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Academic Success for the 21st Century Learner: Intrapersonal Intelligence and Resilience

Juanita Lynn Parker
Walden University

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Walden University

College of Social and Behavioral Sciences

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Juanita Parker

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Review Committee

Dr. Medha Talpade, Committee Chairperson, Psychology Faculty

Dr. Stephen Burgess, Committee Member, Psychology Faculty

Dr. Timothy Lionetti, University Reviewer, Psychology Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University

2016

Abstract

Academic Success for the 21st Century Learner: Intrapersonal Intelligence and Resilience

by

Juanita L. Parker

MS, Abilene Christian University, 2009

BS, West Texas A & M University, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

General Educational Psychology

Walden University

February 2016

Abstract

Internal and personal strengths are associated with positive academic outcomes in the higher educational setting and are particularly relevant to the 21st century learner in the modern complex and global society. There is limited research addressing the connection between intrapersonal intelligence, resilience, and academic success. This information is important to better assist students in developing qualities that foster academic success and sustainability. The purpose of this study was to investigate the correlations between intrapersonal intelligence, as measured by the Multiple Intelligences Development Assessment Scales (MIDAS); resilience, as measured by the Connor-Davidson Resilience Scale (CD-RISC); and academic success, as measured by the Scale of Implicit Theory of Intelligence (SITI), grade point average (GPA), and grade level. Ninety-one undergraduate students recruited through an online research pool and flyers distributed on campus participated in the study. Participants were asked to complete 3 surveys and a demographic questionnaire. Constructivist and transformative learning theories were used to frame the study and address self-development in the learning process. Results of a multiple regression analysis revealed a significant correlation between intrapersonal intelligence and GPA (a component of academic success). This research study promotes positive social change by emphasizing the intrinsic strengthening and transformation of the learner for a sustainable education. To enhance academic outcomes, academic leaders could focus on developing curricula with objectives that support the increase of intrapersonal intelligence. Building awareness of the significance of intrapersonal intelligence and resilience is important for the development of a sustainable education and to equip students for the problem solving challenges of the 21st century.

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Dedication

This dissertation is dedicated in loving memory of my sister Julie. She never doubted my abilities and was able to see me as my ideal self. It was her confidence in me that made me believe I could go this far in transforming my future. For this, I will always be thankful to her. My hope is that this research study will help educators find ways to increase students' intrapersonal intelligence and self-efficacy so they can reach their full potential academically, and in turn promote positive social change.

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Chapter 1: Introduction to the Study

Intelligence

The idea of what constitutes intelligence has changed over time (Nisbett et al., 2012). Initially, intelligence tests focused on analytic abilities, but more recently consideration has been given to the multiple intelligences such as personal intelligence (Sellars, 2012). Gardner distinguished between two distinct types of personal intelligences, interpersonal and intrapersonal intelligence (Gardner & Moran, 2006). Intrapersonal intelligence involves the development of self-knowledge indicating awareness of internal strengths and weaknesses and how to use this information advantageously (Mayer, Caruso, Panter, & Salovey, 2012). Self-understanding and self-development are gaining attention as factors related to academic success in the academic setting (Mowat, 2011). This type of internal proficiency is particularly relevant for the 21st century learner who will most likely encounter complex problems in a globally connected environment (Dweck, 2009).

Contemporary learners will need to develop resilience and a strong belief system in their abilities to persist (Mori, Ishida, Shimizu, & Tominaga, 2001; Shepherd, 2004; Smith, 2010). They will need to envision possibilities beyond the previous perceived limits of intellectual capacity. Tennyson suggested individuals should follow “knowledge like a sinking star, Beyond the utmost bound of human thought” and throughout life continue to “strive, to seek, to find, and not to yield” in this endeavor (as cited in Benson, 2008, p. 11.32, 70). His rhetoric conveys the individual as having a courageous and exploratory internal drive that values others, pursues experiential learning, and is socially engaging (Benson, 2008). Perhaps if the intellectual journey commences from within,

building internal personal strength and resilience, the potential for stimulating positive social change could be envisioned as boundless.

In the field of psychology, intelligence refers to an individual's abilities to problem solve and adapt for positive outcomes (Shepard, Fasko, & Osborne, 1999). Early theories of intelligence limited individuals by suggesting intellectual abilities were mostly inherited and therefore fixed (Nisbett et al., 2012). Contemporary studies on intelligence pointed to a more sanguine view of intellectual development with greater potential for growth (Brody, 1999; Nisbett et al., 2012). Hong, Chiu, Dweck, Lin, and Wan (1999) went beyond this to suggest that an individual's implicit (internal) orientation toward intellectual abilities can significantly affect learning outcomes. Implicit theories of intelligence indicate individuals who embrace an entity perspective perceive intelligence to be fixed and therefore may be self-limiting in intellectual development (Dweck, 1975; Good, Rattan, & Dweck, 2012). However, individuals who embrace an incremental perspective, perceive intelligence to be more malleable and therefore may put forth increased effort and experience enhanced growth (Romero, Master, Paunesku, Dweck, & Gross, 2014).

Historically, intelligence was thought to be a general ability predictive of academic achievement and measurable by an IQ test (Brody, 1999). The Cattell-Horn-Carroll (CHC) theory of intelligence provided a foundation for the development of intelligence assessment by categorizing cognitive skills that are related to educational accomplishment (Benson, Hulac, & Kranzler, 2010). CHC was used to identify abilities on standardized IQ tests that had been shown to be predictive of academic potential (McGrew & Wendling, 2010). However, studies indicate that intelligence assessment is

complex, and the broad nature of such testing may not reveal certain idiosyncrasies and pertinent interactions between domains (McGrew & Wendling, 2010). More contemporary theories of intelligence indicate that there are many aspects of intelligence that may exist independent of each other (Nisbett et al., 2012). A triarchic model of intellectual ability was proposed by Sternberg who suggested intelligence was composed of not only analytical abilities but also practical and creative abilities (Nisbett et al., 2012). Gardner expanded this to introduce a theory of intelligence that is “intelligence fair” by having an individual focus that encapsulates the multifaceted aspects of intellectual function (Gardner & Moran, 2006, p. 228). Gardner’s multiple intelligence theory comprises eight categories of intelligences including linguistic, logical-mathematical, spatial, musical, kinesthetic, interpersonal, intrapersonal, and naturalist (Conti, 2014).

In academia, some researchers have focused on the influences of interpersonal and emotional intelligence on educational outcomes (Conti, 2014). However, intrapersonal intelligence has not garnered as much interest, but is acquiring growing attention in the field. Researchers addressing intrapersonal intelligence suggested the learner has unique internal controls that can have a significant influence on academic outcomes (Sellars, 2008a). Intrinsic perspectives of the learning processes suggest learners need to develop proficiency in autonomous construction of meaning for a sustainable education, particularly in a complex, unpredictable environment (Sterling, 2010). Sriskandarajah, Bawden, Blackmore, Tidball, and Wals (2010) suggested self-transformative learning in university education requires critical reflection and epistemic synergizing for the development of effective educational strategies.

Higher education in a rapidly changing and uncertain global environment necessitates that educators draw upon students' unique strengths and knowledge base to promote a sustainable education (Aggarwal, 2011). Ayestarán (2010) contends that humanity has moved from the age of enlightenment into industrial advancement and that 21st century society is now engaged in an age of knowledge proliferation. Along with rapid technological advances and increasing globalization emanates a need for human responsibility to manage growth and address concerns of sustainability (Ayestarán, 2010). Facilitators in the educational process are preparing a diverse student population to function adequately in a knowledgeable society with increasingly complex problems (Beckie, 2012). Students need to draw on acquired knowledge and personal strengths to be successful in academics and withstand difficult real-life situations (Sellars, 2008b). Strengthening learner resilience may enable students to adapt and sustain their efforts when faced with arduous challenges (Sriskandarajah et al., 2010). Gaining better understanding of the relationship between intrapersonal intelligence and resilience for success in academic challenges supports more productive educational strategies that address the particular needs of the 21st century learner (Zahabioun, Yousefy, Yarmohammadian, & Keshtiaray, 2012).

In this study, I explored the broader social implications for assessing and addressing the needs of students in a rapidly changing educational environment. This chapter sets the foundation for this study including the theoretical basis for the research and the importance of exploring the chosen variables in relation to academic success. The research plan is described and justified including assumptions and limitations of the study. The dynamic nature of academia and student characteristics makes this a valuable

study for understanding current educational needs and developing effective strategies for addressing those needs.

Background

Scope of study

I examined previous research exploring resilience and multiple intelligence in relation to academic success for the 21st century learner. Existential factors that create a need for examining these factors include expanding global connectedness, rapid technological integration, and a consequent complexity of problems and functional challenges (Aggarwal, 2011). The literature reviewed in this study indicates that the development of internal strengths, such as intrapersonal intelligence, can stimulate a constructivist approach to education. This type of approach can fuel a transformative learning experience promoting learner resilience in support of a sustainable education. A better understanding of the relationships between resilience, intrapersonal intelligence, and self-efficacy may promote positive learning outcomes for 21st century students.

Synopsis of Relevant Literature

Intrapersonal intelligence. Intrapersonal intelligence refers to an individual's self-knowledge and the ability to use that knowledge effectively (Sellars & Sanber, 2006). Intrapersonal intelligence skills are developed as individuals learn to reflect on personal strengths and weaknesses and utilize this knowledge to efficiently plan and navigate their lives (Sellars, 2008a). Sellars (2008b) suggests that the current environment impels educational facilitators to respect individual learner differences and build upon intrinsic learner skills. To be successful, 21st century learners need to take responsibility in the learning process by developing intrapersonal skills such as accurate

self-efficacy evaluation, awareness of inner strengths and weaknesses, and proficiency in knowledge interpolation (assimilation of self-knowledge with acquired knowledge) for productive academic and social functioning (Sellars, 2012).

Resilience. Resilience refers to an individual's ability to adapt and thrive when faced with challenges (Campbell-Sills & Stein, 2007). Studies indicate resilience is vital for success in the higher educational setting (Hartley, 2011). Building resilience in academia entails the development of intrinsic strengths that promote alacritous learning, ingenuity, reflection, and persistence for sustainability of the individual within the environment (Sterling, 2010). Sriskandarajah et al. (2010) suggests resiliency in higher education should move past sustainable learning to developing learner abilities in intrinsic regeneration following challenges. Learner regeneration is a self-transforming process that involves internal reflection, adaptability, and space for exploring new and unique ways for acquiring knowledge (Sriskandarajah et al., 2010). The multiple intelligence approach provides varied opportunity for learning through diverse ways of attaining and creating knowledge and has the potential to promote resilience (Shepherd, 2004).

Academic Success. Academic success is being redefined in response to the dynamic educational and work environments shaped by increased global connectedness and technological advances creating unique needs and challenges in the academic setting (Sellars, 2012). Furthermore, an individual's perception of self-efficacy has the potential to promote or inhibit his or her effort and persistence in learning endeavors (Caprara et al., 2008). Studies also indicate that self-efficacy is associated with resilience (Lee et al., 2013).

Gap in Research

Studies indicate that intrapersonal resilience is associated with enhanced academic perseverance for college students (Hartley, 2011). Sellars (2008a) argued that more focus is needed on the personal intelligences for augmenting metacognitive skills by enhancing learner self-knowledge, especially intrapersonal intelligence as having potential for promoting academic success. Hartley (2011) suggests future studies need to address associations between the personal intelligences and resilience by considering moderating factors. In this study, I investigated intrapersonal intelligence to gain a better understanding of its association with resilience and academic success.

Need for Further Study

Morales (2008) suggests developing resilience in academia would entail building emotional intelligence, evaluating student need, considering protective factors, and enhancing internal strengths. He indicates that previous research in this area was qualitative, and suggested future studies should be more quantitative in nature (Morales, 2008). Furthermore, he suggests targeting higher education settings to enhance understanding of resilient qualities in students and to support them in developing these qualities for greater academic success (Morales, 2008).

Problem Statement

Learner needs are changing rapidly as knowledge increases, and the demands of an increasingly complex social environment require learners to rely more on intrinsic strengths (Sterling, 2010). Studies indicate that intrapersonal intelligence is a pertinent factor for the development of academic resilience and self-efficacy (Shepard et al., 2004).

However, there is limited understanding of how intrapersonal intelligence is associated with resilience and academic success (Hartley, 2011).

Intelligence in the field of psychology is described as the individual's aptitude for learning, problem solving, and adapting (Shepard et al., 1999). Originally, intelligence was thought to be a general analytical ability that was set or fixed by an individual's genetic components (Nisbett et al., 2012). However, expanded theories of nonanalytic intelligence have brought a deeper understanding of the independent nature of other kinds of intelligence (Ghraibeh, 2012). Intrapersonal intelligence in particular has gained increased attention in the educational setting (Sellars, 2012). Intrapersonal intelligence refers to the individual's accurate evaluation and understanding of his or her internal self and the ability to use this information to further his or her goals (Sellars, 2008a). Studies also indicate that individuals' implicit beliefs about their ability can significantly influence their academic outcomes (Good & Dweck, 2012). However, there are limited studies that specifically explore the relationships between intrapersonal intelligence and resilience and the predictive nature of these variables on academic success (Hartley, 2011).

Purpose of Study

Gardner's theory of multiple intelligences has led to the identification of intrapersonal intelligence as a domain that has the potential to promote academic success (Sellars, 2008a). To support this assumption, more studies are needed to understand the progression of self-knowledge and how it is associated with academic success (Sellars, 2008b). Additionally, intrapersonal intelligence has been shown to contribute to academic resilience. However, there have been limited studies exploring the relationship between

intrapersonal intelligence and resilience in relation to academic success (Martin & Marsh, 2009). This study is needed to address the relationship between these variables and consider the implications for enhancing positive academic outcomes.

To fully understand the relationship between intrapersonal intelligence, resilience, and academic success, a quantitative study was indicated. The relevant variables were measured using Likert-scale instruments, and there was no manipulation of the variables. I explored the relationships between the independent variables and the predicative nature of resilience and intrapersonal intelligence for influences on the dependent variable (academic success). I examined correlations between the variables and the impact of resilience and intrapersonal intelligence on academic success. The covariate variables in this study include gender, age, and ethnicity.

Research Question, Variables, and Hypothesis

Research Question

The central research question answered by this study was as follows: Do theories of multiple intelligence explain the relationship between intrapersonal intelligence, resilience, and academic success when controlling for the effects of gender, ethnicity, and age?

Variables

The dependent variable (academic success) was defined as the student's level of self-efficacy. It was measured as the student's grade point average (GPA), the student's grade level (Freshman, Sophomore, Junior, and Senior), and personal belief about abilities using the scale of implicit theory of intelligence (SITI). The independent variable, resilience, was defined as the ability to flourish and adapt when challenged with

difficulties or challenges. Resilience was measured using the Connor-Davidson Resilience Scale - Revised (CD-RISC) scale. The other independent variable, intrapersonal intelligence, was defined as the student's level of self-knowledge and ability to effectively use this knowledge effectively. Intrapersonal Intelligence was measured using the Multiple Intelligences Developmental Assessment Scales (MIDAS).

Hypothesis

Hypothesis 1

Null Hypothesis 1 (H_{01}). Resilience (as assessed by the CD-RISC is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 1 (H_1). Resilience (as assessed by the CD-RISC) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 2

Null Hypothesis 2 (H_{02}): Intrapersonal Intelligence (as assessed by the MIDAS) is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 2 (H_2): Intrapersonal Intelligence (as assessed by the MIDAS) is significantly related to academic success (as assessed by the SITI; GPA, and Grade Level).

Hypothesis 3:

Null Hypothesis 3 (H_{03}): Intrapersonal intelligence does not moderate the relationship between resilience and academic success. Specifically, intrapersonal

intelligence as measured by the MIDAS is not positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 3 (H₃): Intrapersonal intelligence moderates the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Theoretical Framework

Multiple Intelligence

Expanding on Spearman's theory of a general intelligence factor and Sternberg's triarchic approach to intelligences, Gardner proposed a multifactor theory of intelligence with separate aptitudes (Shepard et al., 1999). His proposal included two personal intelligences, including interpersonal and intrapersonal (Sellars, 2008a). Intrapersonal intelligence emphasizes self-awareness, self-knowledge, and abilities in self-reflection (Shepard et al., 1999). Studies indicate that building skills in intrapersonal intelligence can improve self-efficacy and lead to greater academic success (Sellars, 2012).

Implicit Theory

According to the implicit theory of intelligence, learners' beliefs about their abilities has a significant influence on their educational outcomes (Dweck, 2007). This theory indicates that individuals' intrinsic beliefs about their intellectual abilities will impact their responses when faced with challenges (Blackwell, Trzesniewski, & Dweck, 2007). Yang and Hong (2010) proposed that individuals' internal construct of their

abilities can influence self-enhancement. A belief in a rigidly set intellectual ability is thought to inhibit learners from reaching their full potential (Dweck, 2007). This is because they will likely be less motivated if they feel they have limited possibility for intellectual improvement (Miller et al., 2012). However, when learners subscribe to a belief that intellectual abilities are pliable, they tend to put forth more effort and experience a greater amount of intellectual growth (Abd-El-Fattah, & Yates, 2006; Romero et al., 2014). Studies indicate that self-perceived multiple intelligences are associated with academic achievement (Ghazi, Shahzada, Gilani, Shabbir, & Rashid, 2011). Additionally, Martin, Nejad, Colmar, and Liem, (2013) contended that learners' implicit beliefs about their abilities are predictive of adaptability which is, in turn, associated with academic success.

Constructivism

Zahabioun et al. (2012) suggested the modern world has been transformed by globalization, and contemporary learners will need a strong sense of identity, adaptability, a broad base of knowledge, be able to think critically, and develop specialized skills. Consequently, learner expectations and needs continue to change in a complex and dynamic environment (Carter, 2009). The constructivist approach to education is focused on the internal core (self) of the learner supporting the specific needs of contemporary learners by developing skills that will promote individual competencies in a shifting and complex environment. Constructivist theories indicate learners construct their own meaning of knowledge from a dynamic intrinsic process that is dependent on intrapersonal skills for constructing novel ideas and solutions (Shepard et al., 1999).

Constructivism is particularly relevant for this study because it supports autonomous learning and development of the self for a sustainable educative process (Sterling, 2010).

Transformative Learning Theory

Transformative learning theory has a goal of transforming the learner through intrinsic processing of knowledge to create meaning that is unique to the individual (Taylor, 2008). A transformative learning approach draws upon intrinsic strengths and supports resilience for a sustainable education (Sterling, 2010). Rather than having predetermined learning outcomes, a transformative approach seeks to develop the learner. This method stresses autonomous learning with self-reflective learners who contextualize knowledge; the approach is a self-exploratory pursuit of knowledge for creative problem solving (Jentz, 2006). Grabove (1997) maintained that transformation in the educational environment is not derived from the instructor, but is experienced by the learner from within as the transformation occurs. Furthermore, Studies indicate transformative learning is purposeful and builds skills in adaptability and resilience for more effective outcomes (Sterling, 2010).

Theoretical Integration

Each of these theories plays an integral part in providing a foundation for this study. Multiple intelligence theory recognizes the personal intelligences, which are associated with resilience and academic success. In turn, implicit theory indicates intrinsic processes can have a significant effect on academic outcomes (Rattan, Savani, Naidu, & Dweck, 2012). Constructivism supports autonomous learning in which the individual integrates new knowledge with acquired knowledge and unique experiences to construct new meaning (Beck, 2013). This leads to transformative theory, which suggests

that education should transform the individual for a more sustainable learning experience (Sterling, 2010). All of these theories emphasize an intrinsic element in the learning experience that suggests a need for building skills in intrapersonal intelligence for increased academic success. Additionally, the constructivist and transformative theories support autonomous learning that is associated with resilience and sustainable education that is relevant for the needs of the 21st century learner (Sterling, 2010). A more detailed explanation of theories and associated relevance to the research questions in this study are presented in Chapter 2.

Conceptual Framework

In this study I sought to inform educators regarding the needs of 21st century learners. The literature indicates a shift in perspectives concerning intelligence to a broader view that recognizes multiple intelligences. Intrapersonal intelligence, which is a personal intelligence and the focus of this study, has been related to more positive academic outcomes (Dweck, 2009). Additionally, researchers have suggested an association between resilience and academic success (Hartley, 2011, 2012; Martin & Marsh, 2009; Sheard, 2009; Sterling, 2010). In this study I explored the relationship between resilience and academic success with intrapersonal intelligence as a moderating factor. Chapter 2 of this study provides a more extensive review of relevant literature for further clarification. The impact of resilience and intrapersonal intelligence on academic success is examined in greater detail. Procuring a deeper understanding of the relationships between these variables could help in the development of educational interventions that could promote academic success.

Nature of the Study

This was a correlational study designed to examine the relationships and predictive nature of resilience and intrapersonal intelligence for academic success. Intrapersonal intelligence refers to an individual's self-knowledge and his or her ability to use that knowledge effectively (Sellars & Sandbar, 2006). Resilience refers to an individual's ability to adapt when faced with challenges (Campbell-Sills & Stein, 2007). For the purposes of this study, academic success was measured using the individual's level of self-efficacy, GPA, and grade level. Although studies suggest an association between these variables, more information was needed to understand the impact and predictive nature of each variable on academic success (Mori et al., 2001; Sellars, 2008a; Sheard, 2009). The effects of age, gender, and ethnicity were considered and controlled in the study.

The population for this study was undergraduate college students. The data for this study was acquired through an online survey and pencil-and-paper surveys. The MIDAS scale for college students was used to measure participants' intrapersonal intelligence. The CD-RISC scale was used to measure the student's resilience. The SITI was used as a measure of academic success by assessing the participant's self-efficacy. The participants completed a questionnaire collecting data concerning age, ethnicity, and gender. This study was a quantitative study since it is of a predictive nature. The data was analyzed for correlations with a regression analysis.

Definitions

For the purposes of this study, *academic success*; was defined as the student's level of self-efficacy, grade point average (GPA), and grade level.

Resilience; was defined as the ability to flourish and adapt when challenged with difficulties or stress (Campbell-Sills & Stein, 2007).

Intrapersonal intelligence; was defined as the student's degree of self-knowledge and ability to effectively use this knowledge (Mowat, 2011).

Self-knowledge; was defined as an individual's accurate knowledge about the self including a developed identity and awareness of personal beliefs (Tenney, Vazire, & Mehl, 2013).

Sustainability; referred to continuousness, persistence, surety, and well-being of something (Sterling, 2010).

Assumptions

I assumed that controlling for age, gender, and ethnicity would be adequate, and that no other extraneous factors would influence the outcome of the study. Additionally, I assumed that the variables to be measured had a homogeneity of variance. Violations of this assumption were examined using appropriate statistical analyses (see Chapter 4).

Scope and Delimitations

The purpose of this study was to explore relationships between the variables and determine the predictive nature of the two independent variables for academic success. I did not manipulate variables or establish cause and effect. I specifically targeted undergraduate college students. Because the participants were limited to undergraduate students, the results may not be generalizable to students at graduate levels. I specifically examined one category of multiple intelligence, intrapersonal intelligence. Intrapersonal intelligence was the focus of this study and was considered a vital skill relevant to the needs of 21st century learner (Sellars, 2008a). Although other factors such as

interpersonal intelligence, emotional intelligence, and social support can influence resilience and academic outcomes, these factors were not directly explored in this study. However, the scale used to measure intrapersonal intelligence was closely related to the same interpersonal scale and included an element of emotional intelligence. To reach an expanded population, provide flexibility, and ensure confidentiality of participants, the instruments were initially set up to be accessed in a protected online environment. Later, the instruments were prepared in pencil and paper format extending data collection to two local campuses. This limited generalizability of this study due to the restricted area of data collection and the population of undergraduate students.

Limitations

I used self-report measures, and the accuracy of these reports could not be confirmed. Responses from outside sources could have been useful to support student self-reports, but would have been beyond the scope of this study. The instruments I used to measure the variables in this study (SITI, CD-RISC, and MIDAS) have been shown to be reliable and valid (Campbell-Sills & Stein, 2007; Oshio, 2012). Demographic variables such as gender, age, and ethnicity have been associated with some of the factors studied and therefore, may have had influence on the outcome of the study. Some studies indicate age, gender, and ethnicity may influence levels of resilience (Lee et al., 2013). Additionally, Rattan et al. (2012) suggested differences across ethnic groups may exist regarding implicit beliefs about intelligence, and this discrepancy can have an impact on individual achievement levels despite actual intellectual abilities. Demographic factors (gender and ethnicity) were controlled for in this study, and their potential influences on the interpretation of study data were examined.

Biases

Researcher biases were controlled for by setting up the measures online and devising a way for on-campus students to submit surveys anonymously. Research surveys and assessments were presented with standardized instructions. Covariant variables (age, gender, and ethnicity) were controlled for in the study. Analysis was conducted to identify and correct for any outlier variables that could have interfered with or altered the interpretation of data. All subjects volunteered and remained anonymous for the study.

Implications for Social Change

Globalization and rapid technological advances have created a need for individuals who can think independently, synthesize knowledge effectively, and remain resilient when faced with difficulties (Sellars, 2008b). Jentz (2006) indicated that leadership in the 21st century will require individuals to increase their proficiency of cognitive processing by drawing on self-knowledge and personal experiences to effectively manage unique challenges that require innovative solutions. Likewise, Tenney et al. (2013) suggested components of personal intelligences, such as self-knowledge, are associated with positive personal qualities and valued in society but are largely overlooked in research. Furthermore, Jenkins, Purushotma, Weigel, Clinton, and Robison (2009) suggested technological advances and increased global connectedness increase the importance of intrinsic qualities because the individual in today's society has the opportunity to make a direct and powerful impact through social media.

Equally important to note, a transformative learning approach promotes a sustainable education and supports students in reaching their full potential through constructivist learning practices that are applicable in a diverse and rapidly changing

environment (Beckie, 2012). This study addressed similar issues that are relevant for the 21st century learner and provided pertinent information that could be used to increase academic success and provide students with a more sustainable education that supports a growth mentality and promotes social competence.

Summary

The way intelligence is perceived and the learning process is approached has significantly changed over time (Rattan et al., 2012). Consequently, an environment of rapid change and advancement has led to complex problems that require individuals to draw from intrinsic strength and be persistent in coming up with unique and creative solutions (Sellars, 2012). Accordingly, learners will most likely need to have strong self-efficacy and remain resilient to be successful. To address these needs, education is moving toward building intrinsic skills in knowledge assimilation and construction for a self-transforming experience (Beckie, 2013). Furthermore, one of the multiple intelligences identified by Gardner, intrapersonal intelligence, has been associated with resilience and academic success (Sellars, 2012). Hence, intrapersonal intelligence may be a vital skill for the 21st century learner (Sellars, 2008a). The relationship between intrapersonal intelligence, resilience, and academic success needs to be studied to provide interventions for improving self-efficacy and increasing positive academic outcomes. In Chapter 2, I review relevant literature to demonstrate how the variables in this study are related to the needs of the 21st century learner.

Chapter 2: Literature Review

Challenges to Academic Success

Why do some students succeed and some fail to reach their full potential when faced with adversity in academic challenges? Educators strive to identify the factors that hinder or contribute to academic success. Studies indicate that only around 50% of students entering college graduate within 6 years (Hughes, 2013). As more people pursue higher education and the cost increases, there is an increasing demand to realize the career advantages in return for the time and monetary investments made to acquire an education (Powell, Gilleland, & Pearson, 2012). Declining student completion rates and growing economic deficits press scholars and researchers to find solutions to this problem. Students today also have the challenge of solving intricate problems created by fast-paced technological advances and complex issues arising from increased globalization (Aggarwal, 2011). These challenges require students to have strong self-efficacy and develop resilience to persist and adapt in a dynamic and increasingly global learning and work environment (Dweck, 2009).

Problem Statement

The purpose of this study was to apply the theories of constructivism, multiple intelligence, implicit theory, and transformative learning to discern the relationship between intrapersonal intelligence and academic success controlling for age, gender, and ethnicity with a population of undergraduate college students enrolled at an institution of higher education. The independent variable, intrapersonal intelligence, was defined as self-knowledge and the ability to use that knowledge effectively in an academic setting. The dependent variable, academic success, was defined as the student's level of academic

self-efficacy, current GPA, and grade level. The independent variable, resilience, was defined as the student's ability to reflect and adapt as needed to sustain learning.

Relevance of the Problem

Previous researchers examining factors influencing academic achievement have focused on the relevance of emotional disposition and regulation in the learning environment (Huang, 2011; Valiente, Swanson, & Eisenberg, 2012). Other researchers have focused on goal setting as a means of promoting academic success (Grant & Dweck, 2003; Sellars & Senbar, 2006). Interpersonal skills and environmental factors that influence academic success have also acquired attention in academic research (Baxter, 2012; Chen, 2012). Studies on interpersonal function in relation to the educational process have indicated a need to shape behavior through external interaction in conjunction with enhancing internal awareness (Radford, 2002). However, studies also indicated that students need to have strong self-esteem and build confidence in their abilities for the development of academic resilience (Mallinson, 2009). Sellars and Senbar (2006) suggested increased self-knowledge, including taking on more personal responsibility for the learning experience, and positive perceptions of abilities can strengthen capability to overcome difficulties in educational goals. More attention needs to be focused on the self and the function of individual abilities for reaching goals including students' awareness of their limitations and strengths, and effective self-strategies to support the learning process (Sellars & Sanber, 2006).

Moreover, multiple intelligence theories indicate that intelligence is attributable to more than the inferences made from IQ profiles (Ghraibeh, 2012). Studies also suggest the brain's ability to absorb, cogitate, and apply knowledge is also influenced by abilities

related to intrapersonal intelligence (Ghraibeh, 2012). Some studies have addressed the emotional aspects of intrapersonal intelligence leading to theories of emotional intelligence (Sellars & Sanber, 2006). Findings indicate social and emotional intelligence influence student persistence in college and academic success (Sparkman, Maulding, & Roberts, 2012). Although previous studies focused on emotional and interpersonal intelligence and its influence on academic success, this study fills a gap in the research by specifically focusing on the cognitive aspects of intrapersonal intelligence or more specifically, how individuals process and apply self-relevant information. It also examines how intrapersonal intelligence is associated with intrinsic resilience, and how intrapersonal intelligence is related to the individual's level of academic success.

Theoretical Framework

The theoretical framework for this study included theories of intelligence to discriminate between general and multiple intelligence (Nisbett et al., 2012). Multiple intelligence theory was used to consider the influence of nonanalytic intelligence on academic success, particularly intrapersonal intelligence in relation to self-efficacy in the learning environment (Sellars, 2012). The theory of constructivism was used to ascertain the role of abilities in self-knowledge processing for the promotion of a transforming learning experience (Sterling, 2010). The implicit theory of intelligence was used to gain appreciation of the influence of one's belief system on intellectual abilities and subsequent academic outcomes (Dweck 2009). Transformative learning theory was used to bring renewed meaning to the previous theories discussed and make them applicable to the needs of contemporary students and current academic settings. Additionally, transformative learning theory was germane for this study because it emphasizes the

importance of autonomous self-directed learning and is discussed in relation to the development of intrinsic resilience and sustained learning that is relative for meeting the needs of the 21st century learner (Sterling, 2010).

Intrapersonal Intelligence, Resilience, and Academic Success

The relationship between intrapersonal intelligence and academic success encompasses significant aspects such as self-knowledge, self-belief, autonomy, and metacognition (Moran, 2009; Sellars, 2011; Shepherd, 2004; Tenny, Vazire, & Mehl, 2013). In this chapter, the development and role of learner resilience in academic success is addressed. The analysis of resilience is approached from an intrinsic perspective and focuses on the learner's ability to self-reflect, utilize resources, and adapt as needed when engaging in academic tasks (Campbell-Sills & Stein, 2007; Martin & Marsh, 2009; Sterling, 2010). Finally, the role of intrapersonal intelligence is addressed as a moderating factor for resilience and academic success. This approach is used because studies indicate characteristics associated with intrapersonal intelligence are related to the development of learner resilience within the academic setting and associated with the potential for academic success (Sellars, 2008a, 2011, 2012; Sellars & Sanber, 2006).

Literature Search Strategy

I accessed peer-reviewed research articles from the Walden University library website through EBSCO Host. EBSCO databases used during the search included Academic Search Complete, ProQuest, PschINFO, PsychARTICLES, PsychEXTRA, Education Research Complete, SocINDEX with full text, PsycTESTS, and Mental Measurements Yearbook. Other article sources were accessed from the *AASA Journal of Scholarship & Practice* websites. Search terms included the following: *resilience* (9), *self*

(2), *self-efficacy* (3), *academic achievement* (2), *metacognition* (1), *self-awareness* (2), *self-knowledge* (7), *higher education* (1), *intelligence* (1), *multiple intelligence* (7), *intrapersonal intelligence* (5), *constructivist theory* (1), *implicit theory* (10), *transformative learning theory* (3), *globalization* (5), and *21st century learner* (2).

The literature search was conducted digitally through a university library search engine accessing professional sites of published peer-reviewed journal articles. The articles spanned over 15 years of research. The theoretical framework for this study included constructivism, intrapersonal intelligence, implicit theory, and transformative learning theory for understanding learner resilience and intrinsic qualities in the academic domain. These theories provided a foundation for addressing the particular needs of current and future scholars who are working in a dynamic milieu complicated by advanced technology and dynamic global interaction.

Theoretical Foundations

Theories of Intelligence and Multiple Intelligence Theory

Spearman (1914) constructed a general intelligence theory conjecturing that individuals demonstrating a certain degree of intelligence in one area would also exhibit a comparable overall intelligence that is biologically influenced, and therefore fixed. As technology has advanced and more information has become available, the development of intelligence is understood as the result of an interaction between biology and environment (Nisbett et al., 2012). Alternate theories of nonanalytic types of intelligence and their impact on academic outcomes emerged following the introduction of Gardner's model of multiple intelligences, which promoted a combined biological and psychosocial foundation (Shearer, 2012). Theories of multiple intelligence suggest different kinds of

intelligence are not interdependent on one another but could be expressed at various levels of ability and could be individually enhanced (Ghraibeh, 2012). Sternberg proposed a triarchic theory of intelligence that categorized intelligence into three types: analytical, practical, and creative (Nisbett et al., 2012). Consequently, modern viewpoints of intelligence have expanded and acknowledge that general intelligence may not be the only determining factor for the prediction of academic or career success (Moran, Kornhaber, & Gardner, 2006).

Constructivist Theory and Metacognition

According to constructivist theory, individuals learn by connecting past experiences and knowledge with new knowledge for the construction of new meaning (Carter, 2009). Constructivism supports autonomy, self-development, and individual formation of new meaning as the basis of a transformative learning process (Sterling, 2010). Piaget, a contributor to the constructivist theory, argued the development of formal thought requires differentiation from self and others, as this spawns' self-reflection and yields potential for a transforming learning experience (Fox & Riconscente, 2008). Piaget suggested that information processing is dependent on abilities in metacognition, or the ability to reflect on one's own thought process (Fox & Riconscente, 2008). Vygotsky went further to suggest elements of metacognition included not just one's awareness of self-knowledge and thoughts, but also the ability to manipulate and direct thoughts effectively (Fox & Riconscente, 2008). Piaget and Vygotsky's ideas both confirm the significance of engaging in a self-aware and self-reflective thought process during the learning process. Accordingly, studies indicate that emerging contemporary students would most benefit from a constructivist approach to

learning that is dependent on internal processes for knowledge production and retention (Carter, 2009; Sterling, 2010).

Implicit Theory

According to implicit theories of intelligence, one's belief in intellectual abilities has a significant influence on academic outcomes despite actual intellectual abilities (Dweck, 2009). Dweck (2009) found that positive effort in the learning process increases resilience in learning. Regardless of whether intrinsic self-concepts are correct or incorrect, individual actions are direct outcomes of a personal belief system that is developed over time (Flavell, Green, & Flavell, 2000). Flavell et al. (2000) evaluated introspection abilities of 5-year-old, 8-year-old, and adult subjects by having them engage in an exercise while performing thinking and non-thinking tasks. Flavell et al. (2000) found that accuracy and abilities in introspection increase with age. These studies indicate that individual abilities in metacognition improve over time rather than being fixed. The concern is, if students subscribe to a belief system that views intelligence and abilities as fixed and therefore see themselves as intellectually limited, they are more likely to be less persistent in academic endeavors hindering them from reaching their full intellectual potential (Yadin & Or-Bach, 2010). Those who subscribe to an incremental perspective of intelligence are more likely to demonstrate higher adaptability and enhanced performance in academic endeavors (Baird, Scott, Dearing, & Hamill, 2009).

Miller et al. (2012) conducted a study on 56 college students to determine the effects of limited and unlimited willpower on effort. Miller et al. used questionnaires that identified subjects as subscribing to limited versus unlimited viewpoints and then analyzed growth curves to assess the degree of learning over time. Ghazi et al. (2011)

conducted a study with 1st year government degree students in Pakistan. Ghazi et al. measured academic achievement and the students self-perceived intelligence through a Likert-scale measurement. The data was analyzed with SPSS-16 and scores were correlated using Pearson Product Moment Correlation (Ghazi et al., 2011). Ghazi et al. found that self-efficacy was influenced by self-perceptions of abilities for both analytical intelligence and nonanalytic (multiple) intelligences. Implicit theory emphasizes the importance of accurate self-knowledge and self-reflection in the learning process. Miller et al. (2012) found that individuals with perspectives supporting the notion of unlimited abilities demonstrated more sustained learning outcomes with greater potential to enhance intellectual endeavors.

Transformative Learning Theory

Transformative learning theory parallels constructivist theory in that it suggests that learning involves individual reconstruction of knowledge to assimilate and accommodate the intake of new information (Taylor, 2008). Transformative learning theory values autonomous learning in which individuals take responsibility for creating meaning out of acquired knowledge (Grabove, 1997). This requires astute self-reflection through rational cognition that promotes sagacious thinking (Grabove, 1997). This type of self-directed learning places the learner in control of acquiring knowledge and ascribing meaning to that knowledge, generating a sustainable educational process and a resilient learner (Sterling, 2010). The transformative learning theory compliments the modern learning environment, which necessitates the development of adaptive aptitudes for effective outcomes (Sterling, 2010). Sterling (2010) suggested a world of rising uncertainty constitutes a need for a sustainable educational system that produces not just

resilience, but resilient learners who have the capability to adapt to the unexpected by using acquired knowledge for self-transformation. Furthermore, transformative learning not only transforms knowledge into new meaning, but is self-transforming in the process (Grabove, 1997).

Conceptual Framework and Integration of Theories

Theories of multiple intelligence, constructivism, implicit theory, and transformational learning theory synergistically work together to elucidate the relationship between intrapersonal intelligence, resilience, and academic success. Theories of multiple intelligences expand our understanding of intelligence beyond analytical intelligence to include non-analytical aspects of intelligence (Conti, 2014). Intrapersonal intelligence is a form of multiple intelligence that influences academic success and is related to intrinsic resilience in the academic environment (Sellars, 2011; Sterling, 2010). This study emphasizes and explores intrinsic qualities, to include intrapersonal intelligence and resilience, of students that contribute to academic success. For the purposes of this study, Academic Success is defined as the student's level of self-efficacy, attained grade point average (GPA), and grade level. Resilience is defined as the ability to flourish and adapt when challenged with difficulties or stress (Campbell-Sills & Stein, 2007). Intrapersonal intelligence is defined and measured as the student's degree of self-knowledge and ability to effectively use this knowledge (Mowat, 2011).

Intrapersonal Intelligence and Academic Success

Intrapersonal intelligence, as identified by Howard Gardner, embodies the essential elements of all the previously discussed theories in relation to the individual in the learning environment. Howard Gardner defined intelligence as “the ability to solve

problems or to create products that are valued within one or more cultural settings” (Furnham, 2009, p. 226). Gardner proposed a multiple intelligences model inferring there are various ways of knowing and that certain types of intelligence are autonomous (Shepherd, 2004). His model included two personal intelligences, interpersonal and intrapersonal (Furnham, 2009). Gardner defined intrapersonal intelligence as “the capacity to understand oneself and to use this information effectively in regulating one’s life” (as cited in Furnham, 2009, p. 226). Intrapersonal intelligence encompasses the individual’s ability to understand the human condition and their own thoughts and feelings with effective use of this knowledge (Shepherd, 2004).

Competency in self-knowledge has been equated to accuracy in beliefs about the self (Tenney et al., 2013). From the multiple intelligence perspective of intrapersonal intelligence, executive function pertains to self-knowledge, reflection, and expression (Sellars, 2011). Cognitive impairments and deficiencies may hinder individual development of intrapersonal skills and abilities. Biological factors may also impede on the development of intrapersonal intelligence. Neuroimaging shows the medial prefrontal cortex is involved during self-knowledge processing (Nakao et al., 2009). Research indicates development of self-knowledge can be encumbered by certain disorders such as attention deficit/hyperactivity disorder (ADHD) in which there are insufficiencies in executive functions related to frontal lobe deficiencies (Klein, Gangi, & Lax, 2011).

Through intrapersonal processing an individual creates their own reality and construct meaning out of their experiences (Jemmer, 2009). Studies suggest students need to gain awareness of strengths and weaknesses and build on personal strengths while developing growth of weaknesses to reach their full intellectual potential (Sellars, 2011).

Accurate self-knowledge has the potential to increase an individual's awareness of strengths and weaknesses (Tenney et al., 2013). Tenney et al. (2013) conducted a study of eighty graduate students using self-rating forms to explore the relationship between degree of self-knowledge and interpersonal function. Their study found self-knowledge has a positive influence on interpersonal intelligence. This study will look at self-knowledge in relation to intrapersonal intelligence. Intrapersonal intelligence in the academic domain refers to an individual's capacity to have an accurate understanding of self-knowledge and the ability to use this knowledge productively to achieve learning goals (Sellars, 2011). Many people seek a higher education to gain more insight about themselves (Wilson, 2009). Self-knowledge is essential to education since it is intended to be a transforming experience with personal connotation for what is learned (Bonnett, 2009).

Resilience, the Resilient Learner, and Academic Success

Resilience refers to an individual's ability to adapt and persist when faced with challenges (Hartley, 2011; Campbell-Sills & Stein, 2007). A study by Hartley (2011), looked at undergraduate student's ($N=605$) degree of interpersonal and intrapersonal intelligence with mental health as a moderator and a determinate of academic persistence. The study used a hierarchical regression analysis that revealed intrapersonal resilience was important not only for student endurance in higher education, but also influenced wellbeing (2011). In the academic domain, resilience refers to the student's ability to prevail when faced with challenges that disrupt the academic process (Martin & Marsh, 2009). Some factors influencing resilience include self-confidence, determination, tolerance, control, and ability to endure change (Campbell-Sills & Stein, 2007).

Psychological predictors of academic resilience include the individual's confidence in their ability, degree of motivation, skills in self-regulation, and engagement in purposeful action (Martin & Marsh, 2009). Sriskandarajah et al. (2010) performed four case studies within the higher educational setting that examined transformative learning as a precursor to the development of resilience. Their study focused on regeneration, and the capability to maintain structure through changes during the learning process by drawing on knowledge acquired through personal experiences to develop more intricate epistemic thinking (Sriskandarajah et al., 2010). The transformative model of sustainable education describes the resilient learner is one who approaches learning with alacrity, is flexible and resourceful, persistent, self-reflective, and comfortable with independent learning (Sterling, 2010). Studies suggest students who exhibit resilience are more likely to succeed academically because they remain motivated despite challenges that create a risk to academic achievement (Martin & Marsh, 2009).

Intrapersonal intelligence, Resilience, and Academic Success

Sellars (2011) suggests intrapersonal intelligence, self-knowledge and ability to use that knowledge effectively, has a significant influence on academic success by increasing cognitive flexibility (2011). Sellars conducted a study involving three classes of 10 to 12-year-old students ($N=40$). The study was based a combination of Blooms Taxonomy and the multiple intelligence theory. Base lines were developed for each student's abilities in cognitive flexibility and executive function skills through teacher observation and the use of an observation checklist, a two tailed t-test was used to evaluate student progress (2011). The outcome of this study suggested autonomous

learning approaches enhance the development of multifarious academic competencies (2011).

Sellars indicated intrapersonal intelligence is needed for the integration and internalization of knowledge that leads to self-transformative learning experiences (Sellars & Sanber, 2006). Sellars conducted a study with 27 students (ages 7 through 9-years-old) based on multiple intelligence theory and implicit theory of intelligence. The students were directed in goal setting activities that enhanced self-knowledge and was motivated by intrinsic satisfaction (2006). Journaling was incorporated to prompt self-directed learning, guiding the students into constructing new meaning for a transformative learning experience (2006). She developed a multiple intelligence profile prior to interventions and then reevaluated the profile following interventions using a paired *t*-test (2006). What Sellars discovered is that in an autonomous learning environment, as the student's self-knowledge grew, they became more self-confident and self-directed in their learning (2006).

Sellars viewed education is a transforming process in which students form new meaning out of acquired knowledge (2008b). She further indicated that skills in intrapersonal intelligence enhance the learning experience and build resilience for the learner (Sellars, 2011). Resilient learners exemplify competence in intrapersonal intelligence through skills in effective use of self-reflection and adaptive capabilities (Sterling, 2010). These qualities support a sustainable education and an intrinsically stable learner better prepared to navigate an unpredictable world (Sterling, 2010).

Influences of Age and Gender on Resilience and Academic Success

Some studies have found that age and gender have some influence on an individual's level of resilience (Lee et al., 2013). Some research indicates resilience increases with age; conversely, others found no relationship between age and resilience. Other research results indicate females are more resilient while contrary to that other study outcomes indicated males were found to be more resilient (2013). In regards to academic success, study outcomes have suggested females and mature aged students demonstrate higher levels of academic achievement than their male and younger aged counterparts (Sheard, 2009). It is also worth noting that some studies suggest males tend to self-report higher levels of intelligence than their female counterparts when completing self-reports of multiple intelligence levels (Tabancalı & Çelik, 2013). These demographic factors will need to be taken into consideration when looking deeper at the relationship between resilience and academic success.

Conclusion

Studies suggest it will be important for 21st Century learners to develop effective metacognitive skills and a strong self-efficacy to face the upcoming challenges of a dynamic and rapidly changing environment (Sellars, 2011). The ability to recognize and address limitations and strengths, maintain motivation, persevere when challenged, self-regulate during the learning process, and be flexible in thinking are all crucial characteristics for supporting adaptive behavior that will be necessary for meeting the coming challenges (Sellars, 2011). Studies suggest increasing intrapersonal intelligence can be personally empowering, enhancing resiliency behaviors that lead to success in the academic setting (Shepherd, 2004; Sellars, 2011). Earlier theories suggested learners

need to construct knowledge from past experiences and newly acquired information (Shepard et al., 1999). The learning process can be influenced by levels of intrapersonal intelligence and implicit perspectives (Sellars, 2011; Romero et al., 2014). The transformative learning theory suggest self-knowledge, awareness, and self-reflection are essential for the development of inner dependent resilience that prompts transformation through the individual learning experience (Sterling, 2010).

Previous studies have focused on interpersonal intelligence and emotional intelligence in relation to academic success and intrinsic resilience (Conti, 2014; Sellars, 2008a; Sparkman et al., 2012). There are limited studies that have investigated the relationship between intrapersonal intelligence and intrinsic resilience, specifically as they relate to academic success. This study fills that gap by examining how the components of intrapersonal intelligence act as a moderator for the development of intrinsic resilience and academic success. The study combines several related theories that support self-knowledge and self-reflection as essential to the learning process.

Quantitative inquiry is required for this study to obtain a broad enough sampling for true representation of the population in regards to demonstrating a correlation between intrapersonal intelligence, resilience, and academic achievement. Additionally, the quantitative method is helpful in reiterating results of previous research and accumulating more extensive information that would be useful in elucidating other inducing factors interrelated to resilience and academic achievement. A quantitative approach is appropriate for this study because instruments can be used to measure resilience and intrapersonal intelligence that will allow others to confirm the findings

through additional studies across various populations in support of further understanding and generalization of findings.

Chapter 3: Methodology

Purpose of Study

The purpose of this study was to apply the theory of multiple intelligences to gain an understanding of the relationships between intrapersonal intelligence, resilience, and academic success when controlling for the effects of gender, ethnicity, and age. The dependent variable (academic success) was defined and measured as the student's level of self-efficacy, grade point average (GPA), and grade level. The independent variables (resilience and intrapersonal intelligence) were measured by the CD-RISC and MIDAS respectively.

Research Question

The central research question answered by this study was as follows: In the academic setting, how are factors associated with intrapersonal intelligence and resilience related to academic success when controlling for the effects of gender, ethnicity, and age?

Hypothesis

Hypothesis 1

Null Hypothesis 1 (H₀₁). Resilience (as assessed by the CD-RISC is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 1 (H₁). Resilience (as assessed by the CD-RISC) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 2:

Null Hypothesis 2 (H₀₂): Intrapersonal Intelligence (as assessed by the MIDAS) is not significantly related to academic success (academic self-efficacy as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 2 (H₂): Intrapersonal Intelligence (as assessed by the MIDAS) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 3:

Null Hypothesis 3 (H₃): Intrapersonal intelligence does not moderate the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is not positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 3 (H₃): Intrapersonal intelligence moderates the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

This chapter presents the setting for the study, population dynamics, and projected procedures for selecting and engaging participants. The instruments for measuring intrapersonal intelligence, resilience, and academic success are detailed including their validity, reliability, and appropriate use. How the instruments were useful in testing the hypotheses is discussed along with related ethical considerations. The chapter presents

how the data for this study was collected including subject demographic data collection, procedures for informed consent, means for collecting information, means for debriefing participants, and follow-up procedures implemented for participants.

Research Design and Reasoning

Study Variables

Intrapersonal intelligence. Studies indicate intrapersonal intelligence is important for synthesizing acquired knowledge for creating new meaning (Sellars & Sanber, 2006). Intrapersonal intelligence is thought to contribute to the development of competencies in academic endeavors (Sellars, 2011). Intrapersonal intelligence was an independent and moderating variable for this study. Intrapersonal intelligence was defined as the student's degree of self-knowledge and his or her ability to use that knowledge effectively in the academic setting. Intrapersonal Intelligence was measured using the Multiple Intelligence Developmental Scales (MIDAS) Adult/College Version. The MIDAS scale was appropriate for this study because it is a reliable tool for assessing intrapersonal intelligence (Shearer, 2007). The MIDAS assessment takes about 30 minutes to complete. The MIDAS basic research kit was used to set up student assessments (see Appendix B). This assessment was easily accessible to students by logging into the Online Midas System (OMS). Paper questionnaires were provided for participants who did not have access to a computer.

Students participated in the research study via the Walden participant pool and completed the assessments and surveys online, or picked up research survey packets with printed instructions at a neutral location at the on-campus collection site. The students who participated online logged into the online assessment site where they were first

presented with an explanation of the procedures including the approximate length of time to complete each assessment and a consent form to complete prior to obtaining access to the assessment. Students who participated at the on-campus site received flyers notifying them of the opportunity to participate in the study and then were able to pick up a survey packet from a neutral site at the school, which provided written instructions, a consent form, and a pencil-and-paper survey.

Resilience. Resilience was an independent variable in this study. For the purpose of this study, resilience was defined as the ability to adapt and persist when faced with challenges. Studies indicate that resilient students are more likely to succeed academically because they have a more alacritous approach to learning, are able to be self-reflective and become flexible when faced with obstacles, and persist despite challenges (Sterling, 2010). The Conner-Davidson Resilience Scale-Revised (CD-RISC) Adult Sample was used to assess student resilience. This assessment could be completed in 5 minutes or less and was set up on the Qualtrics.com site for easy student access. The Qualtrics.com site was also available with Statistical Package for Social Sciences (SPSS) integration.

Academic success. Success in the academic environment is essential for a transforming learning experience to occur (Grabove, 1977). The complexities of problems in modern society require individuals to be sagacious thinkers who are able to be creative in synthesizing and applying knowledge (Sterling, 2010). Academic success was the dependent variable for this study. Academic success was measured by grade level and Grade Point Average (GPA). A demographic questionnaire was devised specifically for the purpose of this study and posted on the Qualtrics survey site for easy student

access and completion (see Appendix G). Questions asked included the following; A nominal scale asking “What is your current grade level” (Freshman or Sophomore =1)? An interval scale asking “Which number is closest to your current GPA” (4.0, 3.5, 3.0, 2.5, 2.0, 1.5, or 1.0)? The results of this survey can be provided with SPSS integration.

Self-efficacy. Self-efficacy is an integral aspect of academic success as it indicates the individual’s perception of his or her abilities. Self-efficacy was measured using the Scale of Implicit-Theory of Intelligence (SITI). The SITI provided information pertaining to the student’s perception of his or her intellectual ability (Mori et al., 2001). The SITI was an interval scale with a possible minimum score of 20 and a possible maximum score of 120. The SITI took approximately 10-15 minutes for participants to complete.

Covariate variables. Some variables that have variability across the population are gender and age. Studies indicate a variance exists between age and gender in relation to resilience and academic outcomes (Lee et al., 2013; Sheard, 2009). Therefore, these variables were controlled for when analyzing data collected during this study to examine variances related to each. Participants were provided a demographic survey to complete including a nominal scale asking “What is your gender?” with a two item response (male/female) and a score of 0 or 1, and a nominal scale asking “What is your ethnicity?” with a six responses (African American, Hispanic, Caucasian, Asian, Native American, or Other) and a score of 1 to 6. The study included an interval scale asking “What is your age?” with a five item response choice (21-31, 32-42, 43-53, 54-64, or 65 and over) and a score of 1 to 5.

Research Design

Methodology

Correlational method. In this study I examined the relationship between intrapersonal intelligence and resilience in relation to academic success. A quantitative study was appropriate because the relationships between variables were of a predictable nature. I chose a correlational design using regression analysis to examine the degree to which levels of intrapersonal intelligence corresponded with student resilience. Intrapersonal intelligence was examined to determine its function, or lack of function, as a moderating factor for academic success with resilience.

A correlational design was appropriate because the variables were examined to determine how they related to one another. Additionally, participants were randomly assigned to a group, and no manipulation of variables took place. The measurements were based on self-reflection and reporting of current levels of attainment or perceived levels on measures related to multiple intelligences, resilience, and self-efficacy. A qualitative study would not have been appropriate as it would not have provided an adequate number of participant responses for comparison to understand the relationship between the variables.

Constraints. This study was limited because the subjects were similar in age and were from a similar educational environment. The sample was not diverse enough to include a balanced gender representation and did not adequately represent all ethnicities. These factors were controlled for in the study to recognize their potential effect on the interpretation of data. The demographic questionnaire did not assess certain factors that

could have impacted this study such as socioeconomic status and social support. How these factors may have contributed to the interpretation of data is addressed in Chapter 5.

Previous researchers used the correlation approach to examine the relationship between multiple intelligences and academic achievement (Ghazi et al., 2011). The scales chosen for this study (MIDAS, CD-RISC-R, and SITI) were appropriate to use for a population of college students to target the study variables (intrapersonal intelligence, resilience, and self-efficacy) to determine whether a linear relationship existed between variables. Studies on intrapersonal intelligence have the potential to promote the development of intrapersonal intelligence in the academic milieu (Sellars, 2008a). Studies indicate academic self-efficacy is related to intrapersonal function and contributes to academic success (Sellars, 2012). Multiple scales measuring multiple intelligence, self-efficacy, and resilience were needed to gain a deeper understanding of how factors within each of these domains were related. Findings may be valuable to students because awareness of multiple intelligences, particularly intrapersonal intelligence, has the potential to prepare and strengthen 21st century learners to face the complex challenges ahead (Sellars, 2012).

Population

The target population for this study was undergraduate university students. This population was appropriate because students should have had a developed sense of self and should have acquired the executive functional abilities needed for the development of intrapersonal skills (Klein et al., 2011). This was an accessible, diverse population in the process of pursuing a higher education; and therefore, provided an opportunity for collecting enriched data relating to academic success. A target of undergraduate students

was accessed through the Walden participant pool and two local campuses. A minimum of 67 students and a maximum of 150 was the targeted sample size for this study.

Sampling and Procedures

Recruiting university psychology students promoted awareness of the importance of promoting academic research, giving students experience in the research process and educating students on the variables being studied. Permission to distribute scales and collect data was obtained through the university IRB board, IRB # 09-02-14-0278807.

Recruitment and Data Collection

Recruitment for online participants was made through use of the Walden participant pool. There were no exclusionary procedures for participation in the study. Undergraduate students were allowed access to the study through an online survey site (Qualtrix). Survey packets were also made available at the two on-campus sites and placed in a high traffic area (library). A locked drop box was also made available and placed near the survey packets for students to insert completed surveys. Recruitment for on-campus students was conducted by the use of approved flyers placed in high traffic areas notifying students of the study, inviting all students to participate, and informing them about how to obtain a survey and where to return it. Students were invited to participate in the study without grade penalization for nonparticipation.

Instrumentation and Operationalization of Constructs

Multiple Intelligence Developmental Scales (MIDAS) Adult/College Version

The MIDAS scale was developed by Shearer in 1973, revised in 2007, and reprinted in 2013 (Shearer, 2013). Permission was granted for its use in this study by Shearer through e-mail communication (see Appendix A). The MIDAS Adult form has

119 items and identifies eight areas of intelligence including linguistic, logical-mathematical, spatial, musical, kinesthetic, interpersonal, intrapersonal, and naturalist. The MIDAS profile includes 25 skills related to each intelligence domain. It also includes three scales that identify intellectual styles including leadership, general logic, and innovation. Each item on the MIDAS scale has six responses participants can choose from, and two of the choices for each item are *Does not apply* and *I don't know*. The MIDAS scale includes a 5-point Likert scale for each item (Shearer, 2013). The MIDAS is an ordinal scale with a minimum score of 119 and the maximum score of 595. The MIDAS assessment takes about 30 minutes to complete.

Studies indicate self-ratings on the MIDAS scale are generally accurate making it a reliable scale (Shearer, 2012). Shearer (2006) noted several studies were conducted with an extensive North American population ($N = 23,386$) over a period of 15 years providing validity for the MIDAS scale. However, it should be noted some distortions may arise on the MIDAS scale (Shearer, 2012). Results of validity studies are noted in the Midas manual, and current research articles involving validity measures can be found at the MIDAS research website (www.MIResearch.org). Studies indicate the MIDAS scales have a median alpha coefficient of .86 with similar coefficients found in cross-cultural studies (Shearer, 1997). Studies indicated that the test/retest reliability for the MIDAS scale has a mean coefficient of .84 for 1 month and a mean coefficient of .81 for 2-month consistency (Shearer, 1997).

Conner-Davidson Resilience Scale-Revised (CD-RISC)

This scale may be used without written permission for non-commercial and educational purposes if distribution is limited to research participants (See Appendix C).

The 10 item CD-RISC-R is considered to be a valid and reliable measurement for resilience (Gucciardi, Jackson, Coulter, & Mallett, 2011). The CD-RISC revised revealed a .85 Cronbach alpha and a study with undergraduate students ($N=121$) demonstrated good reliability yielding a Cronbach alpha of .87 for grade participants (Hartley, 2012). The items on CD-RISC-R are measured by a 5-point Likert-type response scale with responses ranging from 1 indicating the statement is “not true at all” to 5 indicating the statement is “true nearly all the time” (Gucciardi et al., 2011). The CD-RISC-R is an ordinal scale with a minimum possible score of 10 and a maximum possible score of 50. The factors measured by the 10-item CD-RISC-R include the following: Able to adapt to change, Can deal with whatever comes, Tries to see humorous side of problems, Coping with stress can strengthen me, Tend to bounce back after illness and hardship, Can achieve goals despite obstacles, Not easily discouraged by failure, Thinks of self as strong person, and Can handle unpleasant feelings (Campbell-Sills & Stein, 2007).

The CD-RISC scale was developed by D.F. Gucciardi, B. Jackson, B., T. J. Coulter, and C.J. Mallett. It was published in 2011. This scale may be used without written permission for non-commercial and educational purposes if distribution is limited to research participants (See Appendix C). The 10 item CD-RISC-R is considered to be a valid and reliable measurement for resilience (Gucciardi et al., 2011). The CD-RISC revised revealed a .85 Cronbach alpha and a study with undergraduate students ($N=121$) demonstrated good reliability yielding a Cronbach alpha of .87 for grade participants (Hartley, 2012). The items on CD-RISC-R are measured by a 5-point Likert-type response scale with responses ranging from 1 indicating the statement is “not true at all” to 5 indicating the statement is “true nearly all the time” (Gucciardi et al., 2011). The

CD-RISC-R is an ordinal scale with a minimum possible score of 10 and a maximum possible score of 50. The factors measured by the 10-item CD-RISC-R include the following: Able to adapt to change, Can deal with whatever comes, Tries to see humorous side of problems, Coping with stress can strengthen me, Tend to bounce back after illness and hardship, Can achieve goals despite obstacles, Not easily discouraged by failure, Thinks of self as strong person, and Can handle unpleasant feelings (Campbell-Sills & Stein, 2007). This assessment can be completed in five minutes or less.

Scale of Implicit-Theory of Intelligence (SITI)

The SITI scale was developed and administered in Japan (2012) by Dr. Atsushi Oshio, Associate Professor at Waseda University, and Dr. Masuharu Shimizu, Professor at Tezukayama University. Permission for use of this scale was provided by Dr. Oshio and Dr. Shimizu (See Appendix D). The SITI will provide information pertaining to the student's perception of their intellectual ability (Mori et al., 2001). The SITI consists of 20 items regarding human's ability, for example, "having a good memory," "working efficiently", and "being decisive" (See Appendix E). It measures responses using a 6-point Likert-type scale from "1" meaning "Not inborn ability at all" to "6" meaning "Entirely inborn ability" (Oshio, 2012). The factor structure for the SITI consist of the following: Smartness, as assessed by aspects such as being decisive and having good insight; Efficacy, as assessed by aspects such as working efficiently and being conversational; Clear Headedness, as assessed by aspects such as having a sharp mind and making quick judgments; Grade and Knowledge, as assessed by aspects such as having a good vocabulary and studying hard; and Interfactor Correlations (Oshio, 2012).

The SITI is an ordinal scale with a possible minimum score of 20 and a possible maximum score of 120.

Demographic Questionnaire

A Demographic Questionnaire was devised by the researcher for the specific purpose and needs of this study. Questions asked include the following: A nominal scale asking, “What is your gender with a two item response choice (male/female)?” and a score range of 0 or 1, and “What is your ethnicity with a six item response choices (African American, Hispanic, Caucasian, Asian, Native American, or Other) and a scale range of 1 to 6. The study includes an interval scale asking “What is your age” with a five item response choice (21-31, 32-42, 43-53, 54-64, or 65 and over).” And a score range of 1 to 5. A nominal scale asking “What is your current grade level” (Freshman or Sophomore =1)? An interval scale asking “Which number is closest to your current GPA” (4.0, 3.5, 3.0, 2.5, 2.0, 1.5, or 1.0)? The results of this survey can be provided with SPSS integration.

Power Analysis

This study uses an alpha value of 0.05 with a statistical power level of 0.80. A moderate effect size of .015 (f^2) is used with two predictors variables including intrapersonal intelligence and resilience for the independent variable (outcome of academic success). This indicated the need for a minimum sample size of approximately 67 undergraduate students within the university setting (Soper, 2013).

Students were given the opportunity to sign up for the study through Qualtrics' online survey site or pick up survey packets made available on campus. For online students, assessments were designed to be completed independently by logging into an

online survey site to access the CD-RISC, SITI, and Demographic Self-Report Survey. Students were presented with an informed consent before accessing the surveys. Moving forward in the survey after reading the informed consent indicated consent to participate in the study. A link was provided to the MIDAS assessment center at www.miresearch.org to complete the final survey. Students were provided the opportunity to provide their e-mail address and request a copy of their MIDAS results and profile. This same surveys, to include an informed consent, were all made available in pencil and paper format and placed in packets that were made available for on campus anonymous student participation. Contact information for Walden University Research Center and the researcher were provided for participants on the consent form. Missing answers and incompleteness surveys will be noted and accounted for.

Data Analysis

Data Analysis Plan

The Statistical Package for Social Sciences (SPSS) software is used for this study's data analysis. Descriptive statistics are conducted to provide information concerning participant's levels of reported resilience and intrapersonal intelligence while incorporating demographic variables to identify any significant differences in each category (gender, ethnicity, and age). The assumptions for the regression analysis of this study include linearity, multicollinearity, normality, and homoscedasticity of the variables. Linearity is checked using scatterplots and if indicated followed by the Spearman Level Order test. Interdependence of factors is assessed with a factor analysis followed by the centering of data if necessary for multicollinearity. Normality is assessed using Data Plots and P Plots to identify outliers and remove inconsequential outliers. The

Levine's Test of variances is used to assess the similarity between variables and if indicated, a nonlinear correction will be made to the data (see assumptions section below).

Research Question

The central research question answered by this study is as follows: Do theories of multiple intelligence, explain the relationship between intrapersonal intelligence, resilience and academic success when controlling for the effects of gender, ethnicity, and age?

Hypothesis

Hypothesis 1

Null Hypothesis 1 (H₀₁). Resilience (as assessed by the CD-RISC is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 1 (H₁). Resilience (as assessed by the CD-RISC) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 2

Null Hypothesis 2 (H₀₂): Intrapersonal Intelligence (as assessed by the MIDAS) is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 2 (H₂): Intrapersonal Intelligence (as assessed by the MIDAS) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 3:

Null Hypothesis 3 (H₃): Intrapersonal intelligence does not moderate the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is not positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 3 (H₃): Intrapersonal intelligence moderates the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Variables

The variables analyzed in this study are self-efficacy, resilience, and intrapersonal intelligence. This study has two independent variables (resilience and intrapersonal intelligence) and one dependent variable (academic success). As discussed in the previous chapter, intrapersonal intelligence and resilience have been shown to be relevant to academic success. Academic variables include self-efficacy, grade point average and grade level. Demographic variables include age, race, and gender. It is assumed that there will be a normal population distribution across population parameters (age, gender, and ethnicity) in regards to academic success.

Assumptions

1. Linearity: It is assumed that a linear relationship exists between resilience and academic success, and between intrapersonal intelligence and academic

success. It is assumed that there is a linear relationship between resilience and intrapersonal intelligence and academic success. Scatterplots will be examined to determine if a linear relationship is evident between variables and if it is not evident, a non-parametric analyses (Spearman Level Order correlation) will be conducted on the data.

2. Multicollinearity: It is assumed that resilience and intrapersonal intelligence are not exceedingly interdependent within the model to the point in which they lose their prognostic independence. A factor analysis can determine multicollinearity of the independent variables. Centering of the data may be an option for correcting this problem.
3. Normality: It is assumed that there will be no significant outliers in data. Data plots and P-Plots will be used to assess for outliers. Degrees of Freedom of the outliers will be assessed using the Shapiro Wilk test to obtain an uncertainty estimate. If outliers are rare in occurrence and can be explained, it might be an option to simply remove them.
4. Homoscedasticity: Homogeneity of variance among groups is assumed. Levine's Test of Equality of Variances will be used to test for this assumption. If homoscedasticity is evident, a nonlinear correction will be made to the data.

Threats to Validity

Threats to External Validity

One threat for external validity for this study is that participants are limited to undergraduate college students from one site. Results from this study specifically represent this population and are therefore not generalizable to other populations in the

academic environment. To reduce these threats, demographic variables are analyzed (gender, age, and ethnicity) and controlled for to evaluate how these factors may influence participant responses when interpreting the results.

Threats to Internal Validity

This study is correlational and therefore predictive in nature. Cause and effect is not projected. The SITI scale appears to have originated in Japan and has limited use with a population in the United States. This study may provide information regarding the construct validity of this scale cross culturally

The degree of accuracy provided on the participant's self-reports may be compromised by participant fatigue and the nature of self-reports. Participants provided a self-report on levels of resilience, self-efficacy, and intrapersonal intelligence and interpretation is based solely on these reports. This method was chosen to allow participants to remain anonymous. Distortions of self-reported information could occur in the process of reporting multiple intelligence abilities (Shearer, 2012). Outside sources, which could add an objective dimension to measurements, are not used to rate observational data for the individuals on these factors. This threat is addressed by using the online survey method to allow ease of access and remove time constraints on the participants. Also, the interpretable data is used for comparison purposes and the limitations of accuracy in self-report data collection is noted in the study.

Threats to Construct Validity

One threat to construct validity is that some participants are required to complete all surveys online possibly hindering or limiting participation of students with limited computer access. Students on campus who picked up survey packets may have failed to

return the completed surveys or returned incomplete surveys packets. The three instruments in these study (MIDAS, CD-RISC-R, and SITI) are designed to measure specific factors being examined in this study (intrapersonal intelligence, resilience, and self-efficacy) and each scale is supported by previous research providing scientific support for construct validity. The MIDAS scale that s used (Adult/ College) form is specifically designed for the university population being examined in this study. The construct validity of the MIDAS has been supported by numerous research cross cultural studies over an extended period of time (Shearer, 1997). Threats to internal validity from the MIDAS scale include interrelatedness of the personal intelligences (interpersonal and intrapersonal), as proposed by Gardner and assessed by the MIDAS scale (Shearer, 2005). Since this study will focus on intrapersonal intelligence, the intrapersonal scale will be isolated from the other scales on the MIDAS and examined against the resilience and self-efficacy scale in an independent regression analysis and comparison.

Construct validity for the CD-RISC-R has been established by studies conducted with university students, a similar population as this study (Campbell-Sills & Stein, 2007). Previous study results on the SITI scale revealed four factors that accounted for about forty-nine percent of the variability between items (Oshio, 2012). However, the study indicated that the individual's perceived value of these factors may have influenced their responses (Oshio, 2012). Construct validity issues for this scale is noted in the study.

Ethical Procedures

For MIDAS scale use requirements, the researcher submitted a research application with brief description of objectives and timeline of study to the MIDAS

research center. The researcher obtained and studied the MIDAS manual and interpretation procedures. The researcher completed required assessment to obtain certification for use of the MIDAS scale and signed the licensing agreement provided for use of this scale. The researcher agreed to send bi-annual progress reports to the MIDAS Research center as required in the MIDAS research guidelines.

The researcher obtained a Human Research Protections training certification from the National Institute of Health. IRB approval was obtained from Walden University before proceeding with the study. The researcher completed the IRB application following the proposal oral conference and received formal proposal approval notification from the Office of Student Research Support. The researcher utilized the Walden participant pool to identify potential participants and will therefore have no community partners. Two local campuses were also incorporated in the study following written IRB from Walden University and the individual campus IRBs. A data use agreement was not necessary as all information will be collected by self-report surveys. The researcher, supervising faculty, and MIDAS research center are the only persons/entities having access to the data collected, Confidentiality agreements will be obtained as required.

Informed consent was obtained through the online survey prior to the student having access to the assessments. The participant had to acknowledge consent before they were able to proceed in the study to complete the surveys. The on campus sites were provided a hard copy of the consent form that was presented first in the packet. The consent explained the voluntary nature of the study, the participant's right to exit the study at any time, and confidentiality of results through anonymous reporting and

securing of information. The information did not identify the student by name but will use a numbering code to identify multiple scales completed by the participant. No information other self-identifying information was collected. Information was collected anonymously and only be viewed only by the researcher. The consent ensured the student that their participation will not affect their grade in a course or student standing and that identifying information will not be shared. An overview of the study, procedures for participation, risk and benefits, and contact information were explained and provided on the consent form. The dissemination plan includes a generalized debriefing online and on campus following the completion of all surveys and assessments.

The researcher teaches at several colleges and may know or have taught some of the participants. This is a potential for ethical issues that was managed to ensure bias did not occur and students were not exploited. This was handled through anonymous participation procedures and discretion in discussing the study with study participants or among the general student population while the study was ongoing to prevent perceived coercion. The researcher refrained from direct recruitment of participants and refrained from discussing the study when approached by a participant. Participants were directed to the contact information provided on the consent form for any questions or concerns they may have.

Data was collected through the MIDAS and Qualtrics online survey sites and confidential survey packets which have tools processed incorporated to protect confidentiality. The researcher stored information in a locked container and used password protection and encryption for security of information. The data from this study is shared with the MIDAS center to enhance their data concerning MI and removed from

the researcher data files following the completion of study. Disclosure information and protection of files is discussed in the participant consent form.

Summary

The study is a quantitative study focused on a population of undergraduate college students and is of a predictive nature. It seeks to show a correlation between resilience and academic success with intrapersonal intelligence as a moderating variable. The MIDAS scale is used to measure intrapersonal intelligence, the CD-RISC scale is used to measure resilience, the SITI scale is used to measure academic success (self-efficacy), and a self-report survey documents GPA and grade status as a measure of academic success. Gender, age, and ethnicity data is collected and controlled for in the study. All information is collected using an online format (The Online MIDAS Survey site (OMS) and the Qualtrics online survey site) and on two local campus locations in a pencil paper format to allow for flexibility of participation, expand access to the study, and increase the sample size. SPSS software is used to perform a regression analysis on data collected to determine relationships between variables. Results of this analysis is detailed in the next chapter.

Chapter 4: Results

Purpose

The purpose of this study was to investigate the relationship between intrapersonal intelligence as measured by the Multiple Intelligences Development Assessment Scales (MIDAS), resilience as measured by the Connor-Davidson Resilience Scale (CD-RISC), and academic success as measured by Self-Efficacy (SITI), GPA, and Grade Level.

Research Question

The central research question to be answered by this study was as follows: Do theories of multiple intelligence explain the relationship between intrapersonal intelligence, resilience, and academic success when controlling for the effects of gender, ethnicity, and age?

Hypotheses

Hypothesis 1

Null Hypothesis 1 (H_{01}). Resilience (as assessed by the CD-RISC is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 1 (H_1). Resilience (as assessed by the CD-RISC) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 2

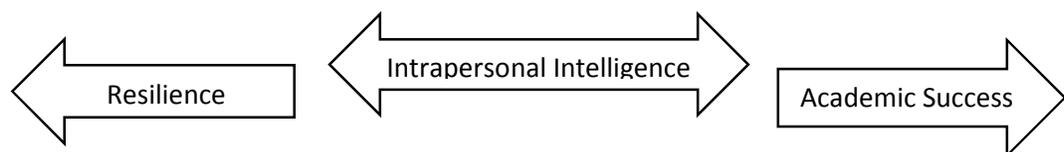
Null Hypothesis 2 (H₀₂): Intrapersonal Intelligence (as assessed by the MIDAS) is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 2 (H₂): Intrapersonal Intelligence (as assessed by the MIDAS) is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level).

Hypothesis 3

Null Hypothesis 3 (H₃): Intrapersonal intelligence does not moderate the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is not positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).

Alternative Hypothesis 3 (H₃): Intrapersonal intelligence moderates the relationship between resilience and academic success. Specifically, intrapersonal intelligence as measured by the MIDAS is positively correlated with resilience (as measured by CD-RISC) and academic success (as assessed by the SITI, GPA, and Grade Level).



Note: Resilience as assessed by the CD-RISC.
 Intrapersonal Intelligence as measured by the MIDAS scale.
 Academic Success= GPA, Grade Level, and SITI scale

Figure 1
Intrapersonal intelligence as moderator for resilience and academic success

Chapter 4 provides information concerning the data collection time frame, recruitment, and response rates. Modifications from the original plan for data collection are also addressed. Descriptive characteristics of the sample population are reported to include gender and age. External validity is examined by looking at characteristics of the sample to determine how proportional the sample was to the larger population. Results of basic univariate analysis are presented to justify inclusion of covariates in the model.

Data Collection

Time Frame and Recruitment

Data collection began in mid-October 2014 and continued through September of 2015. The study was initially posted on the Walden online research participant pool after receiving IRB approval from Walden University (IRB # 09-02-14-0278807). The Walden participant pool administration recruited participants through e-mails sent to students announcing and describing new studies available and providing participant instructions where students could directly access the studies from their student portal using the sona system link. Three instruments were posted directly to the Walden participant pool site including the demographic survey, the CD-RISC, and the SITI. The last page of the online study asked participants to e-mail the researcher for a link and code to complete the last scale, the MIDAS scale. However, this became a problem from the beginning of data collection as most participants completed the demographic survey, SITI, and CD-RISC scale on the online site but failed to request the link and code from the researcher via e-mail to complete the last scale.

Discrepancies from Original Data Collection Plan

Because I could not get permission to post the MIDAS scale directly in the online participant pool and did not have permission to e-mail the participants directly (except in response to a request), I obtained IRB approval to collect data on site at another school campus using the MIDAS scale in a paper-pencil format. The consent forms were adjusted and approved by both IRB boards to comply with each school's requirements for obtaining consent from students. The four scales (Demographic Survey, SITI, CD-RISC, and MIDAS) were printed and placed in a brown clasp envelope along with a consent form. The cover of the envelope identified it as a study packet and provided instructions for where to return the completed study. Flyers were distributed to staff and students to increase awareness of the opportunity to participate in the study. The study packets were placed in high traffic areas at the schools, such as the library, and lockboxes were provided and made visible for students to return completed studies anonymously. No incentives were offered for student participation other than allowing students to provide an e-mail address to receive an interest profile based on MIDAS responses.

Initially data collection was slow, but the on-campus participants completed all the scales when presented in a pencil-paper format. To speed up the data collection process, data collection was expanded to an additional local college campus. Although most of the Walden online pool participants continued to complete all surveys except the MIDAS, the on-campus participants completed all the surveys including the MIDAS in a pencil-paper format.

The collected data was entered in IBM SPSS 22 and was analyzed using appropriate statistical tests. The sample population was chosen for convenience and

limited to undergraduate students. The sample population consisted of active undergraduate students from three schools including one online university, one local community college, and a technical school. Data was collected from a total of 91 undergraduate students.

Results

Sample Characteristics

The participants included 57 female (62.6%) and 34 male (37.4%) students (see figure 2). Ages of participants ranged from 18 to 61 years. There were 50 participants 18-28 years old (54.9%), 19 participants 29-39 years old (20.9%), 11 participants 40-50 years old (12.1%), and 11 participants 51-61 years old (12.1%), as shown in Figure 3.

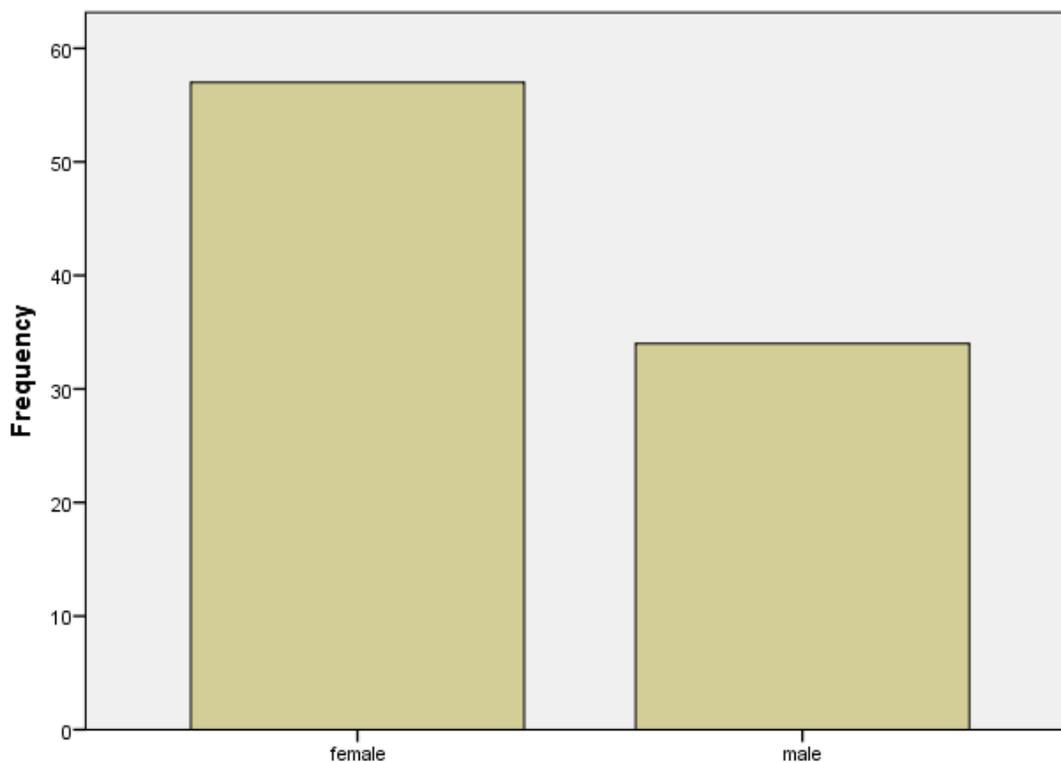


Figure 2
Gender of Participants

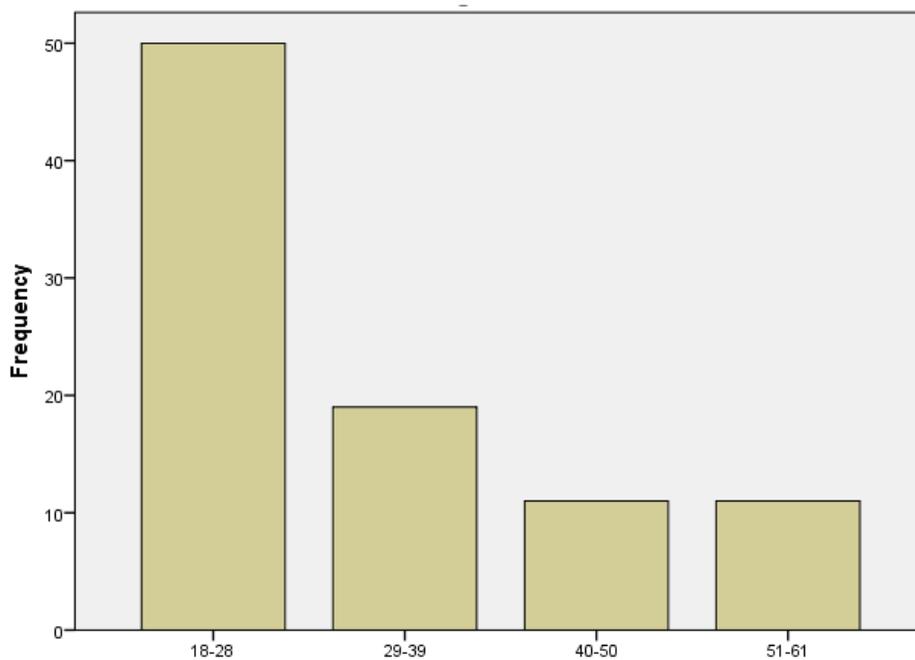


Figure 3
Age of Participants

Of the 91 participants, 25 participants (31.6%) were grade level freshman, 24 participants (30.04%) grade level were sophomores, 16 participants (20.03%) grade level were juniors, and 14 participants (17.7%) grade level were seniors. Participants included 21 (23.1%) who identified as African American, 21 (23.1%) who identified as Hispanic, 41 (45.1%) who identified as Caucasian, two (2.2%) who identified as Asian, and six (6.6%) who identified as “other” (see Figure 4).

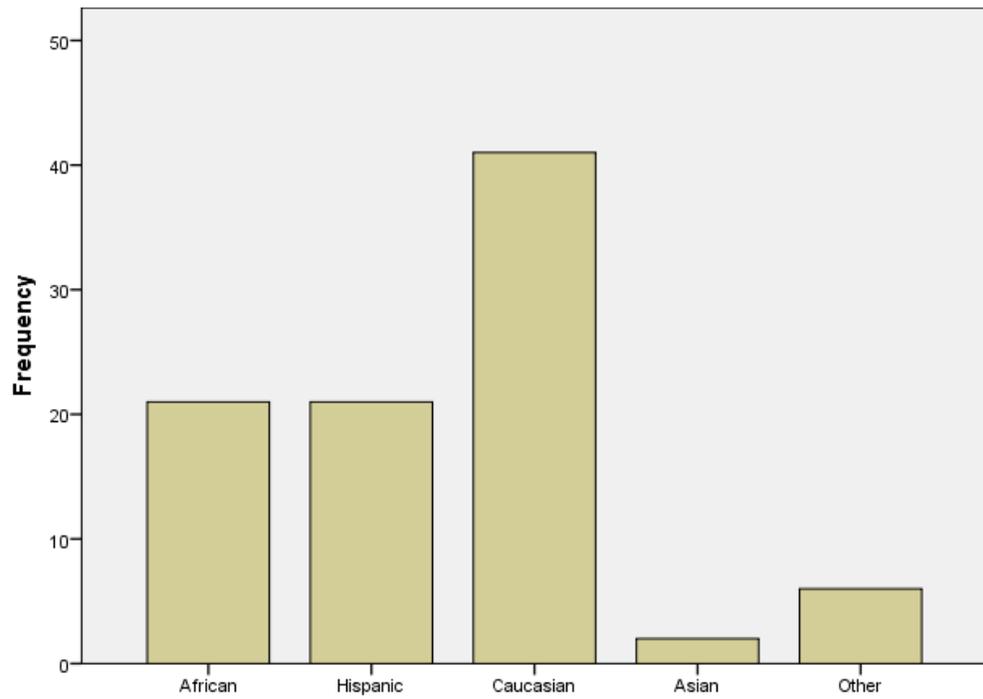


Figure 4
Frequency of Ethnicity

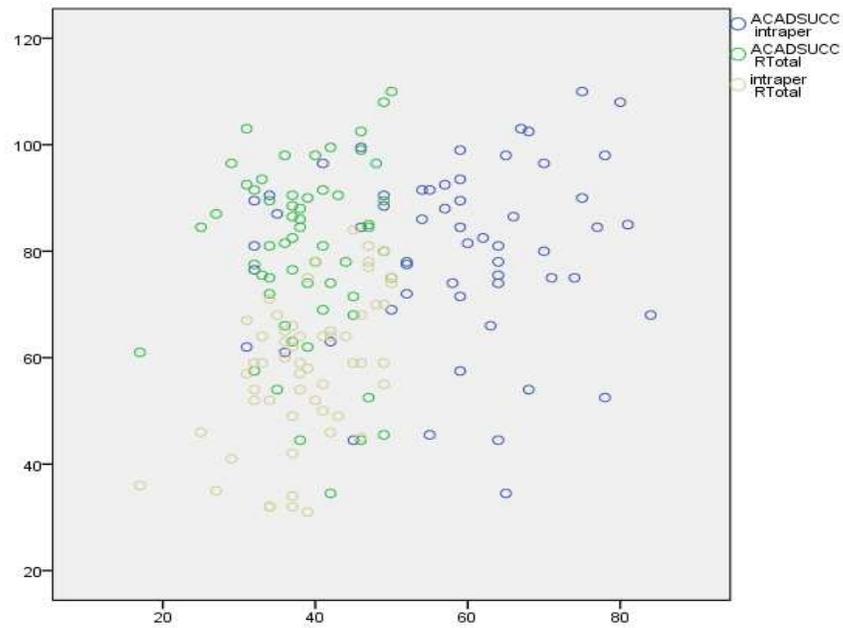


Figure 5
Scatterplot: Academic Success, Resilience, and Intrapersonal Intelligence

Evaluation of Assumptions

The Levine's test of equality of variances was used to check for homoscedasticity and evaluate similarities between the variables ($\alpha = .05$). Academic success and intrapersonal intelligence Levine test results showed a p value of .857. Resilience and academic success showed a p value of .976. The resulting p value of the Levine test was greater than the alpha value of .05, indicating there was no significant difference in the variances in the population.

The Durbin Watson statistic was used to test for independence of the predictors. The Durban Watson score was 1.889 for resilience and intrapersonal intelligence being a predictor of the dependent variable academic success. Because the value of the Durban Watson score was near 2, assumptions for conducting the regression analysis were met. Multicollinearity was checked using a linear regression analysis (Newton & Rudestam, 1999). The tolerance statistic for both intrapersonal intelligence and resilience was .729, and the VIF statistic was 1.37, indicating no significant collinearity of the independent variables.

Statistical Analysis Findings

Three hypotheses were tested in this study. First, the relationship between resilience and academic Success was examined. Second, the relationship between intrapersonal intelligence and academic success was examined. Third, the relationship between academic success and the two independent variables (resilience and intrapersonal intelligence) was examined.

Research Question 1. Is resilience, as measured by the CD-RISC, related to academic success, as measured by GPA, grade level, and self-efficacy (as assessed by the SITI)?

Hypothesis 1. Null Hypothesis 1 (H_{01}) predicted that resilience, as assessed by the CD-RISC, is not significantly related to academic success (as assessed by the SITI, GPA, and Grade Level). Alternative Hypothesis 1 (H_1) predicted that resilience, as assessed by the CD-RISC, is significantly related to academic success (as assessed by the SITI, GPA, and Grade Level). An analysis was conducted to determine whether resilience (R-Total) was correlated with academic success (GPA, SITI Total, and Grade Level) using the Pearson Product-Moment Correlation. Resilience scores were then correlated independently with GPA, SITI Total, and Grade Level. A significant correlation was found between resilience and GPA. No significant correlation was found between resilience and grade level, self-efficacy, or academic success. The results support the null hypothesis and reject the alternative hypothesis (see Table 1).

Table 1

Pearson Correlation of Resilience and Academic Success (GPA, Grade Level, and SITI)

	Resilience	Academic Success	GPA	Grade Level	Self- Efficacy
Resilience	1	.078	.135	.161	.104
		.529	.224	.158	.344
	90	68	83	78	84
Academic Success	.078	1	-.198	-.047	.997
	.529		.105	.701	.000*
	68	68	68	68	68
GPA	.135	-.198	1	.195	-.259
	.224	.105		.097	.022*
	83	68	83	74	78
Grade Level	.161	-.047	.195	1	-.105
	.158	.701	.097		.378
	78	68	74	79	73

Self-Efficacy	.104	.997	-.259	-.105	1
	.344	.000*	.022	.378	
	84	68	78	73	84

Note. Resilience = CD-RISC Total, Academic Success = GPA, Grade Level, and SITI Total, Self-Efficacy = SITI Total

*. Correlation is significant at the 0.05 level (2-tailed).

Research Question 2. Is intrapersonal intelligence, as measured by the MIDAS, related to academic success, as measured by GPA, Grade Level, and Self-Efficacy (SITI)?

Hypothesis 2. Null Hypothesis 2 (H₀₂) predicts that intrapersonal intelligence, as assessed by the MIDAS scale, is not significantly related to academic success (SITI, GPA, and Grade Level). The Research Hypothesis 2 (H₂) predicts that intrapersonal intelligence, as assessed by the MIDAS scale, is significantly related to academic success (SITI, GPA, and Grade Level). An analysis was conducted to determine if Intrapersonal Intelligence is significantly related to GPA, SITI Total, Grade Level, and Academic Success (GPA, SITI Total, Grade Level) using the Pearson Product Moment Correlation. A positive significant correlation is found between Intrapersonal Intelligence and GPA. No significant correlation is found between Intrapersonal Intelligence and Academic Success, Self-Efficacy, or Grade Level. The results indicate that the null hypothesis was retained (See Table 2). However, the results show partial support of the research hypothesis, because there was a significant correlation between Intrapersonal Intelligence and GPA.

Table 2

Pearson Correlation of Intrapersonal Intelligence and Academic Success

	Intrapersonal Intelligence	Academic Success	GPA	Grade Level	Self- Efficacy
Intrapersonal Intelligence	1	.094 .488	.288* .022	.037 .770	.077 .561
	66	57	63	65	60
Academic Success	.094 .488 57	1	-.198 .105 68	-.047 .701 68	.997 .000 68
GPA	.2888* .022* 63	-.198 .105 68	1	.195 .097 74	-.259 .022* 78
Grade Level	.037 .770 65	-.047 .701 68	.195 .097 74	1	-.105 .378 73
Self-Efficacy	.077 .561 60	.997 .000* 68	.259* .022 78	-.105 .378 73	1

Note: Intrapersonal Intelligence as measured by MIDAS. Academic Success = GPA, Grade Level, and Grade Level = Freshman, Sophomore, Junior, or Senior level.

* Correlation is significant at the 0.01 level (2-tailed).

Research Question 3. Research question 3 is the central research question of this study and is as follows: In the academic setting, how are factors associated with intrapersonal intelligence and resilience related to academic success?

Hypothesis 3. The Null Hypothesis 3 (H_3) predicts that intrapersonal intelligence as measured by the MIDAS will moderate the relationship with resilience, as measured by the CD-RISC, and Academic Success, as measured by GPA, SITI, and Grade Level. A linear regression analysis was conducted on academic success as the dependent variable with Intrapersonal Intelligence and Resilience as the predicting independent variables. Results indicate only 1% of the variance in Academic Success can be accounted for by Intrapersonal Intelligence and Resilience, $R^2 = .010$, $F(2, 54) = .264$, $p = .769$. This

indicates that neither Intrapersonal Intelligence (beta = .112, $t = .706$, $p = .483$) nor Resilience (beta = -.035, $t = -.223$, $p = .824$) have a predictive ability in this model.

To create a new model with GPA as a potential independent describer of Academic Success, a linear regression analysis was then conducted on GPA as the dependent variable and Intrapersonal Intelligence and Resilience as the predicting independent variables. Results indicate that only 9% of the variance of GPA can be accounted for by Intrapersonal Intelligence and Resilience, $R^2 = .090$. $F(2, 60) = 2.955$, $p = .60$ (not significant). This indicates that Resilience (beta = -.098, $t = -.666$, $p = .508$) nor Intrapersonal Intelligence (beta = .342, $t = 2.319$, $p = .024$) was found to have significant predictive ability for GPA.

Additional Findings show Self-Efficacy, as measured by the SITI, was found to be significantly correlated to GPA and Academic Success ($p < .01$). No significant correlations were found between Academic Success and the main MIDAS scales to include Linguistic ($p = .915$), Interpersonal ($p = .74$), Intrapersonal ($p = .488$), Logical-Mathematical ($p = .389$), Spatial ($p = .830$), Musical ($p = .792$), Kinesthetic ($p = .378$), Naturalist ($p = .786$) or MIDAS Style Scales to include Leadership ($p = .259$), General Logic ($p = .939$), and Innovative ($p = .823$).

Other Findings

It is also noteworthy to consider the correlations, or lack of, between the MIDAS main scales and style scales with Self-Efficacy (SITI), Resilience (CD-RISC), and GPA. A significant correlation was found between one main MIDAS scale, Intrapersonal Intelligence, and GPA. A significant correlation was also found between General Logic, an intellectual style as measured on the MIDAS scale, and GPA. Significant correlations

were also found between Resilience and the following MIDAS main scales including Linguistics, Kinesthetic, Spatial, Intrapersonal, and Interpersonal. Significant correlations were also found between Resilience and on all three MIDAS intelligence style scales including General Logic, Leadership, and Innovative. Similarly, significant correlations were also found between Intrapersonal Intelligence and on all three MIDAS intelligence style scales (See Table 3). GPA was also significantly correlated to the MIDAS style scale of general logic. No significant correlations were found between Self-Efficacy (SITI) and the individual MIDAS main scales or the MIDAS intelligence style scales.

Table 3

MIDAS Style Scales: Leadership, General Logic, and Innovation

	GPA	Resilience	Intrapersonal Intelligence	Leadership	General Logic	Innovation
GPA	1	.135	.288	.077	.277	.150
	83	.224	.022	.548	.029	.240
		83	63	63	62	63
Resilience	.135	1	.555**	.403**	.541**	.267*
	.224		.000	.001	.000	.032
	83	90	65	65	64	65
Intrapersonal Intelligence	.288	.555**	1	.756**	.873**	.692**
	.022	.000		.000	.000	.000
	63	65	66	66	65	66
Leadership	.077	.403**	.756**	1	.807**	.723**
	.548	.001	.00		.000	.000
	63	65	66	66	65	66
General Logic	.277	.541**	.873**	.807**	1	.751**
	.029	.000	.000	.000		.000
	62	64	65	65	65	65
Innovation	.150	.267*	.692**	.723**	.751**	1
	.240	.032	.000	.000	.000	
	63	65	66	66	65	66

Intrapersonal Intelligence as measured by MIDAS. Resilience = CD-RISC Total.

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

To account for influences of Gender, Ethnicity, and Age on the dependent (Academic Success) and independent variables (Intrapersonal Intelligence and Resilience), statistical analysis was conducted on each individually. Gender and Ethnicity had a significantly unequal sample size. Ethnicity and academic success were analyzed using the Kruskal-Wallis (for > 2 independent samples). Results indicate a significant correlation between ethnicity and academic success ($p = .042$). For gender and academic success, the Mann-Whitney U test was conducted. Results indicate no significant correlation exists between gender and academic success ($p = .234$). A correlational analysis was conducted on age and academic success since the sample size was not significantly unequal. Results indicate no significant correlation between age and academic success ($p = .705$).

A correlational analysis was conducted to account for relationships of gender and age with the dependent (Academic Success) and independent (Resilience and Intrapersonal Intelligence) variables. Analysis was not conducted on the influences of ethnicity on the variables because of a lack of homoscedasticity among the categories (See Figure 4). An analysis of covariant found Age to be significantly correlated with Resilience ($p = .012$) and Intrapersonal Intelligence ($p = .020$). Age was not found to be significantly related to Academic Success. Gender was not found to be significantly correlated with Resilience, Intrapersonal Intelligence, or Academic Success. A significant correlation was found between grade level and age ($p < .005$, $r = .506$). No significant correlation was found between gender and grade level ($p = .801$). Additionally, no significant correlations were found between age, gender, and academic success or GPA.

These findings indicate Resilience, as measured by the CD-RISC is not significantly related to Academic Success (SITI, GPA, and Grade Level). This supports the null hypothesis 1 (H_{01}) and rejects the research Hypothesis 1 (H_1). Results also show that Intrapersonal Intelligence, as assessed by the MIDAS scale, is not significantly correlated with Academic Success (SITI, GPA, and Grade Level). This supports the Null Hypothesis 2 (H_{02}) and rejects the Research Hypothesis 2 (H_2). Since Resilience and Intrapersonal Intelligence are not found to be significantly related to Academic Success, Null Hypothesis 3 (H_{03}) is supported and the Research Hypothesis (H_3) is rejected.

If the components of Academic Success are examined independently, significant correlations emerge to indicate a relationship between Intrapersonal Intelligence and GPA ($p = .022$). However, no relationship is shown when conducting a correlational analysis of Intrapersonal Intelligence with Grade Level ($p = .770$), or Self-Efficacy, as measured by the SITI ($p = .561$). With GPA considered the essential defining element of Academic Success, Intrapersonal Intelligence is significantly correlated to Academic Success (See Table 4).

Table 4

Academic Success with GPA as the Essential Identifying Element

	<u>Academic Success</u>	<u>GPA</u>	<u>SITI</u>	<u>Grade Level</u>
<u>Intrapersonal Intelligence</u>	.094	.288	.077	.037
	.488	.022*	.561	.770
	57	63	60	65

Note: Intrapersonal Intelligence as measured by MIDAS.

Academic Success = GPA, Grade Level, and Resilience. Resilience = CD-RISC Total.

Grade Level = Freshman, Sophomore, Junior, or Senior level.

*. Correlation is significant at the 0.05 level (2-tailed).

However, when using this same defining model of Academic Success, Resilience is not shown to be significantly correlated with Academic Success. This rejects the Research Hypothesis 3 that predicts Intrapersonal Intelligence to be the moderator between Resilience and Academic Success.

Summary

Although the predictive model of this research study has not been fully supported by the analytical results, a new model has emerged to provide relevant information. The significant relationships found will be discussed to include their generalizability and limitations. Implications for further study will be considered that may have the potential to support and expand the findings of this study. Most importantly, a vision for how this information can impact social change will be presented.

Chapter 5 Discussion, Conclusion, and Recommendations

Discussion

I conducted a quantitative study that examined variables of interest and their predictive nature for academic success. Previous studies exploring factors for academic success addressed emotional intelligence and interpersonal intelligence (Conti, 2014; Sparkman et al., 2012). Resilience has also been examined as a factor related to academic success (Sellars, 2011). However, there was a gap in the research in addressing the internal strengths and cognitive processes that promote academic success, such as intrapersonal intelligence. Furthermore, the relationship between intrapersonal intelligence and resilience has not been studied extensively. The specific purpose of this study was to investigate the relationship between intrapersonal intelligence as measured by the Multiple Intelligences Development Assessment Scales (MIDAS), resilience as measured by the Connor-Davidson Resilience Scale (CD-RISC), and academic success as measured by Self-Efficacy (SITI), GPA, and grade level. By exploring these factors and identifying significant contributors to academic success, I was able to contribute to the understanding of how to assist 21st century learners in reaching their full academic potential.

Key Findings

Analyses of the research data collected from participants indicated that Null Hypothesis 1 (H_{01}) should not be rejected because no significant correlation was found between measures of resilience and academic success. Results partially supported the Alternative Hypothesis 2 (H_2) because a significant correlation was found between intrapersonal intelligence and GPA (a component of academic success). Findings also

indicated that Null Hypothesis 3 H_{03} should not be rejected because intrapersonal intelligence did not moderate the relationship between resilience and academic success.

Despite the lack of support for the alternative hypotheses in this study, a rich amount of information emerged from a closer look at the correlational relationships between the variables. For example, intrapersonal intelligence was found to be significantly correlated with resilience ($p < .01$) and GPA ($p = .022$). Additional notable findings included significant correlations between self-efficacy, as measured by the SITI, and academic success ($p < .01$). A significant correlation was also found between self-efficacy and GPA ($p = .022$).

Interpretation of the Findings

Results of this study indicate that intrapersonal intelligence is significantly correlated with students' GPA. In other words, strength in intrapersonal intelligence is associated with a higher GPA. If one equates reaching academic success with achieving a higher GPA, this study's findings confirmed Bonnet's (2009) findings that intrapersonal intelligence, or a person's understanding of self-knowledge and ability to use this knowledge productively, has some influence on academic outcomes.

Findings from this study did not support Martin and Marsh's (2009) suggestion that students who exhibit resilience are more likely to succeed academically. However, results of this study indicate that resilience is significantly correlated with intrapersonal intelligence, and in turn intrapersonal intelligence is correlated with a higher GPA. Hartley (2011) argued that intrapersonal resilience is a precursor to academic persistence. Likewise, Sellars (2011) proposed that higher levels of intrapersonal intelligence can

potentially strengthen learner resilience. These findings suggest intrapersonal intelligence is interrelated with both resilience and GPA.

Sternberg suggested that intelligence is composed of three main components: analytical, practical, and creative abilities (as cited in Nisbett et al., 2012). The MIDAS scales expand the measurement of intelligence to include eight categories and three intellectual style scales similar to Sternberg's triatic model. The intellectual style scales include leadership, general logic, and innovation. According to Shearer (2007), the leadership scale is used to assess an individual's ability to use language effectively and solve interpersonal problems. The innovative scale is used to assess an individual's ability to work in artistic, divergent, and imaginative ways, and to improvise and create unique answers, arguments, or solutions. The general logic scale is used to measure an individual's ability to deal with problems in an intuitive, rapid, and perhaps unexpectedly accurate manner to bring together a large amount of information and to make it a part of a general and effective plan of action. Findings from this study indicated significant correlations between all three MIDAS intellectual styles and intrapersonal intelligence strengths. There were also significant correlations between resilience and all three MIDAS intellectual style scales. Additionally, GPA was shown to be significantly correlated with general logic, one of the MIDAS intellectual style scales.

Studies indicate that age and gender have some influence on resilience, with resilience increasing with age (Lee et al., 2013). This study did not provide evidence to support gender as associated with levels of resilience. However, it did support age as significantly correlated with resilience, with increased age associated with higher levels of resilience (see Figure 6). Additionally, age was shown to be significantly correlated

with intrapersonal intelligence. If a larger percentage of students who are in a higher age bracket show increased levels of resilience and intrapersonal intelligence, this implies that, like intelligence, resilience and intrapersonal intelligence can be incrementally developed over time. Consequently, this study indicated higher levels of resilience and intrapersonal intelligence to be positively and significantly correlated with higher age brackets ($p = .011, p = .020$) See Figure 7.

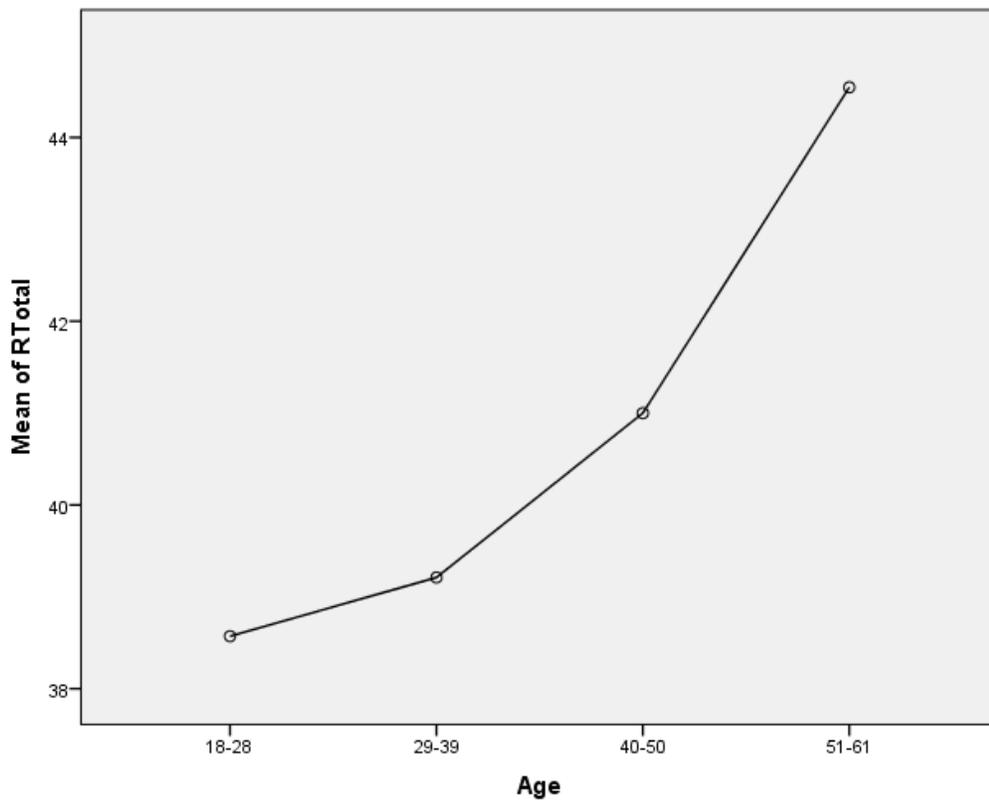


Figure 6
Age and Resilience

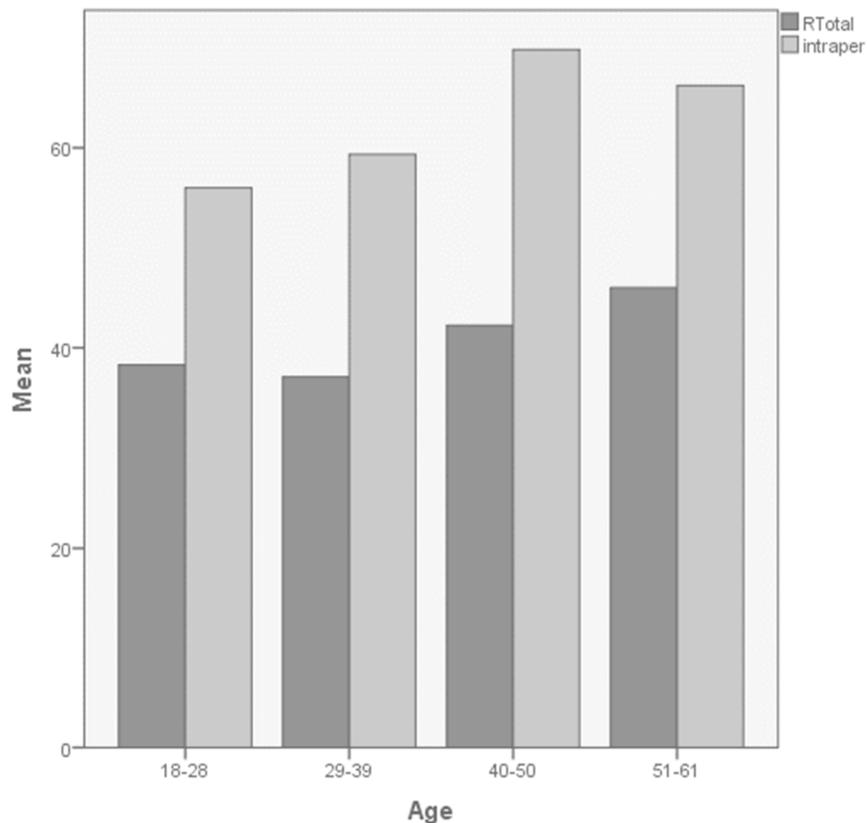


Figure 7
Age, Intrapersonal Intelligence, and Resilience

Findings in Context of Theoretical Framework

Early theorists initially considered intelligence to be a fixed entity, but later understood it to be more flexible (Nisbett et al., 2012). According to the implicit theory of intelligence, a belief in intellectual abilities promotes intellectual growth (Romero et al., 2014). In this study, I assessed students' self-perception of their abilities using the Scale of Implicit Theory of Intelligence (SITI). This scale was used to assess the student's implicit beliefs about intellectual abilities and to gauge levels of self-efficacy. Results of the study indicated SITI scores were significantly correlated with academic success and GPA. This indicates internal beliefs about intellectual abilities, or higher

levels of self-efficacy, are associated with higher levels of academic success and higher GPA scores. These findings confirm previous findings associating implicit belief systems with academic success (Good, Rattan, & Dweck, 2012).

Constructivist theory indicates that 21st century learners will need to have a strong sense of identity and adaptability for positive educational outcomes (Zahabioun et al., 2012). In this study, I found that intrapersonal intelligence, or self-knowledge, was significantly correlated with resilience, or adaptability. Intrapersonal intelligence was also significantly correlated with positive educational outcomes, or higher GPAs. This indicates that intrapersonal intelligence has some influence on higher levels of resilience and positive educational outcomes.

Transformative learning theory fosters a self-exploratory approach to knowledge that stimulates resilient qualities in learners (Sterling, 2010). Studies indicate the unique challenges of modern society will necessitate the development of intrinsic strength and autonomous learning for a sustainable education (Aggarwal, 2012). Transformative learning theory accentuates the importance of students strengthening intrapersonal intelligence and resilience to be prepared for the more complex problems faced by a highly knowledgeable and globally connected society.

Limitations to Generalizability

This study was limited by a smaller sample of participants than intended ($N = 91$). The participants were recruited from only a few schools and limited to undergraduate students only. There were also more female than male participants (62.6% female, 37.4% male) and more than fifty-four percent of participants were in the lowest age group (18-28 years). There was also an unequal distribution of ethnicity with Caucasians accounting

for more than forty-five percent of the participants. Additionally, more participants classified themselves as freshman (31.6%) and sophomore (30.4%) than junior (20.3%) and senior (17.7%) level. These discrepancies in the population limit the generalizability of the results of this study. Additionally, many online participants completed only the first three surveys (Demographic Survey, CD-RISC, and SITI) without following the link to complete the MIDAS. This further limited the data for analysis by eliminating the use of the intrapersonal scale, one of the study variables, for comparison with other variables. A pencil-paper format was used at the local campuses to expand data collection. However, it was difficult to motivate students to participate because of the length of the MIDAS scale, which extended the time allotted to collect data and continued to limit the sample size. The length of the surveys may have also compromised the results because of student fatigue. Many of the research survey packets were never returned and presumably never completed.

Recommendations

The results of this study indicate 21st century students could benefit academically by enhancing skills in intrapersonal intelligence. By building intrapersonal intelligence, there is the potential for increasing resilience in the academic setting. These qualities will benefit 21st century students in developing a more sustainable education (Aggarwal, 2011; Sterling, 2010).

There are strategies that can be implemented in the classroom or directly by the students to build intrapersonal intelligence. Shearer (2013) suggested specific strategies for drawing upon or enhancing intrapersonal intelligence skills in the academic setting. For instance, when introduced to new concepts, students can ask themselves what they

already know about the topics and then reflect upon whether the new information aligns with their previous personal experiences. It would also be important for students to understand how the information relates to them and their goals and what their opinion is about the subject matter. It might also be beneficial for students to identify gaps in their knowledge base and explore ways to fill these gaps and increase understanding of the new information. Furthermore, students could advance their knowledge through challenging themselves to go beyond their current level of understanding through self-assessment of knowledge (Shearer, 2013). The educational community may benefit by placing more emphasis on building students' intrapersonal intelligence because this would allow for a more interactive and transformative learning experience (Sellars, 2006).

Future studies might address the intellectual styles identified by the MIDAS scale (leadership, general logic, and innovation) to identify any interrelated factors with intrapersonal intelligence that might have a positive influence on intellectual development and academic success. Additionally, the correlation between resilience and intrapersonal intelligence could be further studied to improve the understanding of the relationship. Due to the limited diversity of the population's characteristics, replication of this study may assist in clarifying results and providing a deeper understanding of the relationship between intrapersonal intelligence, resilience, and academic success.

Implications

Positive Social Change

Sterling (2010) suggested that sustainable education implies "the well-being of a whole system, whether this is seen at a local level such as the community, or at a global

level” (p. 512). Sterling also suggested that resilience and sustainability are interdependent (2010). This research study promoted positive social change by emphasizing the intrinsic strengthening and transformation of the learner for a sustainable education. This transformation involves the development of internal strengths and resilience that will enhance individual abilities to solve complex problems. Building awareness of the significance of intrapersonal intelligence and resilience is important for the development of a sustainable education and to equip students for the problem solving challenges of the 21st century. Jentz (2006) proposed that the relationship we have with the external world is directly related to the “nature and quality of our minds” (p. 237). Therefore, to make a significant positive change in the community around us, one must seek self-knowledge by first stepping back to examine the “mind that engages the world” (Jentz, 2006, p. 230).

“We are living in a global world where transformational and planetary connections have transformed our way of living and thinking” and “The boundaries of knowledge, science and technology have expanded” (Ayestarán, 2010, p. 184, 196). Modern students have access to a wealth of information at their fingertips electronically. The problem facing students today is to process and make use of information efficiently for solving complex problems (Beckie, 2012). This process could be fostered in the academic environment by incorporating exercises that prompt self-reflection and the sharing of personal knowledge and experiences (Shearer, 2013). To enhance academic outcomes, academic leaders could focus on developing curricula with objectives that support the increase of intrapersonal intelligence. Curricular objectives should incorporate activities that promote intrapersonal growth such as self-reflection,

expressing opinions, exploring the personal meaning of new information, identifying gaps in acquired knowledge, and expanding understanding beyond the perimeters of newly introduced knowledge. Higher levels of intrapersonal intelligence support learner resilience for a self-sustaining learning process that provides a vital source for the solving of complex problems faced by modern society (Sellars, 2012).

Theoretical Implications

The theories that drive this research study provide a sound explanation of the significant findings. One theory would not be adequate to describe the underpinnings of each related element. An integrated theoretical approach that promotes learning as a lifelong endeavor is likely to become more essential for navigating a globally linked complex and dynamic social environment.

This study has supported findings that self-efficacy, or the learner's implicit theory of intelligence, is directly related to academic outcomes. Additionally, findings indicating a positive relationship between intrapersonal intelligence and academic success support the constructivist and transformational theories in that it acknowledges the importance of internal process for positive academic outcomes. Constructivist theory suggests knowledge is constructed when learners cognitively connect new knowledge with prior experiences and acquired knowledge (Carter, 2009). Similarly, intrapersonal intelligence building involves reflecting on experiences and an acquired knowledge base to form an understanding of new information. Transformative learning theories suggest adult learners gain a clearer understanding of the world by conjecturing a new interpretation of new knowledge combined with acquired knowledge for guiding future action (Taylor, 2008). Likewise, intrapersonal intelligence strategies suggest knowledge

is generated from internal sources where learners do not just take in information for face value but consider what they agree with or disagree with and then form opinions based on prior knowledge and experiences. Jentz (2006) suggests, “We must find the courage to venture within, to enlarge the capacity and capabilities of our own minds” (p. 237).

Conclusion

Intelligence refers to one’s ability to adapt and effectively solve problems when needed. There are many types of intelligence identified to include Spearman’s analytical intelligence, Sternberg’s triatic model of intelligence composed of analytic, practical, and creative abilities, and Gardener’s model of multiple intelligence that identifies eight types of intelligence (Nisbett et. al, 2012). Intelligence was once thought to be fixed and unchangeable; however, our understanding of intelligence has expanded as Implicit Theories of Intelligence has increased awareness of interpersonal perceptions of intelligence to include internal aspects of intellectual hindrances and development (Hong, Chui, Dweck, & Sacks, 1994; Abd-El-Fattah, & Yates, 2006; Rattan et al., 2012).

Other theories have enlightened educators to the importance of incorporating learning processes that are sustainable (Sterling, 2010). Constructivist theories suggest intrinsically generated knowledge will strengthen internal process for the development of effective critical thinking abilities (Beckie, 2012). Transformative theories suggest an approach to education that is self-sustained learning and knowledge generation that will be able to keep up with the complexity of current global challenges (Aggarwal, 2011). Advanced and accessible media technologies have enabled individuals in the 21st Century to have a direct and powerful impact on the social world increasing the importance of intrinsic qualities (Jenkins et al., 2009).

Although some recent studies have focused on the importance of interpersonal and emotional intelligence in the academic environment, this study enhances awareness of the significance of intrapersonal intelligence and resilience for positive academic outcomes. Strengthening these characteristics within the learner supports an intrinsically developed capacity for intellectual development that is sustainable. This is important because the 21st Century learner will need to be a sustaining force. We can visualize what this means by considering the qualities and function of the sun within the universe. The sun is a robust source of illumination that provides sustenance to the solar system. The sun's strength is intrinsically sustained within its core, where energy is created to drive its powerful forces. Similarly, the 21st Century learner can develop intrinsic strength by nourishing intrapersonal intelligence and resilience. In turn, a sustainable intellectual core that generates knowledge intrinsically can drive critical problem solving skills capable of spawning positive social change.

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Appendix A

MIDAS research: Juanita Parker

Dr. Shearer,

Thank you for your time in discussing the use of the MIDAS scale for my dissertation.

Please respond by email confirming verbal permission for use of the MIDAS scale for my study on Intrapersonal Intelligence and Resilience (following MIDAS research application process completion).

As per conversation, we agreed to use a numbering system to allow participants to remain anonymous. We also discussed providing a link on an online survey for participants to access the MIDAS. The participants will not be provided a profile or feedback regarding results. You will be downloading all data in SPSS and then sending data directly to me (the researcher). All other pertinent information and procedures will be covered in the MIDAS research application which will be completed following IRB approval for my study.

Thank you!
Juanita Parker, MS, LPA
Walden University
Educational Psychology PhD Program
832-729-8755

On Wednesday, March 5, 2014 9:16 AM, Juanita Parker <nitalynnpark@yahoo.com> wrote:

Dear Juanita, Your research project sounds quite interesting and a good use for the MIDAS. I look forward to reading your Research Application.

Attached are instructions for completing the MIDAS online. After reading them carefully, you may use these access codes to obtain one profile. This will give you a good understanding for how it works. You can modify these instructions to meet the needs of your respondents.

Good luck with your research planning.

Regards,
Branton Shearer

--

Branton Shearer, Ph.D.

www.MIResearch.org - Home of the MIDAS Profile -
1316 S. Lincoln St. Kent, Ohio 44240 USA - 330-687-1735

Appendix B

C. Branton Shearer, Ph.D.
Multiple Intelligences Research and Consulting, Inc.
 1316 South Lincoln Street
 Kent, Ohio 44240
 330-677-8534 sbranton@kent.edu
<http://www.MIRResearch.org>

Guidelines for Researchers and Students

The MIDAS™ is available for use by researchers and students at a discounted price. Researchers need to become familiar with appropriate use and interpretation procedures and agree to the terms of the Research Licensing Agreement.

There are 4 requirements for researchers:

- 1- Complete Research Application including a brief description of objectives and Time Line.
- 2- Become familiar with appropriate Administration and Interpretation procedures in the *Professional Manual* or *MIDAS Handbook*. Submit the *User Certification Form*.
- 3-Return signed Licensing Agreement.
- 4- Send bi-annual progress reports on **July 1** and **January 1**. Provide the author with a summary of your results at the end of your project.

MIDAS™ Certification: Researchers may become certified to use the MIDAS by reading either the *Professional Manual* or the *MIDAS Handbook* and then submit the completed User Certification Form. The *Professional Manual* provides general guidelines for MIDAS™ use in a wide variety of settings (rehabilitation, clinical psychology, career counseling, etc.) and contains extensive technical data including reliability / validity statistics and scale development information. *The MIDAS Handbook* provides less technical data but more information regarding appropriate MIDAS use in the classroom.

Researches may choose the book that is most appropriate for their situation and background.

Scoring Options

Option #1. Online MIDAS Scoring (OMS):

Respondent answers the questions directly on the OMS web system. Profile can be emailed to respondent or researcher can print profiles from the OMS system.

Option #2. Respondent answers on paper questionnaire or on an answer form.

Researcher enters responses into a database (I must provide detailed description for how to do this properly). This database (Excel or SPSS) is emailed to me for scoring. Individual Profiles cannot be generated from this database. I can only provide a database in return with all scale scores.

Option #3. Respondent answers on paper answer form and then researcher enters responses directly into OMS system. In this way, the researcher can print profiles from the OMS system.

Translations: Researchers interested in using or adapting The MIDAS for use in countries outside the USA should submit a research and development plan to the author. It is important that validity procedures be incorporated in these proposals. Include the following details: translators' name with credentials, supervisor of student(s), timeline, validity and reliability procedures, purpose and goals.

The translator will provide final translations in an electronic file to the author. The author's name shall appear on all MIDAS materials as the holder of copyright privileges. Translator's name shall also be included.

Appendix C

CONNOR-DAVIDSON RESILIENCE SCALE—REVISED (CD-RISC)

PsycTESTS Citation:

Gucciardi, D. F., Jackson, B., Coulter, T. J., & Mallett, C. J. (2011). Connor-Davidson Resilience Scale--Revised [Database record]. Retrieved from PsycTESTS. doi: 10.1037/t09624-000

Test Shown: Full Test Format: The revised CD-RISC consists of 10 items and a 5-point Likert-type response scale ranging from 1 (not true at all) to 5 (true nearly all the time).

Source: Gucciardi, Daniel F., Jackson, Ben, Coulter, Tristan J., & Mallett, Clifford J. (2011).

The Connor-Davidson Resilience Scale (CD-RISC): Dimensionality and age-related measurement invariance with Australian cricketers. *Psychology of Sport and Exercise*, Vol 12(4), 423-433. doi: 10.1016/j.psychsport.2011.02.005, © 2011 by Elsevier.

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Appendix D

Scale of Implicit Theory of Intelligence

To Me'小塩 真司'tosmori@hiroshima-u.ac.jp

Feb 23

Dear Parker,

CC: Dr. Oshio, and Mori sensei,

Thank you for email.

Use our scale as you like.

Enjoy your research.

Sin,

Masuharu Shimizu, Ph.D.

Professor

Department of Child Studies

Faculty of Contemporary Human Life Science

Tezukayama University

3-1-3 Gakuenminami

Nara 631-8585 Japan

TEL: +81-(0)742-88-6008

e-mail: qyz01037@nifty.ne.jp

m-shimizu@tezukayama-u.ac.jp

Re: Scale of Implicit Theory of Intelligence

小塩 真司 Dear Ms. Parker, Please find attached files. They are the SITI, including both Japanese and English versions. Don't hesitate to ask me anything regarding the use of the scale. And if you need, you may

To Me

Feb 23

Dear Ms. Parker,

Please find attached files. They are the SITI, including both Japanese and English versions. Don't hesitate to ask me anything regarding the use of the scale. And if you need, you may modify them as the appropriate English expression.

And I'm glad to keep in touch with you to discuss the possibility of collaborating!

Best,

Atsushi

OSHIO, Atsushi

Associate professor, Waseda Univ.

http://www.f.waseda.jp/oshio.at/index_e.html

oshio.at@waseda.jp

Appendix E

Scale of Implicit Theory of Intelligence (SITI)

How much do you think the following statements are inborn abilities? For each statement, please circle one of the scales from “1 = Not inborn ability at all” to “6 = Entirely inborn ability.”

	Not inborn ability at all. Entirely inborn ability.					
	←---			---→		
	1	2	3	4	5	6
1. Being a good writer.	1	2	3	4	5	6
2. Studying hard.	1	2	3	4	5	6
3. Having a good vocabulary.	1	2	3	4	5	6
4. Being conversational.	1	2	3	4	5	6
5. Working efficiently.	1	2	3	4	5	6
6. Talking systematically.	1	2	3	4	5	6
7. Leading different opinions to consensus.	1	2	3	4	5	6
8. Having a good memory.	1	2	3	4	5	6
9. Making a quick judgment.	1	2	3	4	5	6
10. Having something interesting to talk about.	1	2	3	4	5	6
11. Having a good record at school.	1	2	3	4	5	6
12. Grasping the gist.	1	2	3	4	5	6
13. Having a sharp mind.	1	2	3	4	5	6
14. Being a good listener.	1	2	3	4	5	6
15. Being good with numbers.	1	2	3	4	5	6
16. Having a quick wit.	1	2	3	4	5	6
17. Looking at things from various angles.	1	2	3	4	5	6
18. Being decisive.	1	2	3	4	5	6
19. Not wasting time.	1	2	3	4	5	6
20. Having a good insight.	1	2	3	4	5	6

Smartness score = No.14 + No.16 + No.17 + No.18 + No.19 + No.20

Grade and Knowledge score = No.1 + No.2 + No.3 + No.10 + No.11

Clear-headedness score = No.8 + No.9 + No.12 + No.13 + No.15

Efficiency score = No.4 + No.5 + No.6 + No.7

Total SITI score = sum of scores of all 20 items.

Appendix F

Connor-Davidson Resilience Scale—Revised (CD-RISC)

Items

Adult sample

Adapt to change
Can deal with whatever comes
Tries to see humorous side of problems
Coping with stress can strengthen me
Tend to bounce back after illness or hardship
Can achieve goals despite obstacles
Can stay focused under pressure
Not easily discouraged by failure
Thinks of self as strong person
Can handle unpleasant feelings

doi: 10.1037/t09624-000

PsycTESTS

Appendix G

Demographic/Academic Level Survey

Please check one answer for each question.

1. Gender.

_____ Male

_____ Female

2. What is your ethnicity?

_____ African American

_____ Hispanic

_____ Caucasian

_____ Asian

_____ Native American

_____ Other

3. What is your age in years?

_____ 18-28

_____ 29-39

_____ 40-50

_____ 51-61

_____ 62 and over

Appendix G Continued

4. What is your current GPA?

_____ 4.0

_____ 3.5

_____ 3.0

_____ 2.5

_____ 2.0

_____ 1.5

_____ 1.0

5. What is your current college class [grade] level?

_____ Freshman

_____ Sophomore

_____ Junior

_____ Senior

Appendix H

CONSENT FORM

You are invited to take part in a research study of the relationships between multiple intelligence and resilience in regards to academic success. The researcher is inviting undergraduate college students to be in the study. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Juanita Parker, who is a doctoral student at Walden University.

Background Information:

The purpose of this study is to test the theory of multiple intelligence, specifically intrapersonal Intelligence, to explain the relationship between resilience and academic success when controlling for the effects of gender, ethnicity, and age.

Procedures:

If you agree to be in this study, you will be asked to:

- Complete the four online surveys listed below:
 - Demographic Survey: This scale collects data regarding age, gender, ethnicity, GPA and Class [Grade] Level. It will take approximately 5 minutes to complete this scale.
 - Resilience Scale: This is a 10 item scale that takes about 5 to 10 minutes to complete.
 - Ability Assessment: This is a 20 item scale that will take about 10 to 15 minutes to complete.
 - Interest Survey: This questionnaire takes about 20 to 30 minutes to complete.

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue, stress or becoming upset. Being in this study would not pose risk to your safety or wellbeing.

The benefit of this study will be to increase our understanding of how resilience and intrapersonal intelligence is related to academic success.

Payment:

There will be no payment for participation in this study.

Privacy:

Any information you provide will be kept anonymous. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by password protected electronic storage. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via juanita.parker@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is **IRB # 09-02-14-0278807** and it expires on **September 1, 2015**.

Insert the phrase that matches the format of the study:

Please print or save this consent form for your records.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By clicking the link below, I understand that I am agreeing to the terms described above.