



Volume 15, 2020

**THE IMPORTANCE OF TOUGH-LOVE MENTORING TO
DOCTORAL STUDENT SUCCESS: INSTRUMENTS TO
MEASURE THE DOCTORAL STUDENT/PROTÉGÉS'
PERSPECTIVE**

L. R. Roberts

Right Angle Educators, West Cape
May, NJ, USA

laura@rightangleeducators.com

ABSTRACT

Aim/Purpose	The purpose of this study is to examine tough-love mentoring theory (TLM) as a potential way to address the problem of low graduation rates among doctoral students.
Background	In order to address this purpose, the researcher presents the following: a) a validation study for assessment tools pertaining to TLM and b) a validation study of TLM theory and its two sub-theories: mentor integrity and trustworthiness sub-theory (MIT) and the mentor high standards sub-theory (MHS).
Methodology	The researcher tested the validity of the mentor integrity and trustworthiness scale from the protégés' perspective (MIT-P), the mentor high standards scale from the protégés' perspective (MHS-P) and the protégés' perceptions of their own independence (PPI) scale. The sample consisted of 31 doctoral protégés recruited with multi-phase sampling at four education-related doctoral programs in the eastern part of the United States.
Contribution	The study provides evidence to support TLM as a strategy to address the problem of low graduation rates among doctoral students. In addition, the study contributes validation of assessment tools that can be used to measure doctoral protégés' perceptions of their mentors.
Findings	For each scale, the data show acceptable levels of internal consistency and evidence of content validity. The data are consistent with the TLM theory and its two sub-theories. The unique contribution of the current study is that it draws from the <i>protégés'</i> perspective.

Accepting Editor June Maul | Received: October 17, 2019 | Revised: December 23, 2019, August 10, 2020 | Accepted: September 2, 2020.

Cite as: Roberts, L. R. (2020). The importance of tough-love mentoring to doctoral student success: Instruments to measure the doctoral student/protéges' perspective. *International Journal of Doctoral Studies*, 15, 485-516. <https://doi.org/10.28945/4630>

(CC BY-NC 4.0) This article is licensed to you under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). When you copy and redistribute this paper in full or in part, you need to provide proper attribution to it to ensure that others can later locate this work (and to ensure that others do not accuse you of plagiarism). You may (and we encourage you to) adapt, remix, transform, and build upon the material for any non-commercial purposes. This license does not permit you to use this material for commercial purposes.

Recommendations for Practitioners	The researcher presents a) strategies protégés can use to find trustworthy mentors with high standards and b) strategies program administrators can use for professional development of doctoral mentors. The researcher also provides the Right Angle Research Alignment (RARA) table to help protégés organize and manage the research methods section of their dissertation.
Recommendations for Researchers	It is recommended that researchers use experimental methods to test TLM theory and the sub-theories, MIT and MHS.
Impact on Society	This theory may be useful in business and in the arts and in other teaching relationships such as coaching and tutoring. The researcher encourages scholars to test TLM theory in these other contexts.
Future Research	Further research questions that arise from this study are as follows: How can protégés find mentors who have high standards and who are trustworthy? What can doctoral program administrators do to help mentors develop high standards and trustworthiness?
Keywords	doctoral mentoring, tough-love mentoring theory, mentor integrity and trustworthiness theory, mentors' high standards theory

INTRODUCTION

There is a significant need for research that will help doctoral mentors develop ways to help their doctoral protégés succeed and to complete their degrees. Obviously, this would be beneficial for the protégés themselves in several ways. For example, completion of a difficult task, such as a doctoral degree, may improve their self-esteem and it would likely make them more competitive in the job market. From the perspective of higher education, more generally, research on doctoral student success is important for several reasons. For example, doctoral students make valuable contributions to the canon of scholarly knowledge as a result of their original research. These contributions help universities improve their scientific output and, consequently, improve their international rankings (van de Schoot et al., 2013; Woolderink et al., 2015). Moving beyond the walls of the university, it can be argued that doctoral level research provides original research that has practical value in applied science and also in the development of basic scientific outputs that may be further built upon (Woolderink et al., 2015).

Members of the academic community agree that the goal of programs in doctoral education is to provide learning experiences and resources that propel doctoral students to success. Success is defined as mastering the writing and research skills required to complete their dissertations; furthermore, academics agree that completion of the dissertation would signify the successful transformation of dependent students to independent scholars (Baker & Pifer, 2011; Lovitts, 2005; Roberts, 2020; Roberts & Ferro-Almeida, 2019; Woolderink et al., 2015). Unfortunately, many doctoral programs are failing to achieve this goal. Data from numerous studies show doctoral student drop-out rates average 50% (Craft et al., 2016; Golde, 2005; Gonzalez et al., 2001, 2002; K. Grant et al., 2014; Ibarra, 1996; Lovitts, 2001, 2005; Most, 2008; Nettles, 1990; Nettles & Millet, 2006; Solorzano, 1993; Vaquera, 2007; Walker et al., 2008). Thus, there is a significant need for doctoral program administrators to take a hard look at their programs to figure out ways to improve doctoral student success and ultimately to improve their doctoral student graduation rate.

One area that may prove fruitful is an exploration of effective mentoring. Many studies have shown protégés with effective mentors are more likely to complete their dissertations and are more likely to graduate (Curtin et al., 2013; Golde, 2005; K. Grant et al., 2014; Luna & Cullen, 1998; Welton et al., 2015; Woolderink, et al., 2015). However, there is a need in the scholarly literature for new information that will help doctoral program administrators know what kinds of behaviors and characteristics make doctoral mentors effective.

PURPOSE AND PROBLEM STATEMENT

The purpose of this quantitative study was to validate new instruments relevant to the tough-love mentoring (TLM) theory, and its sub-theories, mentor integrity and trustworthiness [MIT] sub-theory and mentor high standards [MHS] sub-theory, from the perspective of the protégé or doctoral student. In addition, the study will test the theories from the protégé perspective using the following problem statement: It is not known if and to what extent mentors' trustworthiness and mentors' high standards launch protégés to become strong scholars. The following descriptive and relational questions were put forth. Hypotheses were included where appropriate.

DESCRIPTIVE QUESTIONS

Descriptive Research Question 1: To what extent do protégés perceive themselves to have scholarly strengths?

Descriptive Research Question 2: To what extent do protégés perceive their mentors to be trustworthy?

Descriptive Research Question 3: To what extent do protégés perceive their mentors to have high standards?

The three descriptive questions were exploratory and no hypotheses were put forth.

RELATIONAL QUESTIONS

Relational Research Question 1: Is there a relationship between mentor trustworthiness and protégés' scholarly success?

Hypothesis 1: Drawing from the MIT sub-theory, the researcher hypothesized that mentors who were perceived to be trustworthy would be instrumental in launching protégés to become strong scholars.

Relational Research Question 2: Is there a relationship between mentors' standards and protégés' scholarly success?

Hypothesis 2: Drawing from the MHS sub-theory, the researcher hypothesized that mentors who were perceived to have high standards would be instrumental in launching protégés to become strong scholars.

A prior study was conducted that examined these hypotheses when all constructs were measured with self-reports from the *mentors* themselves. The results showed support for the MIT sub-theory, but not for the MHS sub-theory. In the current study, the researcher revisited these two sub-theories. However, in this study the researcher measured all constructs from the point of view of the *protégés*. It was believed that by adding the perspective of protégés to this body of research, the researcher would be able to present a fuller picture of the hypothesized impact of tough-love mentoring on protégé success.

LITERATURE REVIEW

THEORIES OF EFFECTIVE MENTORING ARE INCOMPLETE

According to Orland-Barak (2010), and Ragsin and Kram (2007) current theories of mentoring draw from diverse perspectives, such as theories of self-regulation, systems operations, leadership, organizational behavior, adult development, and adult learning. A gap in this literature is the fact that too little attention has been paid to the importance of the relationship between the mentor and the protégé. In particular, there is a need for research that describes the qualities and behaviors of the mentor that nurture a positive relationship with the protégé.

Kram put forth the mentor relationship (MR) theory which posited that the mentor/protégé relationship is key to a successful mentoring outcome (1983, 1985, 1996). According to Schunk and Mullen (2013) certain mentors' qualities and behaviors may have a positive impact on protégés' success. However, there is a need for new theories that will help researchers identify the specific mentor qualities and behaviors that bring about positive outcomes for protégés. One purpose for the current study was to address this gap in the literature by examining protégés' perceptions of mentors' behaviors and characteristics and to test whether those behaviors and characteristics were linked to protégés' scholarly success.

TOUGH-LOVE MENTORING THEORY

According to Roberts and Ferro-Almeida (2019), tough-love mentoring (TLM) theory may provide some answers to the question of which mentor behaviors and characteristics help protégés succeed. TLM theory is actually two sub-theories taken together. More specifically, TLM is composed of the mentor integrity and trustworthiness (MIT) sub-theory and the mentor high standards (MHS) sub-theory as defined below. In the following two sections, the researcher will a) explain the two sub-theories and b) discuss research pertaining to the validity of each sub-theory.

Mentors' integrity and trustworthiness – MIT sub-theory

The theory states that trustworthy mentors help protégés succeed in the scholarly world. In order to test the hypothesis that mentors' trustworthiness helps protégés succeed in the scholarly world, the researcher first needed to define and find a way to measure mentors' trustworthiness. To this end the researcher adopted Tschannen-Moran's and Hoy's definition of trustworthiness (1998, 2000) as a multidimensional construct composed of a) honesty/reliability, b) competence, and c) benevolence. A review of the literature revealed a strong instrument to measure trustworthiness in an educational context created by Tschannen-Moran (2009). Many studies have validated Tschannen-Moran's conceptualization of the definition of trustworthiness and her method for measuring trustworthiness continues to be relevant in the scholarly sphere (Mitchell et al., 2018; Tschannen-Moran & Garies, 2015). Thus, the researcher adapted Tschannen-Moran's instrument to assess trustworthiness in the context of doctoral student mentoring. In a prior study, the researcher presented a new instrument designed to measure doctoral mentors' perceptions of *their own* trustworthiness (Roberts, 2020). In the current study, the researcher will present a parallel new instrument designed to measure mentors' trustworthiness from the point of view of the *protégé*.

What mechanism might explain how mentors' trustworthiness could launch strong protégés? According to Goddard et al. (2001) when teachers are trustworthy, their students tend to succeed; graduation is more likely and students perform at higher levels when their teachers are trustworthy. Goddard and colleagues (2001) also suggested that the reason for this link is that a student is more willing to take the intellectual risks required for learning when their mentor is trustworthy. Intellectual risk-taking is especially important in doctoral education. The point of doctoral education is to bring about the transformation of the student from a consumer of knowledge to a creator of knowledge. To this end, doctoral students are required to produce original research in their dissertations, the capstone events in most dissertation journeys. According to Brown (2010) all creative, original thinking requires risk-taking. When trust is present, protégés may feel more willing to take risks and may feel more comfortable trying out their original, and perhaps unconventional ideas. When trust is present, protégés do not fear that mentors will cut them off or ridicule them, but instead will be open-minded to new ideas and will encourage further exploration. When trust is present, students are allowed to fail and, if they fail, the trustworthy mentors will encourage protégés to recover and try again.

A doctorate is a high-stakes degree that requires a great investment of money, energy, and time. Many students who start down this road never finish; the drop-out rate averages 50% (Craft et al., 2016; Golde, 2005; Gonzalez et al., 2002; Gonzalez et al., 2001; K. Grant et al., 2014; Ibarra, 1996; Lovitts, 2001, 2005; Most, 2008; Nettles, 1990; Nettles & Millet, 2006; Solorzano, 1993; Vaquera,

2007; Walker et al., 2008). A doctoral dissertation is a long-term, creative project that requires a great investment of intellectual energy. Protégés must learn to trust their own creativity, their logical abilities and their intuitions. And they must develop a strong belief that their topic of study is important enough to warrant such a great investment. Based on Bandura's social learning theory (2001) sustained contact with a trustworthy mentor may gradually cause trustworthiness to become internalized by the protégé. Thus, social learning theory and internalized trustworthiness may provide another explanation for the hypothesized impact of mentors' trustworthiness on protégés' success in the scholarly world.

Research findings show that effective mentors nurture trusting relationships with protégés (Anderson et al., 2006; Baker & Pifer, 2011; Gearity & Mertz, 2012; Holley & Caldwell, 2012; Kram, 1985; Lovitts, 2005; Luna & Cullen, 1998; Nettles & Millett, 2006; Orellana et al., 2016; Weidman et al., 2001). This is consistent with Daloz (1986) who claimed that "the mentor's (job is to provide) a place where the student can contact (his) need for fundamental trust, the basis of growth" (p. 215). In an exploratory, qualitative study, Roberts and Ferro-Almeida (2019) asked 21 effective mentors, "How important is it to create trust with students?" Most of the respondents (76%) said trust is "critical," "essential," "absolutely vital," "fundamental," or "really important." Not one of the mentors said trust was unimportant. The researchers concluded that trust is very important in successful mentor-protégé relationships.

Research also shows that students are more likely to perform at high levels when a trustworthy mentor or teacher is present (Hoy & Tschannen-Moran, 1999; Tschannen-Moran & Hoy, 1998). Empirical data have shown that protégés were more open to learning from trustworthy mentors (Fleig-Palmer & Schoorman, 2011). For example, according to *mentors*, doctoral protégés are more likely to graduate and are more likely to achieve at a high level when a trustworthy mentor is present (Roberts, 2020). The current study adds to this work by revisiting the relationship between mentors' trustworthiness and protégé success when these variables are measured from the point of view of the *protégé*.

Mentors' high standards – MHS sub-theory

High standards and growth demands are part of the tough love mentoring theory and also part of the MHS sub-theory (Roberts, 2020; Roberts & Ferro-Almeida, 2019). According to the MHS sub-theory, mentors must set high standards and push protégés to reach those standards. For example, mentors must place demands on protégés to make an original contribution to the canon of scholarly knowledge.

What mechanism might explain how mentors' high standards could launch strong protégés? Roberts (2020) proposed that protégés are intellectually inspired by mentors with high standards. Roberts (2020) further suggested that when protégés are excited by intellectual challenge they are inspired to stretch their cognitive abilities.

Many empirical studies have shown high parent and teacher expectations were linked to better student performance in basic education (Gray & Steinberg, 1999; Hopson & Weldon, 2013; Jussim & Harber, 2005; Ma et al., 2018; Maccoby & Martin, 1983). Does the same principle apply when the students in question are adults, i.e. when they are doctoral students? In the current study, the researcher sought to understand how mentors' high standards impact doctoral protégés' scholarly success. Best (2011) claimed that supervisors' high demands have a positive impact on achievement for adults in a work context. By extension, in the current study, the researcher hypothesized that mentors' high standards would have positive impacts on protégés' success in the world of scholarship.

A recent qualitative study (Roberts & Ferro-Almeida, 2019) showed doctoral mentors felt one of the qualities that made them effective was the ability to be *demanding* with their protégés. Demanding mentors described themselves as holding protégés to high standards and having high expectations. Sometimes having high standards meant mentors had to deliver tough feedback to spur protégés to

higher levels of performance. Mentors said this was a challenging part of their role, but they also felt it was an essential part of their role (Roberts & Ferro-Almeida, 2019).

In another recent study by Roberts (2020) the researcher found that the MHS sub-theory was not supported when variables were measured from the *mentors'* point of view. The researcher explained this unexpected finding by drawing from the theory of adult learning by Malcolm Knowles (1980). According to the theory of adult learning, adult learners desire to take responsibility for their own learning and are motivated to manage their own learning. Included in the task of taking responsibility for one's learning is setting standards for performance. Thus, if the protégés, themselves, are taking charge of the standards they want to achieve in writing their dissertations, it may be that the mentors' standards are irrelevant to their achievements. Perhaps it does not matter whether the mentors want the protégés to aim high or low. Perhaps the important standards are those the protégés sets for themselves. The data in the current study may provide new insights into this phenomenon.

WHO'S PERSPECTIVE COUNTS?

Research studies on the relational aspects of mentoring have been conducted from several different perspectives. Some studies present the relational aspects of mentoring from the protégés' perspective (Baker & Pifer, 2011; Gardner, 2008). Other studies on the relational aspects of mentoring draw from the mentors' perspectives (Roberts, 2020; Roberts & Ferro-Almeida, 2019; Bogelund, 2015). Only a few of studies offer multiple perspectives, i.e., the perspectives of both the mentors and the protégés (B. M. Grant, 2005; Lee, 2008; Woolderink, et al., 2015). If one drills down to a specific theory, in particular, the TLM theory and its sub-theories, MIT and MHS, the mentors' perspectives have been represented in the literature (Roberts & Ferro-Almeida, 2019). In the current study, the researcher intended to extend the study of the TLM theory and its sub-theories by adding the perspective of the protégés, which has not yet been examined. One purpose of the current study was to address this gap in the literature. In answer to the question, "Who's perspective counts," the answer is that mentors', protégés', and other stakeholders' perspectives all count. It is beneficial for researchers to document diverse perspectives of doctoral mentoring to provide scholars and practitioners with a full picture of the phenomenon.

RESEARCH METHODOLOGY

QUESTION AND DESIGN TYPES

The questions and hypotheses were presented above in the Purpose and Problem Statement and are repeated here to improve the flow of the presentation. These questions are as follows:

Descriptive questions

Descriptive Research Question 1: To what extent do protégés perceive themselves to have scholarly strengths?

Descriptive Research Question 2: To what extent do protégés perceive their mentors to be trustworthy?

Descriptive Research Question 3: To what extent do protégés perceive their mentors to have high standards?

The three descriptive questions were exploratory and no hypotheses were put forth.

Relational questions

Relational Research Question 1: Is there a relationship between mentor trustworthiness and protégés' scholarly success?

Hypothesis 1: Drawing from the MIT sub-theory, the researcher hypothesized that mentors who were perceived to be trustworthy would be instrumental in launching protégés to become strong scholars.

Relational Research Question 2: Is there a relationship between mentors' standards and protégés' scholarly success?

Hypothesis 2: Drawing from the MHS sub-theory, the researcher hypothesized that mentors who were perceived to have high standards would be instrumental in launching protégés to become strong scholars.

SAMPLING PROCESS AND SAMPLE

Sampling was conducted as a multi-stage process. In stage one, the researcher used convenience sampling and obtained permission to conduct research from four colleagues who were program heads in educational doctoral programs in the eastern part of the United States. In stage two, the researcher created a questionnaire and used census sampling to distribute it to all 180 mentors at the four universities. The researcher sent an email invitation to each mentor in the four doctoral programs. The email included a SurveyMonkey link to the consent form and the questionnaire. Fifty mentors participated in the study. Thus the response rate at this stage was 27%, which is close to a typical response rate of 33% for studies of this type (Nulty, 2008).

In addition to the perceptions of the mentors', the researcher aimed to also collect data to learn of the perceptions of one of each mentor's protégés. To this end, in stage three, the researcher asked the mentors to randomly invite one of their protégés to participate in the study. Thirty one protégés participated in the study. Thus, the response rate for stage three of the sampling procedure was 62% which is well above the typical response rate for studies of this type (Nulty, 2008). The questionnaire responses from the protégés are presented in the current study. The questionnaire responses from the mentors were presented in a prior study (Roberts, 2020).

The method for matching mentors with their protégés, was to assign each mentor/protégé dyad a unique 4 digit number. The researcher asked each mentor to randomly select one of their protégés and to forward an invitation to the protégé with a SurveyMonkey link to a consent form and a questionnaire similar to the one sent to mentors. The protégé was instructed to enter the unique 4 digit code on the questionnaire. This method allowed the researcher to match each protégé with their mentor by using each dyads' unique code. The researcher argued that this method produced a random sample of the mentor/protégé dyads in the four doctoral programs. The argument hinges on the notion that the census sampling methodology, assured that each mentor/protégé dyad had an equal chance of participating in the study. The analysis of the data pertaining to the perceptions of the protégés is the focus of the current study.

Target sample size

As with most research, the researcher sought to apply a sampling methodology that would yield the largest sample size possible. However, it was difficult to obtain a large sample due to the multi-stage nature of the sampling method. The researcher first contacted mentors in four different universities and then had to rely on those mentors to contact their protégés to ask for participation. The researcher had no direct communication with the protégés and this aspect of the sampling method made participant recruitment especially challenging. The researcher aimed to obtain a sample size of at least 30 subjects; based on the central limit theorem, with a sample size of 30 or more, regression analyses tend to be robust to deviations from the assumptions regarding the data distribution (Norris, 1994). The resulting sample size was 31, so the researcher achieved the targeted sample size. It should also be noted that alpha was set at .05; power was set at .80, and the critical effect size was set at .30. The sample size required to meet these specifications is 29. Thus, the study design met the re-

quirements to achieve the alpha level, the power level, and the critical effect size that were determined a priori.

Target population, sample, doctoral programs: background information

The target population consisted of the doctoral students in education-related doctoral programs in four universities in the eastern part of the US. The researcher included questions pertaining to background information about the doctoral programs and about the protégés and mentors themselves in order to provide a basis for statements about external validity in the discussion section. The schools were identified only by pseudonyms in order to assure the protégés that the school names would be kept in strictest confidence.

As presented in Roberts (2020), the doctoral programs that were sampled for the current study were diverse in terms of several variables. For example, a number of different programs were represented as follows: educational leadership; school psychology; special education; teacher education; educational foundations, leadership, and technology; and education and human development. In addition, both Ph.D. programs and Ed.D. programs were represented. According to mentors' reports from the four university programs, on average, 64% of students in the programs were Ed.D. students, 34% were Ph.D. students, and 2% were pursuing other kinds of doctoral degrees. In addition, programs with both part-time students and full-time students were represented. More specifically, according to mentors' reports, 31% of students in their programs were full-time and 69% were part-time. Finally, the programs sampled for this study were diverse in terms of selectivity. According to mentors' reports, some were fairly selective, accepting less than 50% of doctoral student applications and others were quite inclusive, accepting more than 75% of applicants.

ETHICAL CONSIDERATIONS

The sampling methods were designed to conform carefully to the ethical treatment of human subjects as advised by the American Psychological Association guidelines (APA) (APA, 2010). Protégés were told that they could withdraw from the study at any point and for any reason. For example, protégés were told they could withdraw from the study if any of the questions made them feel anxious or uncomfortable. However, no protégés withdrew from the study.

The researcher submitted a formal Internal Review Board (IRB) proposal to one of the four universities and was granted approval. Each of the other three university IRBs had an approval reciprocity agreement with the university that granted formal approval. No gifts were offered to the mentors nor protégés for participation in the study. There were no conflicts of interest between the researcher and the research participants. Participants were informed that the data would be stored in the researcher's password-protected computer, accessible only to the researcher. Moreover, participants were informed that their confidentiality would be carefully protected and the data would be deleted three years after completion of the study.

CREATING AND VALIDATING NEW RESEARCH INSTRUMENTS

In order to test the hypotheses stated above, the researcher needed to create and validate a new set of research instruments to measure mentors' trustworthiness and to measure whether mentors had high standards. Instruments that measure these constructs from the *mentors'* perspective have been created, validated, and presented in the scholarly literature (Roberts, 2020). However, there was a need for a parallel set of instrument that measured these constructs from the *protégés'* perspective. This was another gap in the literature that the researcher sought to fill with the current study.

In prior sections, the researcher put forth two hypotheses pertaining to the links between the *scholarly strengths* of doctoral protégés and mentors' trustworthiness and high standards. To test these hypotheses, the researcher needed to define and measure doctoral protégés' scholarly strengths. There are

many ways a researcher *could* devise to measure doctoral protégés scholarly strengths, but for the current study, the researcher focused on three indicators as follows: a) protégés' confidence that they would complete their doctoral degree, b) protégés' perceptions of their own independence as scholars, and c) a composite assessment of protégés' scholarly productivity. Because no instruments were available in the scholarly literature to measure these constructs, this was another gap the researcher sought to fill. Thus, one of the objectives of this study was to create and validate research instruments to measure protégés' scholarly strengths. The details of these assessments will be described below. It should be noted that *all* of the constructs in this study were measured from the point of view of the protégés.

ANALYSES AND RESULTS

INTRODUCTION

In the first part of the results section, the researcher presented data to answer descriptive questions about the variables relevant to the main theory examined in this study and the two sub-theories. For these questions, the researcher presented means, standard deviations, frequencies, and percentages to describe a) protégés' perceptions of their own scholarly strengths, b) protégés' perceptions of their mentors' trustworthiness, and c) protégés' perceptions of their mentors' standards for performance. In the second part of the results section, the researcher presented regression statistics to examine the relationships between a) perceived mentor trustworthiness and protégés' scholarly strength and b) perceived mentor standards and protégés' scholarly strength.

Protégés' perceptions of their own scholarly strengths

Descriptive Research Question 1: To what extent do protégés perceive themselves to have scholarly strengths? This descriptive question was exploratory and no hypotheses were put forth.

The researcher created three measures for this construct. The details of the methods used to create these measures are given next.

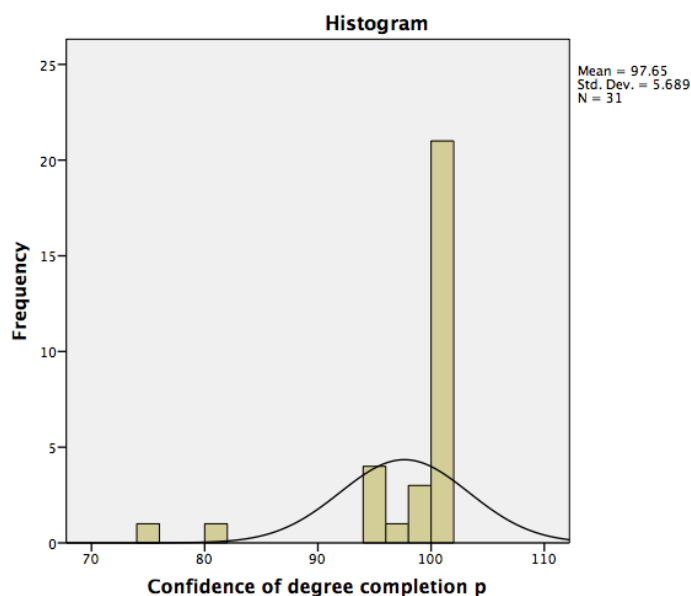


Figure 1: The distribution for protégés' confidence that they will complete their doctoral degree is negatively skewed with an obvious ceiling effect at the upper end.

The researcher asked each protégé, on a scale from 0% to 100%, how confident are you that you will complete your doctoral degree? The mean response was 97.65% confident ($SD = 5.69$). The distribution of scores is given in Figure 1, which shows the data were negatively skewed with an obvious ceiling effect. More than two thirds of the protégés were 100% confident that they would complete their degree. In general, these protégés had a high level of confidence that they would complete their degree.

Several variables were combined to measure protégés' self-reports of their own scholarly productivity. Each variable and its assessment method are described next. As shown on Table 1, 45.2% of protégés have finished all of their coursework except dissertation credits ($n = 14$). Eleven protégés (35.5%) have one to three more courses to complete the coursework for their doctorate. Six protégés (19.4%) have more than three courses remaining to complete their coursework.

Table 1: Descriptive Statistics for Number of Courses Needed for each Protégé to Finish Their Doctorate

COURSES NEEDED TO FINISH DOCTORATE	FREQUENCY	VALID PERCENT
I am finished my coursework; I'm ABD.	14	45.2
I have 1-3 courses more to complete my coursework.	11	35.5
I have more than 3 courses left to complete my coursework.	6	19.4
Total	31	100.0

Table 2 shows the number and percent of protégés who had completed each chapter of their dissertation. At the time of data collection, six protégés (19.4%) had not completed any chapters; six protégés (19.4%) had completed chapter one only; seven protégés (22.6%) had completed chapters one through three; six protégés had completed chapters one through four (19.4%) and six protégés had completed all five chapters (19.4%).

Table 2: Frequency and Percent of Protégés Who Have Completed Each Set of Chapters of their Dissertation

CHAPTER	NUMBER WHO HAVE COMPLETED	VALID PERCENT WHO HAVE COMPLETED
None	6	19.4
One, only	6	19.4
One, Two, and Three	7	22.6
One to Four	6	19.4
One to Five	6	19.4

As shown on Table 3, most protégés ($n = 28, 90.3%$) had not published any papers with their mentors; one protégé (3.2%) had published one paper with their mentor; and two protégés (6.5%) had published two or more papers with their mentors.

Table 3: Number of Publications Each Protégé had published with their Mentor

	FREQUENCY	VALID PERCENT
None	28	90.3
One	1	3.2
Two or more	2	6.5
Total	31	100.0

The researcher reasoned that scholarly productivity could be measured as a composite of the three variables described above. Thus, the researcher used the following numerical scheme and summed the values of the following variables: a) number of courses (“I have more than 3 courses left to complete my coursework,” – 1 point, “I have 1-3 courses more to complete my coursework,” – 2 points, “I am finished my coursework; I’m ABD,” – 3 points), b) number of dissertation chapters completed, (approximately 1 point for each chapter) and 3) number of scholarly publications (none = 0, one = 1, two or more = 2). Then, the researcher added up the number of points for each protégé to create a composite variable to measure self-reported scholarly productivity. The mean score for this composite variable was 5.16 ($SD = 2.83$). The histogram showing the distribution of this variable appears in Figure 2. As shown in the figure, the data are positively skewed with a floor effect at the lower end.

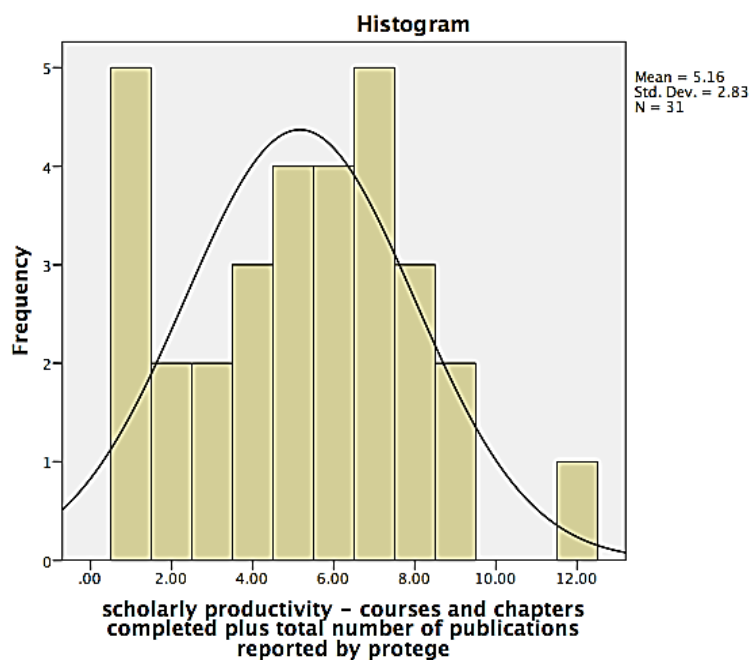


Figure 2: The distribution for protégés’ self-reported scholarly productivity is positively skewed with a floor effect at the lower end.

The researcher sought to create an instrument to measure the extent to which protégés perceived themselves to be independent scholars. The researcher reasoned that one of the ways of measuring protégés’ perceptions of their own scholarly strengths, i.e., the outcome construct for the sub-theories, was to assess the extent to which protégés felt they had transformed into independent scholars. To this end, the researcher generated eight items to measure this construct. See Table 4 for the individual items.

In order to test the validity of the independent scholarship scale, the researcher needed to answer the question, “When taken together, do the perceived independence items form a reliable scale with an acceptable Cronbach’s alpha coefficient?” Prior to computing the Cronbach’s alpha coefficient, the researcher noticed two protégés had missing data on one or two items. In order to make sure there were at least 30 cases with non-missing data on the independence scale, the researcher replaced the missing values with the mean scores on the other items for each protégé. This replacement method is recommended by Norusis (1993). The Cronbach alpha coefficient for the eight independence items was .87. Because this coefficient was greater than the criterion of .70, the researcher concluded that reliable independence scale scores could be created by computing the mean score for the independence items for each protégé.

As shown in Table 4, the mean score for most of the positively-worded items was close to 5 (agree). The exception was “I am independent in my ability to develop a sound research methodology;” this item had a mean score close to 4 (somewhat agree). The mean scores for the negatively-worded items were close to 5 (disagree) or close to 4 (somewhat disagree). Thus, the researcher concluded that protégés tended to agree that they were independent as scholars and tended to disagree or somewhat disagree that they needed a lot of help from their mentors. The one exception was protégés only “somewhat agreed” that they were independent in their ability to develop a sound research methodology. Thus, in contrast to other areas, protégés seemed to indicate a need for more support in the area of research methods development.

Table 4: Descriptive Statistics for the Perceived Independence Items

INDEPENDENCE ITEM	MEAN	SD	N	TEXT TRANSLATION OF NUMERICAL MEAN
I am independent in my literature search skills.	5.10	.98	31	Agree
I need a lot of help from my mentor to find information in the scholarly literature.	5.03	.80	31	Disagree
I am independent in my ability to think as a scholar.	5.13	1.02	31	Agree
I need a lot of help from my mentor to think through my research ideas.	3.65	1.45	31	Somewhat disagree
I am independent in my ability to write as a scholar.	5.03	.87	31	Agree
I need a lot of help from my mentor to write in a scholarly way.	4.55	1.18	31	Disagree
I am independent in my ability to develop a sound research methodology.	4.32	1.05	31	Somewhat agree
I need a lot of help from my mentor to develop my research methods.	3.77	1.41	31	Somewhat disagree

The mean Independence scale score was 4.57 ($SD = .80, n = 31$). This score is close to a 5, thus this result reinforces the conclusion above that the protégés tended to perceive themselves to be independent scholars. Figure 3 shows that the scores are approximately normally distributed.

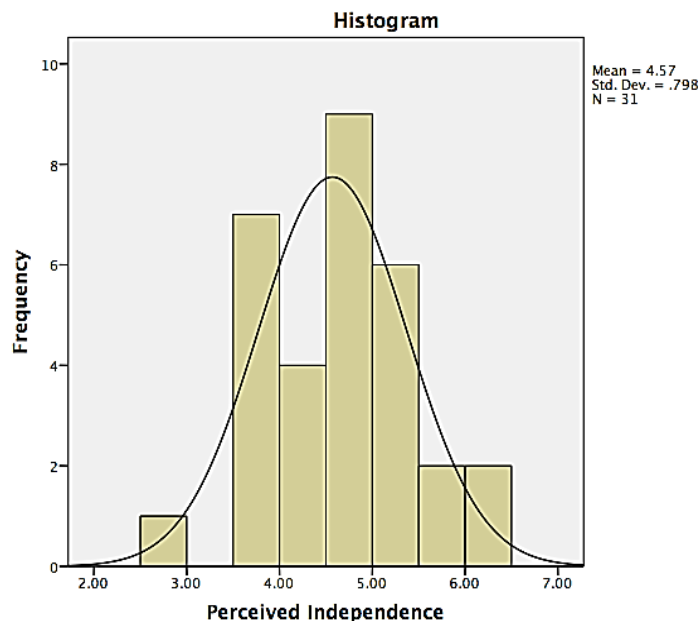


Figure 3: A histogram of the distribution of scores for the perceived independence scale shows an approximately normal distribution.

Protégés perceptions of their mentors' trustworthiness

Descriptive Research Question 2: To what extent do protégés perceive their mentors to be trustworthy? This descriptive question was exploratory and no hypotheses were put forth.

In order to answer this descriptive research question, the researcher first needed to test the validity of the instrument designed to measure protégés' perceptions of their mentors' trustworthiness. The researcher adapted the items from Tschannen-Moran's trust instrument (Tschannen-Moran & Gareis, 2015) to create 14 trustworthiness items.

First, the researcher asked the question, "When taken together, do the mentor trustworthiness items form a reliable scale?" To address this question, the researcher computed the Cronbach alpha reliability coefficient for the 14 trustworthiness items which resulted in a coefficient of .90. Based on the criterion of a Cronbach alpha coefficient equal to or greater than .70, the researcher deemed the 14 item scale to be reliable.

The next step was to create a single trustworthiness scale score by computing the mean of the 14 items for each protégé. In addition, the researcher generated the descriptive data for the trustworthiness scale and for all trustworthiness items. Table 5 presents the means and standard deviations ordered from highest to lowest mean. The means ranged from 5.87 (close to a score of 6 indicating that the protégés tend to "strongly agree" that the mentor is trustworthy) to 5.2 (close to a score of 5 indicating that the protégés tend to "agree" that the mentor is trustworthy). As shown in Table 5, the trustworthiness item with the highest mean was the general item, "I trust my mentor," with a mean of 5.87 ($SD = .34$), which is close to a score of 6, showing protégés tended to "strongly agree" that their mentor was trustworthy. The item with the lowest mean was "My mentor hides his or her true thoughts and feelings from me," with a mean of 5.2 ($SD = 1.03$). This item was negatively worded, so the responses were reverse coded. Thus, a mean of 5.2 is close to a score of 5 which corresponds to a response of "disagree." In other words a typical protégé disagrees with the statement, "My mentor hides his or her true thoughts and feelings from me." In general, the protégés tended to "agree" or "strongly agree" with the positively worded items and they tended to "disagree" with the negatively worded items. It is logical to conclude that the protégés felt their mentors were trustworthy.

Table 5: Means and Standard Deviations for All Trustworthiness Items

ITEM	<i>n</i>	MEAN	<i>SD</i>	TEXT TRANSLATION OF NUMERICAL MEAN
I trust my mentor.	31	5.87	0.34	Strongly agree
I have faith in the integrity of my mentor.	31	5.87	0.43	Strongly agree
My mentor typically acts with my best interests in mind.	31	5.74	0.51	Strongly agree
My mentor keeps his or her word.	31	5.74	0.44	Strongly agree
My mentor gives me good advice.	30 ^a	5.73	0.45	Strongly agree
I can rely on my mentor.	30	5.7	0.65	Strongly agree
My mentor is competent in doing his or her job.	30	5.7	0.53	Strongly agree
My mentor gives me competent guidance.	31	5.61	0.62	Strongly agree
My mentor follows through on his or her commitments to me.	31	5.61	0.62	Strongly agree
My mentor lets me know what is really going on.	31	5.58	0.56	Strongly agree
My mentor shows concern for me.	31	5.55	0.68	Strongly agree
My mentor is open and authentic with me.	31	5.55	0.81	Strongly agree
My mentor tends to neglect me.	31	5.42	0.92	Disagree
My mentor hides his or her true thoughts and feelings from me.	30	5.2	1.03	Disagree

^aOne protégé chose not to answer some of the trustworthiness items. For these items, $n = 30$.

There were 31 protégés with a valid trustworthiness scale score and the mean was 5.64 ($SD = .42$). This mean translates to a score slightly more than half way between a 5 (protégé “agrees” that the mentor is trustworthy) and 6 (protégé “strongly agrees” that the mentor is trustworthy). This result reinforces the conclusion stated above for the analysis of the individual item means. Thus, the researcher concluded that the protégés tended to feel their mentors were trustworthy.

It should be noted that the trustworthiness scale scores ranged from 6 (“strongly agree”) to 4.43 (slightly less than half way between 4 (“somewhat agree”) and 5 (“agree”). As shown in Figure 4, the scores were not normally distributed; they were negatively skewed with a marked ceiling effect and fully 9 protégés (29%) gave their mentors a perfect score of 6 for all 14 items.

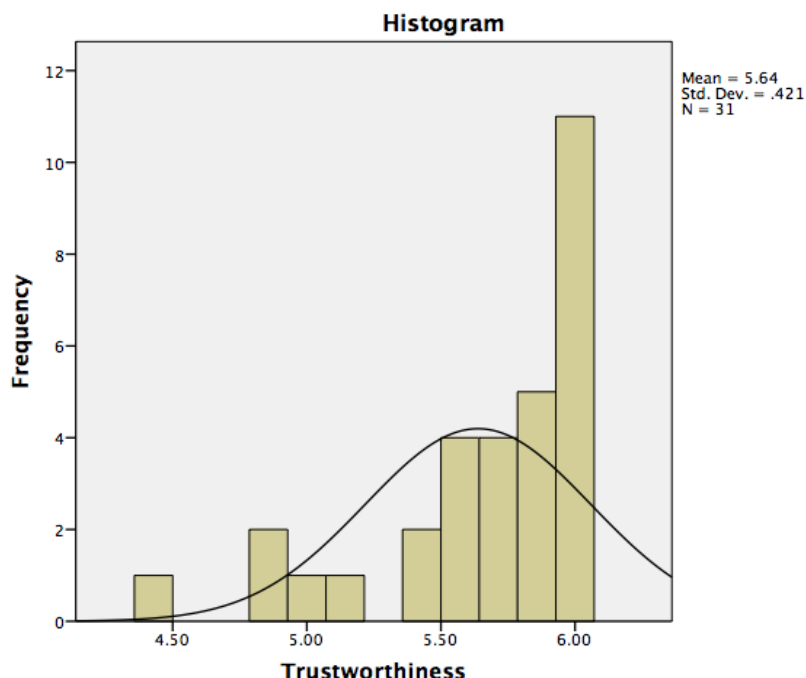


Figure 4: A histogram of the distribution of the trustworthiness scale scores shows a negative skew and a ceiling effect.

The researcher sought to drill down to analyze the validity of the items to measure the trustworthiness subscales. This section will answer the question, “Do the protégé trust items load logically on the following three subscales: honesty/reliability, competence, benevolence?” Based on a series of Cronbach alpha tests, the researcher found the honesty/reliability items loaded logically on a subscale; the competence items loaded logically on a subscale, but the benevolence did not load logically on a subscale. The researcher presented each Cronbach alpha coefficient in Table 6. As shown on the table the Cronbach alpha coefficient for the benevolence items did not reach the criterion of .70 for a reliable scale. Thus, it is not sensible to create a mean subscale score for these three items; for subsequent analyses of the benevolence construct, the researcher will examine the effects of each item score individually. The Cronbach alpha for the honesty/reliability items was .81, but the coefficient improved to .83 when the researcher deleted the item, “My mentor hides his or her true thoughts and feelings from me.” Thus, the items form a reliable subscale and it is reasonable to create a subscale score by computing the average of all of the honesty/reliability items, but without including the item pertaining to “true thoughts and feelings.” The Cronbach alpha for the competence items was .83; this coefficient met the criterion of .70 or higher. Thus, the researcher deemed these three items composed a reliable subscale; the researcher then computed a subscale score for each protégé by computing the mean of these three items.

Table 6: Cronbach Alpha Coefficients for each of the Three Hypothesized subscales for Trustworthiness

SUBSCALE	CRONBACH ALPHA	NUMBER OF ITEMS
Benevolence	.57	3
Honesty/Reliability	.81/.83*	7/6*
Competence	.83	3

*Results of Cronbach alpha test when the following item was deleted: My mentor hides his or her true thoughts and feelings from me.

The mean for each benevolence item and for the honesty/reliability and competence subscales are presented in Table 7. As shown on Table 7, the mean scores for the two positively worded benevolence items (i.e., “My mentor typically acts with my best interests in mind,” and “My mentor shows concern for me,”) fell between 5 (agree) and 6 (strongly agree), but closer to 6 (strongly agree). Thus, the researcher concluded that protégés tended to strongly agree with these items. The negatively worded benevolence item (“My mentor tends to neglect me”) fell between 5 (disagree) and 6 (strongly disagree), but closer to 5 (disagree.) Thus, the researcher concluded protégés tended to disagree with this item. The means for the honesty/reliability subscale and the competence subscale also fell between 5 (agree) and 6 (strongly agree), but closer to 6 (strongly agree). Thus the researcher concluded that protégés tended to strongly agree that their mentors were honest, reliable, and competent.

Table 7: Descriptive Data for the Benevolence Items and for the Honesty/Reliability and Competence Subscales

ITEMS AND SUBSCALES	MEAN	SD	TEXT TRANSLATION OF NUMERICAL MEAN
My mentor typically acts with my best interests in mind.	5.74	.51	Strongly agree
My mentor shows concern for me.	5.55	.68	Strongly agree
My mentor tends to neglect me.	5.42	.92	Disagree
Honesty/Reliability	5.68	.44	Strongly agree
Competence	5.69	.46	Strongly agree

Both the honesty/reliability subscale and the competence subscale were negatively skewed with marked ceiling effects as shown in Figures 5 and 6. Moreover, 15 protégés reported a maximum score of 6 for honesty/reliability and 19 protégés reported a maximum scores of 6 for competence.

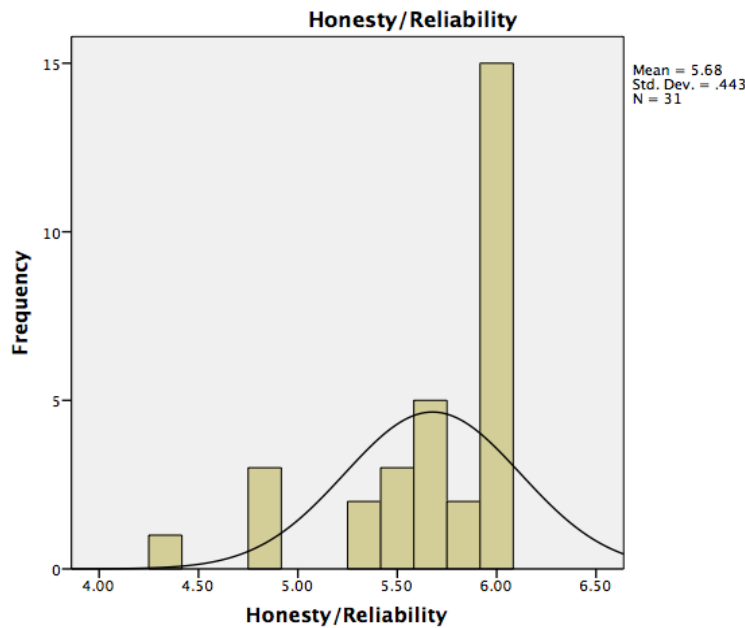


Figure 5: A histogram of the distribution of scores for the honesty/reliability subscale shows a negative skew and a ceiling effect.

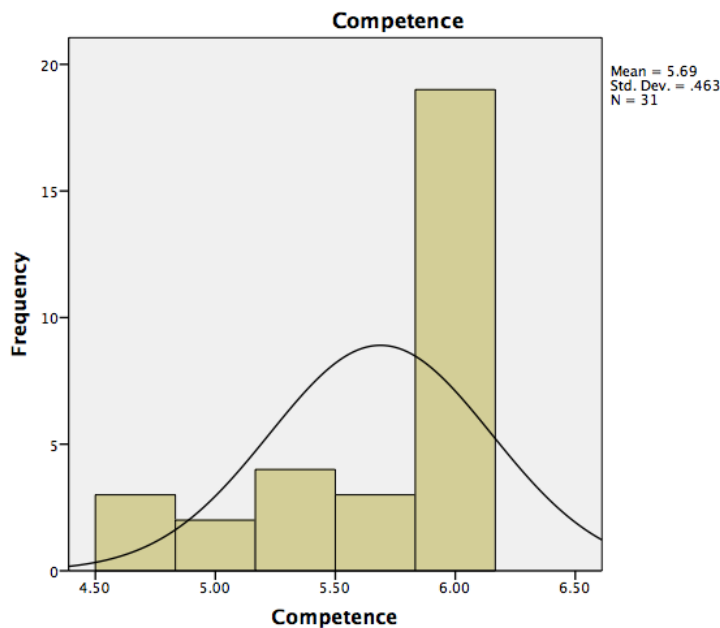


Figure 6: A histogram of the distribution of scores for the competence subscale shows a negative skew and a ceiling effect.

Protégés perceptions of their mentors’ high standards

Descriptive Research Question 3: To what extent do protégés perceive their mentors to have high standards? This descriptive question was exploratory and no hypotheses were put forth. In order to answer this descriptive question, the researcher first had to test the validity of an instrument designed to measure protégés’ perceptions of their mentors’ standards.

The researcher generated five items to assess the extent to which protégés perceive their mentors had high standards. These items are given in Table 8. Then, the researcher asked, “When taken together, do the high standards items form a reliable scale?” The Cronbach alpha for the five high standards variables was .90. This coefficient improved to .92 when the negatively-worded item was deleted, i.e. “My mentor has low expectations for me.” Thus, the researcher created a scale score for each protégé by computing the mean score for all of the positively worded items. This scale’s Cronbach (.92) exceeded the criterion of .70 and the scale was deemed a reliable.

Table 8: Descriptive Statistics for High Standards Items

HIGH STANDARDS ITEM	MEAN	SD	N	TEXT TRANSLATION OF NUMERICAL MEAN
My mentor expects high performance from me.	5.74	.51	31	Strongly agree
My mentor holds me to high standards.	5.74	.58	31	Strongly agree
My mentor pushes me to achieve at a high level.	5.61	.56	31	Strongly agree
My mentor has low expectations for me.	5.70	.47	31	Strongly disagree
My mentor has high expectations for me.	5.73	.52	31	Strongly agree

As shown on Table 8, the means for the positively-worded high standards items were between 5 (agree) and 6 (strongly agree), but closer to 6 (strongly agree). Thus, the protégés tended to strongly agree that their mentors held them to high standards. The mean score for the negatively worded item was between 5 (disagree) and 6 (strongly disagree), but closer to 6 (strongly disagree). Thus, the protégés tended to strongly disagree to the statement, “My mentor has low expectations for me.”

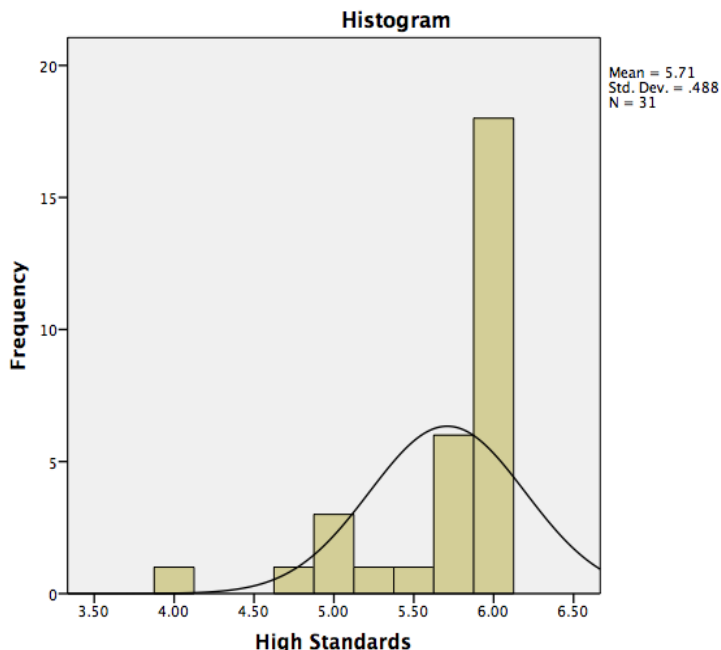


Figure 7: A histogram of the distribution of scores for the high standards scale shows a negative skew and a ceiling effect.

The researcher created the high standards scale score by computing the mean of the positively-worded items for each protégé. The mean for the scale score was 5.71 ($SD = .49$). This mean reinforced the conclusion stated above that protégés tended to strongly agree that their mentors held them to high standards. Figure 7 shows that the distribution of scores for the high standards scale was negatively skewed with a marked ceiling effect. In fact, fully 18 protégés reported their mentors’ high standards scores reached the maximum score of 6.

VALIDATION TESTS FOR THE TOUGH-LOVE MENTORING THEORY

The main purpose of the current study was to conduct tests of the validity of the tough-love mentoring (TLM) theory. The TLM theory is composed of two sub-theories as follows. The mentor integrity and trustworthiness (MIT) sub-theory states the following: a mentor’s trustworthiness will have a positive impact on the protégé’s strengths as a scholar. The mentors’ high standards (MHS) sub-theory states the following: a mentor’s high standards will have a positive impact on the protégé’s strengths as a scholar. In order to examine these two sub-theories, the researcher had to answer the two relational questions below.

The logic of the inferential tests is presented in Table 9 and explained as follows. In order to test the validity of the MIT sub-theory, the researcher examined the links between measures of mentor’s trustworthiness (the predictor variables) and measures of protégés’ scholarly strength (the outcome variables). In order to test the validity of the MHS sub-theory, the researcher examined the relationship between a measure of mentors’ high standards (the predictor variable) and measures of protégés’ scholarly strength (the outcome variables). For both sets of validity tests (for both the MIT and MHS sub-theories) all variables were measured from the protégés’ point of view.

For both the MIT and the MHS sub-theories, the outcome variables were composed of the following three measures of protégés' perceptions of their own scholarly strengths: a) protégés' confidence of completing the degree, b) protégés' perceptions of themselves as independent scholars, and c) protégés' self-reports of their own scholarly productivity. The researcher argued that these three variables are all measures of the larger, over-arching construct called "protégés' perspective of their own scholarly strength."

Table 9: Graphical Display of the Logic of the Tests of the Validity of the Tough-love Mentoring Theory

SUB-THEORY	PREDICTOR VARIABLES	OUTCOME VARIABLES – MEASURES OF PROTÉGÉS' PERSPECTIVES OF THEIR OWN SCHOLARLY STRENGTHS
Mentor Integrity and Trustworthiness (MIT) Sub-theory	Scale scores, sub-scale scores and item scores on protégés' perceptions of mentors' trustworthiness	<ul style="list-style-type: none"> a. Protégés' confidence of completing the degree b. Protégés' perceptions of themselves as independent scholars c. Protégés' self-reports of their own scholarly productivity
Mentor High Standards (MHS) Sub-Theory	Scale score of protégés' perceptions of their mentors' high standards	<ul style="list-style-type: none"> a. Protégés' confidence of completing the degree b. Protégés' perceptions of themselves as independent scholars c. Protégés' self-reports of their own scholarly productivity

The relationship between mentor trustworthiness and protégés' scholarly success

Relational Research Question 1: Is there a relationship between mentor trustworthiness and protégés' scholarly success?

Hypothesis 1: Drawing from the MIT sub-theory, the researcher hypothesized that mentors who were perceived to be trustworthy would be instrumental in launching protégés to become strong scholars.

According to the MIT sub-theory, the researcher hypothesized that there would be a positive relationship between protégés' perceptions of mentors' trustworthiness and protégés' self-reported scholarly strengths. Protégés' perceptions of mentors' trustworthiness was measured with the trustworthiness scale, the two reliable subscales (mentors' honesty/reliability and mentors' competence), and the three individual items that measured benevolence (My mentor typically acts with my best interests in mind [B1], My mentor tends to neglect me [B2], My mentor shows concern for me [B3]). Protégés' perceptions of their own scholarly strengths were measured with a) their confidence that they would complete their doctorate, b) their perceptions of their own scholarly independence, and c) their level of scholarly productivity (as measured by the sum of the number of courses completed, the number of dissertation chapters completed, and the number of publications). Based on the MIT theory, the researcher hypothesized that all correlations between the perceived mentor trustworthiness measures and protégés' self-reports of their scholarly strengths would be positive and significant. In order to test this hypothesis, the researcher conducted a series of simple regressions in which each of the measures of protégés' scholarly strengths were regressed on each measure of perceived mentor trustworthiness.

There were no school effects for protégés' perception of themselves as independent, nor for protégés' confidence of completing their doctorate, nor for protégés' reports of their own scholarly productivity. Thus, there was no need to co-vary out school for analyses with these variables as outcomes.

According to Aguinis et al. (2013) and Cook (1979) it makes sense to delete outliers if data errors are suspected. In this section, the researcher will make an argument that cases 3 and 12 should be deleted from some analyses due to a belief that the data contain errors. Six regressions were conducted that had protégés’ “confidence of degree completion” as the outcome variable. The researcher detected outliers in all six of these regressions. The analysis of the outliers is presented in Table 10. As shown in Table 10, case 3 was an outlier for all six regressions and case 12 was an outlier in three of the six regressions. Taking all of the instances of outliers together, the mean *actual value* for “confidence of degree completion” from the protégés’ perspective was 76.67%. In contrast, the mean *predicted value* for “confidence of degree completion” from the protégés’ perspective was 97.72% this is a mean difference of 21.05% points between the actual values and the predicted values. Such a large difference leads the researcher to hypothesize the possibility of error and that the protégés’ expectations of degree completion were much lower than statistically predicted. This hypothesis was reinforced by the mean standardized residual of -3.88. Typically, a researcher should consider the possibility of error for any cases with standardized residuals with an absolute value greater than 3. All of the standardized residuals for these analyses had absolute values greater than 3 (Norusis, 1993).

Further evidence supporting the hypothesis of the presence of error was an analysis of the mentors’ “confidence of degree completion.” This analysis was consistent with the hypothesis that protégés 3 and 12 may have been under-confident; i.e., that the likelihood of degree completion was much higher than they expected. When the researcher compared *protégés’* “confidence of degree completion” for cases 3 and 12 to the *mentors’* confidence that protégés 3 and 12 would complete their degree, it was found that the protégés’ estimates were 23% points lower, on average, than mentors’ estimates. Thus, it was reasonable to hypothesize that these two protégés’ confidence of completing the degree incorporated some errors, either errors in judgement or data entry errors. Thus, it was reasonable to delete the outlier cases prior to computing the regressions of protégés’ confidence of degree completion on the measures of perceived mentor trustworthiness.

Table 10: An Analysis of Outlier Cases in the Regression of “Confidence of Degree Completion” on Mentors’ Perceived Trustworthiness

PREDICTORS	OUTLYING CASE #	CONFIDENCE PROTEGES’ PERSPECTIVE-ACTUAL VALUE	CONFIDENCE PROTEGES’ PREDICTED VALUE	CONFIDENCE MENTORS’ PERSPECTIVE-ACTUAL VALUE	STANDARDIZED RESIDUAL
Trustworthiness	3	75	98.67	100	-4.182
	12	80	94.59	99	-4.22
B1 ^a	3	75	97.62	100	-3.909
	12	80	97.62	99	-3.045
B2 ^b	3	75	98.57	100	-4.215
B3 ^c	3	75	97.55	100	-3.898
	12	80	97.76	99	-3.071
Honesty/Reliability	3	75	98.44	100	-4.126
Competence	3	75	98.69	100	-4.256
Mean		76.67	97.72	99.67	-3.88

^aMy mentor typically acts with my best interests in mind. ^bMy mentor tends to neglect me. ^cMy mentor shows concern for me.

The researcher conducted a series of regressions in which measures of protégés' scholarly strengths were regressed on protégés' perceptions of mentors' trustworthiness. The measures of protégé scholarly strengths were as follows: a) protégés' confidence of degree completion, b) protégés' perceptions of themselves as independent scholars, and c) protégés' self-reported scholarly productivity.

As shown on Table 11, protégés who perceived their mentors to be more trustworthy were more confident that they would complete their degree ($B = .37, p < .05$); conversely protégés who perceived their mentors to be less trustworthy were less confident that they would complete their degree. The two trustworthiness subscales, honesty/reliability and competence, as well as two of the three benevolence items, B1 and B2, were positively and significantly linked to protégés' confidence of completing their degree. The significant standardized regression coefficients ranged from .39 to .55; according to Cohen (1988) these would be considered moderate to large effect sizes.

Table 11: Standardized Regression Coefficients for the Relationships between Measures of Protégé Scholarly Strengths and Perceived Mentor Trustworthiness

MEASURES OF PROTÉGÉS' SCHOLARLY STRENGTH	TRUSTWORTHINESS	BENEVOLENCE 1 ^a	BENEVOLENCE 2 ^b	BENEVOLENCE 3 ^c	HONESTY/RELIABILITY	COMPETENCE
Confidence of degree completion	.37*	.39*	.51**	-.03	.45*	.55**
Perceived Independence	-.06	.09	.02	-.02	-.14	-.17
Scholarly productivity – coursework, chapters, and publications	.07	-.22	.06	.37*	.06	.02

* $p < .05$. ** $p < .005$. ^aMy mentor typically acts with my best interests in mind. ^bMy mentor tends to neglect me. ^cMy mentor shows concern for me.

Also shown on Table 11 are the standardized regression coefficients for the regression of perceived scholarly independence on the trustworthiness scale, subscales, and benevolence items. All variables were measured from the point of view of the protégé. The coefficients ranged from -.17 to .09; none were significant. The researcher concluded that the relationships were non-significant.

Finally, the bottom row of Table 11 shows the relationship between protégés' perceptions of their mentor as trustworthy and protégés' self-reports of their scholarly productivity (as measured by completed coursework, completed dissertation chapters, and number of scholarly publications.) Only one of the standardized regression coefficients was significant; benevolence item 3 ("My mentor shows concern for me,") was positively linked to protégés' self-reports of scholarly productivity ($B = .37, p < .05$). Protégés who tended to agree or strongly agree with the statement, "My mentor shows concern for me," reported higher levels of scholarly productivity; conversely, protégés who tended to disagree with the statement, "My mentor shows concern for me," reported lower levels of scholarly productivity. This effect was moderate in size.

The relationship between mentors' standards and protégés' scholarly success

Relational Research Question 2: Is there a relationship between mentors' standards and protégés' scholarly success?

Hypothesis 2: Drawing from the MHS sub-theory, the researcher hypothesized that mentors who were perceived to have high standards would be instrumental in launching protégés to become strong scholars.

In this section, the researcher sought to address the question, “Based on protégés’ perceptions, what is the relationship between mentors’ high standards and protégés’ scholarly strengths?” Drawing from the MHS theory, the researcher hypothesized that protégés’ perceptions of mentors’ high standards would be significantly and positively linked to the three assessments of protégés’ reported scholarly strengths as follows: a) protégés’ confidence of completing their degree, b) protégés’ perceptions of themselves as independent scholars, and c) protégés’ self-reported scholarly productivity. The researcher conducted a series of analyses by regressing measures of protégés’ scholarly strengths on protégés’ perceptions of their mentors’ high standards.

Drawing from the logic of the analysis of outliers above, the researcher argued that the value of protégé case 3’s confidence of completing the degree (75%) was an outlier. The protégé’s *actual value* for confidence of completing the degree was 23.59% points lower than the *predicted value* of 98.59% based on the regression analysis; it was also 25% points lower than the mentor’s 100% confidence that the protégé would complete the degree. Thus, it was reasonable to hypothesize that the protégé’s confidence of completing the degree may have some error due to either a data entry error or an error in judgement. Thus, protégé 3 was deleted from the regression in the first row of Table 12.

As shown on Table 12, the only variable that was significantly correlated with protégés’ perceptions of their mentors’ high standards was protégés’ confidence of completing the degree ($B = .54, p < .005$). This was a large effect. Thus, protégés who perceived their mentors to have high standards felt very confident that they would complete the degree; in contrast protégés who *did not* perceive their mentors to have high standards felt less confident that they would complete their degree.

Table 12: Standardized Beta Coefficients from the Regressions of Protégés’ Perceptions of Their Own Scholarly Strengths on Protégés’ Perceptions of their Mentors’ High Standards

MEASURES OF PROTEGES’ SCHOLARLY STRENGTHS	HIGH STANDARDS
Confidence of degree completion	.54**
Perceived Independence	-.13
Scholarly productivity – coursework, chapters, and publications	.03

** $p < .005$.

Finally, as part of the pilot testing procedures, the researcher asked each protégé how long it took to complete the questionnaire. Most protégés ($n = 30$) said it took less than 15 minutes; one protégé said it took between 15 and 30 minutes. Thus, the researcher concluded that the questionnaire does not pose an undue time burden on respondents.

SUMMARY

The data provide strong evidence of construct validity of the assessment instruments, MIT-P, MHS-P, and PPI. The researcher also analyzed data that tested the validity of the TLM theory. There are two sub-theories subsumed under the TLM theory as follows: a) the mentors’ integrity and trustworthiness (MIT) sub-theory and b) the mentors’ high standards (MHS) sub-theory. The data show support for both sub-theories and for the overarching TLM theory.

DISCUSSION

TRUSTWORTHINESS

This study shows when protégés' perceive their mentors to be more trustworthy, they are more confident about degree completion. Conversely, when protégés perceive their mentors to be less trustworthy, they are less confident about degree completion. This result provides support for the MIT sub-theory. This finding is also consistent with prior studies that have shown trustworthy mentors know how to nurture and develop their protégés (Anderson et al., 2006; Baker & Pifer, 2011; Gearity & Mertz, 2012; Holley & Caldwell, 2012; Kram, 1985; Lovitts, 2005; Luna & Cullen, 1998; Nettles & Millett, 2006; Orellana et al., 2016; Weidman et al., 2001). These findings are also consistent with an exploratory, qualitative study (Roberts & Ferro-Almeida, 2019) and a quantitative study (Roberts, 2020) in which the researchers concluded trust is very important in successful mentor–protégé relationships. Roberts' study (2020) showed doctoral protégés are more likely to achieve at a high level and are more likely to graduate when they work with a trustworthy mentor. Roberts' study (2020) explored the MIT sub-theory based on self-reports from the point of view of the *mentors*. The current study adds validity to the MIT sub-theory from a new perspective, i.e. from the perspective of the *protégés*.

Competence

The current study shows when protégés' perceive their mentors to be competent, protégés are more confident about completing the degree; this is a strong effect. This result is consistent with Roberts' study (2020) that showed *mentors' self-reported* competence is strongly linked to reports of protégés' success. More specifically, mentors who perceive themselves as more competent have more protégés who have won dissertation awards. The fact that data from two different studies and two different stakeholders' perspectives (i.e. the mentors' *and* the protégés' perspectives) converge on the same conclusion provides strong validity for the MIT sub-theory. These findings are generally consistent with a study by Paglis et al. (2006) which shows that effective mentoring is positively correlated with protégés' research productivity and scholarly self-efficacy.

This finding can be further understood with Bandura's social learning theory (2001). Perhaps when protégés spend time with a mentor who they perceive to be competent, the protégés themselves internalize these perceptions through social modeling which is one of the principles of social learning theory. Internalized thoughts and feelings of competence may cause protégés to have greater confidence in themselves and, consequently, greater confidence about completing the degree.

Openness, authenticity and benevolence

Some aspects of honesty measured in this study are openness and authenticity. The findings show when protégés perceive their mentors as open and authentic, they are more confident about completing the degree. This is consistent with data from a qualitative study that shows mentors feel it is important to engage personally with protégés (Roberts & Ferro-Almeida, 2019). This is also consistent with research that shows an effective mentor cares for the protégé as a whole person with a life, interests, commitments, and passions outside of the student role (Martinsuo & Turkulainen, 2011; Paglis et al., 2006; Salani et al., 2016; Southern, 2007; Woolderink, et al., 2015). This finding provides more evidence to support the MIT sub-theory which posits that mentors' honesty, openness, and authenticity will bring about greater success for protégés in the scholarly world. Perhaps when mentors risk behaving with honesty, openness, and authenticity, they teach protégés to behave in kind. According to Brown (2010) a willingness to risk openness and vulnerability allows whole-hearted living which opens a golden gateway to creativity, innovation, and change; these ways of thinking are the hallmarks of doctoral level thinking.

However, it should also be noted that mentors need to set clear boundaries in this relationship (Roberts & Bandlow, 2018). If the mentor empathizes too much with the protégé and helps too much, this can foster too much dependency. Setting clear boundaries can assure the protégé produces original research that is not overly influenced by the beliefs and opinions of the mentor.

There are other problems that can arise due to the psychosocial nature of mentor/protégé relationships. When mentors and protégés allow themselves to open up and reveal vulnerabilities to each other, these relationships can become quite close. In close human relationships set within a professional context, unhealthy dependencies and attachments can occur, including romantic and physical attachments (Rhodes et al., 2009). Rhodes and colleagues (2009) discussed these pitfalls in the context of mentoring programs pertaining to adults mentoring teens. However, their thinking on this topic is also relevant to mentor/protégé relationships in doctoral programs. Rhodes and colleagues (2009) provide helpful guidelines for mentors to redress this problem.

Compassionate candor

Another aspect of honesty measured in this study pertains to the mentors' ability to speak openly and with candor. When taken together the mentor characteristics of candor and benevolence can be characterized as behaving with *compassionate candor*. In this study, protégés are more confident about completing their degree when they perceive their mentors to act with compassionate candor. This is consistent with Scott's thinking (2015) in which she treats these two dimensions as synergistic forces that mentors can use to help protégés. According to Scott's concept of *radical candor* (2015) mentors would do best to pair compassion with direct and honest feedback to protégés. Similarly, Singer and Klimecki (2014) claim that mentors should create a climate of compassion in the mentor/protégé relationship characterized by "feelings of warmth, concern and care for the [protégé], as well as a strong motivation to improve the [protégé's] wellbeing" (p. 875). According to Vich and Kim (2016) when protégés believe their mentors have their best interests in mind, they are more likely to accept critical feedback. If mentors deliver critical feedback without first creating the climate of compassion, the protégés may receive it as harsh feedback and they may become discouraged and resentful.

MENTORS' HIGH STANDARDS

The tough-love sub-components above (competence, honesty/reliability and benevolence) are further braided together with the sub-component of mentors' high standards. This research shows when protégés perceive their mentors to have high standards, they are more confident about completing their degree. When mentors hold protégés to high standards they sometimes have to give them tough, critical feedback; they sometimes have to convey that the protégés' scholarly thinking and writing need improvement. This kind of feedback can be unpleasant for the protégé. Thus, a tough-love mentor is one who can practice *compassionate candor* which is the practice of speaking directly and honestly and with an attitude of loving-kindness. According to Gilbert and Choden (2014) mentors who practice loving-kindness will develop compassion toward their protégés. The researcher contends mentors who interact with protégés in a way that weaves together compassion, candor, and high standards will have successful protégés.

The analyses revealed non-significant correlations between protégés' reported independence and the tough-love mentoring variables. Regarding the seven correlations between protégés' reported scholarly productivity and tough-love mentoring, only one correlation is significant. Perhaps the tests are biased due to a lack of controls on the developmental level of the protégés. These tests may yield different results when studied with longitudinal data. There were no requirements during the sampling procedure for the mentors to nominate protégés who were at the early or later stages of their doctorate. The relationship of these measures of protégés' success with protégés' perceptions of mentor trustworthiness and high standards would likely depend on the developmental stage of the protégé. In future research these relationships will be re-examined in more detail by including the developmental level of the protégé.

Links to other studies

The data are consistent with the work of Hadjioannou et al. (2007) who found that good mentoring is grounded in both the mentors' and protégés' willingness to risk being open and vulnerable with each other. In addition, the findings of the current study are also consistent with data from Vahey's (2019) interviews of doctoral students in which was revealed a link between mentors' genuine concern for doctoral protégés and protégés' success in the world of scholarship. In another study, Roberts (2020) presents support for the MIT sub-theory, but not for the MHS sub-theory. However, the data for Roberts (2020) are based on *mentors'* perceptions. The data for the current study are based on *protégés'* perceptions. It could be argued that the protégés' perceptions are more objective because mentors may have a self-serving bias when rating themselves on trustworthiness and high standards. Thus, it could also be argued that the findings of the current study (i.e. support for *both* the MIT sub-theory and the MHS sub-theory) are more valid than the findings of Roberts (2020) which only shows support for the MIT sub-theory. However, additional research is needed to better understand why research with protégés' perspectives supports MHS sub-theory, but research with mentors' perspectives does not support MHS sub-theory.

CONCLUSION

RECOMMENDATIONS FOR PRACTICE

The researcher recommends that mentors get to know their protégés beyond their professional roles. Mentors are encouraged to talk with their protégés to uncover possible areas of stress caused by conflicts between professional roles and personal roles. Vahey (2019) shows that protégés are often overwhelmed with the competing demands of these roles. Protégés sometimes feel there just is not enough time in the day to meet all of these demanding roles. Mentors are encouraged to discuss these potential conflicts and to help protégés achieve a healthy balance between professional roles and personal roles; protégés who learn to manage stress and achieve a healthy life balance are more likely to be successful.

In some programs, the dissertation chair serves in the formal role of mentor. Protégés are encouraged to meet with faculty members and to get to know them before asking a person to serve in the role of chair and mentor. Protégés should look for a tough-love mentor, i.e., someone who communicates with compassionate candor. In some doctoral programs the department head assigns a chair to each protégé. In this case, the protégé may be lucky enough to be assigned a tough-love mentor. If not, the protégé can seek out an informal mentor who embodies tough-love qualities such as compassionate candor. Doctoral program administrators are encouraged to provide professional development to help their doctoral level mentors a) develop the compassionate candor skills needed to convey their high standards to their protégés with loving-kindness and b) learn ways to improve their own sense of trustworthiness and to communicate trustworthiness to protégés.

Consistent with Vich and Kim (2016), the researcher encourages mentors' to focus on the development of feedback skills and personal qualities of proactivity and compassion. The researcher also recommends that protégés develop proactive communication skills by developing ways to invite feedback from their mentors. As the protégés mature into their scholarly roles, both mentors and protégés may begin to see the relationship as a collaboration between colleagues, not as a top-down, hierarchical relationship between a superior mentor and an inferior protégé. These findings suggest that compassionate candor and proactive communication by both mentors and protégés may lead to a healthy relationship and may launch the protégé successfully into a career as a scholar.

The Right Angle research alignment (RARA) table

Protégés report less independence in research methods than in other areas, such as writing a literature review and more general scholarly thinking and writing. This is consistent with Roberts' study (2020) in which *mentors* also claim their protégés need relatively more support in the area of research

methods. In response to this need, mentors and protégés are encouraged to use the Right Angle Research Alignment (RARA) Table (Roberts, 2016; Roberts et al., 2019) to organize and manage the research methods chapters of the dissertation. The RARA Table can guide students through the steps of aligning the research questions, data sources, and analysis plans. An example from Areias (2016) is given in Table 13. The RARA Table can also be extended to include deadlines for each step. Thus, it can also be useful to help with time management.

Table 13: Exemplar for an alignment tool for research questions, hypotheses, data sources, and analysis plans

RESEARCH QUESTIONS AND HYPOTHESES	DATA SOURCE	ANALYSIS PLAN
1. In American-sponsored overseas schools in Africa, what percentage of teachers report leadership at Levels 0, 1, 2, 3 and 4? This question was exploratory; no hypotheses were proposed.	Teacher leadership questionnaire (TLQ) assessment of teacher leadership phase.	Frequency and percentage of teachers at each phase of teacher leadership (0–4)
2. What is the average number of leadership activities reported by American-sponsored overseas school teachers in Africa? This question was exploratory; no hypotheses were proposed.	TLQ assessment of intensity of teacher leadership.	Mean and standard deviation of the intensity teacher leadership score.

IMPLICATIONS FOR SCHOLARSHIP

Taken together with recent developments in doctoral mentoring theory (Roberts, 2020, Roberts & Ferro-Almeida, 2019) the current study adds substantially to theory development in mentor relations theory (Kram, 1983, 1985, 1996). In addition, the research by Roberts (2020) and by Roberts and Ferro-Almeida (2019) adds to and extends prior work on trustworthiness in an educational context. For example, the dynamics of trustworthiness that Tschannen-Moran (2009), Tschannen-Moran and Gareis (2015), and Tschannen-Moran and Hoy (1998, 2000) found in the context of basic education has been extended to the context of higher education by Roberts (2020) and by Roberts and Ferro-Almeida (2019). In addition, the TLM theory marries Scott’s concept of radical candor (2015) and Brown’s concepts of authenticity and whole-hearted living (2010) to create the concept of compassionate candor as a guiding principle to help mentors develop successful relationships with protégés. Moreover, the researcher contends that a successful relationship will launch the protégé to a successful life of scholarship.

STRENGTHS AND LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

External validity

The TLM theory may generalize to protégés in doctoral programs similar to the ones studied, i.e. Ed.D. and Ph.D. programs, with full-time and part-time students, in the eastern part of the United States in education-related fields, with diversity in terms of selectivity. One of the recommendations for future research is to encourage other researchers to test whether the TLM theory generalizes to other doctoral programs in other parts of the United States and other countries. The researcher also encourages others to explore the TLM theory in doctoral disciplines other than education-related fields.

Construct validity

Construct validity is strong for the protégés' perceptions of independence scale, the mentors high standards scale, the trustworthiness scale, the honesty/reliability subscale, and the competence subscale. Construct validity for the benevolence subscale is weak. For future research, it would be helpful to find a more reliable way to measure the benevolence construct. To this end, the researcher will revise the benevolence items and will revisit the original benevolence items from Tschannen-Moran's questionnaire (2009) in order to create some additional items and to re-pilot the new items. The item used to measure "protégés confidence in completing their degree" possesses face validity. It can also be argued that it possesses criterion validity by virtue of its significant correlations with TLM constructs. These correlations provide evidence of validity for both the research instruments and for the TLM theory. The composite score used to measure protégés' reports of scholarly productivity possesses face validity, however, the criterion validity is weak. The researcher intends to revise and re-pilot this instrument in future studies.

Conclusion validity

According to Trochim and Donnelly (2008) conclusion validity is validity of conclusions that can be made on the basis of the correlations that emerge from the statistical analyses. Seven correlations were computed examining the relationship between the TLM variables and protégés' confidence of degree completion. Six of the seven correlations are significant and they all have moderate to large effect sizes. So, conclusion validity is strong for these relationships. None of the correlations involving protégés' perceived independence are significant, and only one of the correlations involving protégés' reported scholarly productivity is significant. Due to the small sample size, it is possible that these non-significant correlations are due to type 2 errors. It is also possible that longitudinal data would be needed to conduct valid tests of the links between TLM variables and assessments of protégés' independence and scholarly productivity. The researcher will seek to strengthen conclusion validity in future studies of TLM theory by collecting and analyzing longitudinal data. Other researchers are also encouraged to revisit the phenomena presented in the current study with developmental (i.e. longitudinal) data. Researchers are also encouraged to revisit the TLM theory and its sub-theories with larger samples.

Internal validity

Internal validity has to do with the validity of causal inferences drawn from a study. In the current study the researcher put forth a causal theory, i.e. that tough-love mentoring has a positive impact on protégés' success in the world of scholarship. Although the significant findings are consistent with the causal TLM theory, the design of the study is only correlational; it is not a controlled experimental study. Thus, the internal validity of the study is only moderate at best. In future studies, the researcher encourages others to strengthen the internal validity of the TLM theory by conducting research with experimental designs.

There is a significant need for effective mentoring in doctoral education. Research supports the notion that effective mentoring has the power to bring about greater success for doctoral protégés and this outcome is good for all stakeholders including protégés, mentors, program administrators, the university itself, and society at large. This study provided evidence to support the TLM theory of mentoring. The data support the idea that mentors who are competent, honest, benevolent, and holders of high standards will launch successful protégés. One of the key ideas uncovered in the current study is that compassionate candor may unlock the potential of a doctoral protégé. Compassionate candor allows mentors to deliver critical feedback within a climate of loving-kindness. Thus, mentors are encouraged to master the skills of compassionate candor and to practice those skills faithfully in their mentoring role.

REFERENCES

- Aguinis, H., Gottfredson, R. K., & Joo, H. (2013). Best-practice recommendations for defining identifying and handling outliers. *Organizational Research Methods, 16*(2), 270–301. <https://doi.org/10.1177/1094428112470848>
- American Psychological Association (APA) (2010). *Publication manual of the American Psychological Association* (6th ed.). APA.
- Anderson, C., Day, K., & McLaughlin, P. (2006). Mastering the dissertation: Lecturers' representations of the purposes and processes of Master's level dissertation supervision. *Studies in Higher Education, 31*(2), 149–168. <https://doi.org/10.1080/03075070600572017>
- Areias, S. M. (2016). *Supports for teacher leadership: Teachers' perceptions in American-sponsored overseas schools in Africa*. Unpublished Doctoral Dissertation. Bethlehem, PA: Lehigh University. <https://pre-serve.lehigh.edu/etd/2494>
- Baker, V. L., & Pifer, M. J. (2011). The role of relationships in the transition from doctoral student to independent scholar. *Studies in Continuing Education, 33*(1), 5-17. <https://doi.org/10.1080/0158037X.2010.515569>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Best, K. C. (2011). Inductive supervision as a scaffolding mechanism for improving employee performance. *Journal of Leadership & Organizational Studies, 18*(3), 397–407. <https://doi.org/10.1177/1548051811407505>
- Bøgelund, P. (2015). How supervisors perceive PhD supervision – And how they practice it. *International Journal of Doctoral Studies, 10*, 39-55. <https://doi.org/10.28945/2096>
- Brown, B. (2010). *The gifts of imperfection: Let go of who you think you're supposed to be and embrace who you are*. Hazelden Publishing.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Cook, R. D. (March 1979). Influential observations in linear regression. *Journal of the American Statistical Association, 74*, 169-174. <https://doi.org/10.2307/2286747>
- Craft, C. M., Augustine-Shaw, D., Fairbanks, A., & Adams-Wright, G. (2016). Advising doctoral students in education programs. *NACADA Journal, 36*(1), 54–65. <https://doi.org/10.12930/NACADA-15-013>
- Curtin, N., Stewart, A. J., & Ostrove, J. M. (2013). Fostering academic self-concept: Mentor support and sense of belonging among international and domestic graduate students. *American Educational Research Journal, 50*(1), 108–137. <https://doi.org/10.3102/0002831212446662>
- Daloz, L. (1986). *Effective teaching and mentoring*. Jossey-Bass.
- Fleig-Palmer, M. M., & Schoorman, F. D. (2011). Trust as a moderator of the relationship between mentoring and knowledge transfer. *Journal of Leadership & Organizational Studies, 18*(3), 334–343. <https://doi.org/10.1177/1548051811408615>
- Gardner, S. K. (2008). “What’s too much and what’s too little?” The process of becoming an independent researcher in doctoral education. *The Journal of Higher Education, 79*(3), 326-350. <https://doi.org/10.1353/jhe.0.0007>
- Gearity, B. T., & Mertz, N. (2012). From “bitch” to “mentor”: A doctoral student’s story of self-change and mentoring. *The Qualitative Report, 17*(30), 1–27. <https://files.eric.ed.gov/fulltext/EJ982090.pdf>
- Gilbert, P., & Choden (2014). *Mindful compassion: How the science of compassion can help you understand your emotions, live in the present, and connect deeply with others*. New Harbinger Publications. <https://psycnet.apa.org/rec-ord/2014-20386-000>
- Goddard, R. D., Tschannen-Moran, M., & Hoy, W. K. (2001). A multilevel examination of the distribution and effects of teacher trust in students and parents in urban elementary schools. *The Elementary School Journal, 102*(1), 3–17. <https://doi.org/10.1086/499690>

- Golde, C. M. (2005). The role of department and discipline in doctoral student attrition: Lessons from four departments. *The Journal of Higher Education*, 76(6), 669–700. <https://doi.org/10.1080/00221546.2005.11772304>
- Gonzalez, K., Marin, P., Figueroa, M. A., Moreno, J. F., & Navia, C. N. (2002). Inside doctoral education in America: Voices of Latinas/os in pursuit of the Ph.D. *Journal of College Student Development*, 43(4), 540–557. <https://psycnet.apa.org/record/2002-17472-008>
- Gonzalez, K. P., Marin, P., Perez, L. X., Figueroa, M. A., Moreno, J. F., & Navia, C. N. (2001). Understanding the nature and context of Latina/o doctoral student experiences. *Journal of College Student Development*, 42(6), 563–579. <https://eric.ed.gov/?id=EJ640474>
- Grant, B. M. (2005). *The pedagogy of graduate supervision: Figuring the relations between supervisor and student*. Doctoral Dissertation. Auckland, New Zealand: The University of Auckland. <http://hdl.handle.net/2292/295>
- Grant, K., Hackney, R., & Edgar, D. (2014). Postgraduate research supervision: An ‘agreed’ conceptual view of good practice through derived metaphors. *International Journal of Doctoral Studies*, 9, 43–60. <https://doi.org/10.28945/1952>
- Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family*, 61(3), 574–587. <https://doi.org/10.2307/353561>
- Hadjiioannou, X., Shelton, N. R., Fu, D., & Dhanarattigannon, J. (2007). The road to a doctoral degree: Co-travelers through a perilous passage. *College Student Journal*, 41(1), 160-177. <https://eric.ed.gov/?id=EJ765415>
- Holley, K. A., & Caldwell, M. L. (2012). The challenges of designing and implementing a doctoral student mentoring program. *Innovative Higher Education*, 37(3), 243–253. <https://doi.org/10.1007/s10755-011-9203-y>
- Hopson, L., & Weldon, P. (2013). Parental expectations and academic success in the context of school climate effects. *Families in Society: The Journal of Contemporary Social Services*, 94(1), 45–52. <https://doi.org/10.1606/1044-3894.4258>
- Hoy, W. K., & Tschannen-Moran, M. (1999). Five faces of trust: An empirical confirmation in urban elementary schools. *Journal of School Leadership*, 9(3), 184–208. <https://doi.org/10.1177/105268469900900301>
- Ibarra, R. A. (1996). *Latino experiences in graduate education: Implications for change – A preliminary report*. Council of Graduate Schools.
- Jussim, L., & Harber, K. D. (2005). Teacher expectations and self-fulfilling prophecies: Knowns and unknowns, resolved and unresolved controversies. *Personality and Social Psychology Review*, 9(2), 131–155. https://doi.org/10.1207/s15327957pspr0902_3
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy*. Association Press.
- Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management Journal*, 26(4), 608–625. <https://pdfs.semanticscholar.org/ad02/bf6777c007d30a576d16331eca04cdb296b5.pdf>
- Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life*. Scott, Foresman and Company.
- Kram, K. E. (1996). A relational approach to career development. In D. Hall, & D. Hall & Associates (Eds.), *The career is dead – long live the career: A relational approach to careers* (pp. 127-132). The Jossey-Bass Business & Management Series. <https://eric.ed.gov/?id=ED404482>
- Lee, A. (2008). How are doctoral students supervised? Concepts of doctoral research supervision. *Studies in Higher Education*, 33(3), 267-281. <https://doi.org/10.1080/03075070802049202>
- Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study*. Rowman & Littlefield.
- Lovitts, B. E. (2005). Being a good course-taker is not enough: A theoretical perspective on the transition to independent research. *Studies in Higher Education*, 30(2), 137–154. <https://doi.org/10.1080/03075070500043093>

Importance of Tough-Love Mentoring to Doctoral Student Success

- Luna, G., & Cullen, D. L. (1998). Do graduate students need mentoring? *College Student Journal*, *32*(3), 322–330. <https://psycnet.apa.org/record/1998-12847-001>
- Ma, Y., Siu, A., & Tse, W. S. (2018). The role of high parental expectations in adolescents' academic performance and depression in Hong Kong. *Journal of Family Issues*, *39*(9), 2505–2522. <https://doi.org/10.1177/0192513X18755194>
- Maccoby, E., & Martin, J. (1983). Socialization in the context of the family: Parent–child interaction. In P. H. Mussen (Ed.), *Handbook of child psychology: Socialization, personality and social development (volume 4)* (pp. 1-101). Wiley.
- Martinsuo, M., & Turkulainen, V. (2011). Personal commitment, support and progress in doctoral studies. *Studies in Higher Education*, *36*(1), 103–120. <https://doi.org/10.1080/03075070903469598>
- Mitchell, R. M., Kensler, L., & Tschannen-Moran, M. (2018). Student trust in teachers and student perceptions of safety: Positive predictors of student identification with school. *International Journal of Leadership in Education*, *21*(2), 135-154. <https://doi.org/10.1080/13603124.2016.1157211>
- Most, D. E. (2008). Patterns of doctoral student degree completion: A longitudinal analysis. *Journal of College Student Retention: Research, Theory & Practice*, *10*(2), 171–190. <https://doi.org/10.2190/CS.10.2.d>
- Nettles, M. T. (1990). *Minority graduate education project report: Black, Hispanic, and White doctoral students, before, during and after enrolling in graduate school*. Educational Testing Services. <https://files.eric.ed.gov/fulltext/ED406947.pdf>
- Nettles, M. T., & Millett, C. M. (2006). *Three magic letters: Getting to Ph.D.* Johns Hopkins University Press.
- Norusis, M. J. (1993). *SPSS for Windows: Base system user's guide, release 6.0*. SPSS, Inc. <https://archive.org/details/spssforwindowsba00noru>
- Norusis, M. J. (1994). *SPSS advanced statistics 6.1*. SPSS, Inc. <https://archive.org/details/spssadvanced-stat00mjno>
- Nulty, D. D. (2008). The adequacy of response rates to online and paper surveys: What can be done? *Assessment and Evaluation in Higher Education*, *33*(3), 301-314. <https://doi.org/10.1080/02602930701293231>
- Orellana, M. L., Darder, A., Pérez, A., & Salinas, J. (2016). Improving doctoral success by matching PhD students with supervisors. *International Journal of Doctoral Studies*, *11*, 87–103. <https://doi.org/10.28945/3404>
- Orland-Barak, L. (2010). *Learning to mentor-as-praxis: Foundations for a curriculum in teacher education*. Springer-Verlag. <https://doi.org/10.1007/978-1-4419-0582-6>
- Paglis, L. L., Green, S. G., & Bauer, T. N. (2006). Does adviser mentoring add value? A longitudinal study of mentoring and doctoral student outcomes. *Research in Higher Education*, *47*(4), 451–476. <https://doi.org/10.1007/s11162-005-9003-2>
- Ragins, B. R., & Kram, K. E. (Eds.) (2007). *Handbook of mentoring at work: Theory, research, and practice*. Sage Publications.
- Rhodes, J., Liang, B., & Spencer, R. (2009). First do no harm: Ethical principles for youth mentoring relationships. *Professional Psychology: Research and Practice*, *40*(5), 452–458. <https://doi.org/10.1037/a0015073>
- Roberts, L. R. (2016, May 16). *Zesty methods: A recipe for research success*. <https://rightangleresearch.wordpress.com/2016/05/16/zesty-methods-a-recipe-for-research-success/>
- Roberts, L. R. (2020). The validation of using assessment tools and a theory to mentor doctoral students with integrity and trustworthiness. *International Journal of Doctoral Studies*, *15*, 29-56. <https://doi.org/10.28945/4475>
- Roberts, L. R., & Bandlow, R. (2018). The Goldilocks Phenomenon: Are we helping doctoral students too much, too little, or just right? *Journal of Higher Education Management*, *32*(2), 62-80.
- Roberts, L. R., & Ferro-Almeida, S. C. (2019). Is trustworthiness important in a doctoral mentor? Toward a theory of tough-love mentoring. *International Journal of Doctoral Studies*, *14*, 613-635. <https://doi.org/10.28945/4419>

- Roberts, L. R., Tinari, C. M., & Bandlow, R. (2019). An effective doctoral student mentor wears many hats and asks many questions. *International Journal of Doctoral Studies*, 14, 133-159. <https://doi.org/10.28945/4195>
- Salani, D., Albuja, L. D., & Azaiza, K. (2016). The keys to success in doctoral studies: A preimmersion course. *Journal of Professional Nursing*, 32(5), 358–363. <https://doi.org/10.1016/j.profnurs.2016.01.005>
- Scott, K. (2015). *Radical candor – The surprising secret to being a good boss*. https://www.youtube.com/watch?v=4yO-DaII_Q2IM
- Schunk, D., & Mullen, C. (2013). Toward a conceptual model of mentoring research: Integration with self-regulated learning. *Educational Psychology Review*, 25(3), 361–389. <https://doi.org/10.1007/s10648-013-9233-3>
- Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology*, 24(18), R875-R878. <https://doi.org/10.1016/j.cub.2014.06.054>
- Solorzano, D. G. (1993). *The road to the doctorate for California's Chicanas and Chicanos: A study of Ford Foundation minority fellows*. Latina/Latino Policy Research Program, University of California. California Policy Seminar. <https://eric.ed.gov/?id=ED374941>
- Southern, N. L. (2007). Mentoring for transformative learning: The importance of relationship in creating learning communities of care. *Journal of Transformative Education*, 5(4), 329–338. <https://doi.org/10.1177/1541344607310576>
- Trochim, W. M. K., & Donnelly, J. P. (2008). *The research methods knowledge base* (3rd ed.). Cengage Learning.
- Tschannen-Moran, M. (2009). Fostering teacher professionalism in schools: The role of leadership orientation and trust. *Educational Administration Quarterly*, 45(2), 217–247. <https://doi.org/10.1177/0013161X08330501>
- Tschannen-Moran, M., & Gareis, C. R. (2015). Faculty trust in the principal: An essential ingredient in high-performing schools. *Journal of Educational Administration*, 53(1), 66–92. <https://doi.org/10.1108/JEA-02-2014-0024>
- Tschannen-Moran, M., & Hoy, W. K. (1998). A conceptual and empirical analysis of trust in schools. *Journal of Educational Administration*, 36(4), 334–352. <https://doi.org/10.1108/09578239810211518>
- Tschannen-Moran, M., & Hoy, W. K. (2000). A multidisciplinary analysis of the nature, meaning, and measurement of trust. *Review of Educational Research*, 70(4), 547-593. <https://doi.org/10.3102/00346543070004547>
- Vahey, K. (2019). Doctoral students make meaning of their experience: A constructivist inquiry. *Studies in Graduate and Professional Student Development*, 13, 2-22. https://www.academia.edu/28712328/Doctoral_Students_Make_Meaning_of_Their_Experience_A_Constructivist_Inquiry?auto=download
- Van de Schoot, R., Yerkes, M. A., Mouw, J. M., & Sonneveld, H. (2013). What took them so long? Explaining PhD delays among doctoral candidates. *PLoS One*, 8(7), e68839. <https://doi.org/10.1371/journal.pone.0068839>
- Vaquera, G. (2007). Testing theories of doctoral student persistence at a Hispanic serving institution. *Journal of College Student Retention*, 9(3), 283–305. <https://doi.org/10.2190/CS.9.3.c>
- Vich, M., & Kim, M. Y. (2016). Construction and application of radical candor: Efficiency of criticism at work. *Central European Business Review*, 5(4), 11-22. <https://doi.org/10.18267/j.cebr.163>
- Walker, G. E., Golde, C. M., Jones, L., Bueschel, A. C., & Hutchings, P. (2008). *The formation of scholars: Rethinking doctoral education for the twenty-first century*. Jossey-Bass.
- Weidman, J. C., Twale, D. J., & Stein, E. L. (2001). *Socialization of graduate and professional students in higher education: A perilous passage?* Jossey-Bass.
- Welton, A. D., Mansfield, K. C., Lee, P. L., & Young, M. D. (2015). Mentoring educational leadership doctoral students: Using methodological diversification to examine gender and identity intersections. *NCPEA International Journal of Educational Leadership Preparation*, 10(2), 53–81. <https://files.eric.ed.gov/fulltext/EJ1083100.pdf>

Woolderink, M., Putnik, K., van der Boom, H., & Klabbers, G. (2015). The voice of PhD candidates and PhD supervisors. A qualitative exploratory study amongst PhD candidates and supervisors to evaluate the relational aspects of PhD supervision in the Netherlands. *International Journal of Doctoral Studies*, 10, 217–235. <https://doi.org/10.28945/2276>

BIOGRAPHY



Laura R. Roberts, PhD, teaches research methods and statistics through online platforms, such as Udemy. Dr. Roberts is also director of Right Angle Educators, a mentoring service for doctoral students. Her research interests include developing theories about excellence in doctoral student mentoring and discovering strategies for mentor development.

112 Stevens Street, West Cape May, NJ 08204
(215) 527-5872
laura@rightangleeducators.com