assessments, etc.
- Recruitment materials, flyers, etc.

Please keep in mind these additional IRB requirements:

- Either a study status update (for exempt studies) or a request for continuing review (for expedited and full Board studies) must be completed for projects extending past one year, and closure of completed studies must be reported. Use either the **IRB Study Status Update**, **IRB Continuing Review Request** or **IRB Closure** form.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **IRB Amendment Request** form.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol. Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research and Sponsored Projects Operations.

Sincerely,

Mary Jo Bilicek  
Research Compliance Coordinator  
University of the Incarnate Word  
(210) 805-3565  
[bilicek@uiwtx.edu](mailto:bilicek@uiwtx.edu)

## Appendix D: Institutional Review Board Amendment Approval 03/23/2020



March 23, 2020

PI: Mrs Tiffany Stange

Protocol title: The H.E.R.O. Within: An Examination of Psychological Capital and the Intent to Graduate Among Doctoral Students (full study)

Tiffany:

Your request for revisions to exempt protocol 20-01-002 was approved. The following revisions to your protocol have been approved:

- Research procedure(s) including manipulations, assessments, etc.
- Recruitment materials, flyers, etc.

Please keep in mind these additional IRB requirements:

- Either a study status update (for exempt studies) or a request for continuing review (for expedited and full Board studies) must be completed for projects extending past one year, and closure of completed studies must be reported. Use either the **IRB Study Status Update**, **IRB Continuing Review Request** or **IRB Closure** form.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **IRB Amendment Request** form.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol. Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research and Sponsored Projects Operations.

Sincerely,

Mary Jo Bilicek  
Research Compliance Coordinator  
University of the Incarnate Word  
(210) 805-3565  
[bilicek@uiwtx.edu](mailto:bilicek@uiwtx.edu)

## Appendix E: Permission to use the CPC-12

**Timo Lorenz MSB Berlin**  
to me

Sat, Feb 16, 1:50 AM

Hey Tiffany,

yes, the CPC-12 provides an overall score and of course you can use it - it is published open access, so it is free for everyone to use. You will find the items at the end of the paper in the S1 Appendix in German as well as in English.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0152892#sec043>

Have a great day  
Timo

## Appendix F: Permission to use the CPQ

Emailed received: Wed 2/27, 2:58 PM

Hi Tiffany,  
Yes, you can use the CPQ questions, as per the document I sent you.  
Best wishes,  
Bill

William B. Davidson, PhD  
Professor of Psychology  
Angelo State University  
Department of Psychology and Sociology  
ASU Station #10907  
San Angelo, TX 76909  
Phone: 325-227-1016 (mobile)  
[bill.davidson@angelo.edu](mailto:bill.davidson@angelo.edu)

**From the document emailed:**

We no longer distribute verbatim copies of the CPQ due to numerous instances of copyright infringement, unauthorized publication of the instrument in its entirety on insecure websites and in theses and dissertations. Researchers are free to create “adapted” versions of the CPQ without the onus of copyright infringement, assembling only the relevant questions to some of the scales, and posting them in the order preferred by the investigator.

## Appendix G: Informed consent (Survey)

You have been invited to participate in a research project titled “The H.E.R.O. Within: An Examination of Psychological Capital and Persistence Among Doctoral students.” Please read this consent form carefully and completely.

The purpose of this study is to examine the relationship between psychological capital and the intent to persist to graduation for students pursuing doctoral degrees.

This study should take approximately 15 minutes to complete. Please note that we cannot give you your individual survey results as the data are anonymous. Additionally, the data collected from your survey results will be kept confidential. In appreciation for your time and participation, those participants who complete the survey in its entirety will be eligible to receive one of four \$10 Amazon gift cards. Recipients will be chosen at random. Should you elect to be a possible recipient of the gift card, you will need to provide an email address, which will be collected separately after survey submission and not associated in any way with the survey results. It will solely be used for the receipt of the gift card. The email address will not be used for any other purposes or shared in any way. This survey is in no way endorsed or sponsored by Amazon.

Your decision to take part in the study is voluntary. You are free to elect not to participate in the study or to stop participating at any time. If you elect not to participate or to stop participating at any time, it will not affect your status at UIW. If you have questions, feel free to contact me, Tiffany Stange, at 210.218.9822. If you wish to report a problem that may be related to this study, please contact Dr. Norman St. Clair, 210.829.31388. For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information or offer input about this study, please contact the UIW IRB Institutional Review Board (IRB) at 210.805.3036. This research and survey instrument has been approved by the UIW IRB (IRB #20-01-002).

Completing and submitting this survey represents informed consent to participate in the research study. You may elect to withdraw from the study at any time by declining to complete the survey.

Thank you in advance for your time.

Sincerely,  
Tiffany Stange, PhD Candidate

## Appendix H: Demographics Questionnaire

Please answer each of the following questions. This information will be kept confidential.

### Age:

- |                                |                                |
|--------------------------------|--------------------------------|
| <input type="checkbox"/> 25-30 | <input type="checkbox"/> 46-50 |
| <input type="checkbox"/> 31-35 | <input type="checkbox"/> 51-55 |
| <input type="checkbox"/> 36-40 | <input type="checkbox"/> 56-60 |
| <input type="checkbox"/> 41-45 | <input type="checkbox"/> Other |

### Gender:

- ☐ Female  
☐ Male  
☐ Other

### Race:

- |  |  |
|--|--|
| <input type="checkbox"/> White or Caucasian        | <input type="checkbox"/> American Indian or Alaska Native          |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Native Hawaiian or other Pacific Islander |
| <input type="checkbox"/> Hispanic or Latino        | <input type="checkbox"/> Another race                              |
| <input type="checkbox"/> Asian or Asian American   |  |

### Degree Program:

- |  |  |
|--|--|
| <input type="checkbox"/> Doctor of Business Administration | <input type="checkbox"/> Doctor of Physical Therapy  |
| <input type="checkbox"/> Doctor of Nursing Practice        | <input type="checkbox"/> Doctor of Philosophy in Vision Science  |
| <input type="checkbox"/> Doctor of Optometry               |  |
| <input type="checkbox"/> Doctor of Pharmacy                | <input type="checkbox"/> Doctor of Philosophy in Education (including Higher Education, International Education/Entrepreneurship, and Organizational Leadership) |

**Degree Progress:** Please select the number of credit hours you have completed so far in your program.

- |   |   |
|---|---|
| <input type="checkbox"/> 3 to 9 hours   | <input type="checkbox"/> 39 to 45 hours |
| <input type="checkbox"/> 12 to 18 hours | <input type="checkbox"/> 48 to 54 hours |
| <input type="checkbox"/> 21 to 27 hours | <input type="checkbox"/> Other          |
| <input type="checkbox"/> 30 to 36 hours |   |

**Note:** The final page of the survey that thanks participants for completing the instrument will provide a link to another survey with the sole purpose of gathering an email address to be used for the random selection of four gift card winners should the participant elect to participate in the drawing. This will ensure the email address remains separate from the survey results thus ensuring the anonymity and confidentiality of the survey results. The email address is the only information to be gathered via the second survey.



## Appendix I: CPC-12 Questions

The following questions comprise the CPC-12. There are 12 total questions. Participants will respond to each statement using a 6-point Likert scale. The questions will be sorted so the same factor-related questions will not be viewed together.

Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Somewhat Agree (4)	Agree (5)	Strongly Agree (6)
--------------------------	--------------	--------------------------	-----------------------	-----------	-----------------------

### Hope:

- If I should find myself in a predicament, I could think of many ways to get out of it.
- Right now, I see myself as being pretty successful.
- I can think of many ways to reach my current goals.

### Optimism:

- I am looking forward to the life ahead of me.
- The future will bring a lot of good things to me.
- Overall, I expect more good things to happen to me than bad.

### Resiliency:

- Sometimes I make myself do things whether I want to or not.
- When I'm in a difficult situation, I can usually find my way out of it.
- It's okay if there are people who don't like me.

### Efficacy:

- I am confident that I could deal efficiently with unexpected events.
- I can solve most problems if I invest the necessary effort.
- I can remain calm when facing difficulties because I can rely on my coping abilities.

## Appendix J: CPQ Items

These questions are from the Student Experiences Form of the *CPQ*, adapted to suit the doctoral student population, and employ a 5-point Likert-type scale. A sixth option, "Not Applicable," is included for students who feel that a particular item does not pertain to them. Verbal labels for the response scales depend on the wording of the question. For example, a question that asks "how satisfied" students are uses a response scale with "Very Satisfied" and "Very Dissatisfied" as end anchors. Another question that asks "how much" students like something is answered with end anchors of "Very Much" and "Very Little." The questions will be mixed up to not have all the same factor-related questions together. An R after the question indicates the responses will be reverse scored.

### Academic Integration

- How well do you understand the thinking of your instructors when they lecture or ask students to answer questions in class?
- How satisfied are you with the extent of your intellectual growth and interest in ideas since coming here?
- In general, how satisfied are you with the quality of instruction you are receiving here?
- How concerned are the faculty here about your intellectual growth?
- On average across all your doctoral courses, how interested are you in the things that are being said during class discussions?
- How much of a connection do you see between what you are learning here and your future career possibilities?
- Do you believe that many instructors deliberately impose unreasonable requirements on students and enjoy their distress?
- Students differ widely in how much interaction they want to have with faculty. How disappointed are you in the amount of interaction you have?

### Social Integration

- How much have your interpersonal relationships with other students had an impact on your personal growth, attitudes, and values?
- How much have your interpersonal relationships with other students had an impact on your intellectual growth and interest in ideas?
- How strong is your sense of connectedness with other faculty, students, staff on this campus?
- How much do you think you have in common with other students here?
- What is your overall impression of the other students here?

### Supportive Services Satisfaction

- How satisfied are you with the academic advisement you receive here?
- How well does this institution communicate important information to students such as academic rules, degree requirements, and individual course requirements?
- How easy is it to get answers to your questions about things related to your education from an advisor?
- How much input do you think you can have on matters such as course offerings, rules and regulations, and registration procedures?

- If you have needs that are different from the majority of students here, how well does this university meet these needs?
- How fairly do you think students are handled here?

#### Degree Commitment

- When you think of the people who mean the most to you (friends and family), how disappointed do you think they would be if you quit school?
- How supportive is your family of your pursuit of a doctoral degree, in terms of their encouragement and expectations?

#### Institutional Commitment

- How likely is it that you will earn a degree from here?
- How confident are you that this is the right university for you?
- How much thought have you given to stopping your education here perhaps transferring to another college, going to work, or leaving for other reasons? R

#### Academic Conscientiousness

- How often do you miss class for reasons other than illness? R
- How often do you turn in assignments past the due date? R
- How often are you disinterested in academic work and do as little as possible?

### Appendix K: Behavioral Intention Scale

The following questions comprise the Behavioral Intention scale. There are four total questions. Participants will respond to each statement using a 7-point Likert scale. Two questions will be reversed scored as noted by the R following the statement.

Strongly Agree (1)	Agree (2)	Somewhat Agree (3)	Neither (4)	Somewhat Disagree (5)	Disagree (6)	Strongly Disagree (7)
-----------------------	-----------	-----------------------	----------------	--------------------------	-----------------	--------------------------

- I intend to quit my doctoral program. R
- I plan to drop out of my doctoral program. R

## Appendix L: Qualitative Component

Five open-ended questions are included in the survey instrument:

1. What characteristics of your doctoral program have convinced you to complete your doctoral degree?
2. What characteristics of your doctoral program may cause you to quit?
3. What experiences in your doctoral program, up to now, have positively affected your view of the program?
4. What experiences in your doctoral program, up to now, have negatively affected your view of the program?
5. What personal characteristics do you possess that may drive you to complete your doctoral program?

## Appendix M: Interview Protocol

**Interview structure:** Virtual meeting using semi-structured interview strategy focused on the research question. Use of audio-recording with participant consent (included in consent form).

**Research question:** What challenges to psychological capital do doctoral students experience in their program of study?

**Subject selection criterion:** Enrolled in a doctoral program, expected to be a candidate to graduate in their respective program (i.e. are on the trajectory to graduate having reached an important benchmark like candidacy in a PhD program) or will be within one semester of the interview, and will graduate in the next one to two years (rationale: access issues, convenience sample, purposeful in that it supports the candidate to graduate parameter and overall study looking at doctoral student intention to graduate).

**Session introduction – basic information:** Review of the informed consent form which describes the nature of the study, how their anonymity will be preserved, and that they have the right to withdraw at any time. Includes obtaining signatures on the informed consent form if an in-person interview or verbally if done virtually and recorded.

### **Introductory statement:**

Psychological capital is an individual's positive psychological state of development that is characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans, Youssef, & Avolio, 2007, p. 3). These four constructs are also known as the H.E.R.O. factors.

I am doing research on the challenges to psychological capital that doctoral students experience through the course of their program.

### **Questions:**

- To get started, tell me about yourself (age/gender/degree program).
- When did you enroll in the program? When do you expect to graduate?
- What role do you think psychological capital plays in a doctoral student's intention to graduate?
- Share with me your experience in the doctoral program where you found your H.E.R.O. factors (hope, efficacy, resiliency, and optimism) being challenged?

**Closing statement:**

Thank you for your time. The next step in the process is for me to transcribe our conversation. I may reach out to confirm my understanding of your responses.

**Data analysis:** Transcription of interviews. Identifying/coding themes.

## Appendix N: Informed Consent (Interviews)

### Subject Consent to Take Part in a Study of “The H.E.R.O. Within: An Examination of Psychological Capital and Intent to Graduate Among Doctoral students.”

University of the Incarnate Word

**Authorized Study Personnel:** Tiffany Stange, PhD Candidate, Principal Investigator  
Dreeben School of Education  
210/218-9822  
susik@student.uiwtx.edu

**Key Information:** Your consent is being sought for a research study. The purpose of the research is to answer the following question, “What challenges to psychological capital do doctoral students experience in their program of study?”

If you agree to participate in this study, the project will involve:

- Procedures will include an interview
- 1 virtual meeting is required
- These visits will take about an hour
- There are not risks associated with this study.
- You will not be paid for your participation
- Your participation is voluntary, and you may decide not to participate at any time

**Invitation:** You are invited to volunteer as one of 3 subjects in the research project named above. The information in this form is meant to help you decide whether or not to participate. If you have any questions, please ask.

**Why are you being asked to be in this research study?** You are being asked to be in this study because you are currently enrolled in a doctoral program, are a candidate to graduate in your program, and will graduate within the next one to two years.

**What is the reason for doing this research study?** The purpose of this study is to understand the experience of doctoral students as it relates to the challenges they face in regards to hope, efficacy, resiliency, and optimism (Psychological capital) as they progress through their program study to graduation.

**What will be done during this research study?** In an interview format, you will be asked to share your experiences in your doctoral program as it relates to hope, efficacy, resiliency, and optimism.

I would like to record this virtual interview using a platform such as Zoom to make sure that I remember accurately all the information you provide. I will keep these recordings on a secure server, and they will only be used by me. If you prefer not to be video recorded, we can disable



the camera functionality of the meeting and record audio only. If you do not want to be recorded in any way (video or audio), I will take notes instead.

I may quote your remarks in presentations or articles resulting from this work. A pseudonym will be used to protect your identity, unless you specifically request that you be identified by your true name.

**How will my data/samples/images be used?** Your specific data could be used for future research studies. You are given the option to choose whether you will allow your deidentified data to be stored indefinitely for further analysis or other relevant research studies.

**What are the possible risks of being in this study?** Your participation in this study does not involve any physical or emotional risk to you beyond that of everyday life. There are no known risks to you from being in this research study.

**What are the possible benefits to you?** You are not expected to receive any benefits from being in this study.

**What are the possible benefits to other people?** The benefits to science and/or society may include a better understanding of how the psychological capital of doctoral students may affect their intent to graduate. This understanding may lead to possible interventions to increase doctoral student psychological capital in order to increase graduation rates.

**What will being in this research study cost you?** There is no cost to you to be in this research study.

**Will you be compensated for being in this research study?** You will not be paid for your participation in this research study.

**How will information about you be protected?** Everything we learn about you in the study will be confidential. The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. If we publish with results of the study, you will not be identified in any way.

**Note:** Your name, decision to participate (or withdraw participation), and your responses will not be shared with anyone beyond the principal investigator.

Furthermore, while a list of potential interview candidates was provided to me by my chair, Dr. St. Clair, I alone chose who to contact and request interviews from for this study. My chair will not be informed of who agreed to participate and who did not nor will he be privy to your interview responses.

Paper records/interview notes: The data will be stored in a locked cabinet in the principal investigator's office and will only be seen by the research team during the study and for 5 years after the study is complete.

Electronic records/audio-recordings: The data will be stored electronically on a secure server and will only be seen by the research team during the study and for 5 years after the study is complete.

**What will happen if you decide not to be in this research study or decide to stop participating once you start?** You can decide not to be in this research study, or you can stop being in this research study at any time, for any reason. You do not have to answer any question you do not want to answer. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with the University of the Incarnate Word. You will not lose any benefits to which you are entitled.

Deciding not to be in the study or deciding to withdraw will not affect your class standing or grades at the University of the Incarnate Word.

If you decide to withdraw from the study, the researchers will ask you if the information already collected from you can be used.

**What should you do if you have a problem or question during this research study?** If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

If you have any questions now, feel free to ask us. If you have additional questions about your rights or wish to report a problem that may be related to the study, please contact the University of the Incarnate Word Institutional Review Board office at 210-805-3036 or 210-805-3565.

### **To participate**

To participate in the interview, respond to this request that you agree to be interviewed. Upon receipt of your agreement to participate, a follow-up request will be sent to schedule a time for the virtual interview.

### **Consent for future use of data**

In your response agreeing to participation, include one of the following statements indicating your preference.

- I give permission for my deidentified data to be used in the future for additional analysis or other relevant research studies. I understand that no additional informed consent for this use will be sought. I understand that my deidentified data can be stored indefinitely.
- I give my permission for my data to be used for this research study only. I do not give permission for any future use beyond the scope of this research study. I understand that my data will be destroyed within 5 year(s) after completion of this study.

### **Consent for use of contact information to be contacted about participation in other studies**

In your response agreeing to participation, include one of the following statements indicating your preference.

- I agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

- I do not agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

**Consent**

Your response to the virtual interview request agreeing to be interviewed represents that you (1) consent to take part in this research study, (2) that you have read and understand the information given above, and (3) that the information above was explained to you, and you have been given the chance to discuss it and ask questions. Please keep this copy of the consent form for your records.