Factors of Success in Graduate Research Courses in Education

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Abstract

The purpose of this study is to examine the potential factors that influence success in master level graduate courses in research. The study follows a causal-comparative design to determine if and how the differences in personality types, undergraduate major, graduate major, previous research experience or coursework relate to the students’ performance in an online graduate research course in education. An email requesting completion of the survey will be sent by the instructors of master’s level research courses at the University of Central Florida’s College of Education Development and Human Performance after final grades post.

*Keywords:* graduate research, education, big-five personality theory, graduate major, undergraduate major, research success.

Factors in Education Graduate Research Coursework Success

An increasing cause for concern in student’s behavior and attitudes towards educational research at the graduate level has expressed a cause for exploration of the topic (Gilmore et al., 2015). Recent advancements in technology have provided new means for learning educational research through the non-traditional methods of online learning (Lu & Cavazos Vela, 2015). The differences of the big five personality traits, undergraduate and graduate major, and previous experience in research are believed to be factors related to the final course grade of students enrolled in an online graduate level research course in education. This study is designed to provide insight into these factors and how they affect student performance and will be evaluated in a self-port survey.

Examining the variables of personality, research history, and the final course grade posed the question of appropriate measurements. In consideration of the participant’s time and the required research for this study, a self-report survey was created. To measure personality, a short 10 item variant of the Big-Five Inventory was adopted and incorporated into said survey that encompassed other variables of interest. The short big-five inventory (BFI-S) was originally created by Gosling, Rentfrow, & Swann (2003) at the University of Texas for research situations where the potential minor error in the assessment of personality can be sacrificed for the sake of time. The Five-Item personality Inventory (FIPI) was created with both a five and ten item inventory, and was designed to objectively define each of the big five personality constructs by asking the participants to respond with self-identification (Gosling, Rentfrow, & Swann 2003). Their design contained a 7-point Likert scale of 1 being “disagree strongly” with 7 being “agree strongly” (Gosling, Rentfrow, & Swann 2003). After discovering reliability errors and the potential for invalid content validity with the FIPI, a second study lead to the design of a Ten-Item Personality Inventory (TIPI) to increase validity and reliability (Gosling, Rentfrow, & Swann 2003). Given the scope of this study, the TIPI was selected as personality is not the primary or only variable of interest and is limited by time constraints.

**Hypothesis:**

The differences of the big five personality traits, undergraduate and graduate major, and previous experience in research are believed to be factors related to the final course grade of students enrolled in an online graduate level research course in education.

**Review of Literature**

Students studying education should be familiar with research as it is an essential part to the development of new material and the improvement of courses (Zwerger & Greninger, 2012), yet, students are often apprehensive to take a research course in their graduate program. Research conducted by Lei (2008) investigated the concern of student attitudes towards graduate level research coursework. In their research, Lei (2008) discussed the previous discourse in attitudes towards graduate level research conducted by Bard et. al. (2000) and what factors may contribute to that (Lei, 2008). One major factor was discovered to have significant weight in the attitudes towards graduate research: social-cognitive variables (Bard et al., 2000). Lei (2008) continued this research and reported that research self-efficacy is a specific variable that is correlated with attitudes towards research coursework, and that changing the attitudes towards research is what needs to be considered. Hunter, Laursen, and Seymour (2007) found that successful completion of undergraduate research coursework enhanced professional development and better prepared students for graduate school compared to students that did not take undergraduate research coursework.

Van der Rijst et al. (2013) found that instructors are not always aligning their course content with the goals of understanding research methods. The argument was made that in order for students to appreciate research and apply themselves appropriately to meet research expectations, instructors need to pay delicate attention to their learning objectives and the content they provide in their coursework (Van der Rijst et al., 2013). This is further supported by the need for specific research applications for graduate students in education. Hine (2013) suggests that action research is an essential aspect of educators and those in the education field, which leads to greater student success. One attempt to improve the application of research in graduate coursework and encourage student success is to have students partner with faculty members to turn course objectives into research proposals (Pukkila, Arnold, Anna, & Bickford, 2013).

According to research done by Grehan, Flanagen, and Malgady (2011), emotional intelligence is correlated with graduate grade point average and conscientiousness, while personality traits were not correlated with grade point average. However, research by Varela, Cater, and Michel (2012) has shown that personality, when measured by the big-five model, does appear to be correlated with success in online courses. Despite this, personality does not appear to be a factor in online team performance, according to research done by Olson et al. (2015). Kear, Cetwynd, and Jefferis (2014) found that communication is an important aspect of online learning that is often overlooked and suggested that online profiles are created to establish a greater social learning environment. This claim supports the research done by Bulu and Yildirim (2008), which found that personality may not be the critical factor in online team dynamics, but instead the trust levels of individuals within a team half way into the study. Furthermore, Solimeno et al. (2008), found that personality may play a role in student learning when compared to the instructor’s characteristics, making online sections potentially an advantage to some over others. To further this point, Rovai and Grooms (2004) also performed a study on personality and online education, only to find that the results indicated no preference for personality. Rather, they suggested that the course content must be appealing to the students (Rovai & Grooms, 2004). Perhaps one approach to making research interesting, is to have the students experience it. Research by Lefever, Dal, and Matthiasdottir (2007) indicated that careful consideration must be used when attempting to collect data by sending out an email for a survey completion. Their ultimate solution is to provide an incentive when possible (Lefever, Dal, & Mattchiasdottir, 2007).

**Method**

**Participants**

The sample participants for this study will be approximately 216 students (based off of current enrollment) from the University of Central Florida in the United States of America. Of these 216 students, it is estimated that 135 students would be female and 81 students would be male given one section’s current enrollment of 15 females and 9 males, with three sections a semester for three semesters. The target population is graduate students in education enrolled in an online graduate level research course in the United States of America. The accessible population for this study will be graduate students enrolled in the master’s level research classes in the College of Education Development and Human Performance (CEDHP) at the University of Central Florida. The participants’ are adults over the age of 18 with the average age range yet to be determined, and therefore will not require parental consent. The participants’ grade levels are a variable of interest to be determined, and their ethnicity is to be recorded in the study.

An attempt will be made to send the survey to all students in the master’s level graduate research courses in the CEDHP at the University of Central Florida.

**Model**

This will be a quantitative study using a correlation design to investigate the implications of personality traits, undergraduate and graduate major, and research experience in regards to the end of course grade in a graduate level research course.

**Procedure**

Permission to conduct this study with the accessible population will first be granted by the instructor of the online sections of the Fundamentals of Graduate Research in Education at the University of Central Florida, Dr. Lihua Xu. Once official permission and agreeance has been confirmed by Dr. Lihua Xu -- which is expected to take approximately two weeks -- the intents of the study along with all materials, including the survey, will be submitted to the Institutional Review Board at the University of Central Florida. The review and approval should take no more than a month given proper completion of the proposal. Once the Institutional Review Board has approved the study and after the final grades have been posted, the University of Central Florida online graduate research courses will implement the study.

Since none of these students will be under the age of 18 years old, no parental permission will be required. This study will not be looking at groups; it will be looking at a consensus of the accessible population. Confidentiality will be maintained by not recording any personally identifiable information. This survey will be administered by way of a mass email from the professor, Dr. Lihua Xu, to the accessible population, containing a request for completion of the survey with a provided link. This email will attempt to ensure a survey-response rate above 60 percent. This will be achieved by encouraging students in the email to affirm their understanding of research methods by participating in research designed by a former student of the class. The link will take participants to the survey at the University of Central Florida’s Qualtrics website. The survey is expected to take participants no more than five minutes to complete, and will be advertised as such in the email.

The university is expected to gain potentially valuable data on the factors that may contribute to student success in the specified course. Once the university has that information, it can be used to redesign the course curriculum, along with the investigation of suggested prerequisites and comprehensive knowledge for taking the course.

**Variables**

The independent variables of interest are the big five personality traits, undergraduate major, graduate major, and previous experience in research. The dependent variable of interest is the student’s end of course grade.

**Measurement**

*Ten-Item Personality Inventory* (TIPI; Gosling, Rentfrow, & Swann 2003). The TIPI is a measurement designed by Gosling, Rentfrow, and Swann (2003) to study the big five personality constructs when given only a short amount of time, by asking the participants to self-identify their personality constructs (e.g., “Extraverted, enthusiastic.” And “Open to new experiences, complex.”). The TIPI consists of ten questions, two questions for each of the big five personality constructs. This design was an improvement over the previous Five-Item Personality Inventory (FIPI; Gosling, et al., 2003). The design contains a 7-point Likert scale of 1 being “disagree strongly” and 7 being “agree strongly” that the participants will use to identify how closely the statement relates to them (Gosling et al., 2003). The measurement uses reverse scoring on one question for each of the constructs.

Due to the TIPI only having two items on the inventory per a construct of the big five, the internal consistency was found to be low due to a lack of content overlap (Gosling, Rentfrow, & Swann 2003). The Cronbach alphas was used to determine this, and found the following scores: Extraversion at .68, Agreeableness at .40, Conscientiousness at .50, Emotional Stability at .73, and Openness to Experience at .45 (Gosling, Rentfrow, & Swann 2003). The convergent and construct validity of the TIPI to the Big-Five Inventory (BFI) found Extraversion at .78, Agreeableness at .70, Conscientiousness at .75, Emotional Stability at .81 and Openness to Experience at .65, resulting in convergent correlations of mean *r* = .77, which was significantly better than the discriminant correlations of an absolute mean *r* = .20 (Gosling, Rentfrow, & Swann 2003).

The test-retest reliability of the TIPI after a two week interval has been found to correlate greatly (mean *r* = .72) despite it being slightly less accurate than the substantially larger BFI (mean *r* = .80) as expected with a substantially greater quantity of questions (Gosling, Rentfrow, & Swann 2003). This provided grounds for the TIPI being a valid alternative means to study personality constructs in situations where time is limited and greater detail is not necessarily needed.

The TIPI will be incorporated into a larger survey (see appendix 1) that will contain additional questions investigating our variables of interest. In addition to the TIPI’s questions, the survey will ask participants to identify their previous experience in research in terms of time, whether or not they took a research course in their undergraduate major, their area of study for their bachelor’s degree, their area of study for their master’s or doctoral degree, the grade they received in the graduate research class, and demographics such as sex, race, and age range.

The survey will be administered by the professor after the final grades have been posted. The participants do not need any special equipment or skills, simply a compatible internet browser.

**Validity**

The TIPI was designed after the FIPI to increase the content validity of the measurement (Gosling, Rentfrow, & Swann 2003). Since the FIPI had no way of accounting for accidental or false input, the TIPI contained two items per construct to increase the content validity of the measurement (Gosling, Rentfrow, & Swann 2003). The result of providing two items in the inventory for each of the five constructs reduced false measurements due to accidental input or misunderstanding. However, since the two items contain overlap, this change from the FIPI to TIPI does not actually increase internal reliability like that of the larger battery big-five inventories (Gosling, Rentfrow, & Swann 2003). Ultimately, the study by Gosling’s team shows that there is high content validity with the TIPI and only moderate reliability with the TIPI after performing multiple test-retest (Gosling, Rentfrow, & Swann 2003). Additional research has been performed to evaluate the structure and construct validity, which was identified as having “favorable” results (Ehrhart et al., 2009).

Ehrhart and his colleagues examined literature that provided correlational data expressing that the TIPI is sufficient enough for basic needs, which lead to studying its criterion validity (2009). The purpose of their study was to expand on the present literature and review the validity of the TIPI when correlated with the International Personality Item Pool – Five Factor Model (IPIP-FFM), which is a 50 item personality assessment, given a greater diverse population than previous studies (Ehrhart et al., 2009). Their overall analysis of data comprised of results from the TIPI, the IPIP-FFM, and the two measures ran simultaneously, supports the claims of high structure and construct validity in the TIPI, but ended by stating that the TIPI and similar measures need additional psychometric studies (Ehrhart et al., 2009).

Correlational research has also found that construct validity for the TIPI is within an acceptable range (Donnellan et al., 2006). Within the correlational literature, the TIPI was compared to the Mini-IPIP which is a 20 item personality assessment, and the IPIP-FFM, which showed remarkably similar results across all three measures, indicating satisfaction for convergent validity of this measurement (Donnellan et al., 2006). While the Mini-IPIP reflects that of the IPIP-FFM more closely, the TIPI still has enough convergent validity to warrant its use in research where personality is not the only or primary independent variable of interest, and in applications where the length of the study is limited (Donnellan et al., 2006).

The greatest downfall of the TIPI may be found in the content validity, where a lack of complete personality profiling could lead to a study not accurately identifying to what extent personality can play a role (Chiorri et al., 2015). While content validity cannot be compensated for with averaging from random error (Chiorri et al., 2015), it should not discredit the practical application and reasonable account for error compared to other short personality inventories (Donnellan et al., 2015).

**Analysis**

From this study, we expect to find data that will contribute to the understanding of factors of success in graduate level research in education coursework when taken online. We will perform a multiple regression analysis of variables seeking significance of the correlational data.

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Appendix

Table 1

Ten-Item Personality Inventory-(TIPI)

**Instructions:**

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Disagree Strongly | Disagree Moderately | Disagree a Little | Neither Agree nor Disagree | Agree a Little | Agree Moderately | Agree Strongly |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I see myself as:

1. \_\_\_\_\_ Extraverted, enthusiastic.

2. \_\_\_\_\_ Critical, quarrelsome.

3. \_\_\_\_\_ Dependable, self-disciplined.

4. \_\_\_\_\_ Anxious, easily upset.

5. \_\_\_\_\_ Open to new experiences, complex.

6. \_\_\_\_\_ Reserved, quiet.

7. \_\_\_\_\_ Sympathetic, warm.

8. \_\_\_\_\_ Disorganized, careless.

9. \_\_\_\_\_ Calm, emotionally stable.

10. \_\_\_\_\_ Conventional, uncreative

Please select the answer that best represents you:

11. I have a bachelor’s in

* Education
* Psychology
* Engineering
* English
* Biology
* Computer Sciences
* Political Sciences
* Humanities
* Business
* Chemistry/Natural Sciences
* Mathematics
* Criminal Justice
* Other

12. I am pursuing a Master’s or Doctoral degree in

* Applied Learning and Instruction
* Career and Technical Education
* Counselor Education
* Educational Leadership
* Elementary Education
* Exceptional Student Education
* Instructional Design and Technology
* Teacher Education
* Curriculum and Instruction
* K-8 Mathematics and Science Education
* Reading Education
* School Psychology

13. I have taken a research methods class in my undergraduate degree

* True
* False

14. I have \_\_\_\_\_\_\_\_ experience in research

* < 6 months
* 6 – 12 months
* 1 – 2 years
* 2 > years

15. I am a

* Female
* Male
* Prefer not to answer

16. I identify as

* Caucasian
* African American
* Asian
* Hispanic
* Pacific Islander
* Native American
* Prefer not to answer

17. I am between the ages of \_\_\_ years old

* 18 – 24
* 25 – 30
* 31 – 36
* 37 – 43
* 44 – 55
* 50 >

18. I received a(n) \_\_\_ grade in Fundamentals of Graduate Research in Education (Online)

* A
* B
* C
* F