

GRIT AND DEMOGRAPHIC CHARACTERISTICS ASSOCIATED WITH NURSING
STUDENT COURSE ENGAGEMENT

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Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
in the School of Nursing,
Indiana University

July 2015

Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ACKNOWLEDGMENTS

My heart is full of gratitude to the many people who encouraged and supported me through the process of completing my dissertation. First, I wish to express my sincere respect and appreciation to the members of my dissertation committee: Dr. Tamilyn Bakas, Dr. Angela McNelis, Dr. Barbara Friesth, and Dr. Sara Horton-Deutsch. I learned a great deal from each of the members of this group and each contributed to my scholarly development and ultimately to the successful completion of this dissertation. Moreover, I will be forever grateful to the chairperson of my committee, Dr. Tamilyn Bakas, who generously gave her time and extraordinary talents to mentor me through the challenges of the past few years. Completion of my dissertation would not have been possible without her unfailing patience and ongoing encouragement, guidance, and support.

In addition to current members of my committee, I would like to acknowledge Dr. Pam Jeffries who guided me through my initial pilot study and Dr. Dan Pesut who helped me move toward dissertation writing and gave me the opportunity to begin online teaching and learning. Additionally, I very much appreciate Mary Jo Eoff who, without hesitation, welcomed me into her nursing classroom for data collection during my study. I am pleased to recognize also my classmates at Indiana University and other professional nursing colleagues and friends, particularly Dr. Martha Hernandez, for inspiration and encouragement along the journey.

Finally, I would like to thank my *all* my family and friends for their encouragement during this educational journey. I appreciate each word of support, every prayer, the eagerness to read and comment on my work, and their expressions of confidence in my ability to complete the degree. Specifically, I wish to offer thanks to my husband, Tyrone, who has been patient and supportive through all my educational and

professional endeavors. To my children, Jordan and Jasmine, I appreciate your good humor and your sacrifices of time and attention. To my mother, I owe sincere thanks for being a continual source of moral support and for always believing in me.

Wanda Lynn Robinson

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Educating a sufficient nursing workforce to provide high quality, compassionate, and ethical care to an increasingly diverse population is an ongoing challenge and opportunity for nurse educators. Current literature highlights the importance of engaging students in learning to strengthen student achievements. Fostering student engagement within nursing courses is particularly important. Grit (consistency of interest and perseverance of effort) is a factor that may be associated with student course engagement. Demographic characteristics of age, gender, race/ethnicity, prior education, degree program, and self-reported grade point average (GPA) also may be factors associated with student course engagement. Guided by a conceptual model derived from the literature, the purpose of this study was to determine whether grit and demographic characteristics were associated with student course engagement (skills, emotion, participation/interaction, and performance) within a nursing course. Using an exploratory, descriptive, cross-sectional design, a convenience sample of 97 nursing students in a didactic health assessment course was administered the Student Course Engagement Questionnaire (SCEQ), visual analog scales for student engagement, Grit-S Scale, and a Student Demographic Characteristics form. Using multiple regression, 22% of the variance (21% Adjusted) of total student engagement (SCEQ) was explained by total grit scores (Grit-S) $F(1,95) = 26.54, p < .001$. Further analyses of student engagement were conducted using the SCEQ subscales and visual analog scales

with similar results. Findings provided support for the conceptual model used to guide the study, although replication of the study was recommended across varied learning environments. Findings warrant further study regarding grit as a potential area for the future development of strategies to foster engagement of nursing students in the classroom.

Tamilyn Bakas, PhD, RN, Chair

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ABBREVIATIONS

BSN	Bachelor of Science in Nursing
GPA	Grade Point Average
LPN	Licensed Practical Nurse
LVN	Licensed Vocational Nurse
MSN	Master of Science in Nursing
NSSE	National Survey of Student Engagement
PI	Primary Investigator
RN	Registered Nurse
SAT	Standardized Achievement Test
SCEQ	Student Course Engagement Questionnaire
VAS	Visual Analog Scales

CHAPTER 1. THE NATURE OF THE STUDY

Educating a sufficient nursing workforce to provide high quality, compassionate, and ethical care to an increasingly diverse population is an ongoing challenge and opportunity that has received nationwide attention (Benner, Sutphen, Leonard, & Day, 2010; Greiner & Knebel, 2003). Low graduation rates and poor student retention in college can threaten the nation's ability to meet the demand for an expanding nursing workforce. Inadequate student achievement in nursing courses can threaten student success in nursing school. The trend toward admitting more students who are diverse also may help meet the challenge of preparing an adequate nursing workforce (National League for Nursing, 2005). Traditionally underrepresented and first-generation nursing students, however, show higher attrition rates. Many students who are academically underprepared do not persist to complete their nursing education (Jeffreys, 2010).

Student engagement is one important factor in student school success (Addison, Wright, & Milner, 2009; Swaner, 2007; Zhao & Kuh, 2004). Active student engagement supports achievement of student learning outcomes. Student engagement occurs within the context of a learning environment such as an individual classroom, a school, and at the broader level of an entire university experience including extracurricular activities (Kuh, 2009). In the classroom, student engagement includes student interactions with teachers, classmates, learning activities, and specific subject matter (Appleton, Christenson, Kim, & Reschly, 2006; Hart, Stewart, & Jimerson, 2011). Student engagement can occur in any or all of the three domains of learning: cognitive/thoughts, affective/emotion, and behavioral/actions (Anderson & Krathwohl, 2001; Bloom & Krathwohl, 1956; Krathwohl, Bloom, & Masia, 1964; Shulman, 2002).

Students who actively engage in learning achieve better grades, have higher retention and graduation rates, and greater satisfaction in school (Carini, Kuh, & Klein, 2006; Kuh, 2003, 2009; Wefald & Downey, 2009). Student engagement in nursing courses facilitates achievement of educational outcomes and retention for nursing students (Bruce, Omne-Pontén, & Gustavsson, 2010). Conversely, lack of student engagement is associated with poor student outcomes, failure, and school dropout (Betts, Appleton, Reschly, Christenson, & Huebner, 2010; Krause, 2005). Student engagement also is among the better predictors of learning and personal development. Research links engagement positively with other learning outcomes such as critical thinking (National Survey of Student Engagement [NSSE], 2013; Skinner & Pitzer, 2012).

Some evidence suggests that nursing students are less engaged in college overall and less engaged in active and collaborative learning compared to students in other health profession majors and student education majors (Popkess & McDaniel, 2011). Additionally, poor nursing student engagement during college may predict lower mastery of occupational tasks and higher career turnover within the first year after graduation (Rudman & Gustavsson, 2012). Some nursing students may experience decreased student engagement from the first year of college to graduation (Rudman & Gustavsson, 2012). During and at the conclusion of each nursing course, students are making decisions about whether to “remain in a course, persist in the nursing program, graduate, take the RN licensing exam, and enter the nursing workforce and/or begin a more advanced nursing program” (Jeffreys, 2010, p. 15). Lack of student engagement could negatively affect nursing student retention.

There are many possible explanations for poor student engagement. Within the classroom learning environment, incidence and quality of student contact with teachers, classmates, learning activities, and subject matter influences student engagement (Bruce et al., 2010; Popkess & McDaniel, 2011; Salamonson, Andrew, & Everett, 2009; Scheckel, 2012). Student demographic characteristics of age, gender, race/ethnicity, education, degree program, and grade point average (GPA) also are associated with student engagement (Betts et al., 2010; Bruce et al., 2010; Krause & Coats, 2008; Kuh, 2009, Rudman & Gustavsson, 2012; Young, 2003).

Grit, another possible factor associated with student engagement, is a non-cognitive factor defined as “consistency of interest and perseverance of effort” (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087). Achievements of individuals with more grit go beyond success explained by intelligence (Duckworth et al., 2007). Grittier students demonstrate resilience and focus on tasks despite risk of failure in the endeavor. Duckworth et al. (2007) noted that grit was an effective predictor of self-reported GPA among Ivy League undergraduate students. Additionally, grit was more predictive of retention for first year United States Military Academy cadets in summer training than other measures such as the Whole Candidate Score (admission criteria), standardized achievement test scores (SAT) scores, class rank, and physical aptitude (Duckworth & Quinn, 2009). Adults 25 years of age and older with more grit had fewer career changes (Duckworth & Quinn, 2009). Perseverance and persistence of individuals with more grit account for significant success outcomes and accomplishment of long-term goals (Duckworth et al., 2007). Overall, grit is emerging as a good predictor of student achievement in academia and in other challenging personal, professional, and

competitive endeavors (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014; Goodwin & Miller, 2013).

Researchers know little about the possible relationship between grit and student engagement. There also is lack of research on factors associated with student engagement, particularly factors such as grit and student demographic characteristics: age, gender, race/ethnicity, education, degree program, and GPA. Furthermore, researchers have not studied grit in nursing students. Although innovation and research for evidence-based nursing education is increasing, there is currently little evidence to guide nurse educators in assessing student engagement and grit in nursing courses. Increased knowledge about grit and student demographics associated with student course engagement may foster understanding about the influence of these factors in nursing classrooms. Increased knowledge eventually could prompt changes of teaching strategies and classroom learning activities to help more fully engage students and promote development of grit. Therefore, the focus of this study examined the relationships of student grit and demographic characteristics in relationship to student course engagement.

Conceptual Model

A conceptual model, derived from the literature, illustrates factors associated with student engagement in a specific learning environment (see Figure 1). The underlying premise of this model is that the student is the central figure in her/his education. This model shows student demographic characteristics of age, gender, race/ethnicity, prior education, degree program, and GPA in relationship to student engagement. Student grit, defined as consistency of interests and perseverance of effort, also is associated with

student engagement. Relationships among student demographic characteristics, grit, and engagement occur in the context of a learning environment. Each unique learning environment has other factors that may be associated with student engagement, specifically the teacher, classmates, learning activities, and the subject matter of a course. The model illustrates student engagement within the context of a specific learning environment. In this model, student engagement consists of student skills, emotion, participation/interaction, and performance in a nursing course.

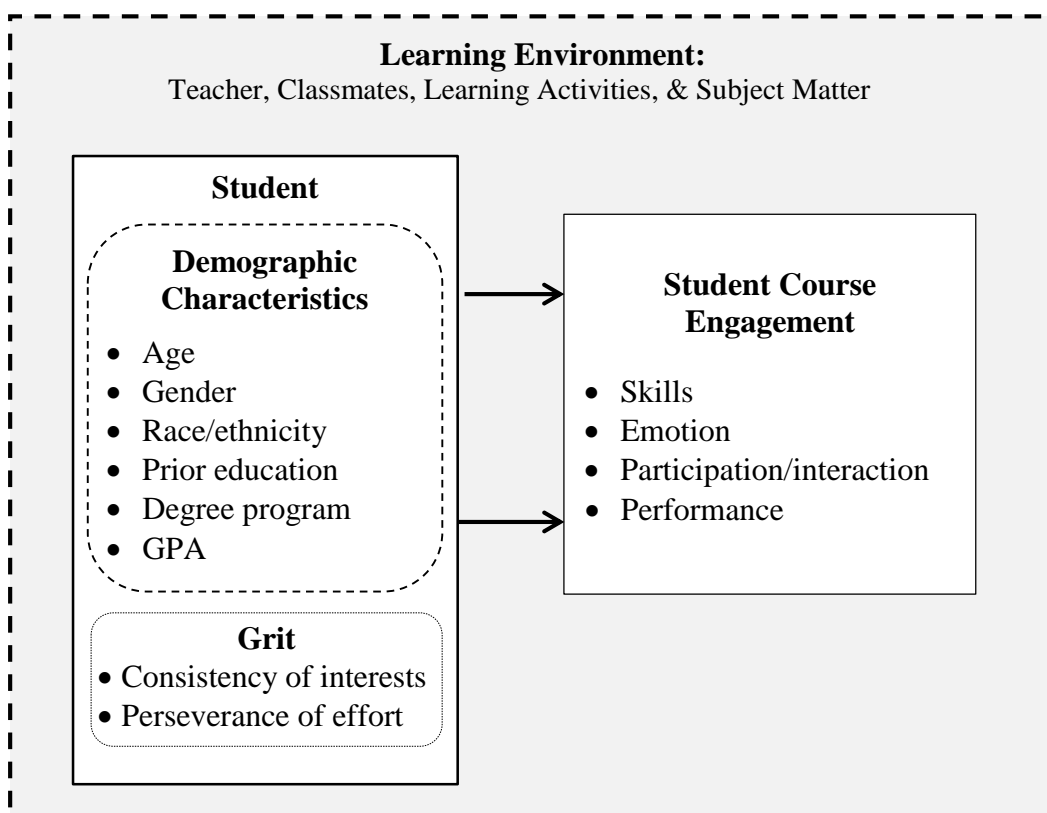


Figure 1. Conceptual Model.

Problem Statement

Effective nursing education requires student engagement in the learning environment. Researchers have not studied student engagement in relation to grit in college students or in nursing majors. Investigators have not examined factors associated

with student course engagement in relationship to grit and student demographic characteristics of age, gender, race/ethnicity, education, degree program, and self-reported GPA. Faculty need evidence-based strategies for engaging students in learning to promote achievement of educational objectives congruent with professional nursing attitudes and values. This study will help identify factors associated with student engagement in relation to grit. Faculty can refer students at risk for poor engagement in learning as well as less gritty students for assistance and support. Schools of nursing can use knowledge about student engagement and student grit to develop targeted interventions.

Purpose

The purpose of this study was to determine factors associated with student engagement in a nursing course using a conceptual model derived from the literature (Figure 1). This study examined the relationship of student grit and student demographic characteristics in relationship to student course engagement. The study conceptualized engagement in learning as student skills, emotion, participation/interaction, and performance in a nursing course. This preliminary study used one particular nursing course with one faculty instructor and a sample of 90 students to adequately test the proposed relationships. The study design enabled the researcher to hold the type of course, subject matter, and faculty instructor constant in this exploratory descriptive study. Findings from this study may lead to future research to test these relationships with samples large enough to statistically control for the type of course, subject matter, and faculty instructor variables.

Specific Aims and Hypotheses

Specific Aim 1

Determine whether grit (consistency of interest and perseverance of effort) is associated with student course engagement (skills, emotion, participation/interaction, and performance).

Specific Aim 2

Determine whether student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA) are associated with student course engagement (skills, emotion, participation/interaction, and performance).

Specific Aim 3

Controlling for student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA), determine whether grit (consistency of interest and perseverance of effort) explains a significant amount of variance of student course engagement (skills, emotion, participation/interaction, and performance).

Conceptual and Operational Definitions

Student Course Engagement

Conceptual definition. The primary investigator (PI) conceptualized student course engagement to include four components of student involvement in a specific course: skills, emotion, participation/interaction, and performance (Handelsman, Briggs, Sullivan, & Towler, 2005). Skills are observable study actions of students such as completing homework, studying, and taking notes in class. Emotion encompasses a student's desire to learn and to find ways to make the course relevant and interesting. Participation/interaction is student involvement with teachers and other students in

learning activities and in the course. Performance includes helping classmates, doing well on tests, and getting a good grade. For this study, engagement in learning was studied within a specific nursing course.

Operational definition. The researcher measured student course engagement with the Student Course Engagement Questionnaire (SCEQ; Handelsman et al., 2005) and visual analog scales (VAS). The SCEQ is a 24-item questionnaire that asks students to rate how characteristically they perceive statements on the scale regarding their skills, emotion, participation/interaction, and performance in a specific nursing course. The answers are based on a five-point response scale from 1 (*not at all characteristic of me*) to 5 (*very characteristic of me*). Five visual analog scales were used to measure student course engagement. Each scale corresponded with a SCEQ subscale, and one visual analogue scale measured overall student course engagement. The possible range for VAS scores was from 0–100 mm: 0 (*not engaged*) to 100 (*fully engaged*).

Grit

Conceptual definition. Duckworth et al. (2007) defined grit is defined as “perseverance and passion for long-term goals” (p. 1087). Grit is a compound trait including two elements: “consistency of interests and perseverance of effort” (Duckworth & Quinn, 2009, p. 172). Consistency of interests is a sustained focus on tasks over time. Perseverance of effort involves student resilience in efforts toward a goal despite risk of failure in the endeavor.

Operational definition. The study measured grit using the 12-item self-report Grit-S Scale that asks about student consistency of interest and perseverance of effort.

Items were rated on a five-point response scale from 1 (*not at all like me*) to 5 (*very much like me*).

Student Demographic Characteristics

Conceptual definition. Demographic description of participants included age, gender, race/ethnicity, education, degree program, and self-reported GPA. These student characteristics are factors with possible association with engagement and grit.

Operational definition. The investigator developed a demographic data form to collect student characteristics of age, gender, race/ethnicity, prior education, degree program (traditional Bachelor of Science in Nursing [BSN] or accelerated/second degree), and self-reported GPA

The sections that follow list three assumptions and four limitations of this study. Limitations of the study are acceptable for an exploratory study with a newly created conceptual model.

Assumptions

1. Engagement in learning is a latent variable that is measurable.
2. Students possess sufficient self-awareness to identify and accurately report their experience of engagement in learning.
3. Participants will answer self-report items honestly.

Limitations

1. Non-randomized, convenience sampling of a participant pool from a single course with the same instructor.

2. Sample included students enrolled in the same course, consisting of both traditional and accelerated students, the latter of which had previous non-nursing degrees.
3. Participants who volunteered in the study may differ from others who did not agree to participate.
4. Possible response bias exists for favorable, socially acceptable answers.
5. Participant engagement in learning may have been dependent on additional factors not accounted for in the model.

Summary

Typically, measurement of student engagement has occurred at the school or larger institutional level (Kuh, 2009). In contrast, the focus of this study was on student engagement specifically at the individual course level. Therefore, questions remain regarding how to define and measure engagement in learning at the course level. Furthermore, engagement in learning and grit have not been studied in nursing education. Understanding the relationship between engagement in learning and grit in nursing students could provide valuable information to guide future curricula design and teaching strategies to support student achievement, promote students' engagement, and foster grit. The researcher designed this study to test the relationships among student engagement, grit, and specific nursing student demographic characteristics.

The author organized this study into five chapters: introduction, review of the literature, method, results, and discussion. The first chapter presented an overview of the research problem, including the background and significance of the problem, purpose of the study, study questions, hypotheses, definition of key terms, and identification of

assumptions and limitations of the study. Chapter 2 presents the context for the study through synthesis and review of the literature. The third chapter describes specific steps taken to answer the research questions of the study; it provides the study design, methods, detailed information about data collection, and analysis procedures. Chapter 4 reports the results of the study, including narrative descriptions, tables, and figures. Chapter 5 concludes with interpretation of the study results and discussion of implications for study findings.

CHAPTER 2. REVIEW OF THE LITERATURE

Through review of the literature on student engagement, student course engagement, student demographic characteristics, and grit, this chapter provides an explanation of the conceptual model used in the study. The chapter presents an overview of pertinent research on student engagement in addition to findings specific to student course engagement. A conceptual model (Figure 1) derived from the literature depicts factors associated with student course engagement within a learning environment. Four components comprise student course engagement: skills, emotion, participation/interaction, and performance (Handelsman et al., 2005). Factors associated with student course engagement are student demographic characteristics and grit. Six student demographic characteristics proposed in relationship to student course engagement are age, gender, race/ethnicity, education, degree program, and self-reported GPA. Grit consists of two factors—consistency of interests and perseverance of effort (Duckworth et al., 2007). Figure 1 guides the review of literature and testing of the proposed relationships.

Student Engagement

Austin (1993) and Chickering and Gamson (1987) initially reported student engagement as student “involvement” in learning as observed from student activities that demonstrated time, efforts, and involvement on tasks associated with learning outcomes. The concept of student engagement has been further refined to explain the “quality of effort and involvement in productive learning activities” of students (Kuh, 2009, p. 6). Student engagement and disengagement in school have been widely studied (Appleton et al., 2006; Betts et al., 2010; Bruce et al., 2010; Hart et al., 2011; NSSE, 2013). Kuh

(2009) identified five benchmarks for effective practices that embody student engagement in education: high levels of “academic challenge,” “active and collaborative learning,” “student–faculty interaction,” “enriching educational experiences,” and a “supportive campus environment” (p. 16). Research findings consistently demonstrate that active student involvement in learning is a significant predictor of overall student success and satisfaction in secondary and higher education (Carini et al., 2006; Kuh, 2003; Salamonson et al., 2009).

Student engagement in school offers one quality indicator for effectiveness of colleges and universities (Austin, 1993; Steele & Fullager, 2009). Researchers consider institutions that more fully engage their students to be of higher quality compared with other colleges and universities where students are less engaged (Kuh, 2003). Desirable learning outcomes such as critical thinking and grades positively correlate with student engagement (Kuh, 2009). Furthermore, there is evidence that student engagement during college is positively correlated with post-college labor market earnings (Hu & Wolniak, 2013). The importance of student engagement also is relevant for nursing students across traditional and virtual online learning environments (Giddens, Fogg, & Carlson-Sabelli, 2010).

Student engagement is a multi-dimensional phenomenon encompassing overlapping dimensions of learning identified in Bloom’s taxonomy of cognitive, affective, and behavioral domains (Krathwohl, 2002). Most research on student engagement address these dimensions in some combination or variation (Appleton et al., 2006; Betts et al., 2010; Bruce et al., 2010; Hart et al., 2011; NSSE, 2013). Cognitive dimensions of engagement include students’ focused attention, thinking, judgment, and

beliefs. Behavioral dimensions of student engagement embody students' physically active participation in learning (Shulman, 2002). For example, in the individual classroom behavioral engagement includes activities such as reading and raising a hand to ask a question during class or interacting with others or with objects in the learning environment. Affective dimensions of student engagement typically include positive emotions, enjoyment, genuine interest, and internal motivation or desire to learn. Other emotions, such as anxiety and frustration are also aspects of the affective dimension. Overall, students engaged in learning display "vigor, dedication and absorption" (Bruce et al., 2010, p. 2).

Student engagement occurs within the overall context of a learning environment. This learning environment is the physical, spatial, or virtual context of education. Internal and external influences contribute to a student's experience in a learning environment. External influences are social, cultural, and political factors. Internally, factors such as a student's previous knowledge, experience, motivation, and preconceptions about learning can influence acquisition of new knowledge (Bransford, Brown, Cocking, Donovan, & Pellegrino, 2000). From a broad perspective, a learning environment encompasses an entire school or university with a multitude of variables influencing student engagement (Appleton, Christenson, & Furlong, 2008; Kuh, 2003). Researchers have studied student engagement extensively at the institutional level through the NSSE (Kuh, 2003, 2008, 2009; NSSE, 2013). The NSSE is a summative assessment that measures student engagement in the total college experience at the macro level. The NSSE assesses students' behaviors and institutional features that contribute to student engagement (Kuh, 2009). The NSSE is an annual measure of frequency, amount, and degree of self-reported

student engagement including overall participation in college life, athletics, and activities, interaction with peers and faculty, perceived quality of overall institutional interactions and institutional support across the entire campus (NSSE, 2013).

At the course level, student engagement occurs in the context of a smaller learning environment where teachers and students convene and interact with each other about learning activities and subject matter to achieve learning outcomes. Outcomes consist of such things as increased knowledge, skills, and/or appreciation about some topic or content area. Learning activities serve as a vehicle to facilitate students' acquisition of the desired knowledge, competencies, behaviors, and values in one or more domains of learning as specified by the curriculum (Norton, 1999). Some examples of learning activities include lectures, group discussion, one-on-one instructions, demonstration, return demonstration, role-playing, and simulations (Bastable, 2014). Faculty design learning outcomes for specific subject matter in a course to match expected competencies and outcomes of the curricula. Researchers have identified the need to study interrelationships among factors within varied learning environments at the institutional and course level, especially with regard to implementation of formative assessments (Bransford et al., 2000). Research about student engagement at the course level is limited. However, opportunities may exist for faculty in individual courses to conduct formative assessments and to promote student engagement at the course level.

In response to the lack of direct benefit teachers received from the institutionally focused NSSE results, Ouimet and Smallwood (2005) created a class-level survey of student engagement (CLASSE) as an adaptation of the NSSE. Modifications included adding items to address student study habits and interest level of the student. The

instrument allowed faculty to remove items from the measure that were not applicable to their classes. The class-level approach to assessing student engagement is promising. However, due to changing items on Class-Level Survey of Student Engagement survey forms and lack of evidence of construct validity or psychometric testing, this instrument was not useful for purposes of the current study.

Handelsman et al. (2005) also identified the value in assessing course-level student engagement through four points of engagement in the classroom: teacher(s), classmates, learning activities, and subject matter. The teacher is the individual whose role is to facilitate achievement of learning outcomes for students participating in a specific learning environment through implementation of learning activities. Learning activities are instructional strategies specifically designed to provide learning experiences that intentionally facilitate students' acquisition of the desired knowledge, competencies, behaviors, and values specified by the curriculum (Scheckel, 2012). Classmates are other students convened in the same learning environment at the same time in order to achieve specified learning outcomes. Subject matter is specific content addressed in the course. The conceptual model depicts each of these factors (Figure 1). For the purposes of this study, the researcher studied student course engagement in the learning environment of a specific, individual specific course.

Student Course Engagement

Handelsman et al. (2005) define student course engagement as a “multidimensional phenomenon” of student “behaviors, thoughts, and feelings” in relation to a specific course (p. 186). Behaviors, thoughts, and feelings indicative of student course engagement reflect the cognitive, affective, interpersonal, and behavioral

domains described in student engagement literature. The SCEQ demonstrates the multidimensional nature of the student course engagement through identification of four component subtypes: “skills, emotion, participation/interaction, and performance” (Handelsman et al., 2005, p. 187). The presence of these factors indicates student engagement in the specific course. When combined, these components of engagement offer a comprehensive indicator of student course engagement. The content that follows further defines each of the four components of student engagement and links them with associated literature.

Skills

The skills factor in the SCEQ encompasses thoughts and behavioral activities indicating student course engagement. Many items in the skills factor are readily observable student behaviors such as regularly attending class, doing homework, reading for class, taking and reviewing class notes, and being organized. However, other items in the skills such as “studying and listening” represent mental indicators of student course engagement that may not be directly observable, particularly in quiet or more introverted students. The SCEQ assesses student engagement for external as well as internal engagement.

Emotions

Emotional indicators of student course engagement convey affective connections between students and learning. The emotional dimension of student course engagement includes student emotions, feelings, and perceptions related to the course. Desiring to learn in the particular course, applying course material, perceiving the relevance of the course to one’s life, and finding the coursework interesting all indicate the emotional

factor of student emotional engagement as measured by the SCEQ (Handelsman et al., 2005). Student emotional engagement is an internal process that may or may not be externally observable in student affect and behavior; therefore, student self-assessment and reported emotional engagement are especially useful.

Participation/Interaction

Interpersonal exchange characterizes the participation/interaction factor of student course engagement. Specifically, faculty and student interaction plays a significant role in facilitating quality student engagement (Kuh, 2008). Strong evidence of a positive relationship exists between college student engagement and interaction of faculty and students, including time spent outside of class (Kuh, 2008). Meeting with the teacher to review assignments and asking questions outside of class are some examples of participation/interaction engagement. Within the classroom, asking questions, raising a hand to indicate a desire to speak, actively participating in small group discussion, and helping fellow students also demonstrate student participation/interaction engagement. Students' experience of "having fun in class" is also an indicator of participation and interaction for student course engagement (Handelsman et al., 2005, p. 187). Students who enjoy class interactions may exhibit behaviors and feelings such as smiling and talking with classmates. However, emotional features of interpersonal engagement may be present with or without observable behavior. Self-reporting of student engagement allows identification of internal and external experiences of engagement in learning that overlap across dimensions of learning.

Performance

Students' beliefs about their ability to perform well and their perceptions of expected achievement in a course characterize the performance factor of student course engagement. Performance engagement items focus on outcomes that students believe describe them in a certain course. The SCEQ contains three performance engagement items: being confident with the ability to "learn and do well in the class," to get a "good grade," and to do "well on the tests" (Handelsman et al., 2005, p. 187). The classroom is the assumed context of student performance engagement measured by the SCEQ; however, some nursing courses occur in different learning environments such as clinical practicums or in skills and simulation laboratories. These clinical performance-based settings may create different engagement experiences for students because of performance expectations focusing on technical and interpersonal skills needed to care safely for patients. To avoid confounding factors in the unique context of a clinical practicum, this study used the learning environment of a didactic nursing course with classroom-based instruction.

Additional Types of Engagement

Krause and Coates (2008) identified seven types of engagement in first-year university students in Australia: transition, academic, peer, student to teacher, intellectual, online, and beyond-class engagement. Student to teacher, peer engagement, and online engagement are factors of engagement identified in other studies (Betts et al., 2010; Flowerday & Schraw, 2003; Giddens et al., 2010; Giddens, Hrabe, Carlson-Sabelli, Fogg, & North, 2012). Other researchers measure engagement from the perspective of time-on-task activities. Bruce et al. (2010) explored engagement in contrast to

disengagement and burnout in nursing students. Finally, relative engagement compares student engagement in one situation with student engagement in a different situation. Several researchers have studied relative engagement in secondary school students and in undergraduate nursing student virtual learning communities (Betts et al., 2010; Giddens et al., 2010). Factors of student engagement in these studies overlap with the four types of student engagement previously described. For example, time-on-task engagement (Flowerday & Schraw, 2003) is similar to performance engagement (Handelsman et al., 2005). Therefore, for the purpose of this study, student engagement within a specific course included four components: skills, emotion, participation/interaction, and performance.

Student Demographic Characteristics

Several student demographic characteristics relate to student engagement: age, gender, race/ethnicity, prior education, degree program, and self-reported GPA. While researchers have studied the factors related to overall student engagement, the PI found no studies where the factors researched student course engagement; however, these factors link to overall student engagement in the learning environment and, therefore, are included in this study.

Engagement and Age

Research has studied student engagement extensively in secondary school students and increasingly in college students. Prior to college, students from junior high to high school show stable levels of engagement in learning across the years of schooling (Betts et al., 2010). Generally, undergraduate students who were older demonstrated higher levels of engagement (NSSE, 2013). Similarly, Swedish nursing students 18 years

of age and older demonstrated higher levels of active engagement in school despite often having multiple demands of family, work, and school (Bruce et al., 2010). Older undergraduate nursing students (aged 30 years and older) particularly showed more engagement in school than nursing students who were under 30 years of age. Additional differences between older students and younger students may include the type of program or prior education (Bruce et al., 2010).

Engagement and Gender

Research on student engagement includes male and female students although few studies offer comprehensive comparisons of engagement between genders. Over time, evidence also is inconsistent regarding gender differences for engagement in learning overall between men and women students (Harper, Carini, Bridges, & Hayek, 2004; NSSE, 2013). Some evidence suggested that female college students engage more than male college students in the areas of interaction and active and collaborative learning such as interacting with teachers and classmates. Female students also displayed more emotional engagement (feelings) about their education and learning tasks than male students did (Young, 2003). However, recent data from NSSE (2013) offers little information about gender differences for student engagement overall. Similarly, research on engagement and gender in nursing and in the classroom is scarce. Bruce et al. (2010) report male students (in Sweden) were more behaviorally engaged in learning through active participation in learning activities. Consistent findings regarding levels of engagement between males and females may be in part due to variations in the types of engagement and learning environments studied. None of these studies reported

relationship of gender and student engagement for a nursing course but rather gender related to overall engagement in a college experience.

Engagement and Race/ethnicity

Research on student engagement routinely includes demographic data regarding student race and ethnicity. However, researchers only occasionally reported analysis of race and ethnicity data in relationship to student engagement for non-Caucasians. In undergraduate nursing education, two studies of student engagement indicated that non-White students engage more than their Caucasian counterparts.

Non-Asian under-represented minority nursing students showed significantly higher levels of engagement than students of other racial and ethnic groups, $F(4,308) = 2.40$, $p = .05$) in a virtual learning community (Giddens et al., 2010). The Giddens et al. (2010) descriptive study, however, does not clearly report the statistics; there were 340 students in the study and the degrees of freedom are reported to be 4,308. Overall in college, Caucasian nursing students were less involved in educational experiences than non-White nursing students, based on a secondary analysis of NSSE, $t(988) = -2.775$, $p = .006$ (Popkess & McDaniel, 2011). The current study explored the relationship of race/ethnicity and student engagement.

Engagement and Prior Education

Overall, research has shown student engagement to increase consistently from the first year of college to the senior year (Kuh, 2009; NSSE, 2013). For nursing students, engagement also generally increased from freshman to senior year in the study of nursing students in the U.S. (Popkess & McDaniel, 2011). However, across four years of undergraduate education, other nursing students reported decreased engagement and an

increase in disengagement (Rudman & Gustavsson, 2012). Nursing students perceived themselves as less engaged in the courses than students in other majors. In comparison with education majors, nursing and other health professions students specifically reported lower engagement in active and collaborative learning such as asking questions in class, making class presentations, or working with other students on class projects (Popkess & McDaniel, 2011). Engagement in active and collaborative learning is comparable to participation/interaction engagement in this study.

Evidence suggests that prior education within the healthcare field may have an effect on student engagement. Compared to nursing students without prior education, prior training as a nursing assistant related to more active engagement for Swedish nursing students (Bruce et al., 2010). In addition, emotional engagement slightly decreased and active engagement increased across three years of nursing education for Swedish nursing students (Bruce et al., 2010). Bruce et al. (2010) considered changes in nursing class size across college years as a potential influence on student engagement since typically earlier classes were larger than upper level classes. Bruce et al. (2010) found no significant difference in nursing student engagement based on class size. Some differences in student engagement were present among various types of higher educational institutions that Swedish nursing students attended (university and university colleges). One difference among students entering the Swedish university system versus those entering the university colleges was a higher GPA (Bruce et al., 2010). However, differences in the university systems between Sweden and the U.S. render these findings difficult to interpret.

Engagement and GPA

The researcher found evidence of a positive relationship between student engagement and GPA (self and institutional report) in the literature for nursing students in addition to high school and college students (Bruce et al., 2010; Hart et al., 2011; Kuh, 2009; Popkess & McDaniel, 2011). An exception to this relationship may be present among economically disadvantaged African American and Hispanic students. Appleton et al. (2008) found that participation/interaction engagement (regular class attendance, attentiveness, and cooperation in the classroom) and emotional engagement were not related to higher grades for these high school students. Similarly, African American and Hispanic students attending community college did not experience a clear positive relationship between student engagement and GPA (Greene, Marti, & McClenney, 2008). The current study aimed to explore the potential relationship of self-reported GPA as an outcome indicator of engagement for students in a nursing course.

Grit

Grit is a non-cognitive factor characterized by “perseverance and passion for long term goals” (Duckworth et al., 2007 p. 1087). Gritty individuals demonstrate long-term stamina despite challenges. This tenacity extends beyond intense short-term efforts found in motivated or industrious people (Duckworth, 2013). Grit is comprised of two factors: “consistency of interests” and “perseverance of effort” (Duckworth et al., 2007, p. 1088). Gritty perseverance and tenacity is critical for student success in challenging educational pursuits (Silvia, Eddington, Beaty, Nusbaum, & Kwapil, 2013; Tough, 2012). The 21st century workplace also views grit as a desirable social and emotional competency (National Research Council, 2012). The gritty student’s ability to persevere in school

may help prepare the individual for workplace effectiveness and for life success (Hoerr, 2013; Steiner-Adair, 2013).

Students with grit demonstrate resilience and focus on tasks despite risk of failure in the endeavor. In several prospective longitudinal studies, Duckworth et al. (2007) found that grit predicted success outcomes for various activities of school-aged children, teens, and young adults. For example, grit was a better predictor of completion of first-year summer training for West Point cadets than all other predictors, including SAT, high school rank, physical aptitude scores, and class rank (Duckworth et al. 2007). Similarly, in a longitudinal study of National Spelling Bee finalist students, grittier children were more likely to make it to the final round of the competition, and grit was a better predictor of this success than verbal IQ or self-control (Duckworth et al. 2007). These students reported their study habits and the average amount of time per week they spent studying, beginning in their years of competition in spelling bees prior to the National Spelling Bee. Duckworth et al. (2007) also assessed the students for grit; students who achieved higher levels at the National Spelling Bee contest were grittier. These students persistently had studied more and more intensely over time than their less gritty competitors. Aside from multiple studies reported by Duckworth et al. (2007), few researchers have specifically studied grit. Additionally, research about possible relationships of grit and student demographic characteristics of age, gender, race/ethnicity, prior education, degree program, and GPA is limited.

Grit, Age, and Educational Level

Grit has been studied in a wide range of ages from young students beginning at seven years of age to adults over 65 years old (Duckworth et al., 2007). Across ages and

educational levels from grade school to mature adults, grit scores repeatedly predict better outcomes for individuals participating in activities requiring consistency of effort and perseverance. In each age range, grittier individuals outperformed their less gritty peers and were willing to work harder and longer than less gritty peers to achieve successful outcomes. For example, National Spelling Bee finalists aged 7 to 15 years ($M = 13.2$ years, $SD = 1.23$), freshman cadets in summer training at the U.S. Military Academy at West Point ($M = 19$ years, $SD = 1.1$), Ivy League undergraduates ($M = 45$, $SD = 11$), and adult participants ranging in age from 25 to older than 65 years ($M = 45$ years, $SD = 11$) who participated in an online Grit-S survey associated with a positive psychology website were grittier than their peers (Duckworth et al., 2007; Duckworth & Quinn, 2009). It is possible that an individual's grit increases over the lifespan, since younger individuals tend to have lower grit overall compared to older persons (Duckworth et al., 2007). However, it is difficult to make conclusions without the benefit of longitudinal study because generational differences or other factors also could account for these differences.

Educated adults demonstrate more grit compared to less educated adults of the same age. In a cross-sectional study of educational attainment for adults aged 25 years and older with varied levels of completed education, grit was associated strongly with completion of higher educational degrees, $F(5, 1535) = 15.48, p < .001, \eta^2 = 0.05$. However, overall, grit also is correlated with increased age despite education level, $F(4, 1535) = 11.98, p < .001, \eta^2 = 0.03$ (Duckworth et al., 2007; Duckworth & Quinn, 2009). When controlled for age, post-college graduates were higher in grit than students with some college, students with bachelor's degrees, and high school graduates. Students

with an associate's degree, however, were significantly higher in grit than individuals who possessed no degrees. These students also were grittier than students with a bachelor's degree, although not to a significant level (Duckworth et al., 2007). In another study of younger Ivy League undergraduates, grittier students outperformed their peers and classmates with higher GPAs (Duckworth, et al., 2007, p. 1093). In both adults and younger college students, grittier students outperformed their peers and classmates in academic achievements. Regardless of age or educational level, prediction of success outcomes is more likely with grittier individuals (Duckworth et al., 2007, p. 1098).

Grit, Gender and Race/ethnicity

Research on the relationship of grit with student demographic characteristics of gender and race/ethnicity is sparse (Duckworth et al., 2007). Each study of grit mentioned previously provided basic demographic information about the race and ethnicity of participants, but researchers offered no further analyses. Strayhorn (2013), however, specifically explored grit in Black male students ($n = 140$) attending a predominately White university. Grittier Black male students had higher GPAs than their less gritty Black male peers had regardless of age, prior high school achievement, ACT scores, or year in school. However, the researcher found no other analyses in the literature to support possible relationships between grit and gender or grit and race or ethnicity.

Grit and GPA

Duckworth et al. (2007) reported that grittier students consistently reported higher GPAs regardless of status as traditional students, Ivy League undergraduates, West Point cadets, or grade school students who participated in National Spelling Bee contests ($r = .25, p < .01$). Typically, SAT scores also were strongly related to GPA. Therefore,

when student SAT scores are higher, student GPA scores also are expected to be higher, and the reverse is true if scores are lower. However, Duckworth et al. (2007) found that even when students had lower SAT scores, those with high grit had higher GPAs than would normally be expected ($r = -.20, p < .03$). Similarly, Strayhorn (2013) reported that grittier Black male students earned significantly higher GPAs in college than their less gritty peers achieved ($r = .30, p < .001$). Grit was valuable as a predictive measure of college success for Black males in college beyond traditional measures of pre-college academic success.

Grit and Engagement

Evidence is sparse regarding the relationship between grit and engagement. Two reasons for the lack of research in this area are recent developments of the Grit scale and new attention to importance of grit as a factor in student achievement at the college level (Duckworth et al., 2007). However, some studies related student persistence to engagement by measuring the time students spent on learning tasks when assigned a series of challenging problems (Sideridis & Kaplan, 2011). Researchers found the characteristic “persistence of effort,” which is similar to grit, in high school students of low socioeconomic status who exhibited behavioral and psychological engagement (Appleton et al., 2008, p. 375). Readers must take care with these interpretations because grit addresses the broader long-term view of persistence, rather than short-term task-related activities characteristic of engagement.

Summary

Student engagement has been widely studied, but grit is a rather new area of study, particularly in reference to nursing students. There is much inconsistency in the

definition of student engagement, and there are several different instruments available to study the concept. However, the SCEQ used in this study includes four subscales of student engagement that encompass the main components of student engagement found throughout the literature: skills, emotions, participation/interaction, and performance (Handelsman et al., 2005). Furthermore, the SCEQ specifically focuses on student engagement in an individual classroom.

The purpose of this study was to determine factors associated with student engagement in a nursing course using a conceptual model derived from the literature (Figure 1). This study examined student grit and demographic characteristics as potential factors associated with student engagement within a particular nursing course. In this study, the investigator conceptualized engagement in learning as student skills, emotion, participation, and performance in a nursing course. There are gaps in the literature regarding whether grit (consistency of efforts and perseverance of effort) relate to student engagement in the classroom. Furthermore, limited information is available about the relationship of student demographic characteristics (age, race/ethnicity, prior education, degree program, and GPA) and student engagement or grit. More research is needed. Understanding the relationship between student grit and engagement, while controlling for student demographic characteristics, may unveil new ways of adapting teaching strategies within a particular course for nursing students.

CHAPTER 3. METHODOLOGY

This chapter describes the study design and procedures including data collection and analyses used for examining student grit and student demographic characteristics as potential factors associated with student course engagement within a particular nursing course.

Design

The researchers used an exploratory descriptive cross-sectional study design to determine factors associated with student engagement in a nursing course using a conceptual model derived from the literature. The dependent variable was student course engagement. The independent variables were student grit (consistency of interests and perseverance of effort) and student demographic characteristics including age, gender, race/ethnicity, prior education, degree program, and self-reported GPA. The study examined two proposed relationships: (1) grit with student course engagement and (2) demographic characteristics with student course engagement. The study investigator conceptualized engagement in learning as student skills, emotion, participation, and performance in a nursing course. Once these relationships were determined, the final aim of the study was to determine the relationship between grit and student engagement while controlling for relevant student demographic characteristics.

Specific Nursing Course

Study participants were students in a nursing course taught by one faculty instructor, enabling the researcher to hold the type of course, subject matter, and faculty instructor constant. The PI selected a specific nursing course to study nursing student course engagement. Selection of one course allowed control for four factors in the

learning environment: the teacher, classmates, learning activities, and course subject matter. The selected course was a general didactic nursing health assessment course required of all students in the third semester of nursing school. The instructor used a traditional lecture-based format that also included student discussion in the classroom.

The course description (Appendix A) explains that the course “introduces students to the skills necessary to conduct a comprehensive health assessment, including physical, psychological, social, functional, and environmental aspects of health.” Additionally, the course expects enrolled students to apply the nursing process to conduct, interpret, document, and communicate comprehensive health assessment information on diverse clients (age, developmental stage, culture, race, etc.). Five course outcome competencies were listed in the course: (1) using clinical reasoning in health and physical assessment, (2) integrating knowledge from nursing and general education courses, (3) understanding importance of legal and ethical documentation, (4) beginning to communicate assessment findings and abnormalities to other members of healthcare team, and (5) describing and implementing collection of health history, head to toe physical assessment differentiating between normal and abnormal findings (Appendix A). Students taking this course enroll in a separate co-requisite skills lab course in which they practice and apply knowledge learned in the didactic. Faculty teach and grade students in the two courses separately, although students take both classes simultaneously. Traditional students and accelerated degree students, who had earned prior non-nursing degrees, enroll in the same course.

A minimum of 90 participants is the recommended sample size for this study using Tabachnick and Fidell’s (2007) equation for a power of .80 and alpha of .05, with a maximum of five predictor variables: $N > 50 + 8(IV)$, $50 + 8(5)$. For each multiple

regression to be tested in Aim 3, no more than five independent variables were anticipated. This limitation allowed the researcher to test for both grit subscales and up to three student demographic characteristics in each regression equation. The PI first analyzed grit subscales and potential student demographic characteristics using bivariate methods to screen for the most relevant independent variables for each multiple regression.

Study participant inclusion criteria:

1. Current student in enrolled in an undergraduate didactic nursing course.
2. Age 18 and above.

Procedure

Upon institutional review board approval (Appendix B), the PI recruited undergraduate students in one large didactic, lecture-based nursing course from a large Midwestern university school of nursing. Faculty taught the nursing course in a standard classroom setting. The researchers made initial contact with the university then the course faculty to inquire about access to potential student study participants. The researcher had not met and did not know the teacher or students in the nursing course prior to the study. The PI invited students to participate in the study through verbal contact at the end of one class and provided a study information sheet to all students in the class. The study sheet (Appendix C), created specifically for this study, explained the purpose of the study and informed students that participation was voluntary. The study sheet explained that the return of the questionnaire implied their consent to participate. The study sheet provided contact information for the study coordinator. The researcher scheduled data collection to avoid exams and testing dates, days immediately prior to or after holiday breaks, and

days no closer than three weeks before the end of the semester; the class period selected was within the last six weeks of the semester. After the teacher left the classroom, the investigator invited students to stay 15 minutes after the class to participate in the research study. The researcher gave students an opportunity to ask questions about any items or to elect not to participate in the study. The researcher offered no financial incentives to entice participation. To complete data collection, the investigator administered a packet of four items to each student participant: a student demographic characteristics questionnaire (Appendix D), the SCEQ (Appendix E), the Grit-S scale (Appendix F), and student course engagement VAS (Appendix G).

Protection of Human Subjects

The study investigator submitted an application to Indiana University–Purdue University Indianapolis (IUPUI) Institutional Review Board with an “Exempt” research status requested because of the nature of the educational study setting and lack of experimentation that could adversely affect participants. The application’s written study information sheet provided the purpose of the study and potential risks and benefits; the investigator gave and read it to prospective participants. The PI informed participants that they could choose to participate or decline participation at any time without any consequence. All information gained from students was by self-report using a de-identified questionnaire. To protect anonymity, the researcher used no names or identifying information other than a participant identification number. The researcher kept data in a locked cabinet and entered into a password-protected computer managed by the researcher. The PI reported data as grouped or aggregate and in a manner to protect individual participant identities.

Variables and Instruments

Variables measured in this study included student demographic characteristics, student grit, and student course engagement. The following sections provide descriptions of each instrument used to measure these variables. The researcher obtained formal permission to use the SCEQ (see Appendix H). The Duckworth Lab of the University of Pennsylvania (2013) provided courtesy permission for the non-commercial educational research use of the Grit-S Scale (Appendix I).

Student Demographic Characteristics

The demographic data form developed by the researcher measured nursing students' demographic characteristics. The investigator collected and examined the following characteristics:

- Age, gender, ethnicity (Latino/Hispanic and non-Latino/Hispanic)
- Race (American Indian or Alaskan Native, Asian, Black/African American, Native Hawaiian or other Pacific Islander, or White/Caucasian)
- Prior level of education (nurse aide, licensed practical nurse (LPN)/licensed vocational nurse (LVN), Associate Degree in Nursing or other associate degree, or bachelor's degree and major)
- Current degree program (traditional BSN degree or accelerated/second degree (LPN-RN, RN-BSN, RN-MSN)
- Self-reported current college GPA

Additionally, the researcher asked students to report their overall level of engagement and each subtype of engagement in a specific course using VAS.

Student Course Engagement

The study measured student course engagement with the SCEQ (Handelsman et al., 2005). The scale is a 23-item questionnaire developed for use with college undergraduates. The scale includes statements regarding four components of student course engagement: skills, emotion, participation, and performance in a specific nursing course. Using the SCEQ (Handelsman et al, 2005), students rated the extent to which listed behaviors, thoughts, and feelings describe themselves in the course using a five-point response scale ranging from 1 (*not characteristic of me*) in the course to 5 (*very characteristic of me*). Nine items form the skills subscale. These items focus on behaviors such as doing homework, studying, attending class, listening in class, and taking notes, etc. There are five items on the emotion subscale regarding students' desire to learn and their thoughts about ways to make the course applicable, relevant, and interesting. There are six items in the participation subscale; these items address social interaction the student has with teachers and other students such as asking questions in class, having fun, and participating in group discussions. The performance subscale consists of three items: doing well on tests, getting a good grade, and the student's confidence that he or she can learn and do well in the course (Handelsman et al, 2005).

Internal consistency reliability for the SCEQ was adequate with alphas ranging from .76 to .82 across the four factors in the scale (skills, $\alpha = .82$; emotion, $\alpha = .82$; participation/interaction, $\alpha = .79$; performance, $\alpha = .82$) for undergraduate university students (Handelsman et al, 2005). Evidence of convergent and discriminate validity was reported for each of the four factors on the SCEQ through association with at least one

other different but similar measure (Handelsman et al, 2005). Appendix I provides the SCEQ student engagement scoring guide.

Grit

Duckworth et al. (2007) defined grit overall as “perseverance and passion for long term goals” (p. 1087). More precisely, maintaining “consistency of interests” and “perseverance of effort” are two qualities that comprise the non-cognitive factor grit (Duckworth et al., 2007, p. 1088). Consistency of interests is an individual’s focused effort and interest over time. Perseverance of effort involves working hard toward challenging goals and “sustained commitment” over time (Duckworth et al., 2007, p. 1088). The study used the eight-item Grit-S scale to measure this concept.

The Grit-S Scale includes two subscales including statements about student consistency of interest and statements regarding perseverance of effort. For example, an item from the consistency of interest subscale is *I often set a goal but later choose to pursue a different one* (Duckworth & Quinn, 2009). Participants rate items on a five-point response scale from 1 (*not at all like me*) to 5 (*very much like me*). Acceptable evidence of internal consistency reliability has been documented for the overall Grit-S scale with alphas ranging from .73 to .83 across three samples of college-aged students including two classes of freshman cadets at West Point ($N = 2,526$) and Ivy League undergraduates ($N = 139$). Alphas for the consistency of interest subscale with the same samples were satisfactory, ranging from .73 to .79. Alphas for the perseverance of effort subscale were slightly lower ranging from .60 to .78 (Duckworth & Quinn, 2009).

Factor analysis supported the construct validity for the two-factor structure of the Grit-S scale. Both factors loaded on grit as a second order latent factor and had a strong

intercorrelation, $r = .59, p < .001$ (Duckworth & Quinn, 2009, p. 172). Additionally, the combination of both subscale factors (consistency of interest and perseverance of effort) supported the conceptualization of grit as a compound trait and was a better predictor of success for West Point cadets and National Spelling Bee finalists than either factor alone (Duckworth & Quinn, 2009). Duckworth and Quinn (2009) examined construct validity of the Grit-S scale using the known-groups approach and factor analysis. Middle and high school students with higher GPAs compared to classmates with more television watching had an inverse relationship to each other and to the perseverance of effort subscale. Consistency of interest subscale also was inversely related to career changes in adults compared to adults with few career changes even when controlling for age (Duckworth & Quinn, 2009).

Duckworth and Quinn (2009) demonstrated test-retest stability of Grit-S scores in a prospective longitudinal study of ethnically diverse, high-achieving middle and high school students in a public magnet school ($N = 279$). Students completed the Grit-S initially and then again one year later, $r = .68, p < .001$, similar to the three-month test-retest of freshman West Point cadets Grit-S scores at the beginning of and end of intensive summer training (Duckworth & Quinn, 2009, p. 170).

The study investigator included five VAS as criterion checks and to determine the participants' rating of their engagement in the course. The researcher constructed one VAS for each of Handelsman et al.'s (2005) four components of engagement (skills, emotion, participation/interactions, and performance) and one VAS for overall engagement in the course. The scaled listed definitions for each type of engagement and for overall student engagement. Under each definition, students were asked to rate their

engagement by placing a mark on the line to show their engagement in the course; for example, “How would you rate your skills engagement in this course?” The researcher used the following definitions:

- Skills: “observable study actions such as homework, study, and taking notes in class.”
- Emotion engagement: “your desire to learn and finding ways to make the course relevant and interesting.”
- Participation/interaction engagement: “your participation in social interaction with teachers and other students.”
- Performance engagement: “helping classmates, doing well on tests, and getting a good grade.”
- Overall engagement: “participation in skills, emotion, participation/interactions, and performance in this course.”

The study provided VAS of 0–100 with midpoint, 50, and endpoints of 0 and 100 marked on the line.

Data Analysis

Data analysis procedures for this study included data screening, descriptions of the sample and instruments, and testing each of the study aims.

Data Screening Procedures

First, the PI input data obtained from participants into a database and used Statistical Package for the Social Sciences (SPSS, version 21) for data analysis. Prior to completing analysis, the investigator verified entered data for accuracy. Next, the investigator used univariate descriptive statistics to evaluate possible out-of-range values,

means, standard deviations, and outliers thus further assessing the accuracy of entered data (Tabachnick & Fidell, 2007). The researcher addressed management of missing data as follows: if under half of the responses were missing for a particular scale then the PI imputed item means for the missing values (Polit, 2010). The PI constructed tables, charts, and graphs to summarize visually the data. Finally, the researcher analyzed descriptive statistics from data for normality, linearity, and homoscedasticity, singularity, and multicollinearity (Polit, 2010).

Description of Sample and Instruments

The study investigator computed descriptive statistics to describe characteristics of the sample the summarized frequencies and percentages for discrete data (gender, race and ethnicity, prior education, and degree program). For continuous variables (age and GPA) the researcher calculated means, range, and standard deviations using SPSS, and estimated internal consistency reliability using Cronbach's alpha for each scale and each instrument subscales: SCEQ (skills, emotion, participation/interaction, and performance) and GRIT-S (consistency of interest and perseverance of effort). Cronbach's alpha values of .70 or higher for the scale and subscales are desirable for satisfactory internal consistency reliability (Waltz, Strickland & Lenz, 2005).

Specific Aims and Hypotheses

Data was analyzed using SPSS statistical software program. To test each specific study aim, the level of significance was set at $p < .05$. The section that follows lists each study aim and plan for data analysis.

Specific Aim 1

Determine whether grit (consistency of interest and perseverance of effort) is associated with student course engagement (skills, emotion, participation/interaction, and performance). Pearson r correlations were computed to evaluate grit subscales relationship to the total course engagement score, to each subscale, and to the VAS.

Specific Aim 2

Determine whether student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA) are associated with student course engagement (skills, emotion, participation/interaction, and performance).

Pearson r correlations were computed to evaluate the variables of age, number of years of education, and self-reported GPA to the total course engagement score, to each subscale, and to the VAS. For the categorical variables of gender, race/ethnicity, prior education, and degree program independent samples t tests were used. Categorical variables with three or more categories were collapsed into two for adequate cell sizes then analyzed as dichotomous variables using independent samples t tests.

Specific Aim 3

Controlling for student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA), determine whether grit (consistency of interest and perseverance of effort) explains a significant amount of variance of student course engagement (skills, emotion, participation/interaction, and performance).

Multiple regression equations were used to explain variance of student engagement and engagement subscales (skills, emotions, participation/interaction, and performance). Significant grit and demographic variables identified from Specific Aims 1

and 2 were entered as independent variables for each regression equation for each student engagement and engagement subscale outcome. Only variables with significant Pearson r 's or t tests with student engagement were entered into the regression equations. For example, for overall student course engagement, two variables were found to be significant in Specific Aims 1 and 2 (grit and GPA). These variables were entered as independent variables to explain the amount of variance for overall student course engagement.

CHAPTER 4. RESULTS

This chapter contains results from data collection and analysis. The researcher reports first reports data cleaning procedures, followed by a description of the study sample and instruments. Finally, the researcher reports results specific to each study aim.

Data Cleaning Procedures

The study investigator entered all data SPSS (version 21) and inspected data for accuracy of input. The PI used univariate descriptive statistics to inspect means, standard deviations, and outliers to further evaluate input accuracy (Tabachnick & Fidell, 2012). The investigator managed missing data by imputing an item mean across participants, then inserting that item mean for missing responses. No more than 3.1% (3 of 97 participants) of the responses were missing for any one variable.

Sample

Table 1 presents student age and self-reported GPA. Response rate was 99.0% for the students who were present in class and invited to participate. However, this only reflected 68.8% of the total 141 students enrolled in the class; 44 students were absent when the investigator collected data. Students' ages ranged from 19 to 48 years with a mean age of 25.24 (6.91) years and median of 23 years. Students reported GPA on a 0–4 point scale. Three students did not report GPA (3.1%). Based on procedures for estimating missing data, the researcher imputed means across participants for each of the three missing values (Tabachnick & Fidell, 2012). Additionally, three students reported two GPAs with comments that the grades were from other programs, nursing program prerequisites, and previous undergraduate and/or master's degrees. The investigator calculated a single GPA for each of these three students by averaging their GPAs. Other

student comments written in the GPA section included, “This is my first semester in nursing,” and “3.7 [GPA] for coursework required to enter the nursing program.”

Table 1

Student Age and Self-reported College Grade Point Average

Characteristic	<i>n</i>	Mean (<i>SD</i>)	Median	Range
Age	97	25.24 (6.91)	23.0	19–48
GPA	94	3.64 (.23)	3.7	2.90–4.0

Table 2 displays student gender, ethnicity, race, prior education, and degree program. All students reported gender, ethnicity, and race. The majority of students were female $n = 85$ (87.6%), and there were twelve male students (12.6%). Most students self-identified race as Caucasian (84.5%). Five students identified in each group of Hispanic or Latino ethnicity, Asian, and Black or African American race. Six students (6.2%) selected “Other” for race, and some wrote comments indicating bi-racial identities.

Table 2 also displays students’ prior education and current degree program. The class was a mix of students in the traditional program and students in the accelerated degree program. Most students (54%) had no prior education or prior degree. About 42% of the students had a prior bachelor’s degree although most of these students were in the accelerated degree program. A bachelor’s degree was a pre-requisite for admission to the accelerated program; therefore, there was some overlap between the demographic characteristics of prior degree and type of program (traditional versus accelerated). A small number of students had prior education as nurse aides, LPN/LVNs, or held an associate’s degree in nursing. The limited number of students who had prior education, other than students in the accelerated program, constituted an inadequate number to test

relationships with other variables. Therefore, only two categories of prior education were analyzed, traditional students and accelerated students (who have previously earned a non-nursing bachelor's degree). Students reported only two categories for current program: traditional and accelerated (second degree).

Table 2

Student Gender, Ethnicity/race, Prior Education, Degree Program, n = 97

Characteristic	<i>f</i>	%
Gender		
Male	12	12.6%
Female	82	87.6%
Ethnicity		
Hispanic or Latino	5	5.2%
Not Hispanic or Latino	92	94.8%
Race		
American Indian or Alaska Native	0	0
Asian	5	5.2%
Black or African American	5	5.2%
White or Caucasian	82	84.5%
Other	6	6.2%
Prior education ^a	52	53.6%
No prior education	45	46.4%
Nurse Aide	7	7.2%
LPN/LVN	1	1%
Associate Degree in Nursing	1	1%
Associate Degree–Other	2	2.1%
Bachelor's Degree	41	42.3%
Degree Program		
Traditional BSN	60	61.9%
Accelerated (second degree)	37	38.1%

^aPercentage of students with prior education equals more than 100% due to students with more than one type of prior education.

Instruments

The tables that follow present descriptive statistics for instruments measuring independent variables. Study investigator assessed normality for Grit-S and SCEQ instruments using Kolmogorov-Smirnov (K-S) test with a significance level of $p < .001$ (Field, 2013). Variables with a significant ($p < .001$) K-S values were perseverance of effort from the Grit-S Scale, performance engagement subscale, and the VAS for emotion indicating non-normal distributions. The PI also inspected histograms for distribution.

Internal consistency reliability was estimated using Cronbach's alpha for the Grit-S scale, SCEQ, and for subscales of each instrument. Internal consistency reliability of .70 is acceptable for these instruments (DeVellis, 2003). The Grit-S scale demonstrated evidence of internal consistency reliability ($\alpha = .70$). Grit-S subscales (consistency of interests and perseverance of effort) did not demonstrate evidence of internal consistency reliability (Table 3). Therefore, the investigator used only the full Grit-S scale for further analyses. Students reported a moderate level of grit overall (Table 3). The mean grit was 3.7 with a range of 2.63 to 5 and a possible range of 1–5.

Table 3

Descriptive Statistics for Grit-S Scale, n = 97

Instrument	No. of Items	Mean (SD)	Median	Actual range (Possible range)	Cronbach's alpha
Grit Scale	8	3.7 (.52)	3.75	2.63–5 (1–5)	.70
Consistency of interests	4	3.3 (.75)	3.50	1–5 (1–5)	.41
Perseverance of effort ^a	4	4.1 (.48)	4.25	2.75–5 (1–5)	.68

^aSignificant non-normality using one-sample Kolmogorov-Smirnov Z tests ($p < .001$).

The SCEQ and each subscale (skills, emotion, participation, and performance) also demonstrated evidence of internal consistency reliability ($\alpha = .74$ to $.86$ as shown in Table 4). Students demonstrated a moderately high level of course engagement overall and in each engagement subscale (Table 4). The mean overall student course engagement was 3.9 with a range of 2.74 to 5 and a possible range of 1–5. Each subscale of student engagement also had moderately high levels of course engagement. Student skills and performance engagement demonstrated the highest scores with means of 4.1 and 4.2, respectively, while participation/interaction engagement had the lowest mean of 3.5.

Table 4

Descriptive Statistics for Student Course Engagement Questionnaire, n =97

Instrument	No. of items	Mean (SD)	Median	Actual range (Possible range)	Cronbach's alpha
Student Course Engagement	23	3.9 (.47)	3.9	2.74–5 (1–5)	.86
Skills	9	4.1 (.51)	4.0	2.78–5 (1–5)	.75
Emotion	5	3.9 (.67)	3.9	2.4–5 (1–5)	.75
Participation/interaction	6	3.5 (.73)	3.5	1.67–5 (1–5)	.74
Performance ^a	3	4.2 (.61)	4.3	2.33–5 (1–5)	.76

^aSignificant non-normality using one-sample Kolmogorov-Smirnov Z tests ($p < .001$).

Table 5 reports descriptive statistics for VAS. The possible range for VAS scores was from 0–100 mm. Histograms showed scales were negatively skewed, although only the VAS emotion scores had significant non-normality using the K-S test ($p < .001$). Mean and median scores for participation/interaction were lower and had somewhat more variability ($SD = 22.21$) than other scores.

Table 5

Descriptive Statistics for VAS Measuring Dependent Variables, n = 97

Instrument	Mean (SD)	Median	Range
VAS			
Skills	81.41 (13.14)	83.0	50 (50–100)
Emotion ^a	76.61 (20.43)	83.0	95 (5–100)
Participation/interaction	69.98 (22.21)	73.0	87 (13–100)
Performance	79.93 (15.29)	83.0	74 (26–100)
Overall engagement	80.82 (13.16)	82.0	56 (44–100)

^aSignificant non-normality using one-sample Kolmogorov-Smirnov Z tests ($p < .001$).

Bivariate correlations among SCEQ and engagement VAS and subscales (skills, emotion, participation/interaction, and performance) were significant ($p < .05$), providing evidence of criterion-related validity for the SCEQ within the current sample (Table 6); although, the correlation between the SCEQ Skills subscale and the Skills VAS was weak in terms of magnitude ($r = .243$).

Table 6

Bivariate Correlations among SCEQ and Engagement VAS and Subscales, n = 97

SCEQ	VAS				
	Engagement				
	Overall	Skills	Emotion	Participation /interaction	Performance
SCEQ Total	.439**	--	--	--	--
Skills		.243*	--	--	--
Emotion			.454**	--	--
Participation/interaction				.560**	--
Performance					.416**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Specific Aims

Specific Aim 1

Determine whether grit (consistency of interest and perseverance of effort) is associated with student course engagement (skills, emotion, participation/interaction, and performance). Pearson r correlations were computed to evaluate the strength and significance of the relationship of the total Grit score with the total course engagement (SCEQ), engagement subscales, and VAS (Table 7). Higher Grit scores were associated with greater overall student course engagement ($r = .47, p < .001$). Higher grit scores also were associated with student course engagement for each SCEQ subscale. Student skills course engagement had the strongest association ($r = .56, p < .001$) with grit. Scores for association of emotion engagement and grit also were strong ($r = .29, p < .01$). Although significant, the correlation between grit and participation/interaction engagement, and grit and performance engagement were not as strong. Higher Grit scores also were associated with VAS overall engagement ($r = .29, p < .01$), skills VAS ($r = .28, p < .01$), and emotion VAS ($r = .26, p < .05$). Grit was not significantly associated with student participation/interaction engagement or performance engagement for visual analog scales.

Table 7

*Screening for Total Grit as a Potential Independent Variable for Student Course**Engagement Regression*

Engagement	Grit Pearson <i>r</i>
Student Course Engagement	.47***
Skills	.56***
Emotion	.29**
Participation/interaction	.25*
Performance	.24*
VAS Overall Engagement	.29**
Skills VAS	.28**
Emotion VAS	.26*
Participation/interaction VAS	.10
Performance VAS	.08

* $p < .05$. ** $p < .01$. *** $p < .001$.

Specific Aim 2

To determine whether student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA) are associated with student course engagement (skills, emotion, participation/interaction, and performance).

Pearson *r* correlations were computed to evaluate the relationship between continuous demographic student variables of age and self-reported GPA and dependent variables of total student course engagement, engagement subscales, and five VAS (Table 8). Student age was associated with student participation/interaction engagement ($r = .27, p < .01$). Although significant, the correlation between age and emotion VAS was weak ($r = .25, p < .05$). Similarly, age and participation/interaction VAS were weakly associated ($r = .24, p < .05$).

Higher student GPAs were significantly associated with total course engagement, skills engagement, performance engagement, and performance VAS ($p < .01$), although the strength of correlations were weak ($r = .29$ to $.33$). Significant findings for GPA were total student course engagement, skills engagement, and performance engagement. The characteristic GPA was also significant for performance VAS and was associated with overall student course engagement ($r = .29, p < .01$), specifically with skills engagement ($r = .33, p < .01$) and performance engagement for both SCEQ ($r = .27, p < .01$) and performance engagement VAS ($r = .30, p < .01$).

Table 8

Screening for Continuous Student Characteristics (Age and GPA) for Student Course Engagement Regression

Engagement	Pearson r Age	GPA
Student Course Engagement	.18	.29**
Skills	.08	.33**
Emotion	.14	.09
Participation/interaction	.27**	.19
Performance	-.06	.27**
VAS Overall Engagement	.10	.13
Skills VAS	.14	.20
Emotion VAS	.25*	.09
Participation/interaction VAS	.24*	.03
Performance VAS	-.03	.30**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Independent sample t tests were run to determine differences in total student course engagement, engagement subscales, and VAS subscales based on discrete student characteristics of gender, race/ethnicity, prior education, and degree program (Table 9). Student course engagement did not significantly differ with respect to gender. The PI

collapsed categorical variables of race/ethnicity into dichotomous categories for adequate cell sizes for analyses, Caucasian (84.5%) and non-Caucasian (15.5%). Similarly, student course engagement did not significantly differ with respect to race/ethnicity. The investigator also collapsed categories for prior education of students into two categories coded as “no prior education” (46.4%) and “prior education (53.6%).” The most frequent type of prior student education was a bachelor’s degree (42.3%). Analyses revealed that students with prior education were more likely than those without to demonstrate participation/integration engagement on both the SCEQ ($t = -2.98, p < .05$) and VAS ($t = -2.51, p < .05$) scales. Student’s degree program consisted of two categories reflecting the current program that the student was enrolled in (traditional BSN or accelerated/second degree program). Students in the accelerated degree program were more likely than traditional non-accelerated degree program students to report participation interaction engagement ($t = -2.92, p < .01$). Noteworthy is an expected overlap in prior education and degree program data because all students in the accelerated degree program also had prior education of at least a bachelor’s degree. Thus, findings should be interpreted with caution and with this overlap in mind.

Table 9

*Screening for Discrete Student Characteristics (Gender, Race, Prior Education and Degree Program) for Student Course Engagement Regression Using Independent Sample *t* Tests*

Engagement (Dependent variable)	<i>Independent samples t-tests</i>			
	Gender	Race	Prior Education	Degree Program
Student Course Engagement	1.91	.174	-1.61	-1.1
Skills	1.17	.637	-.25	.55
Emotion	1.62	-.573	-1.72	-1.70
Participation/interaction	1.87	-.071	-2.98*	-2.92**
Performance	.92	.662	1.11	1.77
VAS Overall Engagement	.89	.162	.04	-.65
Skills VAS	.87	.721	-.26	-1.56
Emotion VAS	1.21	.245	-1.90	-1.64
Participation/interaction VAS	.47	.407	-2.51*	-.12
Performance VAS	-.44	.367	-.81	.80

* $p < .05$. ** $p < .01$.

Specific Aim 3

Controlling for student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA), determine whether grit (consistency of interest and perseverance of effort) explains a significant amount of variance of student course engagement (skills, emotion, participation/interaction, and performance).

Significant results ($p < .05$) from screening potential continuous and discrete independent variables using Pearson r and t tests (Tables 8 and 9) were entered into the regression equations for student course engagement (overall SCEQ and subscales) and engagement VAS. The significant variables were grit, GPA, age, prior education, and current degree. Due to lack of evidence for internal consistency reliability for grit subscales ($\alpha = .41$ and

.68), the researcher used only the total grit scale in the regression equations. Additionally, due to lack of a consistent and standardized method for students' self-reported GPA calculations, the investigator calculated regression equations a second time omitting GPA as an independent variable. Tables 10–22 display results for regression data results.

According to Table 10, 25% of the variance (23% adjusted) of total student course engagement was explained by GPA and total Grit scores, with both GPA and Grit being significant independent variables ($p < .05$; $p < .001$). In other words, students with higher GPAs and students who also were grittier demonstrated greater student course engagement. Grit was more strongly associated with total student engagement than GPA as noted by the higher Beta, t , and bivariate r values.

Table 10

Multiple Regression with Total Student Engagement (SCEQ) as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
GPA	.472	.236	2.57*	.29**
Grit	.371	.409	4.46***	

$F(2,91) = 15.047, p = .000; R^2 = .249; \text{Adjusted } R^2 = .232$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11 displays results of regression equations when calculated a second time omitting GPA as an independent variable. According to Table 11, 22% of the variance (21% adjusted) of total student course engagement was explained by total Grit scores, with Grit being a significant independent variables ($p < .001$). In other words, students who were grittier demonstrated greater total student course engagement.

Table 11

Recalculated Multiple Regression with Total Student Engagement (SCEQ) as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	.424	.467	5.152***	.47**

$F(1,95) = 26.541, p = .000; R^2 = .218; \text{Adjusted } R^2 = .210$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 12, shows 37% of the variance (36% adjusted) of skills engagement was explained by GPA and total Grit scores, with both GPA and grit being significant independent variables ($p < .001$). In other words, students with higher GPAs and students with more grit demonstrated greater skills engagement in the course. Again, although both were significant, grit was shown to have a stronger association with skills engagement than GPA.

Table 12

Multiple Regression with Skills Engagement (SCEQ) as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
GPA	.574	.263	3.128**	.331**
Grit	.507	.514	6.112***	.556**

$F(2,91) = 26.566, p = .000; R^2 = .369; \text{Adjusted } R^2 = .355$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 13 shows results of regression equations when calculated a second time omitting GPA as an independent variable. According to Table 13, 31% of the variance (30% adjusted) of skills engagement was explained by total Grit scores, with grit being a

significant independent variable ($p < .001$). In other words, students with more grit demonstrated greater skills engagement in the course.

Table 13

Recalculated Multiple Regression with Skills Engagement (SCEQ) as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	.544	.556	6.518***	.556**

$F(1,95) = 42.480, p = .000; R^2 = .309; \text{Adjusted } R^2 = .302$

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 14, 8% of the variance (8% adjusted) of emotion engagement was explained by total Grit scores. Only grit was a significant independent variable ($p < .01$). In other words, students with higher total Grit scores demonstrated greater emotion engagement in the course.

Table 14

Multiple Regression with Emotion Engagement (SCEQ) as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	.375	.290	2.958**	.290**

$F(1,95) = 8.75, p = .004; R^2 = .084, \text{Adjusted } R^2 = .075$

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 15, 18% of the variance (15% adjusted) of participation/interaction engagement was explained by age, prior education, current degree, and total Grit scores ($p = .001$), with total grit being the only significant

independent variable ($p < .01$). Students with increased grit had greater participation/interaction engagement in the course.

Table 15

Multiple Regression with Participation/interaction Engagement as the Dependent

Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Age	.013	.123	1.143	.271**
Prior Education	.140	.097	.663	.293**
Degree Program	.292	.196	1.411	.287**
Grit	.357	.256	2.656**	.254*

$F(4,92) = 5.149, p = .001; R^2 = .183; \text{Adjusted } R^2 = .147$

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 16, 13% of the variance (11% adjusted) of performance engagement was explained by GPA and total Grit scores ($p < .01$). Both GPA and Grit were significant independent variables ($p < .05$), each contributing about the same level of association as noted by the similar Beta, *t*, and bivariate *r* values. In other words, students with higher GPA and higher total Grit scores demonstrated greater performance engagement in the course.

Table 16

Multiple regression with performance engagement as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
GPA	.630	.239	2.423*	.270**
Grit	.279	.234	2.367*	.24*

$F(2,91) = 6.611, p = .002; R^2 = .127; \text{Adjusted } R^2 = .108$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 17 shows results of regression equations when calculated a second time omitting GPA as an independent variable. According to Table 17, 6% of the variance (5% adjusted) of performance engagement was explained by total Grit scores ($p < .01$). Grit was a significant independent variable ($p < .05$). In other words, students with higher total Grit scores demonstrated greater performance engagement in the course.

Table 17

Recalculated Multiple Regression with Performance Engagement as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	.285	.243	2.437*	.243*
$F(1,95) = 5.940, p = .017; R^2 = .059; \text{Adjusted } R^2 = .049$				

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 18, 8% of the variance (7% adjusted) of VAS Overall Engagement was explained by total Grit scores. Total Grit was a significant independent variable ($p < .01$). In other words, grittier students demonstrated greater overall course engagement.

Table 18

Multiple regression with VAS overall engagement as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	7.199	.285	2.893**	.285**
$F(1,95) = 8.369, p = .005; R^2 = .081; \text{Adjusted } R^2 = .071$				

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 19, 8% of the variance (7% adjusted) of skills engagement as measured by VAS was explained by total Grit scores ($p < .05$). Total Grit was a significant independent variable ($p < .01$). Students with higher total Grit scores demonstrated greater skills engagement.

Table 19

Multiple Regression with Skills VAS as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Grit	7.176	.284	2.889**	.284**

$F(1,95) = 8.345, p = .005; R^2 = .081; \text{Adjusted } R^2 = .071$

* $p < .05$. ** $p < .01$. *** $p < .001$

According to Table 20, 11% of the variance (9% adjusted) of emotion engagement as measured by VAS was explained by age and total Grit scores ($p < .01$). Age and Grit were both significant independent variables ($p < .05$). In other words, older students and those with higher total Grit scores demonstrated greater emotion engagement in the course. Both age and total grit had similar Beta, *t*, and bivariate *r* values showing relatively equal associations with emotion VAS.

Table 20

Multiple Regression Predicting Emotion VAS as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Age	.646	.218	2.225*	.250*
Grit	8.814	.224	2.286*	.255*

$F(2,94) = 5.918, p = .004; R^2 = .112; \text{Adjusted } R^2 = .093$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 21 shows that 8% of the variance (6% adjusted) of participation/interaction engagement as measured by VAS was explained by age and prior education ($p < .05$). Neither were significant individual factors associated with participation/interaction as measured by the VAS.

Table 21

Multiple Regression with Participation/interaction VAS as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
Age	.504	.157	1.408	.238*
Prior Education	7.841	.177	1.590	.249*

$F(2,94) = 4.163, p = .019; R^2 = .081; \text{Adjusted } R^2 = .062$

* $p < .05$. ** $p < .01$. *** $p < .001$.

According to Table 22, 9% of the variance (8% adjusted) of performance engagement as measured by VAS was explained by GPA ($p < .01$). GPA was a significant independent variable ($p < .01$). In other words, students with higher GPAs demonstrated greater performance engagement in the course as measured by the VAS.

Table 22

Multiple Regression with Performance VAS as the Dependent Variable

Independent variables	<i>B</i>	<i>Beta</i>	<i>t</i>	Bivariate <i>r</i>
GPA	19.766	.302	3.036**	.302**

$F(1,93) = 9.219, p = .003; R^2 = .091; \text{Adjusted } R^2 = .081$

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 23 provides a summary of Specific Aim 3 findings from data analysis for overall student engagement and each subtype of engagement using SCEQ and VAS measures. Due to confounding issues in this study with the reliability of GPA as a

variable, an additional analysis was run omitting GPA. Table 20 also provides a summary of data analysis for overall student engagement and each subtype of engagement using SCEQ and VAS measures while omitting GPA from the equations. Independent variables that were associated with student course engagement during screening of variables are listed as well significant variables from each multiple regression equation.

Table 23

Summary of Specific Aim 3 Findings with and without GPA Variable

Dependent Variable	% Variance accounted for adjusted	Independent Variables from screening	Significant independent variables from regression
SCEQ Overall Engagement	23.2%	GPA, Grit	GPA, Grit
	21%	Grit only	Grit
VAS Overall Engagement	7.1%	Grit	Grit
Skills	35.5%	GPA, Grit	GPA, Grit
	30%	Grit only	Grit
VAS skills	7.1%	Grit	Grit
Emotion	7.5%	Grit	Grit
VAS emotion	9.3%	Age, Grit	Age, Grit
Participation/ interaction	14.7%	Age, Prior Ed, Degree Program, Grit	Grit
VAS participation/interaction	6.2%	Age, Prior Ed	Neither are significant
Performance	10.8%	GPA, Grit	GPA, Grit
	5%	Grit only	Grit
VAS performance	8.1%	GPA	GPA

In summary, Specific Aims 1, 2, and 3 were partially supported by the findings. Although Grit subscales were not used due to poor internal consistency reliability, total Grit scores were significantly associated with overall student course engagement and each subtype of engagement: skills, emotion, participation/interaction, and performance, using the SCEQ. Results were similar for VAS overall engagement scores and each VAS

subtype of engagement, except for non-significant associations between total grit scores and VAS participation/interaction, and between total Grit scores and VAS performance. Student self-reported GPA was significantly, but weakly, associated with overall student course engagement, skills engagement, and performance engagement as measured by SCEQ, and performance engagement as measured by VAS. Student age was only significantly associated with VAS emotion. Due to results of prior screening, gender, race/ethnicity, prior education, and degree program were not analyzed for association with grit and student course engagement. Chapter 5 provides a discussion of these findings with implications for future research.

CHAPTER 5. DISCUSSION

This chapter provides a discussion of each specific study aim, followed by theoretical, research, and nursing education implications, limitations, and summary and conclusion.

Specific Aims

Study Aim 1

Study Aim 1 investigated the potential relationship of grit (consistency of interest and perseverance of effort) with student engagement overall and with four subtypes of engagement: skills, emotions, participation/interaction, and performance. Findings from the study provided evidence that grit is an important factor associated with student engagement in a didactic nursing course. These findings are consistent with previous research that revealed the importance of grit in other contexts with different populations such as (a) summer military training for freshman cadets at West Point; (b) high achieving 7th–11th grade students in a magnet public middle school and high school; (c) student finalists in a National Spelling Bee; (d) undergraduate psychology students at an Ivy League school; and (e) adults 25 years of age and older who visited a non-commercial public psychology research website (Duckworth et al., 2007; Duckworth & Quinn, 2009). Overall, nursing students with more grit demonstrated greater engagement in their nursing course. Additionally, nursing students with more grit demonstrated greater engagement in each subtype of student engagement: skills, emotions, participation/interaction, and performance. This study fills the gap of knowledge about the important relationship between grit and student engagement in a nursing course.

Grit and skills engagement. Consistent with findings of Duckworth and Quinn (2009) for non-nursing students, this study found that grittier nursing students reported persistent effort in their learning endeavors and more skills engagement in a didactic nursing course. In fact, grit accounted for 36% of the adjusted variance in skills engagement. This exceeds the 23% variance in overall SCEQ engagement accounted for in this study. Skills engagement encompasses student behaviors such as routinely attending class and taking good notes (Handelsman et al., 2005). As one might expect, nursing students with more grit studied regularly, completed assigned homework, and demonstrated better organizational skills, as indicated by their skills engagement behaviors. Grittier nursing students intentionally put forth effort to engage in the classroom and outside of class. For example, nursing students with more grit and skills engagement reported listening carefully in class, keeping current with assigned readings, and looking over class notes between classes to ensure that they understood class material.

Grit and emotion engagement. In addition to having more skills engagement, grittier nursing students in this study also engaged more emotionally than their less gritty classmates engaged. Previous research suggested that emotional engagement is associated with a student's persistence and effort in school overall (Flowerday & Schraw, 2003; Hart et al., 2011). Emotional engagement also is associated with a student's persistence specifically in nursing education (Bruce et al., 2010). Emotion engagement in learning encompassed students' desire to learn and to find ways to make course content relevant and interesting. Although the relationship between a student's consistent interest and persistent efforts and emotion engagement was weak, explaining 8% of adjusted

variance, findings are consistent with other studies that link emotions such as student satisfaction and enjoyment, positive affect, and motivation with engagement (Krause & Coates, 2008; Linnenbrink, 2007; Pekrum, Elliot, & Maier, 2009). It is not surprising that grittier students experience emotion engagement and that students who are emotionally engaged are more consistent in their interests and more persistent.

Grit and participation/interaction engagement. Research in higher education suggests that student interactions with faculty during class and outside of the classroom are associated positively with persistence in school and successful student outcomes (Kuh, 2008; Soria & Stebleton, 2012). This study found that gritty students engaged in participation and interaction with the teacher and with classmates inside the classroom and outside of class. For example, grittier students reported more active participation in small-group class discussions, raising their hands and asking questions when they did not understand and meeting with the professor to ask questions or review assignments outside of class. Although significant, the relationship between students' consistent interest and persistent efforts and their participation/interaction engagement was somewhat weak, explaining 15% of adjusted variance.

Interestingly, student participation/interaction engagement as measured using the VAS was not associated with grit. This result has measurement implications. Using a one-item participation/interaction VAS may not have been a sensitive enough measurement. The VAS item also might have been problematic due to the brief definition of participation/interaction provided on the VAS. Students could have interpreted the VAS definition of *social interaction with teachers and other students* narrowly as social interaction, rather than the wider variety of interpersonal academic interaction described

in items on the SCEQ. This may not have clearly guided students to consider a variety of participatory and interactive learning activities that students engage in with their teacher and classmates inside and outside of the classroom. The SCEQ participation/interaction subscale, on the other hand, was a slightly more effective measure containing six items that described various types of student to teacher and student to peer interactions such as asking questions of the instructor and helping fellow students. The SCEQ participation/interaction subscale also had satisfactory internal consistency reliability estimate of .74. Multi-item measures are expected to have better sensitivity than single item VAS measures (DeVellis, 2003).

Grit and performance engagement. Similar to findings on the relationship of grit and participation/interaction engagement, this study found that grit was associated weakly with student performance engagement, explaining 11% of adjusted variance and not associated with VAS performance. These mixed findings offer some support for the possible relationship between student performance engagement—confidence in one’s ability to perform well in the class, to be successful with test taking, and to get good grades—with student’s effort and persistence in school. The literature indicates that a link exists between grit and performance engagement, but there is little empirical support. Some educators assert the importance of explaining to students how effort and persistence connect student engagement to performance outcomes (Christenson, Reschly, & Wylie, 2012). Yeager and Dweck (2012) suggest cultivating students’ belief that consistent effort and persistence (grit) are linked to an expanding capacity for performance engagement, because some evidence suggests these beliefs may further motivate academic performance and persistence. Aside from outcome measures of grit or

performance engagement, research is lacking regarding the relationship between these variables.

Distinctions between indicators and facilitators of engagement are confounding when it comes to measurement. Overlapping concepts create problems for conceptualizing and measuring engagement (Skinner, Furrer, Marchand, & Kindermann, 2008). This study was no exception. The lack of findings using the single-item VAS for student participation/interaction engagement and for student performance engagement may demonstrate measurement issues with use of VAS. Using a one-item VAS measure for each of these subtypes of student's engagement may not be a sensitive or practical measure for this complex concept, whereas SCEQ subscales containing more items had an acceptable alpha in this study and in Handelsman et al.'s (2005) study. The SCEQ is a stronger measure.

Study Aim 2

In Study Aim 2, the researcher examined student demographic characteristics of age, gender, race/ethnicity, prior education, current degree program, and GPA to determine whether they are associated with student course engagement. Self-reported GPA seemed to emerge as the most important demographic variable associated with overall engagement, skills engagement, and performance engagement. However, there was lack of consistency in how students reported their GPA. This problem may render GPA next to meaningless as a correlational measure in this study. It would be expected that students who report characteristics of performance engagement such as doing well on tests, being confident that they can learn and do well in class and get good grades would have associated self-reported GPAs. And, although it makes logical sense that students

with more engagement skills such as taking notes in class, studying on a regular basis, and keeping current with reading assignments might have associated higher GPAs, reliability of self-reported measure of GPA was problematic in this study. This problem was evident from student questions about GPA during completion of the participant demographic form and from GPAs reported on the forms. For example, some students reported minimal GPA for entry into the nursing program at the university while others asked which GPA to report—from a previous degree, from a combination of prior education and current program grades, from all courses taken prior to nursing, or only earned in nursing prerequisite courses. Furthermore, students did not have the ability to calculate the GPA available at the time of data gathering and had to rely on memory of their GPAs. Additionally, there is a possible response bias for reporting favorable GPAs.

Age, prior education, and current degree program also had significant associations with student engagement. Age was found to be specifically associated with emotion engagement and participation/interaction engagement. Consistent with the literature, older nursing students engaged more than younger students engaged (Bruce et al., 2010). Perhaps older students' ability and confidence with interpersonal skills developed more across life experiences compared to younger students. Knowles, Holten, and Swanson (2015) asserted that many differences exist among adult students, especially those returning to school, and younger students. Findings from this study aligned with adult learning theory. Adult learners prefer being actively involved in learning. They tend to have more internal motivation and are more self-directed and pragmatic in their approach to learning. While in school, adult nursing students already may be working in a career and providing for a family. These students have high emotional stakes in learning and

fear failure (Billings & Halstead, 2011). This could account for the relationship of age and emotional engagement and participation/interaction engagement. On the other hand, age was not associated with overall engagement and the engagement subtypes of skills and performance. This indicates that older students as well as younger students engage similarly in attending class and doing homework and in efforts to succeed, get good grades, and do well in their courses. Interestingly, one item on the performance engagement SCEQ scale specifically addressed students' confidence that they can learn and do well in class. This result seems to somewhat conflict with the notion that students fear failure (Knowles et al. 2015; Billings & Halstead 2011). However, this result may be misleading because items on emotion engagement SCEQ do not indicate positive or negative emotions but rather assess student interest in the course, desire to learn, and personally making course material relevant.

Prior education and degree program were found only to be associated with participation engagement. In this study, there were several students with prior education. These students had earned a previous non-nursing associate, bachelor, or master's degree and, during the period of this study, were pursuing a bachelor's degree in nursing on an accelerated educational learning track. Students with prior education who returned to school may have had a different motivation or a different level of commitment to their education than traditional students. Students who return to school are expected to be older; therefore, interpreting results is difficult because the relationship of prior education and degree program, and participation engagement overlap with age of student as discussed previously.

Demographic factors of gender and race/ethnicity were not associated with overall engagement or engagement subtypes. The reasons for this are not clear. However, the literature reported evidence of differences in engagement for male nursing students in Sweden who were more behaviorally engaged in active classroom activities than female students were (Bruce et al., 2010). Young (2003) found that female students demonstrated more skills engagement. Additionally, researchers noted gender and race difference in faculty–student interaction with male and female college students (Kim & Sax, 2009). Although gender was not a factor associated with student engagement in this study, it is possible that the lack of significant gender differences with respect to student engagement could be attributed to the small sample of male students, represented by only 12.6% of the overall sample.

Study Aim 3

In Specific Aim 3, the study investigator explored grit (consistency of interest and perseverance of effort) in relation to student course engagement while controlling for student demographic characteristics (age, gender, race/ethnicity, education, degree program, self-reported GPA). Age, prior education, degree program, and GPA were demographic factors related to student course engagement. However, when the researchers entered grit into regressions, grit and GPA explained 25% of the variance in engagement, with grit emerging as a significant independent variable. Grit alone explained 22% of the variance in engagement. Students with more grit demonstrated greater student course engagement. Grit was more strongly associated with total student engagement than GPA. These results further underscore the importance of this variable.

Skinner and Pitzer's (2012) meta-analysis of student persistence suggests a link between students' engagement in class and their reactions and resilience when making mistakes or struggling with academic difficulties, which is similar to the student characteristic of grit. Educational persistence, a concept similar to grit, also was associated with student engagement (Shechtman, DeBarger, Dornsife, Rosier, & Yarnell, 2013). While these relationships seem to be logical, they are not the only variable to influence these outcomes. The relationship between GPA and student engagement while weak is consistent with findings from Shechtman et al. (2013) who reported positive effects of student engagement and GPA. Specifically, the current study found that GPA and grit were most strongly associated with student skills and participation/interaction engagement.

Student skills engagement, such as students' study behaviors of completing homework, studying, and taking notes in class had the strongest association with grit. This association supports educational expectations that persistent student efforts toward a consistent goal relate to student engagement, academic achievement, and good grades.

This finding matches literature that indicates psychosocial and student study skills factors related to educational persistence were more predictive of college outcomes than student socioeconomic status, standardized achievement tests scores, and high school GPA (Robbins et al., 2004; Shechtman et al., 2013). For example, there are no strategies that students can use to improve *prior* GPA; however, there are strategies that can enhance student grit for better engagement. For example, VonCulin, Tsukayama, and Duckworth (2014) found the major motivational correlate of grit to be desire for meaning and purpose. Perhaps helping nursing students find meaning in their pursuit of a nursing

career could promote grit. Furthermore, grit may be a better indicator of future student engagement and success than GPA. Although more research is needed to test this hypothesis, grit may be a concept to consider when assessing students for potential achievement or program completion, rather than using prior GPA as a main criterion.

Theoretical Implications

The conceptual model used in this study represents relationships among student grit (consistency of interests and perseverance of effort) and demographic characteristics (age, gender, race/ethnicity, education, degree program, and self-reported GPA) with student engagement including four subtypes of engagement (skills, emotion, participation/interaction, and performance). The model also situates students within the context of a learning environment where students interact with teacher, classmates, learning activities, and subject matter (Figure 1).

Student engagement is a multidimensional concept with possible overlapping variables within the subtypes of engagement. However, findings from this study partially support the conceptual model. Most notably, there was evidence of a strong relationship between student grit and student course engagement overall. Additionally, the study findings support the presence of relationships among student grit and all four of the subtypes of engagement as illustrated in the model. Although significant, not all of the relationships among grit and subtypes of engagement were as strong as the relationship of grit, overall engagement, and skills engagement. Skills engagement encompasses concrete engagement behaviors such as regularly attending class, studying, and taking notes. Skills engagement may be identified more easily as a distinct variable compared to other subtypes of engagement. Similarly, self-reported GPA showed strong relationship

with engagement and grit. Intuitively, it is logical that skills engagement of class attendance and study behaviors would correlate with persistent student effort characteristic of grit and with student GPA. However, due to the correlational research design, it is impossible to identify the direction of the relationships among grit, skills engagement, and GPA.

Findings from the study did not support proposed relationships among student course engagement and student demographics of gender and race/ethnicity. Based on these findings, consideration could be given to revising the model to eliminate gender and student race/ethnicity from factors related to course engagement. In the literature, existence of relationships between student demographic characteristics of gender and race/ethnicity and engagement has been inconsistent. Therefore, caution is warranted on making this change until results of further study can produce more supporting evidence.

This study attempted to hold constant variables in the learning environment (teacher, classmates, learning activities, and subject matter) by studying one class with one teacher. This allowed the study to focus on the relationships among student grit, student demographic factors, and student engagement. However, for a more comprehensive testing of the conceptual model used in this study, replication across a variety of courses with different teachers and varying learning activities and subject matter is warranted. Because grit was an important factor associated with student engagement in this study, future research that includes the learning environment as additional factors associated with student engagement is warranted.

Research Implications

Previously, the Grit-S, as a self-report measure of student consistency of interest and persistence of effort, demonstrated good reliabilities when used on different ages and groups of participants (Duckworth & Quinn, 2009). In this study, although grit subscales did not have sufficient evidence of internal consistency reliability, the total Grit-S score showed good reliability when used with a sample of nursing students. The current study supports Duckworth and Quinn's (2009) recommendation that only the total grit score be used. In more recent reports, Duckworth and Quinn also note a lack of reliability for Grit subscales. Questions arise about the usefulness of the instrument with attention to variables in the learning environment, such as class size and the timing when grit is measured during the course). Similar to the concept of grit, a student's beliefs about his or her own ability to perform academically has an effect on performance in the classroom. Additionally, a student's perceptions of what others believe about him or her has an effect on motivation and classroom performance as well (Deci & Ryan, 2013). Fink (2013) suggests possible strategies that can be devised to intentionally cultivate grit. Hu & Kuh (2002) reported that student academic performance improves when faculty present challenging goals in the classroom environment. Learning activities that challenge students and provide opportunities for small defeats that can be overcome can be used to instill student belief in the ability to persist through difficult tasks. Based on findings from this study and those from the literature, future research is warranted to examine possible strategies that may be used to foster grit, which may in turn enhance student engagement in the classroom.

The SCEQ shows promise as a measure of student engagement in the college classroom, but further psychometric testing is warranted. Although this study found acceptable evidence of internal consistency reliability for the total SCEQ score and the four subscales, further psychometric testing for validity is recommended with larger samples and diverse students. The fact that the total SCEQ score and subscales were correlated with the corresponding single-item VAS measures does provide some evidence of criterion-related validity; however, further evidence of construct validity using factor analysis and theoretical model testing would provide further support for this important measure. While the study of student engagement and recommendations for promoting student engagement in the classroom has flourished over the past ten years, more attention is needed regarding engagement for nursing students within specific learning environments such as the classroom. Creating engaging activities include classroom discussions, faculty and peer interactions, social interactions within the college context, and interactive course assignments and homework (Bandura, 1997; Hu & Kuh, 2002; Kuh, 2009). Future study also should address varied learning environments such as online learning, skills and simulation labs, and clinical practicums. Future studies that evaluate student course engagement across nursing courses and studies that span time of entry into a nursing program until graduation also could build on this study.

Implications for Nursing Education

Based on the findings of this study and available literature, the relationship of grit and student engagement is important at the classroom level. Students who demonstrate grit appear to be more engaged in learning. Students who are engaged in learning in the classroom likewise may be grittier. Based on these findings, the researcher recommends

three practice implications for nursing: (a) developing strategies to foster grit within the context of specific learning environments, (b) recognizing the importance of student grit in addition to traditional measures of student academic achievement such as test scores and GPA, and (c) considering assessment and promotion of engagement within nursing courses.

Developing strategies to foster student grit and engagement might be valuable given their strong association with each other. Shechtman et al. (2013) suggested that contextual factors in the learning environment and individual student psychological resources can promote grit. Contextual factors are twofold: opportunities afforded for students to work toward challenging “worthy” long-term goals that align with a student’s personal interests, passions and personal values, and a rigorous and supportive context for pursuing their goals (Shechtman et al., 2013, p. 17). These approaches for fostering grit also may apply to college students in nursing school. Two potential approaches for improving grit in students are offering sufficient challenges and teaching students that learning naturally involves struggle (Duckworth, 2013; Miller, Balcetis et al., 2011). Tough (2012) suggested that student confidence and persistence are promoted when students work slightly beyond their comfort level and master a learning challenge. These strategies also could be applied to nursing students. Although working at a higher level may be somewhat uncomfortable for students, nurse educators can help students understand that feelings of mild anxiety, frustration, confusion, or even boredom during the learning process is normal. Educators can also structure repeated, deliberate practice of tasks and work with nursing students to create specific goals that are progressively more challenging. Students who excel easily at task mastery also can be offered

additional challenges to stimulate them to expand their level of competence (Miller, Amsel et al., 2011).

Nurse educators can recognize the importance of student grit in addition to GPA, which is but one measure, of student academic achievement. However, educators also can convey the message to students that it matters what one does when one is not initially successful in achieving a goal, such as getting a poor grade on an assignment or test. Efforts of students who choose to challenge themselves, persist when the work is difficult, and those who continue in the face of setbacks should be acknowledged, supported, and rewarded (Ericsson, 2004). Dweck (2007) suggested promoting students' understanding and belief in their own capacities to develop intellectual abilities through hard work. The extra effort put forth by students with a *growth mindset* is similar to fostering grit. Students' belief in their ability to achieve academic success can foster capacity for persistent efforts needed to earn good grades in college. Stimulating this type of growth mindset in students can support greater completion of challenging courses and result in higher student achievement (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 2007; Yeager & Dweck, 2012).

Assessment of student engagement within a course may aid the nurse educator to enhance teaching. For example, assessing the skills engagement of the class may lead to additional teaching strategies to help students better master the material such as effective note taking or time management. Assessing other types of engagement (e.g., emotion, participation/interaction, and performance engagement) also may suggest areas for improved teaching. Sakiz (2012) reported relationships among Turkish college students' perceptions of emotional support from their instructor and student involvement in college

classrooms. College students abroad may differ from American nursing students, but assessment of student emotional engagement or lack thereof may lead instructors to increased awareness of the opportunity to provide affective support. Based on identification of the different types of student engagement in the classroom, educators also could apply other specific teaching strategies.

Limitations

Several limitations of this study must be considered when interpreting the results. First, this study used a non-randomized, convenience sampling method. All students were enrolled in a comprehensive health assessment didactic nursing course required in the third semester of the nursing school. The purpose of limiting participants to one course with one instructor was to control several factors affecting the learning environment: type of course, classmates, teacher, learning activities, and course subject matter. It is, therefore, important to be cautious about generalizing the results beyond an individual nursing course. Additionally, students' reported GPAs inconsistently; for example, some reported overall GPAs, whereas others reported only nursing GPAs. Others estimated GPAs based on memory. Therefore, the GPA results reported in this study should be interpreted with caution.

In terms of measures, the SCEQ instrument was a newer instrument with limited evidence of reliability and validity found in the literature. Therefore, the researcher created five VAS for this study and used as concurrent criterion-related validity measures for the SCEQ. The investigator created a single-item VAS for each of the SCEQ subscales and one for the overall SCEQ. The total SCEQ score and all four of the SCEQ subscales were significantly correlated with the corresponding VAS items. This provides

promising evidence of criterion-related validity for the SCEQ; however, one of the correlations between the SCEQ skills subscale and the VAS skills item was weak ($r = .24$). When a sample size is large (e.g., $N = 90$), weaker correlations tend to be significant, which might suggest important findings based on weak correlations. Magnitude of the correlation also should be considered, rather than only relying on significance when interpreting findings. A potential problem with the VAS measures in this study is that translation of each subtype of engagement into a single item score may not have accounted fully for the complex multi-dimensional nature of the subtypes of engagement. A single-item VAS may not be robust enough to capture fully the concept. Additional criterion validation of the SCEQ instrument would be beneficial in future studies. However, currently in the literature there is a lack of measures for student course engagement, thus limiting available support for further testing of criterion-related validity for the SCEQ.

Due to the complex nature of engagement and overlapping concepts of emotional and behavioral engagement, the outcomes also may be dependent on additional factors not accounted for in the model. Another limitation is that the study investigator gathered all data from self-report measures. Self-report has been used extensively in the study of grit and student engagement and is an appropriate source for eliciting information about students' school experience. Similar to all self-report scales, the Grit-S limitations include the potential for social desirability response bias (Kerlinger & Lee, 2000). Adding an observational measure of student behavior could be a helpful tool to corroborate self-reported engagement. However, using observational assessment of student course engagement also is limited to collection of external indicators of

engagement and may not capture student emotional and performance engagement, which are primarily internal experiences.

Despite these limitations, this study adds to the knowledge of the relationship among student demographics, grit, and student engagement. More research is warranted to improve measures of engagement and to explore further factors contributing to development and nurturing of student grit and engagement in learning in the nursing classroom. Replication of the study is recommended across varied learning environments (different sites, different learning strategies such as lecture versus flipped classroom, different program formats online, accelerated and traditional, and various course subject matter). Additionally, further study regarding grit as a potential area for the future development of strategies to foster engagement of nursing students in the classroom is recommended.

Summary and Conclusion

Much attention has been given to the study of student engagement. Active engagement in learning and persistence of nursing students is especially important to strengthen student achievements in nursing courses. This study attempted to improve understanding of the relationships among student demographic characteristics, student grit, and student engagement in a nursing course. Specifically, the three study aims were to (1) determine whether grit (consistency of interest and perseverance of effort) was associated with student course engagement, (2) determine whether student demographic characteristics were associated with student course engagement, and (3) and determine whether grit explained a significant amount of student course engagement while controlling for students demographics characteristics.

Grit is an important concept for nursing student persistence and effort in the classroom. However, the study of grit is an emerging field and few researchers have examined effectiveness of methods to increase grit in college students (Duckworth, Quinn, & Seligman, 2009). Future studies could explore strategies and methods for increasing grit and engagement in students in nursing classrooms.

APPENDIX A

DE-IDENTIFIED NURSING COURSE SYLLABUS

COURSE INFORMATION

- Credit hours: 2 didactic
- Placement in curriculum: Third semester
- Prerequisite: Admission to the School of Nursing
- Co-requisites: Health Assessment Practicum

DESCRIPTION

This course introduces students to the skills necessary to conduct a comprehensive health assessment, including physical, psychological, social, functional, and environmental aspects of health. The process of data collection, interpretation, documentation, and dissemination of assessment data will be addressed as well as the nursing process.

PROGRAM OUTCOMES AND COURSE COMPETENCIES

<p style="text-align: center;">Program Outcomes</p> <p><i>At the conclusion of this program, the student will be:</i></p>	<p style="text-align: center;">Course Competencies</p> <p><i>At the conclusion of the course, the student will be able to:</i></p>
<p>A critical thinker who demonstrates intellectual engagement and uses evidence as a basis for clinical reasoning and decision-making.</p>	<p>1. Utilize clinical reasoning in the comprehensive nursing health and physical assessment of well people across the life span; pediatric (infant, toddler, preschooler, school aged, and adolescent), adult (young adult, middle adult, and late adult).</p>
<p>A culturally sensitive individual who provides holistic individual, family, community, and population-centered nursing care.</p>	<p>2. Identify age related, cultural, and situational factors affecting health assessment integrating knowledge from nursing and general education courses.</p>
<p>An individual who embodies the professional identity of the nurse and who translates the inherent values of the nursing profession into the ethical and legal practice of nursing.</p>	<p>3. Understand the importance of documenting physical assessment findings both legally and ethically.</p>
<p>An effective communicator who collaborates with interprofessional team members, patients, and their</p>	<p>4. Begin to communicate effectively with faculty, nurses and other members of the healthcare team about</p>

support systems for improved health outcomes.	any abnormalities in physical assessment findings. This include verbal and written forms with the understanding of the purpose of HIPPA, demonstrating confidentiality in all communications regarding patients.
A competent care provider who is prepared to practice to the full capacity of the professional nurse role in diverse health care environments.	5. Describe and implement components of a complete health history, head to toe physical assessment, and differentiate between normal and abnormal assessment findings.

REQUIRED TEXT

TEACHING AND LEARNING STRATEGIES

- Lecture
- Discussion
- Class exercises
- Clinical application

SCHEDULE OF TOPICS

Orientation

Assessment of Vital Signs & Assessment Techniques

HIPPA and Documentation

Hand Washing

The Nursing Process

Adult Health History

Assessment of Skin, Hair & Nails and Pain Assessment

Assessment of Regional Lymphatics

Assessment of Breast, Testicular and Genitalia

Assessment of Lungs & Thorax

Assessment of CV and PV systems

Assessment of Abdomen and GI System

Assessment of Musculoskeletal System

Assessment of Neurological System

Assessment of HEENT and Cranial Nerves

Assessment of the Newborn, Child and Adolescent

APPENDIX B

INSTITUTIONAL REVIEW BOARD FORM



INDIANA UNIVERSITY

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
Office of Research Compliance

To: Tamilyn Bakas
NURSING

From: Human Subjects Office
Office of Research Administration – Indiana University

Date: March 11, 2014

RE: NOTICE OF EXEMPTION - NEW PROTOCOL

Protocol Title: Grit and Student Demographic Characteristics Associated with Nursing Student Course Engagement

Protocol #: 1402813941

Funding Agency/Sponsor: None

The Indiana University Institutional Review Board recently reviewed the above-referenced protocol. In compliance with 46 C.F.R. § 46.109 (d), this letter serves as written notification of the IRB's determination.

The study is accepted under 45 C.F.R. § 46.101 (b), paragraph(s) (1) Category 1: Educational Research Conducted in Educational Settings. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as: i) research on regular and special education instructional techniques, curricula, or classroom management methods (2) Category 2: Surveys/Interviews/Standardized Educational Tests/Observation of Public Behavior Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior if: i) information obtained is recorded in such a manner that human subjects cannot be identified, directly or through identifiers linked to the subjects; or ii) any disclosure of the human subjects responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects financial standing, employability or reputation.

Acceptance of this study is based on your agreement to abide by the policies and procedures of the Indiana University Human Research Protection Program and does not replace any other approvals that may be required. Relevant policies and procedures governing Human Subject Research can be found at: http://researchadmin.iu.edu/HumanSubjects/hs_policies.html.

The Exempt determination is valid indefinitely unless changes in the project may impact the study design as originally submitted. Please check with the Human Subjects Office to determine if any additional review may be needed.

You should retain a copy of this letter and all associated approved study documents for your records. Please refer to the assigned study number and exact study title in future correspondence with our office. Additional information is available on our website at <http://researchadmin.iu.edu/HumanSubjects/>.

If your source of funding changes, you must submit an amendment to update your study documents immediately.

If you have any questions or require further information, please contact the Human Subjects Office via email at irb@iu.edu or via phone at (317)274-8289 (Indianapolis) or (812) 856-4242 (Bloomington).

/enclosures

APPENDIX C

STUDY INFORMATION SHEET

IRB STUDY # 1402813941

INDIANA UNIVERSITY STUDY INFORMATION SHEET FOR

Grit and Student Demographic Characteristics Associated with Nursing Student Course Engagement

You are invited to participate in a research study of student engagement in learning in an undergraduate nursing course. You were selected as a possible study participant because you are a nursing student in this course. Before agreeing to be in the study, we ask that you read this form and ask any questions you may have.

The study is being conducted by IU School of Nursing doctoral student Wanda Robinson PhD(c), and Dr. Tamilyn Bakas her faculty mentor.

STUDY PURPOSE

The purposes of this study are to determine factors associated with student engagement in a nursing course and to examine the relationship of student grit and student demographic characteristics in relationship to student course engagement. Knowledge about student engagement in learning may guide teachers to design learning experiences and strategies that promote grit and optimize student engagement in the classroom.

STUDY PROCEDURES

If you agree to be in the study, you will complete four brief questionnaires: the Student Course Engagement Questionnaire (23 questions), a grit survey (8 questions), a demographic form, and 5 visual analog scales. Together, these questions will require about 15 minutes to complete. Return of the questionnaires will imply your informed consent to participate.

CONFIDENTIALITY

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your individual personal information will be kept confidential in reports and in a data storage system, particularly since you are not asked to provide your name on any of the questionnaires.

Certain entities may inspect and/or copy your research records for quality assurance and data analysis. These may include the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees (as allowed by law) state and federal agencies, and specifically the Office for Human Research Protections.

PAYMENT

No payment will be provided.

CONTACTS FOR QUESTIONS OR PROBLEMS

For questions about the study, contact the researcher Wanda Robinson at (405) 623-2840 or walrobin@iupui.edu or the faculty mentor, Dr. Tamilyn Bakas at (317) 274-4695.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IU Human Subjects Office at (317) 278-3458 or (800) 696-2949.

VOLUNTARY NATURE OF STUDY

Your participation in this study is voluntary. You may choose not to join the study or skip any questions asked in the study. You may leave the study at any time. Lack of participation in the study will not result in penalty or loss of benefits to which you are otherwise entitled. Whether you decide to participate in this study or not, your decision will not affect your current or future status as a student in this course or the university. Your course instructor will not be informed of who participated and who did not participate.

APPENDIX D

STUDENT DEMOGRAPHIC CHARACTERISTICS FORM

Demographic Characteristics Form

Please answer the following questions.

1. What is your age? _____

2. What is your gender?

_____ Male

_____ Female

3. What is your ethnicity?

_____ Hispanic or Latino

_____ Not Hispanic or Latino

4. What is your race?

_____ American Indian or Alaska Native

_____ Asian

_____ Black or African American

_____ Native Hawaiian or other Pacific Islander

_____ White / Caucasian

_____ Other: Please specify _____

5. What is your prior level of education?

(Include all that apply)

_____ Nurse Aide

_____ LPN/LVN

_____ Associates Degree Nursing

_____ Associates Degree Other: Please specify _____

_____ Bachelor's Degree: Major: _____

5. What is your current degree program?

_____ Traditional BSN

_____ Accelerated (second degree)

_____ Other: Please specify _____

6. What is your overall college grade point average (GPA) for all subjects in your current nursing program of study? _____

APPENDIX E

STUDENT COURSE ENGAGEMENT QUESTIONNAIRE (SCEQ)

STUDENT ENGAGEMENT QUESTIONNAIRE

To what extent do the following behaviors, thoughts, and feelings describe you, in this course? Please rate each of them on the following scale:

5 = very characteristic of me
4 = characteristic of me
3 = moderately characteristic of me
2 = not really characteristic of me
1 = not at all characteristic of me

1. Raising my hand in class
2. Participating actively in small group discussions
3. Asking questions when I don't understand the instructor
4. Doing all the homework problems
5. Coming to class every day
6. Going to the professor's office hours to review assignments or tests, or to ask questions
7. Thinking about the course between class meetings
8. Finding ways to make the course interesting to me
9. Taking good notes in class
10. Looking over class notes between classes to make sure I understand the material
11. Really desiring to learn the material
12. Being confident that I can learn and do well in the class
13. Putting forth effort

14. Being organized
15. Getting a good grade
16. Doing well on the tests
17. Staying up on the readings
18. Having fun in class
19. Helping fellow students
20. Making sure to study on a regular basis
21. Finding ways to make the course material relevant to my life
22. Applying course material to my life
23. Listening carefully in class

[Source: Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research*, 98, 184–191.]

APPENDIX F

GRIT-S SCALE

Short Grit Scale

Directions for taking the Grit Scale: Here are a number of statements that may or may not apply to you. For the most accurate score, when responding, think of how you compare to most people -- not just the people you know well, but most people in the world. There are no right or wrong answers, so just answer honestly!

1. New ideas and projects sometimes distract me from previous ones.*
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

2. Setbacks don't discourage me.
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

3. I have been obsessed with a certain idea or project for a short time but later lost interest.*
 - Very much like me
 - Mostly like me
 - Somewhat like m
 - Not much like me
 - Not like me at all

4. I am a hard worker.
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

5. I often set a goal but later choose to pursue a different one.*
- Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*
- Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all
7. I finish whatever I begin.
- Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all
8. I am diligent.
- Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

Scoring:

1. For questions 2, 4, 7 and 8 assign the following points:
- 5 = Very much like me
- 4 = Mostly like me
- 3 = Somewhat like me
- 2 = Not much like me
- 1 = Not like me at all

2. For questions 1, 3, 5 and 6 assign the following points:

1 = Very much like me

2 = Mostly like me

3 = Somewhat like me

4 = Not much like me

5 = Not like me at all

Add up all the points and divide by 8. The maximum score on this scale is 5 (extremely gritty), and the lowest score on this scale is 1 (not at all gritty).

Grit Scale Citation

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (Grit-S). *Journal of Personality Assessment, 91*, 166–174. Retrieved from <http://www.sas.upenn.edu/~duckwort/images/Duckworth%20and%20Quinn.pdf>

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 9*, 1087–1101. Retrieved from <http://www.sas.upenn.edu/~duckwort/images/Grit%20JPSP.pdf>

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Permission granted (see Appendix I).

APPENDIX G

STUDENT COURSE ENGAGEMENT VISUAL ANALOG SCALES

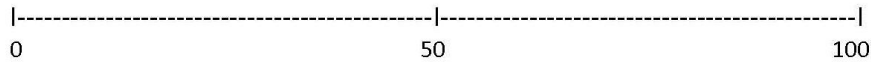
Student Engagement

For the following items, please read the definition, then rate your engagement with responses ranging from 0 = not engaged to 100 = fully engaged.

Skills are observable study actions of students such as homework, study, and taking notes in class.

1. How would you rate your skills engagement in this course?

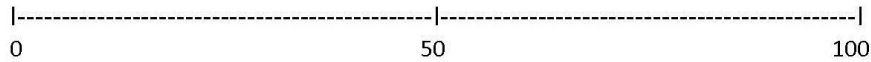
Place an "X" on the line to show your skills engagement in this course.



Emotion is your desire to learn and finding ways to make the course relevant and interesting.

2. How would you rate your emotion engagement in this course?

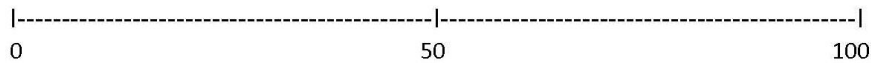
Place an "X" on the line to show your emotion engagement in this course.



Participation / interaction is your participation in social interaction with teachers and other students.

3. How would you rate your participation / interaction engagement in this course?

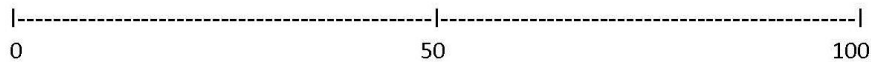
Place an "X" on the line to show your participation / interaction engagement in this course.



Performance means helping classmates, doing well on tests and getting a good grade.

4. How would you rate your performance engagement in this course?

Place an "X" on the line to show your performance engagement in this course.



Overall Engagement is participation in skills, emotion, participation/interactions, and performance in this course.

5. Including each of the four areas above, overall how engaged are you in this course?

Place an "X" on the line to show your overall engagement in this course.



APPENDIX H

PERMISSION FOR USE OF SCEQ



Permissions

T & F Reference Number: P011014-11

1/10/2014

Wanda Robinson, MS, RN, CNE
Doctoral Student, IUPUI
Indiana University School of Nursing
1111 Middle Drive, NU 413
Indianapolis, IN 46202
<mailto:wanda.robinson@swbell.net>

Dear Ms. Robinson:

We are in receipt of your request to reproduce the Student Course Engagement Questionnaire from the article

Scale: Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). "A measure of college student course engagement". *The Journal of Educational Research*, 98:3, 184-191.

for use in your thesis

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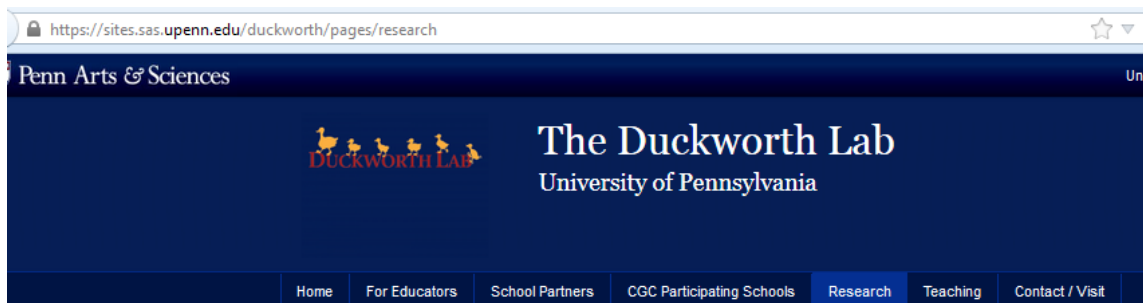
Thank you very much for your interest in Taylor & Francis publications. Should you have any questions or require further assistance, please feel free to contact me directly.

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APPENDIX I

PERMISSION FOR USE OF GRIT-S



Research Statement

My research examines two traits that predict success in life: grit and self-control. Grit is the tendency to sustain interest in and effort toward very long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Self-control refers to the voluntary regulation of behavioral, emotional, and attentional impulses (Duckworth, 2011). Individual differences in grit and self-control are correlated (r about .6), and both contribute to the pursuit of valued long-term aims (Duckworth, et al., 2007). But there is an important difference. As Galton (1892) speculated in his pioneering treatise on the determinants of eminent achievement, the distinction has chiefly to do with timescale: Grit equips individuals to pursue especially challenging aims over years and even decades. Self-control, in contrast, operates at a more molecular timescale, in the battle against what Galton called the hourly temptations – among whose modern incarnations I would nominate Facebook, Angry Birds, Krispy Kreme donuts, and other pursuits which bring pleasure in the moment but are immediately regretted. Both self-control and grit are facets of Big Five conscientiousness, a taxonomy that organizes personality traits in both childhood and adulthood...

[[Continue Reading Research Statement](#)] [[CV](#)]

Scales and Measures

Researchers and educators are welcome to scales we have developed in our lab for **non-commercial purposes**. On a cautionary note, we point out that these scales were originally designed to assess individual differences rather than subtle within-individual changes in behavior over time. Thus, we do not know whether they are valid indicators of pre- to post-change as a consequence of interventions. We also discourage the use of the scales in high stakes settings where faking is a concern (e.g., admissions or hiring decisions).

Our scales are copyrighted and cannot be published or used for commercial purposes or wide public distribution. Journalists and book authors should therefore not reproduce our scales nor any part of them.

Grit Scales

- [12-Item Grit Scale](#)
- [8-Item Grit Scale](#)
- [8-Item Grit Scale \(Chinese\)](#)

Only For Children

- [8-Item Grit Scale](#)
- [Self-Control Scale](#)

Publications

APPENDIX J

SCEQ: STUDENT ENGAGEMENT SCORING

[Source: Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research*, 98, 184-191.]

For the total score, simply add up the answers. For each subscale, simply add up the answers for the questions in each subscale.

SKILLS ENGAGEMENT SUBSCALE

4. _____ Doing all the homework problems
5. _____ Coming to class every day
9. _____ Taking good notes in class
10. _____ Looking over class notes between classes to make sure I understand the material
13. _____ Putting forth effort
14. _____ Being organized
17. _____ Staying up on the readings
20. _____ Making sure to study on a regular basis
23. _____ Listening carefully in class

EMOTIONAL ENGAGEMENT SUBSCALE

7. _____ Thinking about the course between class meetings

8. _____ Finding ways to make the course interesting to me
11. _____ Really desiring to learn the material
21. _____ Finding ways to make the course material relevant to my life
22. _____ Applying course material to my life

PARTICIPATION/INTERACTION ENGAGEMENT SUBSCALE

1. _____ Raising my hand in class
2. _____ Participating actively in small group discussions
3. _____ Asking questions when I don't understand the instructor
6. _____ Going to the professor's office hours to review assignments or tests, or to ask questions
18. _____ Having fun in class
19. _____ Helping fellow students

PERFORMANCE ENGAGEMENT SUBSCALE

12. _____ Being confident that I can learn and do well in the class
15. _____ Getting a good grade
16. _____ Doing well on the tests

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CURRICULUM VITAE

WANDA LYNN ROBINSON

EDUCATION

- 2015 Indiana University
PhD, Nursing Science
- 1998 Wichita State University
Post-graduate study in psychopharmacology
- 1994 University of Oklahoma Health Sciences Center
M.S., Psychiatric Mental-Health Nursing, Clinical Nurse Specialist
- 1986 Oklahoma Baptist University
B.S. Nursing, cum laude; Shawnee, OK

TEACHING EXPERIENCE

- 2014–current St. Gregory’s University, Shawnee, OK
Nursing Instructor, RN-BSN Coordinator, Department of Nursing
- 2014–current Kaplan Education, Inc.
NCLEX RN-Preparation Nursing Instructor
- 1991–2013 Oklahoma Baptist University, Shawnee, OK
2012–2013 Adjunct Clinical Nursing Instructor & Guest lecturer
2006–2012 Associate Professor, College of Nursing, Endowed Chair (2008-2012)
1999–2006 Assistant Professor, School of Nursing
1991–1999 Adjunct Clinical Nursing Instructor & Guest lecturer
- 2006–2014 Oklahoma Wesleyan University, Bartlesville, OK
Adjunct Faculty RN-BSN & Curriculum Consultant (online & accel.)
- 2012 University of Oklahoma Health Science Center
Adjunct Clinical Faculty (accelerated program)
- 2006–2009 Indiana Wesleyan University, Marion, IN
Adjunct Faculty RN-BSN (online)
- 2004–2007 Indiana University, Indianapolis IN
Associate Instructor RN-MSN (adjunct, online)

1992–1994 Seminole State College, Department of Nursing, Seminole, OK
Oklahoma City Community College, Oklahoma City, OK
Clinical Nursing Instructor (adjunct)

Summary

Teach/facilitate learning, mentor, and advise students, online, in traditional classrooms, and in clinical practice settings. Engage in program review, lead in curriculum development and online course development, champion technology integration and nursing informatics competencies.

Courses Taught (Undergraduate nursing unless otherwise noted)

- Nursing Theory
- Nursing Ethics & Spiritual Care
- RN-MSN Transition (graduate)
- RN-MSN Basic Healthcare Informatics (graduate)
- Nursing Informatics
- Psychopathology & Mental Health Practicum
- Community/ Public Health Nursing & Practicum
- Nursing Leadership / Management & Practicum
- Geriatric / Chronic Conditions / End-of-Life Clinical Practicum
- Cross-Cultural Healthcare with study abroad in Haiti & United Arab Emirates
- Senior Seminar (capstone) & Freshman Nursing Seminar
- Medical Terminology (nursing & non-nursing majors)
- Theories of Counseling (psychology dept. undergrads)
- Elements of Psychology (social sciences dept. undergrads)

Leadership Roles

RN-BSN Program Coordinator, Senior & Junior Team Leader, Course & Adjunct Coordinator, Testing Coordinator, department and university-wide committees, councils, and task forces - elected and appointed (i.e. Faculty Council Nursing Rep.; Educational Technology Committee /Chair; HLC, AACN, NLN self-studies, etc.), curriculum development, mentor for junior faculty, prospective student recruitment, creation and administration of summer high school nurse camp.

LICENSURE

1986–current Registered Nurse in the State of Oklahoma
Oklahoma State Board of Nurse Registration

1994–2009 Advanced Practice Nurse, (CNS)
Clinical Nurse Specialist Psychiatric-Mental Health
Oklahoma State Board of Nurse Registration

2004–2009 Registered Nurse, Indiana (nurse educator)

2002–2009 Registered Nurse, Minnesota (camp nurse)
2001–2003 Registered Nurse, New York (camp nurse)

SPECIALTY CERTIFICATION

2005–current Certified Nurse Educator, CNE
National League for Nursing Credentialing Center (NLN-AC)

1994–2009 Clinical Specialist in Psychiatric Nursing, PMHCNS-BC
National Certification, American Nurse’s Credentialing Center (ANCC)

1996–2004 School Nurse Certification, Oklahoma State Board of Education

1994–1999 Nurse Administrator, Advanced, CNAA (ANCC)

1991–2000 Psychiatric Mental Health Nurse, RN, C (ANCC)

ADMINISTRATIVE EXPERIENCE

1994–2002 Co-founder and co-owner
Advanced Mental Health Care, L.C., Shawnee, OK

1998–2003 Program Coordinator, Sexual Assault Nurse Examiner (SANE)
Unity Health Center (AKA Shawnee Regional Hospital), Shawnee, OK

1993 Director of Nursing (Interim), Oak Crest Hospital & Counseling Ctr.
(Previously Greenleaf Psychiatric Hospital), Shawnee, OK

1989–1991 Director of Nursing
Greenleaf Psychiatric Hospital & Mental Health Center, Shawnee, OK

ADDITIONAL CLINICAL EXPERIENCE

2002–2008 Camp Nurse; Nurse Supervisor (‘07), summer seasonal
Concordia Language Villages: Bemidji, Minnesota

2001 Camp Kennybrook, Monticello, New York

1997–2007 Psychiatric Clinical Nurse Specialist, (APRN) Outpatient Counselor
Oklahoma Baptist University, Shawnee, OK

1996–2004 School Nurse, Pleasant Grove School District K-8, Shawnee, OK

- 1994–2002 Psychiatric Clinical Nurse Specialist, (APRN)
Advanced Mental Health Care, L.C., Shawnee, OK
- 1998–2003 Program Coordinator, Sexual Assault Nurse Examiner (SANE)
1991–2005 Sexual Assault Nurse Examiner (SANE), Shawnee, OK
Unity Health Center (formerly Shawnee Regional Hospital)
- 1991–1998 RN, psychiatric (per diem); OakCrest Psychiatric Hospital, Shawnee,
1998–1995 RN, psychiatric (per diem); Willowview Psychiatric Hospital, Spencer
1986–1989 RN, psychiatric; Veteran's Administration Medical Center, OKC, OK

PROFESSIONAL MEMBERSHIP

Sigma Theta Tau International; Nursing Honor Society (STTI)
Beta Delta Chapter-at-Large, Scholarship Chair, 2010-current

American Psychiatric Nurses Association (APNA)
APNA Oklahoma Chapter President-Elect, 2014-current; Secretary 2012-2014

Oklahoma Nurses' Association (ONA)
American Nurses' Association (ANA)
National League for Nursing (NLN)

Oklahoma Medical Reserve Corps (OKMRC)
Stress Response Team 2009 - current

RESEARCH

- 2012–current Dissertation: *Grit and Demographic Characteristics Associated with Nursing Student Course Engagement*
Indiana University Purdue University Indiana, School of Nursing, IN
Faculty Research Chair: Tami Bakas, PhD, RN, FAHA, FAAN
- 2008–2010 Study: *Affective responses and outcomes for nursing students in a clinical practicum in a women's prison mental health unit.* Oklahoma Baptist Univ
Co-investigator: Martha Hernandez, RN, MS, PMHNCNS-BC
- 2007–2008 Pilot Study: *Development and testing of an instrument to measure student affective engagement in learning.* Indiana University School of Nursing
Faculty Research Chair: P. Jeffries, DNS, RN, FAAN
- 2000–2003 Study: *Effects of an international cultural encounter on the development of cultural competency in baccalaureate nursing students.* (Supported by a research grant from Sigma Theta Tau, Beta Delta-At-Large).
Co-investigator: Jasmin Johnson, PhD, RN

- 2001–2002 Test Evaluation Site Coordinator: OBU, School of Nursing
Undergraduate Student Evaluation Project
 End-Of-Life Nursing Education Consortium (ELNEC)
 American Assoc. of Colleges of Nsg./City of Hope National Medical Ctr.
- 1999–2000 Research co-coordinator for the region of the State of Oklahoma:
Continuing Education for Excellence in Mental Health in School Settings
 University of Colorado Health Sciences Center, School of Nursing
- 1992–1994 Master's Thesis: *Satisfaction with Nursing Care Among Elderly Home Health Clients*
 University of Oklahoma Health Science Center, Oklahoma City, OK
 Thesis Advisor: June Schmele, PhD, RN
- 1992–1994 Graduate Research Assistant, School of Nursing
 University of Oklahoma Health Science Center, Oklahoma City, OK
 Mentor: June Schmele, PhD, RN

PRESENTATIONS (Selected)

- 2014 Psychological First Aid (Modules 1 & 4), in Lawton & Shawnee, OK
- 2013 Stress Response Team Panel, Annual Volunteer Training Workshop, Tulsa, OK
 Oklahoma Medical Reserve Corps
- 2011 Informatics 101: Core competencies for psychiatric–mental health nurses
 Pre-conference workshop (October 19, 2011)
 American Psychiatric Nurses Association Annual Conference, Anaheim, CA
- 2010 Imprisoned with mental illness: Responding to emerging trends of incarceration for clients with mental health problems
 18th Annual Psychiatric-Mental Health Update, University of Missouri, Columbia;
 American Psychiatric Nurses Association Annual Conference, Lewisville, KY
- 2009 Going to prison: A clinical practicum for psychiatric-mental health nursing students; Addressing the challenge of intimate partner violence education for nurses
 American Psychiatric Nurses Association Annual Conference, Charleston, SC
- 2009 Imprisoned with mental illness: Responding to emerging trends
 Zarrow Mental Health Symposium, Tulsa, OK
- 2009 Post-partum depression: Care and prevention strategies for Arab women
 Oasis Hospital, Al Ain, United Arab Emirates

- 2008 Harnessing the world-wide-web for evidence-based practice and nursing education, School of Nursing Faculty Briefing
Oklahoma Baptist University, Shawnee, OK
- 2008 Cultural competence: Effects of cross-cultural health encounters on undergraduate nursing students. Faculty Research Forum Presentation
Oklahoma Baptist University, Shawnee, OK

PROFESSIONAL DEVELOPMENT (Selected)

- 2014 Kaplan Teacher Development /Training for NCLEX Prep. (40 hrs)
- 2014 Addressing the psychological health of warriors and their families (4 days)
Center for Deployment Psychology, National Training Institute, Norman, OK
- 2014 Recovery to Practice Facilitator Training (Feb–Mar.)
Acute care psychiatric-mental health nurses: Preparation for recovery oriented practice American Psychiatric Nurse Association in conjunction with
U.S. Department of Health & Human Services, SAMHSA
- 2012 Nursing Leadership Forum 2012 (3 days)
Sigma Theta Tau International, Indianapolis, IN
- 2012 Collaboration among Quality, Patient Safety, and Health IT
Safe EHR Use & Unintended Consequences of Using Electronic Health Records,
Texas Nurses Association / Foundation – webinar series
- 2011 Instrumentation: Development, Testing & Revision Workshop (5 days)
University of North Carolina School of Nursing, Chapel Hill, NC
- 2010 Item Writing for Nursing Examinations Workshop (4 days)
Pearson Education Nursing Program Solutions, Virginia Beach, VA
- 2010 Pearson’s Education’s Nursing Symposium (NCLEX Test Plan)
University of Oklahoma, College of Nursing, Oklahoma City, OK
- 2010 Enhancing Online Teaching & Learning, Faculty Development Workshop
Oklahoma Baptist University, Shawnee, OK
- 2010 Infusing Conceptually-Based Learning into Your Nursing Curriculum
(Webinar) Elsevier Faculty Development
- 2010 Security and Privacy: Beyond Meaningful Use - Creating a Secured Healthcare Ecosystem, HIMSS webinar

- 2009 Emerging Technologies in Nursing Education Conference, La Jolla, CA
- 2009 SINI: 19th Summer Institute for Nursing Informatics
University of Maryland, Baltimore
- 2009 Psychological First Aid: The Acute Disaster Intervention
Oklahoma Nurses Association; Oklahoma Department of Mental Health and
Substance Abuse Services & Oklahoma Medical Reserve Corps, Lawton, OK
- 2009 Dealing with Students in Crisis: Identification, Strategies & Support Oklahoma
City National Memorial & Museum Center for Education & Outreach
- 2009 Teaching the Millennial Generation, Faculty Development Workshop Oklahoma
Baptist University, Shawnee
- 2008 What Nurse's Need to Know about Consumer Empowerment and the Personal
Health Record. Cerner Corporation & HIMSS
- 2007 Innovative Technology: Pioneering Pathways to Health
Midwest Nursing Research Society Research Conference
University of Nebraska Medical Center, Omaha NE
- 2005 Teaching with the Internet Across the Curriculum, (3 credit hours)
Instructional Systems Technology, School of Education,
Indiana University, Bloomington, IN
- 2004 Teaching and Learning in Web-based Courses, 4-Course Series
Indiana University School of Nursing, IN
- 2003 Internet for Educators, Framingham State College, MA (4 credit hours)
Division of Graduate and Continuing Education
Project: *Development of a WebQuest for Community Health Nursing*