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Walden University

College of Social and Behavioral Sciences

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Carrie H. LeBarron

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Walden University

2018

Abstract

Resiliency and Age as Predictors of Academic Performance Among Adult Online
Students with Trauma-Related Disabilities

by

Carrie H. LeBarron

MS, Walden University, 2011

BA, Concordia University, 2005

Dissertation Submitted in Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Clinical Psychology

Walden University

August 2018

Abstract

Understanding the importance of resilience in academic performance as it pertains to adult online students is valuable to the people who provide services to, work with, and are a part of the population. The need to develop and enhance social programs that will improve outcomes for students with trauma-related disabilities is beneficial in increasing graduation rates and improving on the time it takes for adult online students to graduate. There is also a need for research focused on students with trauma-related disabilities because the literature in the field was found to be lacking in information. The purpose of the study was to investigate whether resilience level and age are predictors of academic performance among adult online learners with trauma-related disabilities. The data were collected using a demographic questionnaire and an online survey with students at two online universities. This quasi-experimental quantitative study used the post-traumatic growth theory as its theoretical foundation. A total of 110 participants completed the online demographic questionnaire and Resilience Scale. The analysis used a predictive equation of multiple linear regression with students' grade point average as the criterion variable and resiliency and age as predictor variables. The analysis indicated that there was no significant relationship between the variables. The study contributed to positive social change by reviewing the importance of fostering resilience in an academic setting, particularly for adult online students with trauma-related disabilities. Additionally, the study found no implication that age influences resilience, which means further studies do not need to focus on age as a variable in predicting resilience.

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Dedication

I am dedicating this work to those people who believed in me and encouraged me through this journey that has been my education. I appreciate the encouragement I received from my grandparents and father, whom are no longer with us, at the beginning of my academic journey. I am grateful for my mother, who has been the voice of encouragement and reasoning when the journey seemed impossible. I am also grateful and dedicate this work to my children, Ashley and Benjamin, (as well as to all of “the kids” who have joined our household—you know who you are) for bearing with me through all of the years and accepting the sacrifices that came with it.

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Chapter 1: Introduction to the Study

Introduction

This study determined if resilience, which is the ability of an individual to recover from challenges and cope by using available assets and resources (Windle, 2010), and age, individually or in linear combination, was able to adequately predict academic performance among online students who previously experienced a traumatic life event that resulted in a disability. This study was needed due to the large number of students who report experiencing a traumatic event (Read, Ouimette, White, Colder, and Farrow, 2011), and because there is a lower number of students with trauma-related disabilities who progress through a post-secondary academic program in comparison to their nondisabled peers (Stewart, Choi, & Mallery, 2010). As such, it was reasonable to consider the influence of resilience on motivation for online students with trauma-related disabilities to rise above the adversity and progress academically. This study has the potential to contribute to positive social change by providing data on the resilience of students with trauma-related disabilities in an attempt to retain them within various institutions of higher learning, which increases their education level, and marketability as potential employees.

Chapter 1 includes an examination of the preliminary contents of this dissertation covering the background, problem statement, purpose of the study, research question, hypotheses, theoretical framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance. Several sections of

this chapter contain discussion of components of the study that will be expanded upon in the literature review and methods sections.

Background

Resilience

Resilience has been a focus of psychological research for 70-80 years, according to Van Breda (2001), and has evolved through many research arenas, like psychology, social work, family studies, community work, military, and workplace research. However, there has been some debate about the definition of resilience (Vickerman & Blundell, 2010), which has complicated research on the topic and influenced the acceptance of a specific theory or definition for resilience. For instance, one theory that defines resilience through a social-ecological lens, compares the difference in resiliency between individual and social ecology, suggesting that changing one's social ecology is more positively correlated with resilience than changing their social ecology on an individual level (Ungar, 2013). Individual level, meaning the person's ability to handle difficulties independently, and social level meaning the interactions of the individual and other people and resources within his or her environment. This social ecology theory focuses on resilience through the lens that resilience is affected more through external factors, such as supportive resources, like friends, family, and institutions.

Another perspective is that resilience is defined according to the degree of difficulties experienced by an individual or social group and the ability of the individual or group to recover from the difficulties in a manner that considers the use of available

assets and resources (Windle, 2010, p. 12). Adaptability in resilience is based on experience and is also considered part of the definition of resilience (Windle, 2010). Most of the explanations of resilience in the literature reviewed for this section, consider the individual's response to adversity; however, the views on the reasoning for the individuals' responses to adversity appears to be controversial because the authors define resilience differently. As such, comparing components of resilience is valuable in determining which factors predict the influence resilience has on behavior.

In addition to the scholarly definition of resilience, a method for measuring resilience has been an area of development over the years. The current study employs the Resilience Scale (Wignild, 2018) to measure resilience because it examines the positive aspects of the participants' lives instead of focusing on the challenges. Additionally, it is regarded as a valid and reliable measure by the graduate and research community, particularly with Cronbach's alpha ranges from .87 to .95 (Wignild, 2018).

Grade Point Average

Academic performance is one indication of a student's ability to progress through an academic program, which may be measured by grade point average (GPA). It is possible to measure the GPA according to each quarter a student is enrolled, or measure the cumulative GPA, which is determined by the students' overall grades within a selected measurement period. Grade point average is a predictive measure of student success (Hart, 2012).

Students with Disabilities

Stallman (2010) indicated that studies about subgroups of students with disabilities, are lacking in the literature, particularly because large-scale longitudinal studies have not been conducted. Students at the university level experience psychological distress, which often results in disability and may result in discontinuing the pursuit of higher education (Stallman, 2010). Most of the studies reviewed did not identify in which level of academia (bachelor, master, doctoral) the students in the studies had achieved; however, resilience was determined as a factor in academic success at the undergraduate level (DeDeppo, 2009; Hartley, 2013). Students with disabilities attending courses at the community college level failed to graduate or continue pursuing educational goals at a nearly 50% rate by the end of the third year (Mamiseishvili & Koch, 2012). The disabilities included in Mamiseishvili and Koch's (2012) study were sensory impairment, mobility impairment, psychological impairment, and learning impairment, which also served as the focus of trauma-related disability types for the current study. Read et al. (2011) discovered that 66% of college students reported experiencing a traumatic event. Ringburg et al. (2011) found that 60% of participants admitted to a hospital following a traumatic event reported experiencing two or more functional limitations at the one-year follow-up, which means they were not able to do two types of typical activities of daily living, such as bathing themselves or reading and signing paperwork.

Online Students

Online students often choose an online platform to pursue their educational goals because it is more conducive to family life, scheduling, accessibility to the education programming desired, and accommodating for mobility with students who have difficulty in moving from one location to another (Hart, 2012). Students with disabilities in online education approach their coursework differently than their nondisabled peers by spending more time memorizing the materials and focusing on understanding the materials than their non-disabled counterparts (Jelfs & Richardson, 2010). This may be due to the extra effort required to learn as much as nondisabled peers.

Trauma-related Disabilities

In addition to the difficulties with academic work in the college atmosphere, students who have experienced a trauma or a potentially traumatic experience that resulted in a physical or mental disability have additional stressors (ex. flashbacks, nightmares, or difficulties ambulating) to cope with in addition to accomplishing their educational goals (Galatzer-Levy, Burton, & Bonanno, 2012). Some students experience a traumatic event, enter the acute phase of distress as a result, and recover after a short time, while other students become more disabled as time passes (Galtzer-Levy et al., 2012). However, some students are able to recover from a potentially traumatic event without experiencing any disabling effects at all or are able to recover with minimal adverse effects (Fletcher & Sarkar, 2013).

Age and Experience

Resilience is something that may be accrued through life experiences (Fletcher & Sarkar, 2013), and the likelihood of a student encountering traumatic experiences increases with age because there are more opportunities for life experiences as time passes. It is also notable that as students advance through academic programs, their stress increases, which could make coping with difficult situations even more challenging (Steinhardt & Dolbier, 2008). As such, the benefit in examining age is increased with the perspective that age is an indication of time passed and experience achieved.

Gap in the Literature

There was a lack of information about online students with disabilities according to age in the trauma and disability literature. Stewart et al. (2010) compared students with a broader definition of disabilities than indicated in the current study, and students without any disabilities in both the online and traditional study formats; however, the majority of the sample was composed of African American students. This is considered a limitation because the ethnicity is narrowed down to one group when traumatic experiences occur across all ethnicities. None of the studies reviewed examined resilience in adult online students with trauma-related disabilities according to age.

The societal and academic need for determining predictors of academic performance is rooted in the fact that there is an increase in disabled students pursuing online education. With the increase in disabled students pursuing online education, and the diversity of age within the online college population, it is reasonable to consider the

varying degrees of life experience and the influence of traumatic experiences on coping through the challenges of higher learning. Resilience and age were chosen as variables to predict academic performance with the hope that knowing that resilience and age predict academic performance would assist in developing the framework for programs that foster resilience in online students with trauma-related disabilities.

Problem Statement

The general problem is that there is a significant number of students that report experiencing a traumatic event prior to or during their time as a college student that could potentially leave them with a disability. The specific problem is that these students with trauma-related disabilities have a tendency to graduate at a lower rate, take longer to achieve graduated status, and face the development of additional disabilities as a result of stress, which ultimately results in occupational challenges upon entering or attempting to enter the workforce (Stallman, 2010; Wray, 2012). Therefore, it is pertinent to consider the potential educational challenges that could be occurring for students with disabilities who experience a traumatic event as well as students who become disabled after experiencing a traumatic event. It is also understood that not all traumatic events lead to a disability or affect every person who experienced the event in an adverse manner. Due to the length of time that is often spent pursuing higher education, it is feasible that any student will encounter adversity that requires resilience to persevere and cope.

Studies examining trauma and disability are a relatively new area to be explored. There were no studies focusing on the influence trauma and disability have on online

students' ability to progress academically. As such, this current study filled the present gap within the literature because it examined the ability of resilience and age in trauma-related disabled students to predict academic performance as well as how trauma and disability affect online students' ability to progress within education.

Purpose of the Study

The purpose of this quantitative study was to investigate whether resilience and age were adequate predictors of academic performance among online college students with trauma-related disabilities. The independent or predictor variables were resilience level and age, and the dependent or criterion variable was academic performance as measured by GPA. Participants responded to a question inquiring if he or she has experienced a trauma that resulted in a decline in cognitive, physical, or psychological functioning presented on the demographic portion of the survey, which determined if their responses were included in the analyses.

Research Question and Hypotheses

The following research question was used to guide the study:

RQ: Do resilience—as measured by scores on The Resilience Scale—and age, individually or in linear combination, adequately predict academic performance, as measured by GPA, among adult online students with prior trauma-related disabilities?

H₀: Resilience and age, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

H1A: Resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

Theoretical Framework for the Study

The theoretical framework of this study was the posttraumatic growth theory, which purports that a person relies on concepts like dispositional optimism, adaptive coping, social support, and spirituality to overcome adversity and experience growth as a result (Park, Cohen, & Murch, 1996; Prati & Pietrantonio, 2009). Dispositional optimism is the belief in positive outcomes (Prati & Peitroni, 1996). Adaptive coping is the ability of an individual to make necessary changes as the need arises in managing challenges. Social support is the group or activities that an individual relies on to reduce the sense of isolation and obtaining sympathy (Prati & Peitroni, 1996). Spirituality was defined by Prati & Peitroni (1996) as religion; however, for this study's purpose spirituality is expanded to cover the various approaches individuals utilize for connecting with a guiding force such as God, the Universe, or any type of similar belief system.

According to Tedeschi and Calhoun (2004), the study of positive growth as a result of extreme adversity has been in process for thousands of years, particularly within the various world religions. Tedeschi and Calhoun delineated the concept of posttraumatic growth as an individual's perceptions following adversity, noting that self-awareness, social interactions, and beliefs about life are changed in a manner that results in positive personal development, personal strength, and self-confidence. Resilience is

separated into two constructs, cognitive maturity and emotional maturity, which were both increased in adolescent earthquake survivors in comparison to an adolescent group who had not experienced a traumatic event (Gan, Xiaofei, Wang, Rodrigues, & Tang, 2012).

The posttraumatic growth theory concerns individuals relying on concepts like dispositional optimism, adaptive coping, social support, and spirituality to overcome adversity and experience growth as a result. Based on those concepts, the PTG theory was appropriate for the current study because it examined the growth that occurred in some individuals following a traumatic or potentially traumatic experience, which may be demonstrated in the resilience of students in a higher learning environment. The major hypotheses of the posttraumatic growth theory will be discussed in more detail in Chapter 2.

Nature of the Study

A quantitative study using a quasi-experimental online survey design was employed because the sample came from an existing population, online students with trauma-related disabilities, and it was not feasible to randomly assign participants with trauma-related disabilities. Information on the participants' trauma-related disability status, demographic information, and resilience was collected via online survey research, which also was used to collect the GPA. A convenience sample was used based on those who responded to an invitation to participate in the research. Online surveys are frequently used in academic behavioral research and often provide greater reliability over

paper-based surveys (Tuten, 2010). An informed consent form was presented to potential participants prior to gaining access to the demographic questionnaire and the Resilience Scale. One multiple linear regression analysis was used with the Statistical Package for the Social Sciences (SPSS) to examine the predictive relationship between resilience, age, and academic performance. Two simple linear regressions measured the individual effect of resilience and age on academic performance. SPSS is software used on a computer to input and analyze data as part of a research project.

The criterion variable, academic performance, as measured by cumulative GPA, provided the information about the online students' performance in their academic program. The predictor variable, resilience, as determined by the Resiliency Scale provided information about the online students with trauma-related disabilities resilience levels. The second predictor variable, age, was inputted to determine whether older individuals have higher academic performance.

Definitions

Age: The length of time in regards to the development of an individual on a physical, emotional, and mental level across multiple life domains (Ong, Bergeman, & Boker, 2009).

Person with a disability: An individual who has “a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment” (US Department of Justice [DOJ], 2009, p. 1).

Emotion-focused coping style: Avoidance or passive coping with the external and internal stressors that the survivor was managing, following a challenging event (Shen, 2014).

Event centrality: The degree to which an individual uses a traumatic experience to define his or her identity (Barton et al., 2013).

Grade point average (GPA): The point scale on which students are measured, especially within institutions of higher education (Codier & Odell, 2014).

Online education: Education that is acquired either partially or entirely through use of the Internet (Means, Toyama, Murphy, Bakia, & Jones, 2010).

Posttraumatic cognition: Self-blame and negative beliefs that people assigned to themselves and the world following a traumatic experience (Barton et al., 2013).

Resilience: The ability to cope with changes over time through experience, the development of resources, and adaptive coping skills (Fletcher & Sarker, 2013).

Self-enhancement: The ability to view oneself in an extremely positive manner (Gupta & Bonnano, 2010).

Trauma-related disability: A disability that occurs following a traumatic event, such as psychological pathology, physical or sensory disability, cognitive impairment, and chronic pain (Morrison & Casper, 2012).

Traumatic experience: An event that causes a person significant distress or stress, which may include an accident, illness, physical assault, combat, natural disaster, terrorist attack, or loss of loved one (Galatzer-Levy et al., 2012).

Assumptions

It was assumed that with age comes experience because the opportunity for exposure to new ideas, experiences, and situations is believed to occur when a person has been alive longer than someone who has not been alive as long. It was also assumed that individuals who have experienced trauma, regardless of age, have a unique relationship with resilience, in that they are more resilient than those people who have not experienced a traumatic event. Disability and trauma may be related because the development of a disability is often precipitated by a traumatic event, whether the disability is physical, psychological, or sensory. Some disabilities are congenital, and this will be addressed in the section discussing the boundaries of the study. An additional assumption is that GPA is a reliable predictor of accomplishment, which may be incorrect because some students do not perform well due to lack of motivation, or social or behavioral difficulties. The final assumption was that participants surveyed within the study were honest and forthcoming with their responses.

Scope and Delimitations

I chose to focus on the influence of resilience and age on academic performance because it was not certain in the disability or trauma literature that resilience and age influence online students' with disabilities ability to progress academically. While it is possible that GPA is not completely accurate or inclusive of all students due to circumstances that are relevant to each students' experience, GPA is one type of data that may be obtained for measurement. As such, I obtained the GPA for each student,

determined their resilience level and the presence of traumatic experiences, and gathered demographic information from each student participant.

I chose GPA as a measure of academic performance because GPA provides data on whether a student is obtaining grades that are consistent with achievement in credits towards graduation. The resilience level was determined through scores on the Resilience Scale, which indicated the levels of resilience among online students with trauma-related disabilities. The presence or absence of traumatic experiences determined if the online students with disabilities fit the criteria for participating in the study. Demographic information provided data about the types of students who participated in the study. Additionally, demographic survey information provided data regarding the presence of a disability and traumatic experience, as well as additional information for analysis, such as age, gender, race, and location of the disabled online students who accessed the survey.

Resilience and academic performance were chosen for examination in this study because they provided measurable data that assisted in determining the level of resilience, the age of the participant, and academic performance in order to permit a multiple linear regression. Multiple linear regression was used to determine resilience and age in predicting GPA, as well as the presence of posttraumatic growth. Through use of a convenience sample to draw participants, it is important to be cautious in generalizing statistical findings to the greater population.

Limitations

Consideration of the limitations in this study was beneficial for providing additional ideas about future research as well as acknowledging the areas of the study that had the potential to be challenging. One area that was challenging with the focus population, online students with trauma related disabilities, is their vulnerability status because the Institutional Review Board (IRB) at both the universities, Walden and Concordia, where the participants were recruited, monitored the study more carefully, and required more documentation because students with disabilities are considered a vulnerable population. Vulnerable populations are considered higher risk than non-vulnerable populations because there are ethical concerns that researchers may take advantage of the individuals within the population. As part of the discussion related to the study's limitations, it is important to consider the methodological weaknesses and biases that may have influenced the study.

The quasi-experimental design of the study may be a limitation because the design lacks the ability to control the variables, unlike studies that have an experimental design. Since this study sought to understand the sample according to the present state of their ability to progress in academia, there was no experimental or control group. The reason there is no experimental or control group is it was not possible to assign a focus population to the test condition because it is unethical to create a disability or traumatic experience. There was a potential for confounding variables to affect the strength of results identified between the variables of interest, such as sample size, and length of time

for participation. These limitations were acknowledged in the interpretation of the findings and suggestions were provided to include additional variables in future studies.

Use of self-report surveys can cause potential bias to research. Through use of self-report surveys, there are concerns regarding participants' honesty and ability to provide accurate responses. Time may also have been a limitation in the study in the sense that participants were likely at different stages of experience with regard to length of time coping with a disability, time since the traumatic experience, and time as an online student. There was some potential for these differences in time to have an impact on the study results.

Significance

For the current study, adult online students with trauma-related disabilities were considered because there seems to be a growing interest within this population to pursue higher education using the online medium (Stewart et al., 2010). As a result, developing curriculum and programming that takes into consideration the limitations and difficulties online students with trauma related disabilities cope with in an effort to foster resilience has become an area of focus in higher learning institutions. Additionally, the types of disabilities that have been of interest, and range from learning disabilities to mental health and physical disabilities related to mobility, hearing, speech, and sight (Stewart et al., 2010), which is significant because of the variety of needs that are presented by this population.

This research may be able to inform program developers, enrollment advisors, educators, school counselors, students with trauma-related disabilities who are considering online education, and other students about the importance of fostering resilience in students with disabilities participating in online programs. As such, by informing these groups, there can be a better understanding of resilience in education and students with trauma-related disabilities. In terms of policy, the findings of this study have the potential to enact positive change in the way in which programming for students with trauma-related disabilities is developed within institutions of higher learning. By demonstrating the resilience of students with trauma-related disabilities influences academic performance, institutions have the ability to make the necessary changes in programming and curriculum to support these students in their path toward resilience. It is practical to consider the difficulties and adversities that higher learning students without disabilities encounter, and then recognize that students with trauma-related disabilities experience even higher levels of adversity (Stallman, 2010). Additionally, the study has the potential to contribute to positive social change by providing data on the resilience of students with trauma-related disabilities in an attempt to retain them within various institutions of higher learning, which allows for online students with trauma related-disabilities to obtain higher education, and the potential for improved socioeconomic status.

Summary

This chapter offered an introduction to the literature examined as a foundation for this study. The background of the study examined the literature explored regarding each of the variables that were included in the study. The problem statement offered insight into the existing research about the problem and the gap in the existing research. The purpose and nature of the study provided an introduction to the methodology and variables of this study. The research questions provided the direction of the study and the specific topic of focus. The theoretical framework described the lens through which the existing and future data were viewed. The definitions offered a working explanation for the terms and variables that were employed in the study. The assumptions assisted in clarifying the areas of the study that cannot be known unequivocally, but are understood to be true. The scope and delimitations offered the rationale for the approach to the study, the boundaries of the study, and the potential generalizability. The limitations discussed the weaknesses of the methodology and the bias that may have affected the study. The significance discussed the potential contributions that may result from this research project. Chapter 2 will offer a comprehensive examination of the existing literature in regard to online education, disability, and trauma.

Chapter 2: Literature Review

Introduction

Online students with disabilities often experience a unique set of challenges that can influence completing a degree in higher education. Traumatic experiences have been shown to increase the occurrence of disability, which also has the potential to affect academic persistence (Bachrach & Read, 2012; Beck & Clapp, 2011; Carello & Butler, 2015; Galatzer-Levy et al., 2012; Grasso et al., 2012; Gupta & Bonanno, 2010; Hart, 2012; Hartley, 2013; Jelfs & Richardson, 2010; Jordan, Combs, & Smith, 2014; Mamiseishvili & Koch, 2012; McGowan & Kagee, 2013; Stallman, 2010; Tempski et al., 2015). Read et al. (2011) discovered that 66% of students in a study sample of 1,999 reported experiencing a traumatic event. This high level of trauma among college students merits further study and it is important to consider methods for increasing the abilities of this population to complete college programs. The present study examined the ability of resilience and age to predict academic performance in online students with trauma-related disabilities with the awareness that not all traumatic experiences lead to disabilities an adverse reaction.

Chapter 2 includes a discussion about the literature search strategies and theoretical foundation, a review of the related key variables and concepts, and the chapter summary and conclusions. The discussion will provide the reader with an understanding of the existing peer-reviewed literature that was gathered according to the literature search strategies.

Literature Search Strategy

I used the words *resiliency, resilience, trauma, disabled Online student, Online student, Online learner, Online education, disability, higher education, success, posttraumatic growth (PTG), posttraumatic stress disorder (PTSD), trauma, and coping* to search the current literature. The search included sources published between 2010 and 2015. All articles used for the literature review were peer-reviewed. I used the Thoreau database in the Walden Library and Google Scholar to locate the literature.

Theoretical Foundation

PTG theory was the guiding theory for the present study. A major component of PTG theory is the concept that people develop positive life changes as a result of experiencing a traumatic or extremely difficult event. Calhoun and Tedeschi (1996) acknowledged that following a traumatic event, individuals can also experience alterations in perception, self-awareness, social interactions, and beliefs about life that result in positive personal development, personal strength, and self-confidence. Calhoun and Tedeschi also determined that there were five domains of PTG: “personal strength, new possibilities, relating to others, appreciation of life, and spiritual change” (p. 5).

Grasso et al. (2012) examined college students’ PTSD symptomology in comparison to peers who had not been exposed to a traumatic event to gain a better understanding of the mechanisms that facilitate PTG. Hobfoll (1989) suggested that people are often more affected by the loss of resources following a trauma than the traumatic event itself; however, the resources gained following the trauma mitigate the

effects of the losses. Baltes and Baltes (1990) indicated that people are motivated following a traumatic event to maximize their resources and obtain new ones when possible.

The rationale for choosing this theory is that people make positive changes in their lives following a traumatic experience. For example, a person may choose to pursue higher education following a traumatic experience, or he or she may find motivation to excel in an academic setting following a trauma event. PTG theory focuses on the positive growth that is experienced following a traumatic experience, which also supports the concept of resilience. The current study built upon PTG theory by measuring resilience and age to determine if they affect academic performance in online students with trauma-related disabilities.

Literature Review Related to Key Variables or Concepts

This section reviews the existing literature and includes a discussion about the methods used in developing similar studies, approaches used for managing weaknesses, and a rationale for the variables. A discussion will also be included about the independent and dependent variables. The research question and the existing literature will be provided as well.

Resilience and PTG

Resilience, the first independent or predictor variable in the present study, has been a focus of research for more than 70 years that encompasses many research areas such as psychology, social work, and work place research. However, there is some

debate about the definition of resilience, how it is measured, and which exact definition is accepted. Ungar (2013) argued that resilience is dependent on external factors, such as the support system and resources available to the student. Windle (2010) defined resilience as the degree of difficulty experienced by an individual and the ability of the individual to recover from challenges using available assets and resources.

Aiena et al. (2015) found that female participants scored higher on Wagnild's 14-item resilience scale than male participants in the core area of resilience known as meaning of life. The 14-item measure is an abbreviated form of the 25-item measure that was used for the current study. African American participants scored higher than Caucasian participants in the area of self-regard. In addition, Caucasian participants scored higher than African American participants in the area of dependability with regard to resilience. Aiena et al (2015) also examined invariance amongst the variables of sex and race or ethnicity as part of their study. Aiena et al. (2015) were interested in understanding if the RS-14 remained an accurate measure of resilience despite differences in gender, race, or ethnicity. The study was developed with the intent of determining that the 14-item scale was as effective as the original 25-item scale, as well as effective in determining resilience overall.

The findings indicated that the RS-14 is an effective instrument in determining resilience. There were some differences between the college sample and the help-seeking sample, such as females had reported higher levels of resilience in the college sample, and African American participants in the college sample reported higher levels of

resilience than the Caucasian population. Aiena (2015) attributed this to socioeconomic status and age, based on the college sample having a higher income and less economic responsibilities. This study provided information in support of the current study because it provided significant details about the statistical analyses of the RS-14, which also supported the efficacy of the Resilience Scale for data gathering.

Cho and Park (2013) reported that assessment challenges associated with measuring PTG have received little attention by researchers. The authors explained that the way to develop measurement tools to remedy this issue was to examine participants prior to experiencing a significant stressor. This would allow researchers to establish a baseline, and then conduct a longitudinal study with more than two points of evaluation with the same measures. While this seems like a productive approach to develop a valid measure for actual growth, it can be difficult to accomplish because of the unpredictable nature of people experiencing significant stressors.

Cho and Park (2013) discussed some of the measurement tools that have been used to measure growth following a stressful event. The researchers indicated that the Benefit-Finding Scale, the Perceived Benefit Scale, the Post-Traumatic Growth Inventory, and the Stress-Related Growth Scale have been utilized in previous research to measure the phenomenon of growth following an adverse event. The authors pointed out that these self-report measures have a limitation in that the people filling out the measures may not have enough insight into their experiences to provide a valid representation of growth. The authors noted that the perception of growth is more often reported than the

difficulties and negative effects that are experienced following the stressful event, which may have a tendency to cancel each other out. As a result of this understanding, they determined that two types of growth are present, reported growth and actual growth.

Another difficulty in measuring PTG is that it is complex and often inspired by negative experiences. Dekel, Mandl, and Solomon (2011) found areas of overlap and differences between the constructs of PTG and PTSD. In addition, the researchers used statistical analyses to determine the ability of overlapping factors to predict PTG and PTSD, as well as which factors predicted PTG, but not PTSD. The sample was composed of Israeli ex-prisoners of war who had participated in the Yom Kippur War. The design incorporated data gathered at two points that were 12 years apart using the PTSD Inventory, Post-Traumatic Growth Inventory, hardiness scale, Sensation-Seeking Scale, World Assumption Scale, and five questionnaires developed for the study's purpose. The questionnaires evaluated combat severity, reactions in captivity, suffering in captivity, social support, and attachment style. The predictor variables used for the study included age, years of education, active coping, loss of control, suffering experienced, social support, hardiness, attachment style, and world assumptions.

The findings of the study indicated that active coping style and loss of control during the time of the trauma predicted both PTG and PTSD (Dekel et al., 2011). PTG was predicted by an individual's sense of self-control, whereas PTSD was predicted by personality, age, and education level. The researchers interpreted the results regarding PTG with three possible explanations. First, it was possible that loss of control and

active coping were two different approaches to growth after a significantly traumatic experience. Second, PTG was the result of coping with experience, and determination to get the most out of life. Third, PTG was a defense mechanism employed as a result of a traumatic experience.

In general, the study by Dekel et al. (2011) indicated that PTG and PTSD were distinctly different constructs, and PTG was not predicted according to personality or social demographics. This study was helpful to the current study because it offered support in comparing PTG and PTSD while analyzing predictability of growth. Results also indicated that age was a significant predictor of PTSD, but not of PTG.

Stress and PTSD often occur because of acute trauma, but stress and its adverse effects are possible in daily living. Galatzer-Levy, Burton, and Bonanno (2012) discussed the types of stressors that college students encounter, such as independent living responsibilities, more intense studies than secondary school, and the development of a new social support network. In addition to the generally expected stressors of college, the occurrence of potentially traumatic events, such as sexual assault or loss of a loved one, often have devastating effects on students' academic performance. The authors examined the coping abilities employed that were conducive to emotional flexibility.

Emotional flexibility, as defined in the study, considers a person's ability to focus on a traumatic event, but with the ability to focus on material other than the traumatic event. The authors used the Perceived Ability to Cope with Trauma (PACT) scale, which is a self-rated questionnaire developed to determine whether an individual is more likely

to cope with a traumatic experience using future-oriented or trauma-oriented thought processes. Galatzer-Levy et al. (2012) found that the experience of potentially traumatic events did not change the trajectory of students' abilities to cope with stressors. Essentially, students who were capable of coping well through the challenges of college life were also able to cope effectively through potentially traumatic experiences. Additionally, the researchers found that students' social networks influenced their coping abilities during times of distress. The researchers examined their hypothesis and type of coping abilities students used in response to generally expected stressors of college life and potentially traumatic experiences and expected coping ability would predict resilience. The authors' second hypothesis examined the predictability of resilience based on the quality of a student's social network.

Galatzer-Levy et al. (2012) mailed letters to all of the college freshman enrolled at a campus in New York City, with the resulting sample of 157 students. This longitudinal study required participants to respond to the study measures over a 4-year span, with contact occurring at the ending of the fall and spring semesters. In addition to the PACT, students also completed Derogatis' (1975) Symptom Checklist-90-R to provide information related to participants' levels of psychological distress. The authors adapted the Social Network Index (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997) to examine the quality of students' social networks. Finally, students responded weekly to an online questionnaire that provided information about their experiences of potentially traumatic events.

The data was analyzed according to the Latent Growth Mixture Modeling (Muthen & Muthen, 2000), which was reported as viewing the students' experiences according to four different levels of distress over the 4-year span. This model was chosen by researchers because it allowed them to examine the students with the assumption that patterns of behavior would vary over the course of the study, and covariates could be measured simultaneously to predict patterns. The noted limitations of the study were the number of predictor variables, the adequacy of the predictor variables, the use of self-report measures, the use of a sample from one university, and the lack of information about the students prior to attending college. In addition, most of the participants were female, and the average grade point average (GPA) of all of the participants was 4.0. This study contributed valuable information to the present study because it offered an examination of the effects of trauma on college students. Study findings indicated that higher quality social networks provided a stabilizing effect for students with high degrees of stress, which was indicative of resilience.

Gan et al. (2013) conducted a study that showed resiliency depended on social support. These researchers examined the relationship between resilience and psychological adjustment in Chinese adolescents after the 2008 Sichuan earthquake. There were two studies conducted; one that examined scores on the Resilience Scale for two groups of stress intensity levels, and another that examined cognitive and emotional constructs with a two check point longitudinal design. The researchers focused on earthquake survivors who demonstrated resilience following the natural disaster. They

defined resilience as an ability to cope well following adversity, using the supportive resources available at the time. Resilience resources were defined as adjustment in perspective of choosing to face challenges, having a sense of control, and processing and understanding events through communication.

The researchers used the Resilience Scale for Chinese Adolescents (Hu & Gan, 2008) to measure the coping process for the affected adolescents in the two chosen locations for the study. The difference in this resilience scale from that of the Resilience Scale is the consideration of cultural differences present in Chinese culture in comparison to Western cultures. The locations included one that was considered directly affected and one that was less or not affected by the earthquake. When examining the existence of resilience between the two areas in the study, Gan et al. (2013) found that cognitive and emotional structures worked together in the unaffected area, whereas they were separate in the affected area.

During the second and longitudinal portion of the study, Gan et al. (2013) divided the sample of adolescents from the most affected area into two groups based on the occurrence or lack of occurrence of death within their families as a result of the earthquake. They used self-rating anxiety and depression scales, including the Positive Future Expectation Scale (Zimbardo & Boyd, 1999), General Self-Efficacy Scale (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982), and Perceived Social Support Scale (Zimet, Dahlem, Zimet, & Farley, 1988) as surveys to obtain data. The researchers used *t*-tests to examine any differences between the groups and found none.

Then they employed a longitudinal mediation model with the resilience factors to determine significance. The results indicated that self-efficacy, perceived social support, and positive future thinking were indicative of resilience. From the results, the researchers inferred that people's futures were based on their abilities to think positively about their future, even in the face of adversity.

An interesting outcome of this study was that the researchers determined that adversity was necessary for an individual to possess resilience; however, people who experience trauma use more cognitive processes to cope with adversity compared to emotional processes. People without exposure to adversity used both processes equally to cope. This study offered support for the contention that PTG is an outcome of resilience.

Jin, Xu, and Liu (2014) examined PTSD disorder and PTG in men and women one year after they experienced an earthquake that occurred in China in 2008. Jin et al. determined that women reported more symptoms of PTSD than men did. Differences in cognitive and affective processing were described as the reasoning behind this finding. Jin et al. (2014) also determined that women experienced PTG significantly more than men. The study findings indicated that there was a bivariate correlation between PTSD and PTG. Jin et al. (2014) also argued that women utilized coping mechanisms fundamentally based on emotions that encourage PTG. The authors discussed an article that indicated women were more prone to concentrate on developing personal strengths and awareness than men, which were attributed to the increased tendency in women to

develop PTG. In addition, Jin et al. indicated that PTG may have come from participants' tendencies to reframe traumatic experiences in a way that encouraged alterations in perspective. These alterations prompted participants to make positive changes in their lives. If traumatic experiences are not positively reframed, they can have detrimental effects as individuals apply those negative thoughts and experiences they experienced during trauma to cause a significant decrease in terms of personal self-worth and self-esteem, as well as reliving the trauma all over again.

Barton, Boals, and Knowles (2013) investigated the constructs of *event centrality* and *posttraumatic cognitions* as predictors of PTSD and PTG. The operational definition of event centrality in this study was how central a traumatic event was to a person's self-image. Posttraumatic cognitions were defined as the thoughts of self-blame and negative beliefs that people assigned to themselves and the world following a traumatic experience (Barton et al., 2013). Barton et al. (2013) used regression modeling to determine the predictability of event centrality and posttraumatic cognitions in the development of PTSD and PTG. The findings were significant for both when the study was conducted on undergraduate students; however, only posttraumatic cognitions were significant when applied to a treatment-seeking group. The researchers attributed this difference to the lower number of participants in the treatment-seeking model. Ultimately, the results of their study indicated that both variables were predictive of PTSD and PTG. In addition, the study offered support for the importance of the processing method individuals used to

cope with traumatic events, as it is a determining factor in the development of PTSD and PTG.

Another study also confirmed that access to personal and external resources, as well as having methods of coping, tended to influence whether individuals would develop PTSD (Grasso, 2012). Grasso (2012) examined college students in three conditions: (a) one group without the symptomology of PTSD, but with a history of a traumatic event; (b) one group with PTSD; and (c) one group with no PTSD without a history of traumatic events. The purpose of the study was to determine which areas the students shared in common in an attempt to increase understanding of resilience and post-traumatic growth. The findings suggested that those who perceived greater levels of social support and those who had a tendency to use approach-focused coping were the two groups without PTSD symptomology. Approach-focused coping addressed the issues surrounding the emotions and ideas related to the traumatic experience, whereas the avoidance focused coping was visible in the individuals who experienced a traumatic experience, did not address the emotions, or restricted the exposure to triggers related to the experience. Another aspect that differed between individuals who exhibited PTSD following a traumatic experience and those who did not, was the utilization and accessibility of resources.

Grasso (2012) conducted the study over a 6-year period and recruited 3119 participants from an Introduction to Psychology course. The researcher gathered data through the administration of questionnaires via the Internet. Grasso (2012) used the

Posttraumatic Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997), Social Provisions Scale (Russell & Cutrona, 1984), Rosenberg Self-Esteem Scale (Rosenberg, 1965), Life Orientation Test (Scheier, Carver, & Bridges, 1985), and the Brief COPE Inventory (Carver, 1997). Data were analyzed for fit with chi-square tests, and differences between groups were evaluated with two multivariate analyses. Grasso (2012) used regression analyses to examine the ability of the availability of resources to predict the development of PTSD. The resulting statistics supported the hypothesis that the lack of resources and avoidance-focused coping were significant predictors of PTSD symptoms in students who experienced a traumatic event. This study is relevant to the current research because it showed that using resources was a significant contributor to an individual's resilience, which is a variable of my study presented in this dissertation. In addition, this study demonstrated the use of regression analysis to predict PTSD symptoms (Grasso, 2012).

Gupta and Bonanno (2010) also examined college students with PTSD, but in a study conducted with a 4-year longitudinal design that evaluated self-enhancement characteristics as a buffer against PTSD following a traumatic event. They used the operational definition of *self-enhancement* as the ability to view oneself in an extremely positive manner (Gupta & Bonnano, 2010). During their four years in college, participants submitted weekly responses to a checklist that assessed the occurrence of traumatic events and measured self-enhancement perspectives. In addition, anonymous responses were gathered from participants' friends during the final year. Gupta and

Bonnano (2010) used this approach to attempt to gather data about students prior to a traumatic experience to determine changes to self-enhancement that occurred following a traumatic experience. They used hierarchical linear regression to determine the ability of self-enhancement to predict distress and adjustment following a traumatic event, finding that more participants experienced traumatic events during their first year of college than the other years of college. The most reported traumatic events were personal illness or injury, hospitalization of a loved one, and illness or injury of a loved one. They also determined that self-enhancement predicted better adjustment following a traumatic event (Gupta & Bonnano, 2010).

Another study examined PTSD in students in South Africa because the population in this region of the world is more subject to violent crime, increasing the potential for traumatic experiences (McGowan & Kagee, 2013). The authors cited their rationale for conducting the study with college students because young adults were considered at high risk for traumatic experiences, and there was limited research conducted on South Africans. They contacted their sample through email at a university in South Africa. They were able to obtain a sample of 1337 students of various ethnic backgrounds and gathered information about each student's age, race, gender, year of study, and type of accommodation. Each participant responded to the Stressful Life Events Screening Questionnaire (Goodman, Corcoran, Turner, Yuan, & Green, 1998), PTSD Symptom Scale-Self-Report version (Coffey, Dansky, Falsetti, Saladin, & Brady, 1998), the Beck Depression Inventory (Beck, Steer, & Brown, 1996), and the Beck Anxiety Inventory

(Steer & Beck, 1997). McGowan and Kagee (2013) used multiple regression analysis to examine the data retrieved from the participants, also analyzing the relationship between age, gender, race, year of study, place of residence with frequency of events, and severity of trauma symptoms.

The results indicated that 90% of the participants had experienced a traumatic event (McGowan & Kagee, 2013). However, this sample included only 2% of the total university's population. McGowan and Kagee (2013) found significance with gender and suggested that this may be explained by the occurrence of sexual assault and the increased reporting in females. Interestingly, the most reported traumatic experience was related to suicide and homicide (McGowan & Kagee, 2013). The information presented in this study is comparable to the current study because it offers a similar model for multiple regression. The Gupta and Bonnano (2010) study also supported the need for research within the university population because of the contention that there is an increase in traumatic experiences within university populations.

Pedersen, Kaysen, Lindgren, Blayney, and Simpson (2014) conducted another study on college students. The researchers examined the effects of daily monitoring of PTSD symptoms in college age women who had been subjected to traumatic events. The researchers used three groups of women: (a) those who had been exposed to a traumatic event; (b) those who had not been exposed to a traumatic event; and (c) those who only reported on their symptoms at the beginning and ending of the study. They found that there was some distress reported as a result of participating in the daily monitoring for

those women who had experienced a traumatic event over those who had not. The overall finding was that the level of distress experienced was present, though minimal, with 59% rating in the low range of distress, and 17% rating it in the moderate range of distress (Pedersen et al., 2014).

Shen (2014) also studied college age students, but in a population in Taiwan examining the effects of dating violence. Considerations for cultural comparison of the differences between PTSD behaviors in the United States versus Taiwan were discussed in the study, and the researcher noted that it was more common in Taiwan for people to believe in fate, and gender roles were more defined in Taiwan. For example, there was a strong belief that married women should not work. One area in the findings that was similar to the studies conducted in the United States was the predictive factor of emotion-focused coping on the development of PTSD symptoms. Emotion-focused coping style was defined as avoidance or passive coping with the external and internal stressors that the survivor was managing, following an experience with relationship violence. Strong beliefs in the traditional Chinese culture were an indicator of the development of PTSD in dating violence (Shen, 2014).

An interesting aspect of this study, beyond the cultural differences, was Shen's (2014) inclusion of both male and female participants. Shen (2014) also examined physical, psychological, and sexual violence variables. In addition, he explored the roles of perpetrator and victimization. Interestingly, women were more often reported as perpetrators of psychological violence, or the demonstration of controlling behaviors,

than men were. As a result, men reported more experience with dating violence victimization (Shen, 2014). It appears that psychological violence was more predictive of the development of PTSD than physical violence. Despite the higher reporting of men experiencing dating violence, women were more likely to develop PTSD. Results from Shen's study potentially may support the contention that coping style may contribute to the development of PTSD symptoms, and may be an important factor in whether or not there is PTG. Further studies are clearly needed to establish this potential relationship.

Quality of life can also be affected by lack of resilience (Tempeski et al., 2015). Tempeski et al. (2015) examined resilience, quality of life, and perceptions of an academic program among a sample of medical students in Brazil. The researchers used the 14-item Resilience Scale (RS-14) (Wagnild & Young, 1993), the Dundee Ready Educational Environment Measure (Roff et al., 1997), the short form of the World Health Organization Quality of Life questionnaire (WHOQoL Group, 1993), the Beck Depression Inventory (Beck, Steer, & Brown, 1996), and the State-Trait Anxiety Inventory (Spielberger, 2010) to gather data from their participants. They hypothesized that students high in resilience had better perceptions of their school and better quality of life.

The researchers used multiple linear regression for their statistical model (Tempeski et al., 2015). They also used chi-square and Fisher's exact tests (Upton, 1992), and ANOVA with Tukey's HSD (Smith, 1971) to evaluate the categorical variables such as gender, type of program, year in the program, and resilience level. The

multiple linear regression was used to compare results from the various assessments. The results indicated that resilience level affected participants' perceptions of quality of life, as well as their perceptions of their school. The researchers also found that overall results were not influenced by participants' gender, year in their program, or symptoms of depression and anxiety.

Trauma and Disability

In addition to the resilience level and posttraumatic growth that individuals exhibit in academic performance, it is important for students with disabilities to receive access to the same rights as non-disabled students in academic settings. The Americans with Disabilities Act (ADA) requires that accommodations be made for people with disabilities to ensure that they have access to the same opportunities as everyone else (ADA National Network, 2016). The ADA was written into law in 1990 and defines *disability* as “a physical or mental impairment that substantially limits one or more major life activities, record of such impairment, or being regarded as having such an impairment” (ADA National Network, 2016).

Disability as a result of trauma may have multiple effects on developing PTG and coping skills as well as on student achievement and persistence. Mamiseishvili and Koch (2012) defined disabilities as conditions that persist for six months or more, and included diverse types such as sensory, mobility, psychological, and learning impairments. The researchers explored academic persistence in students with disabilities at a 2-year community college. This was a longitudinal study design with 2 points of data gathering

that occurred approximately 3 years apart. They utilized surveys for data collection that contained information regarding the persistence of the sample between the 1st and 2nd years, as well as the overall persistence of the participants after the 3rd year. In addition, the surveys provided data on participants' type of disability, services received, and demographic information. The researchers gathered data on gender, race, delayed enrollment status, 1st-year GPA, attendance, remedial education needs, degree level goals, and integration in the academic environment. In addition, participants were asked to report on services received, as well as services that were needed, but not received (Mamiseishvili & Koch, 2012).

The findings of Mamiseishvili and Koch (2012) indicated that students with psychological conditions associated with disability were more likely to persist over the 3-year period. The researchers found that a higher 1st-year GPA was predictive of 3-year persistence. However, over half of the students with disabilities did not persist past 3 years. The researchers hypothesized that this might be related to the significant number of students who did not enroll in a college program immediately following high school. This lack of persistence might also be related to a lack of knowledge or self-advocacy with regard to acquiring services.

Wray (2012) also addressed the perspectives of students with disabilities but focused on the potential barriers to academic program completion. The over-arching goal of Wray's study was to provide insight into the students' perspectives by utilizing focus groups. Wray (2012) examined students with disabilities, students without disabilities,

and students who had chosen not to pursue higher education. Study results offered some insight into possible reasons that students with disabilities do not succeed. For example, some students reported successful completion of coursework, but less opportunity to find employment following program completion. There was also discussion about positive aspects of higher education that made completion possible. The sample, composed of disabled and nondisabled students, was gathered from one university and two distance education facilities in the United Kingdom. The distance education facility samples were composed of students who were not considering continuing their education (Wray, 2012). This study contributed valuable information on barriers that students with disabilities may encounter, which further assisted in understanding the importance of resiliency.

Jelfs and Richardson (2010) examined the experiences of disabled and nondisabled students in higher education as well and found that students' perspectives about their academic program related to their performance. They used students who identified themselves as disabled in a survey that was utilized when they signed up to the disabilities services at the Open University in United Kingdom. Jelfs and Richardson found a matching sample of 1000 students who did not identify themselves as disabled to keep the sample of the study balanced with the 1000 students who did identify as disabled. They presented the option for participants to respond through an online link or participate through paper surveys that were mailed using the postal service. The response rate for disabled students was significant with 655 participants versus the 430

nondisabled participants (Jelfs & Richardson, 2010). They examined the two variables of satisfaction with the quality of their courses and students' approaches to studying.

Jelfs and Richardson (2010) used two measures, the Course Experience Questionnaire (CEQ; Ramsden, 1991) and Approaches to Learning and Studying (ALS; Biggs, 1987). The researchers used the Cronbach's coefficient alpha to verify the reliability of the scales. They found all but one of the scales to be within satisfactory range. Then they used factor analysis to analyze the results on the CEQ and the ALS and found both measures to support the contention that students' perspectives about their academic program related to their performance. A hierarchical regression analysis was used to determine the relationship between students' types of disabilities and their study habits. Essentially, the CEQ and ALS were determined to be reliable and valid measures with the online population, and the study offered support for students' positive perceptions of their courses and how well they performed (Jelfs & Richardson, 2010). However, the results are not necessarily generalizable to the U.S. population because the study was conducted on students from Open University, which is a distance learning institution within the United Kingdom (Jelfs & Richardson, 2010).

Ringburg et al. (2011) also studied disability in individuals who experienced trauma and found that women were more likely than men to experience persistent disability following a traumatic experience. This study focused on psychological and physical disabilities as measured by the *EuroQol-5D* (EQ-5D; Roset, Badia, & Mayo, 1999) and the *Health Utilities Index* (HUI; Horsman, Furlong, Feeny, & Torrance, 2003).

In addition, Ringburg found that the majority of patients' quality of life following a trauma remained negatively affected at the 1-year follow-up. The researcher also found that the level of care received immediately following the trauma, prior to admission into the hospital, did not affect negative outcomes associated with injuries acquired from traumatic experiences. Furthermore, the patients' personal factors were a significant predictor of the patients' quality of life at the 1-year follow-up. The personal factors considered were age, gender, education level, household composition, and presence or absence of a previous health condition. Ringburg (2011) found that education level and household composition were significant predictors of anxiety and depression. Female gender and previous medical conditions were also significant predictors of long-term disability following a trauma. In this study, there were nearly twice as many male participants as there were female participants, which presented a limitation to the argument that females had more difficulty recovering from trauma, particularly those women who were living alone.

In another study, chronic pain was also associated with PTSD symptoms following trauma (Ruiz-Párraga & López-Martínez, 2013). Researchers examined the relationship between PTSD symptoms and the development of chronic pain in a sample of patients with chronic pain and PTSD symptoms. The researchers used vulnerability, protective behaviors, and pain adjustment constructs to determine the variables used. The 714 participants were dispersed between three groups and submitted responses to a demographic questionnaire, Stressful Life Event Screening Questionnaire Revised

(Goodman, Corcoran, Turner, Yuan, & Green, 1998), Davidson Trauma Scale (Davidson, 1996), Anxiety Sensitivity Index (Peterson & Reiss, 1992), Acceptance and Action Questionnaire (Hayes et al., 2002), Pain Catastrophizing Scale (Sullivan, Bishop, & Pivik, 1995), Fear-Avoidance Beliefs Questionnaire (Pfungsten, Kroner-Herwig, Leibing, & Kronshage, 2000), Pain Anxiety Symptoms Scale (McCracken, Zayfert, & Gross, 1992), Pain Vigilance and Awareness Questionnaire (Roelofs, Peters, McCracken, & Vlaeyen, 2003), Resilience Scale (Wagnild & Young, 1993), Chronic Pain Acceptance Questionnaire (Vowles, McCracken, McLeod, & Eccleston, 2008), Pain Numerical Rating Scale (Farrar, Young, LaMoreaux, Werth, & Poole, 2001), Roland Morris Disability Questionnaire (Roland & Fairbank, 2000), and the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983).

The data was analyzed using ANCOVA and moderated multiple regressions in addition to the statistics used to examine the data for adequacy in the statistical models (Ruiz-Párraga & López-Martínez, 2013). The regression model was used to determine the interaction between the variables of anxiety sensitivity, experiential avoidance, catastrophizing, fear avoidance beliefs, fear of pain, hypervigilance, resilience, and pain acceptance. The findings indicated that patients with chronic pain and posttraumatic symptoms rated anxiety sensitivity significantly higher than the groups without posttraumatic symptoms. In addition, the variables of catastrophizing, fear-avoidance beliefs, fear of pain, and hypervigilance were significant in the chronic pain or posttraumatic symptom group in comparison to the other two groups. Experiential

avoidance was also supported as a predictor of vulnerability for chronic pain and PTSD symptoms. This supported the contention that PTSD exacerbates chronic pain. Since the group with chronic pain and a traumatic experience without PTSD symptoms had the highest score on the resilience variable, the study also supported the belief that resilience is a defensive mechanism against the development of PTSD and a worthwhile construct to study for the development of programming related to online students with trauma related disabilities.

In a study conducted on students with disabilities attending higher education in Australia, anxiety-mood disorders were a disability that were a significant problem for the students at the university (Stallman, 2010). The author used the K10 screening tool to measure the students' mental health issues and examined their tendencies to seek help with problems. The researcher also employed two methods for attracting participants at two universities. The first was an individualized email inviting students to participate in the study, and the other was a participation invitation via a large, general email distributed to students throughout the campus. The interesting point about that method was that student participation was higher when an email was sent to them specifically, versus the general email sent to students. This created uncertainty about how many of the general emails were actually read.

The study used a large sample of students, mostly females at the earlier stages of university education (Stallman, 2010). The findings supported the idea that college students experience higher levels of stress than the general population. In addition,

Stallman (2010) determined there were many students who did not seek assistance, despite experiencing high levels of stress. Interestingly, the researcher did not find a significant difference between stress levels and gender within the university population. The Stallman (2010) study is important because it showed that college without a disability is stressful, but with a disability, it is even more so.

In a qualitative study that examined the perspectives of students with disabilities concerning their higher education experiences from beginning at the university to employment, Vickerman and Blundell (2010) found that students with disabilities benefitted from planning assistance prior to starting courses. The researchers used personal interviews and questionnaires to gather data. Analysis confirmed that the students benefitted from a modified curriculum that included the following: mentoring support with other students with disabilities; university-based disability support services; and regular reviews for personal development within the campus community. The focus was to give students with disabilities opportunities to describe their experiences. They employed a phased method of obtaining their sample, beginning with the questionnaire that was administered to reduce the numbers of interviews that would need to be conducted. The conclusion of the study indicated the importance of understanding the perspectives of students with disabilities when deciding on programming and student services. This research offered insight into the perspectives of students with disabilities attending a higher education institution (Vickerman & Blundell, 2010). Understanding the perspectives of students with disabilities is important to the current study because the

goal is to contribute to the existing literature in support of the population of disabled students. This study indicates that there is a need for additional programming considerations for this population, which supports the significance of the current study.

Trauma and Academic Persistence

PTSD, trauma, and traumatic experiences tend to become barriers in academic achievement and the increased occurrence of disability also has the potential to affect academic persistence (Bachrach & Read, 2012; Beck & Clapp, 2011; Carello & Butler, 2015; Galatzer-Levy, Burton, & Bonanno, 2012; Grasso et al., 2012; Gupta & Bonanno, 2010; Hart, 2012; Hartley, 2013; Jelfs & Richardson, 2010; Jordan, Combs, & Smith, 2014; Mamiseishvili & Koch, 2012; McGowan & Kagee, 2013; Stallman, 2010; Tempiski et al., 2015). Academic persistence is a term that is more common in traditional classroom study, and there is some difficulty with an agreed upon definition as the term varies in literature (Hart, 2012).

One way that academic persistence varies for students is in which stressors students experience in an online learning environment. The same may be said with regard to an on-ground institution. Jordan, Combs, and Smith (2014) found that trauma impacted program completion rates, as well as academic performance and GPA. The participants in the Jordan et al. study who acknowledged experiencing a sexual assault finished the semester following the assault with a lower GPA. The researchers also found that participants whose sexual assault was rape were more likely to have a GPA of 2.5 or less when compared to participants who reported other types of sexual assault.

In this study, Jordan et al. (2014) compared high school GPA to first and second semester college GPAs of participants at an on-ground institution. They also tracked the participants who had experienced a sexual assault prior to college, during the first semester, and those who experienced a sexual assault during the second semester. The researchers found that at least 40% of the women entering the college where the study was conducted had experienced a sexual assault during adolescence. Additionally, it was determined that 24% experienced a sexual assault during their first semester, and 20% experienced a sexual assault during their second semester.

Jordan et al. (2014) used GPA to measure academic performance, and they administered the Sexual Experiences Survey (Koss & Oros, 1982) to examine the types of sexual assault the participants experienced during each part of the 3-phase study. In addition, they administered a demographic survey to gather data on household income, age, ethnicity, parents' education, sexual orientation, and GPA. The authors indicated that they gathered GPA through the self-report measure and described it as a limitation because of the potential for inaccurate reporting. Jordan et al. used an ANOVA to measure sexual assault at each phase of the study, which aided in determining the effects of the types of sexual assault on GPA. This study demonstrated the damaging effects of trauma from sexual assault on the participants' GPA at an on-ground institution, thus illustrating that trauma may have a direct impact on the success of students.

Trauma and PTSD may affect academic performance because they interfere with individuals acquiring and internalizing new information. Levy-Gigi et al. (2012) found

that participants with PTSD experienced difficulties generalizing new learning to tasks that were different from the original task learned. Since participants with PTSD showed difficulty learning new tasks, PTSD was established as a learning disability. Levy-Gigi et al. examined PTSD in two populations, including the Israeli police and Hungarian civilians. The focal point of the Levy-Gigi et al. study was evaluating the ability to learn after a participant had experienced a traumatic event. The researcher relied on the framework that the hippocampus of individuals with PTSD was smaller than those who do not have a diagnosis of PTSD (Levy-Gigi et al., 2012). The approach for testing the sample was administering the Acquired Equivalence Task (Bonardi, Rey, Richmond, & Hall 1993; Grice & Davis, 1960; Hall, Ray, & Bonardi, 1993; Meyers et al., 2003), which assessed participants' abilities to generalize new learning to a different task. Levy-Gigi et al. (2012) grouped participants according to cultural and trauma backgrounds, and included individuals diagnosed with PTSD as well as those who did not meet criteria for PTSD. The study findings also suggested there was no difference associated between culture and traumatic experience that would influence the effects of PTSD on learning ability.

Students who have experienced trauma or PTSD tend to learn differently, but this does not always affect these students in a negative way. Stewart, Choi, and Mallery (2010) noted that students with disabilities performed better in online classes than in traditional classes. The researchers examined the performance ability of students with disabilities using online and traditional platforms of education in comparison to students

without disabilities. The researchers took into consideration the existing research that examined the differences in age, gender, and grades to compare academic performance among students with disabilities and the performance of students without disabilities. Of the 3,078 students included in the sample, only 157 were described as disabled. The students with disabilities were identified by the college's Disability Support Program, and the initial data was gathered through the university's registrar's office. The researchers determined the specific courses and teachers to include in the study based on the presence of students with disabilities in the courses. Each of the courses and teachers were coded, and the identifying information was eliminated. The researchers then coded the information related to grade, disability status, GPA, gender, course hours completed, and class delivery platform. Hierarchical linear modeling was used instead of ANOVA or Multiple Regression to avoid violating the assumption of independence of cases and aggregation bias. The model provided support for age and gender influencing performance as determined by grades; however, they did not find significance in disability status.

Sullivan et al. (2014) also examined those with disabilities with PTSD. They used participants who were combat veterans and tested them in reading tasks. The authors cited previous research regarding the occurrence of veterans presented in clinic with difficulties with reading comprehension and attention. The findings suggested that while there are a significant number of veterans presenting with reading difficulties and attention issues, there was not a positive correlation between PTSD and reading

difficulties. The interesting information in the study is the past literature (Cassiday, McNally, & Zeitlin, 1992; Williams, Mathews, & McLeod, 1996; Kimble, Fleming, Bandy, & Zambetti, 2010; Shucard, McCabe & Szymanski, 2008) that indicated there were attentional difficulties associated with PTSD. It was described similarly to the issues often associated with Attention Deficit-Hyperactivity Disorder and was attributed to anxiety related to difficulties with intrusive thoughts (Kimble et al., 2010). This is pertinent to the current study because issues with attention are particularly problematic for the student population and have potential effects on academic performance.

In another study on disability and trauma, Wright, Goosen, and Callaghan (2013) examined students with psychological disabilities who encountered significant challenges while attending college, and successfully overcame adversity. The students were also given the opportunity to offer advice to other students. The number of participants was 28, mostly female students, attending college in Australia. There was care taken to include some aboriginal students. The authors incorporated an initial survey with a follow-up interview to gather the data from the students. The main goals of the study were to gather the stories and compile them in a manner that made them publishable. In this qualitative study, the data were analyzed and the most prominent theme was determination to succeed (Wright et al., 2013).

Tishelman, Haney, Greenwald O'Brien, and Blaustein (2010) examined the occurrence of children who had experienced trauma, and the importance of teachers and school psychologists to view troubled children through a trauma lens when examining

their troubling behaviors. This is especially valuable to the current study because the authors stated that trauma influenced academic performance in a manner that was not easily detected through the typical methods of assessment when looking at challenging behaviors in student populations. They stressed the importance of viewing behaviors with consideration of traumatic experiences because the troubling behaviors that looked like ADHD were, in fact, related to the trauma. They also noted that it was important to develop programs and recommendations that specifically addressed needs that manifest following a childhood trauma, such as: disruptive behaviors that appear as conduct or oppositional behaviors, dissociative behaviors that appear as flattened affect, and extreme sensitivity to criticism. Many of these symptoms may mimic other disorders and were misdiagnosed because they were perceived as a threat, but instead they were experiencing an inability to regulate emotions due to a heightened awareness for self-preservation (Tishelman et al., 2010).

While Tishelman et al.'s (2010) study was focused on school-age children, it emphasized that traumatized children eventually grow up, but still retain their trauma history. It is plausible to consider that some of these children find their way into college, and have a difficult time progressing academically, due to the extra stressors that manifest as a result of being at the college level of education, and despite the resilience and motivation to make it to higher learning. The authors stressed the importance of program development with respect to trauma because, with troubled students, trauma can lead to detrimental student outcomes. The effects could be mitigated through adequate

mental health diagnoses and care, which would increase the likelihood of students with trauma histories to succeed academically.

Much like Tishelman et al. (2010), Carello and Butler (2015) stressed the importance of the inclusion of trauma training in academic programs for students working with populations affected by trauma. Carell and Butler reviewed related information to support the case that some students suffer from posttraumatic stress symptoms due to the traumatic stories of those around them. The authors indicated that often students are exposed to traumatizing material that result in post-traumatic symptoms, and they do not have supervisors available to assist with the traumatic experience. In some cases, retraumatization is caused by working with clients who experience similar situations in therapy to traumatic events from the past (Carello & Butler, 2015).

Carello and Butler (2015) reported that there is a need for instruction on self-care, improving supervisor education on working with students, redistributing the power in the student-teacher relationship to make it more of a facilitative relationship, and teaching students and educators about boundary maintenance. They also stressed that students need to have a sense of safety with their instructors to reduce the impact influenced by others who were traumatized. Carello and Butler (2015) highlighted that clinical training in an academic program may contribute to the development of trauma symptoms and result in a student failing to progress. This is an area worthy of consideration in reviewing traumatic experiences resulting in psychological disability while attending an

academic program. This study also offers specific areas within academia that need to be addressed in an effort to aid in academic performance, which aligns with the purpose of the current study.

Bachrach and Read (2012) found that the traumatic events most reported by students were loss of a loved one, survival of a loved one following an accident, unwanted sexual attention, and stalking victimization. Additionally, the study supported the hypothesis that PTSD predicted lower GPA and increased attrition rate. The researchers of this study examined students' with PTSD academic performance during their freshman year of college through examining GPA and attrition. The study included alcohol use as a mediating variable. Bachrach and Read (2012) contacted potential participants at two universities through email and the postal service. They achieved a 60% response and participation rate, and after exclusionary criteria and data cleaning was conducted, they acquired a sample of 1,002 participants (Bachrach & Read, 2012).

The Bachrach and Read (2012) gathered information on demographics and current registration status, obtained GPA data through university transcripts, and administered the Traumatic Life Events questionnaire (Kubany et al., 2000), PTSD Checklist (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), and Alcohol Consequences Questionnaire (Read, Kahler, Strong, & Colder, 2006) to participants. Regression models were used to examine the relationships between the variables of GPA and attrition while including alcohol as a mediator. They also used ANCOVAs to

determine if lower GPA, alcohol use, and alcohol consequences influenced the PTSD rank of the participants.

Bachrach and Read's (2012) research supports the present study because it offers information on the inclusion of GPA as a variable and the results confirmed that trauma does influence academic performance. It also used regression analysis for the statistical model to determine the relationship between GPA and attrition, which is similar to the current study's design. The data was gathered using survey research and the administration of questionnaires, which is pertinent to the current research.

Hartley (2013) examined persistence in undergraduate students with mental health issues attending an online program using Tinto's (1975) theory for the theoretical framework. The author stressed the importance of coping with persistence through higher education. The study focused on students with mental health issues and noted that there is an increasing use of college counseling centers. He discussed the history regarding undergraduate students facing withdrawal from the university when mental health issues were revealed, and the changes that have been implemented since the American Disabilities Act (ADA; 1968) was established.

Two university campus mental health centers were used as sites for recruiting the 121 participants for the study, which was later reduced to 108 participants while using the list wise comparison during the data analyses. Information regarding GPA, American College Testing (ACT), and Scholastic Assessment Test (SAT) scores, employment data, extracurricular activities, credits completed, gender, race, and age were included in the

demographic portion of the data gathering. Participants were administered the Mental Health Inventory-5 (Wells, Sturm, Sherbourne, & Meredith, 1996), the Connor-Davidson Resilience Scale (Vaishnavi, Connor, & Davidson, 2007), and the Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983).

Hierarchical regression analysis measured intrapersonal and interpersonal resilience and mental health symptoms to determine whether or not there was significant variance associated with GPA and program completion. The researcher indicated that high school GPA was the only significant variance that predicted cumulative GPA in college. Higher standardized test scores and employment accounted for significant variance in relation to credits completed. There was indication that the students with higher elevations of mental health symptoms also presented statistically with a relationship between intrapersonal resilience and credits completed. This source is pertinent to the current study because it examined academic persistence and resilience among students who were impaired as a result of trauma and used a type of regression analyses to examine the variables resilience and GPA to make a determination regarding academic performance, which is similar to the current study.

Summary and Conclusions

An outcome of this review was the lack of research on this topic in the United States. Another area to consider is the lack of inclusion of multiple ethnic groups and cultures within the existing literature. The reasoning for the increase in students with disabilities entering higher learning is subject to further exploration and supports this

current study. In addition, age has been reviewed in the literature, but it was not connected to resilience, nor has it been evaluated with disabilities related to trauma, or online students. In reviewing the literature, it is important to determine if age and resilience predict academic performance in online students with trauma related disabilities because of the increased enrollment of this population in higher education. Chapter 3 will discuss the research design and methods for making this determination.

Chapter 3: Research Method

Introduction

The purpose of the current study was to evaluate if resilience and age are adequate predictors of academic performance in adult online college students with trauma related disabilities. This chapter outlined the proposed design method, in addition to the research population and sampling procedures. The instrumentation and operational definitions of the predictor and criterion variables were reviewed. The chapter concludes with threats to validity and ethical considerations.

Research Design and Rationale

The current study used a quantitative predictive design. A multiple linear regression was selected because it allows for prediction of future outcomes based on values of predictive variables. The objective of the analysis was to evaluate a prediction regarding the dependent variable based on the covariance with all the relevant independent variables. Given the nature of the current study, conducting personal interviews, observations, or application of phenomenological research would not provide the dependability or credibility of anonymous surveys. The literature, in general, is lacking information related to resilience and age predicting academic performance among online students with trauma-related disabilities. The criterion variable was academic performance, as measured by GPA, and the two predictor variables were resilience, as measured by the Resilience Scale, and chronological age. The research question sought to determine if resilience and age were able to adequately predict academic performance,

as measured by GPA, among online students with trauma-related disabilities. Given the study goal of measuring predictability, multiple linear regression analysis was used to determine the acceptance or rejection of the hypothesis. The time constraint was based on the academic school year because the students needed to provide a current GPA, which means the study needed to be conducted during a time when classes were in session.

Methodology

This section provides a description of the current study's population and sampling procedure, as well as the procedures for recruitment, participation, and data collection. The information will aid in the replication process of the current study for future researchers. In addition, it provides the basis for the next two chapters.

Population

The target population were students with trauma-related disabilities participating in an online program at two universities; namely, Walden University and Concordia University. According to the National Center for Education Statistics (2015), in 2012, there were approximately 21 million students enrolled in online courses with approximately 11% of the overall online student population identifying as disabled. A review of the trauma and disability literature base found a lack of studies that examined online students from the perspective of the emotional, physical, or psychological disabilities that often occur as a result of a traumatic experience. Specifically, previous

studies in the trauma or disability literature base had not considered resilience and age as potential predictors of academic performance.

Sampling and Sampling Procedures

The sampling strategy included gathering data from a convenience sample using questionnaires that participants completed by means of SurveyMonkey, an online survey software tool. A convenience sample is a nonprobability sampling method in which participants are selected due to their subjective perspective and close proximity to the researcher (Creswell, 2009). Potential students were emailed an invitation link through SurveyMonkey that directed them to the consent form, demographic questionnaire, and Resilience Scale. Once the online students completed the survey, the results were made available through SurveyMonkey. Two inclusion criteria were used during the sampling process for participants. First, students must have experienced a self-perceived traumatic event. Second, participants must have identified with a corresponding disability. It is understood that not all online students who experience a traumatic event will have a corresponding disability. Only participants who met both criteria were included in the final data collection process. Online students who identified with having experienced a self-perceived traumatic event were included in the initial survey. The exclusionary criteria included those students who identify with a disability or endorse criteria related to a disability but did not identify as having experienced a traumatic event, as well as those participants who did not complete the survey.

Power analysis. Steps were taken to ensure statistical power, meaning the analyses have fair chances of detecting a real effect or mean difference. To implement the sampling method, a large pool of participants was sought. The current study used multiple linear regression with two predictors, age and resilience. It was expected that a generally accepted medium effect size of 0.15 would be discovered. A general accepted power of .80, and an alpha level of .05 were utilized. The alpha level of .05 ensured with 95% certainty that significant findings are not attributed to random chance (Tabachnick & Fidell, 2012). Informed by the delineated parameters, G*Power 3.1.7 was used to calculate an appropriate sample to assure empirical validity. Based on these calculations, a sample of at least 68 participants was deemed sufficient for the study.

Procedures for Recruitment, Participation, and Data Collection

Participants were recruited through an online participant pool that was available for student participation at Walden University, and through an individual email invitation that was sent out to students at Concordia University (see Appendix C). Permission was collected from both Walden University and Concordia University prior to beginning the survey process. The potential recruits were provided a brief summary of the criteria for participation, the purpose of the study, the option to choose a time slot for participation, and a link to complete the demographic questionnaire and instrument if they desired to participate. The participation criteria informed potential recruits of the study's definitions of traumatic or potentially traumatic experience, as well as a description of potential side effects from trauma that are within the study's definition of a disability.

After signing up for participation in the study, the participants were directed to the informed consent page, which informed them that participation was voluntary and confidential, and they may choose to stop at any time.

Upon acknowledging the receipt of the informed consent form and checking a box to indicate the acknowledgment of informed consent, the participants were asked to submit demographic information such as gender, age, university currently attending, cumulative GPA, admission or denial of traumatic or potentially traumatic experience, and type of current symptoms for identification of disabilities. For instance, a student could identify if he or she was currently experiencing physical, psychological, or cognitive/behavioral symptoms. Participants were provided with a definition of each condition during the survey process.

The demographic questionnaire provided the option of selecting a circle next to the desired answer. In a similar manner, the Resilience Scale allowed for circle selection of the desired response. This approach was the method used for gathering the required data from each participant.

Participants were notified through an exit page when the survey process was complete. Once the demographic information and the Resilience Scale were complete, information for contacting the researcher was provided a second time in the event that a participant has any questions about the research, the study, or participation in the study. At that time, gratitude for participation was expressed. There was no debriefing procedure when participants completed the survey. However, a national crisis hotline

number was provided a second time for participants who may need additional support. Credit was also included for the Resilience Scale because of its use for gathering data in the current study. Upon completion of the survey process, there was no additional follow-up with participants.

Instrumentation and Operationalization of Constructs

This section provides information related to the demographic questionnaire and the Resilience Scale, which were used for data gathering as well as the information related to the operational definitions of the variables used in the current study. The operational definitions will also include the approach used for measuring each variable as well as the calculation, coding, and an example. A discussion involving the data analysis plan is also included in this section, which identifies the analysis software, explanation of the data cleaning and screening process, the analysis plan, the research questions, and the method for interpreting the results.

Demographic Questionnaire. The demographic questionnaire (Appendix F) was included after the consent form. The demographic questionnaire collected data corresponding to the characteristics of the participants. The predictor variable of age and criterion variable of academic performance were collected through the demographic questionnaire as multiple-choice responses along with admission or denial of a traumatic experience. In addition, demographic characteristics such as gender, ethnicity, and current academic institution were examined.

Published instrument. The instrument chosen to measure one of the two predictor variables, specifically resilience, in the current study was The Resilience Scale (Wagnild & Young, 1993), which is included in Appendix A. Permission was requested from the developer to use the scale in the current study on October 10, 2015, and a copy of the response letter granting permission is included in Appendix E.

The Resilience Scale is a 25-item instrument that measures the capacity to withstand life stressors. The resilience scale is appropriate for the current study because it is a self-report measure that evaluates an individual's resilience level, which is a necessary component for determining resilience in the participants of the study. The Resilience Scale uses a 7-point Likert-scale ranging from 1 (disagree) to 7 (agree). There were several studies completed to test the validity of The Resilience Scale using samples composed of students, caregivers of people diagnosed with Alzheimer's disease, subsidized housing residents, and mothers returning to work after the birth of their first child (Wagnild & Young, 1993). A principal component analysis (PCA) was conducted on the 25-items and determined a two-factor solution (Wagnild & Young, 1993). Concurrent validity was assessed by correlating the items with theoretically relevant constructs. Higher resilience scores were associated with high morale, life satisfaction, lower levels of depression, and better physical life. The authors indicated that the Cronbach's alpha coefficient was consistently acceptable at .73-.91.

Operational Definitions

Predictor variables. Resilience is determined by an individual's ability to recover from an adverse situation through experience, the development of resources, and the acquisition of coping skills (Fletcher & Sarker, 2013). Resilience was measured using The Resilience Scale.

Age is the total chronological number of years a participant has been existing outside of their mother's womb. This number was acquired through the demographic information participants provided at the beginning of the online survey.

Criterion variable. Academic performance was measured by GPA, which provides a numerical indicator of the level of academic achievement a student has attained in courses completed thus far in their chosen academic program. Grade Point Average (GPA) corresponds to an average of the total cumulative number of points, 4.0 maximum, a student has acquired as a result of participation in courses in an academic program. This number was provided by the participants in the demographic information at the beginning of the survey. GPA was treated as an interval level variable. Interval level variables assume that all possible values on the scale have equal increments or units between them.

Data Analysis Plan

Data were entered into SPSS version 24.0 for Windows. Frequencies and percentages were examined for nominal variables of interest. Means and standard deviations were calculated for the interval level variables. Using the software, data were

screened for accuracy, outliers, and missing data. Data were examined to ensure they fell within the theoretical range of possible values. In addition, individuals with outlying resilience scores were removed from further analysis. Standardized values (z – scores) were computed for resilience and values falling outside of the range ± 3.29 were considered as outliers, and the corresponding participants were potentially removed from further data analysis (Tabachnick & Fidell, 2012).

Prior to running the multiple linear regression to address the research question, the assumptions of normality, homoscedasticity, and absence of multicollinearity were assessed. The normality assumption checked that there was a normal bell-shaped curve distribution between the predictor variables and the criterion variable. Homoscedasticity assumes that scores are equally distributed about the regression lines, by checking that the variability in scores are similar for all values of the dependent variable (Pallant, 2010). Normality and homoscedasticity were assessed by visual examination of scatterplots (Tabachnick & Fidell, 2012). The absence of multicollinearity assumption checks that the predictor variables are not too closely related and was assessed by Variance Inflation Factors (VIF). VIF values over 10 suggested the presence of multicollinearity and a violation of the assumption (Stevens, 2009).

Following the testing of the statistical assumptions, the F test was used to assess whether the regression equation could explain the variation in the criterion variable more than chance alone would suggest. R -squared- the multiple correlation coefficient of determination – was reported and assessed how much variance in the criterion variable

could be accounted for by the set of independent variables (Howell, 2010). The *t*-test was used to determine the significance of each predictor and beta values determined the strength of prediction for each independent variable (Tabachnick & Fidell, 2012). For significant predictors, with every one-unit increase in the predictor, the associated criterion variable shifted by the value of the corresponding unstandardized coefficient. Significance for the *F* test and *t* tests were evaluated at the conventional alpha level, $\alpha = .05$. If the associated p-value for the overall *F* test or individual *t*-tests were significant, the null hypothesis (H_0) will be rejected in favor of the alternative hypothesis (H_A).

Research Question

RQ: Do resilience—as measured by scores on The Resilience Scale—and age, individually or in linear combination, adequately predict academic performance, as measured by GPA, among adult online students with prior trauma-related disabilities?

H₀: Resilience and age, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

H_A: Resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

To address the research question, one multiple linear regression was conducted. Multiple linear regression is an appropriate statistical analysis when the goal of the research is to assess the strength of relationship between a group of predictor variables and a continuous criterion variable. The predictors in this analysis were resilience, as

measured by The Resilience Scale, and chronological age. The criterion variable was academic performance, as measured by GPA. The regression equation used is presented as $Y = \alpha + B_1X_1 + B_2X_2 + \varepsilon$ with each variable defined as X_1 : resilience, X_2 : age, α : intercept, ε : error term, Y : academic performance.

Threats to Validity

Threats to External Validity

Threats to external validity correspond to portions of the research that provide bias to the situational specifics of the data collection, the measured results, or a specific researcher. The use of student samples was selected due to the accessibility and proximity to the researcher. Due to the use of a convenience sample, such that there was not random selection, there is a threat of selection bias which will reduce the ability to make appropriate generalizations to the wider population. Through the application of a non-experimental predictive design, there was not a threat for interaction effect of testing. Participants were not separated into treatment or control groups and were not administered a pretest or posttest. Extra caution was taken in the interpretation of indicators for the study and it was not assumed that the results can be fully extrapolated to the population of interest (Creswell, 2009).

Threats to Internal Validity

Several potential limitations exist within the scope of quantitative research. First, quantitative methodologies focus on numerically measurable constructs, in that they can examine research questions and hypotheses by statistical significance. However,

quantitative method studies cannot measure the underlying perceptions and experiences of the subjects. The use of self-report surveys causes a potential for bias. There are concerns of participants being honest and having introspective ability to provide an accurate response. In addition, participants interpret Likert-scales differently and may consistently answer in extreme directions or in the midpoints (Creswell, 2009). Furthermore, there is a potential for unintended variables to confound or alter the strength of the relationships between the variables of interest (Howell, 2010). It was not feasible to control for the effect of every potential covariate; therefore, this limitation was accepted and acknowledged in the interpretation of results.

Ethical Procedures

Researchers who conduct studies that utilize human subjects have an ethical responsibility to inform and protect the participants involved (Bloomberg & Volpe, 2012). While conducting this research, the ethical and moral guidelines identified by federal laws and the Institutional Review Board (IRB) were strictly followed. Permission was sought and obtained from the IRBs at Walden University and Concordia University prior to conducting the study. There was no interaction with human subjects during the study; however, the participants could contact the researcher with questions if desired. The target group of students with trauma-related disabilities was considered a vulnerable population. While in this study, participants were asked to complete a survey questionnaire regarding resilience, and specific survey questions could cause participants to recall details of prior traumatic events. There were no known long-term psychological

or physiological risks associated with participation. In addition, there was no unwanted intrusion of privacy for participants. The confidentiality and anonymity of participants were protected by de-identifying the participants' names and personal information. Demographic information such as gender, age, and ethnicity were collected. However, no identifying factors such as name, phone number, or address were recorded or shared.

Informed Consent

An informed consent document was provided to participants prior to administering the survey instrument (Appendix D). The purpose of the study was explained, the procedure was described, and the role of the participant was identified. In addition, potential risks and benefits were outlined and an estimation of allocated time was provided. The participants were notified of the voluntary nature of their participation and explained how all personal information will be de-identified.

Data Storage, Retention, and Destruction

In alignment with IRB and federal guidelines, all data and information will be contained in a password protected file to maintain confidentiality. The typical safeguard measure for data storage is in a password protected zip drive within the researcher's residence where data will be securely held for a period of five years after the research is complete. Additionally, a combination safe will be utilized for securing the zip drive. After expiration of the five-year retention period, all data and information related to the study will be destroyed.

Summary

The purpose of the current study was to evaluate if resilience and age are adequate predictors of academic performance in adult online college students with trauma related disabilities. This chapter identified and justified the selection of a quantitative, predictive research design. The methodology section of the chapter discussed the population, sampling and sampling procedures, and procedures for recruitment, participation, and data collection. The instrumentation and operationalization of constructs were included, which discussed the published instruments planned for use in the current study as well as the definitions of the variables. The data plan was discussed, as well as the threats to validity and the ethical considerations. This chapter provides the plan that was utilized to gather the data and provided the results that will be discussed in Chapter Four. A summary and discussion of the findings, along with implications for practice, and recommendations for future research form the content of Chapter 5.

Chapter 4: Results

Introduction

The purpose of the current study was to evaluate if resilience and age are adequate predictors of academic performance in adult online college students with trauma related disabilities. This chapter includes discussion about data collection, the descriptive statistics, and a detailed analysis. The chapter was guided by the following research question and hypotheses:

RQ: Do resilience—as measured by scores on The Resilience Scale—and age, individually or in linear combination, adequately predict academic performance, as measured by GPA, among adult online students with prior trauma-related disabilities?

H₀: Resilience and age, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

H_A: Resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

In this chapter, the findings of the data collection and analysis are presented. First, the data were reduced for nonresponses and potential outliers. Once the final sample size was determined, descriptive statistics were run to explore the trends in the sample and the internal consistency of the Resilience Scale. The inferential analysis consisted of a multiple linear regression and a binary logistic regression to address the

research question. Statistical significance was evaluated at the conventional significant alpha level, $\alpha = .05$.

Data Collection

Pre-Analysis Data Screen

A total of 152 students provided consent to participate in the self-report survey. The survey process took place between March and October of 2016 at Walden University and Concordia University-Portland, Oregon. There were 2,497 invitations sent out to students at Concordia University; however, the number of student that have access to the surveys at Walden is unknown because it was self-selected participation. Students at Walden were sent a general email inviting participation in the participant pool. Based on the number of respondents from Concordia, the response rate was 5% when subtracting the 26 students who responded from Walden University. Among the 152 individuals who provided consent, 42 participants did not complete the survey and were subsequently removed from further analysis. Z-scores were utilized to identify the presence of outliers in resilience scores. No outlying scores were found among the participants. The final inferential analysis consisted of 110 participants. The original goal of 68 participants to fulfill the medium effect size of 0.15 was met. The only deviation from the original data collection plan was that the online students at Concordia were sent a direct email inviting them to participate in the study because Concordia does not use a participant pool.

Descriptive Statistics

Frequencies and Percentages

A majority of the participants were female ($n = 93$, 84.5%). There was a fairly even distribution in ages, with most participants being 39-45 (33, 30.0%) and 46 and older ($n = 36$, 32.7%). A majority of the sample was of Caucasian ethnicity ($n = 60$, 54.5%). Most of the participants had experienced psychological disabilities ($n = 76$, 69.1%). The distribution of participants was split between Concordia ($n = 83$, 75.5%) and Walden University ($n = 27$, 24.5%). A majority of participants indicated their GPA to be between 3.0 and 3.9 ($n = 66$, 60.0%). Frequencies and percentages are presented in Table 1.

Table 1

Frequency Table for Nominal Variables

Variable	<i>n</i>	%
Gender		
Male	17	15.5
Female	93	84.5
Age		
18-25	4	3.6
26-30	12	10.9
31-38	25	22.7
39-45	33	30.0
46 and older	36	32.7
Ethnicity		
Caucasian/White	60	54.5
African American/Black	30	27.3
Hispanic/Latino	6	5.5
Asian	2	1.8
Native American	3	2.7
Other	7	6.4
Rather not say	2	1.8

Disability experiencing following trauma or potentially traumatic event		
Sensory	7	6.4
Mobility	14	12.7
Psychological	76	69.1
Learning Difficulties	13	11.8
University currently attending		
Walden University	27	24.5
Concordia University – Portland, Oregon	83	75.5
Current GPA		
2.0-2.9	1	0.9
3.0-3.9	66	60.0
4.0	43	39.1

Note. Due to rounding errors, percentages may not equal 100%.

Summary Statistics

To calculate the overall resilience scores, a sum of the 25 survey items was computed. Resilience scores ranged from 83.00 to 175.00, with $M = 142.53$ and $SD = 19.51$. Wagnild (2009) identified the following guidelines for interpreting the total scores: 25-100 = Very low, 101-115 = Low, 116-130 = On the low end, 131-145 = Moderate, 146-160 = Moderately high, and 161-175 = High. For the current study, participants' average resilience scores were moderate. Table 2 presents the findings of the descriptive statistics.

Table 2

Summary Statistics Table for Interval Variables

Variable	Min.	Max.	M	SD
Resilience	83.00	175.00	142.53	19.51

There were a number of sampling errors within this study. The first is the number of female participants is significantly more than male, and the ages of the sample are not representative of the younger population because only 16 participants are representing ages 18-30, whereas the other ages measured are more equally represented. The current study's ethnic representation is clearly unbalanced with 60 Caucasian representatives, 30 African American representatives, and 20 cumulative representatives for other ethnicities.

Reliability

Cronbach's alpha values were examined for the series of items making up the Resilience Scale. The value of the coefficients was interpreted through incremental thresholds described by George and Mallery (2016), in which $\alpha \geq .9$ Excellent, $\alpha \geq .8$ Good, $\alpha \geq .7$ Acceptable, $\alpha \geq .6$ Questionable, $\alpha \geq .5$ Poor, and $\alpha < .5$ Unacceptable. The results for Resiliency ($\alpha = .91$) indicated excellent reliability. The Cronbach's alpha statistics are reported in Table 3.

Table 3

Cronbach's Alpha Reliability Statistics for Resilience

Scale	No. of Items	α
Resilience	25	.91

Detailed Analysis

RQ: Do resilience—as measured by scores on The Resilience Scale—and age, individually or in linear combination, adequately predict academic performance, as measured by GPA, among adult online students with prior trauma-related disabilities?

H1₀: Resilience and age, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

H1_A: Resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities.

To address the research question, two simple linear regressions were used to examine the individual predictive effect of resilience and age on GPA. A multiple linear regression was conducted to examine the predictive relationship between resilience, age, and GPA. A linear regression is an appropriate statistical tool when assessing the predictive relationship between independent variables and a continuous criterion variable (Tabachnick & Fidell, 2013). Resilience and age were inputted into the regression model as predictor variables. GPA was treated as the criterion variable. The default settings for a regression were used in SPSS version 24.0 for Windows. The standard enter method was utilized and collinearity diagnostics were selected to view the variance inflation factors (VIFs).

Prior to analysis, the assumptions of normality, homoscedasticity, and absence of multicollinearity were tested. The assumption of normality was tested by visual inspection of a normal P-P plot. The assumption was not met due to the data not closely following the normality trend line (see Figure 1). The assumption of homoscedasticity was visually tested with a residuals plot. The assumption was not met due to a recurring pattern appearing in the plot (see Figure 2). The assumption for absence of

multicollinearity was met due to the variance inflation factors (VIF) being below 10.

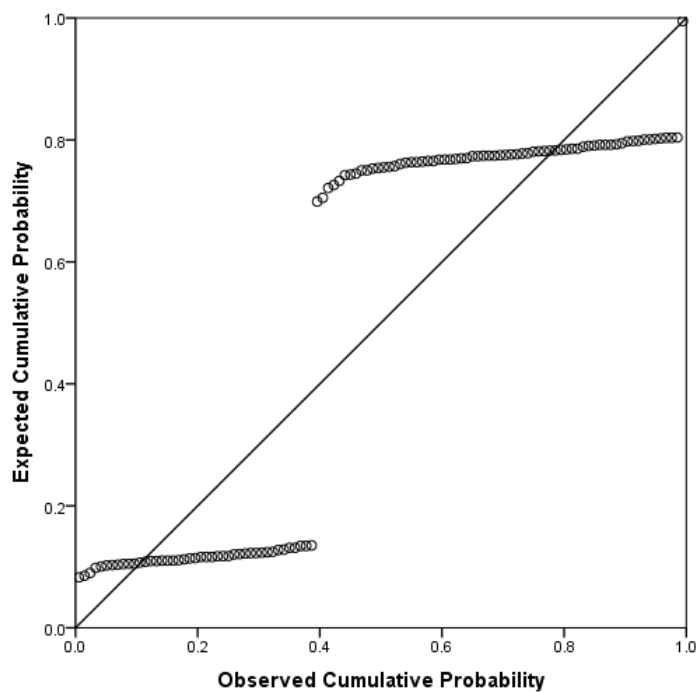


Figure 1. Normal P-P plot for regression on academic performance.

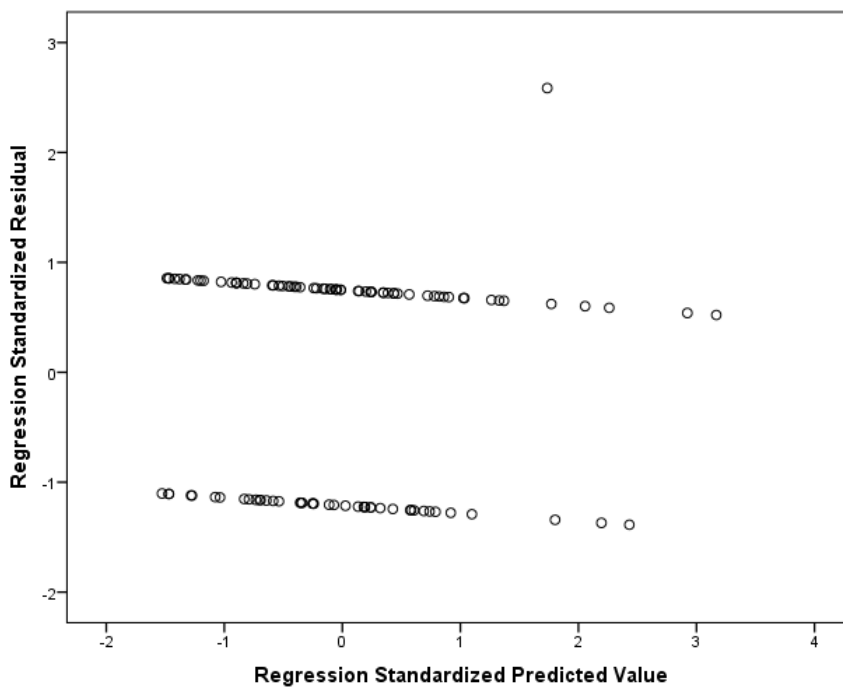


Figure 2. Residuals scatterplot for regression on academic performance.

Before interpreting the findings of the regressions, Spearman's correlations were conducted to examine the associations between age and resiliency with GPA. A Spearman's correlation is an appropriate statistical analysis when testing the strength of association between two variables, when at least one is measured on an ordinal scale (Pagano, 2009). The findings of the correlations indicated that there was not a significant two-way association between current age and GPA ($r_s = .00, p = .988$), or between resilience and GPA ($r_s = -.05, p = .630$). Table 4 presents the findings of the Spearman's correlations.

Table 4

Spearman's Correlations between Current Age, Resilience, and GPA

Source	GPA	
	r_s	P
Current age	.00	.988
Resilience	-.05	.630

Simple Linear Regressions

Results of the simple linear regression between current age and academic performance were not statistically significant, $F(1, 108) = 0.07, p = .797, R^2 = .001$. Results of the simple linear regression between resilience and academic performance were not statistically significant $F(1, 108) = 0.55, p = .459, R^2 = .005$. The findings of the simple linear regressions indicated that the resilience and age, individually, do not

significantly predict academic performance. Table 5 and 6 present the findings of the simple linear regressions.

Table 5

Linear Regression with Age Predicting Academic Performance

Source	<i>B</i>	<i>SE</i>	B	<i>t</i>	<i>p</i>
Current age	-0.01	0.04	-.03	-0.26	.797

Note. $F(1, 108) = 0.07, p = .797, R^2 = .001$.

Table 6

Linear Regression with Resilience Predicting Academic Performance

Source	<i>B</i>	<i>SE</i>	B	<i>t</i>	<i>p</i>
Resilience	-0.00	0.00	-.07	-0.74	.459

Note. $F(1, 108) = 0.55, p = .459, R^2 = .005$.

Multiple Linear Regression

Results of the overall model of the multiple linear regression were not statistically significant, ($F(2, 107) = 0.28, p = .756, R^2 = .005$), suggesting that resilience and age, in linear combination, do not significantly predict academic performance. The R^2 value suggested that approximately 0.50% of the variance in academic performance can be explained by resilience and age. Due to non-significance of the overall F test, the individual predictor variables were not examined further. The null hypothesis (H_0) for the research question was not rejected, suggesting that resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities. The results of the multiple linear regression are presented in Table 7.

Table 7

Multiple Linear Regression with Age and Resilience Predicting Academic Performance

Source	<i>B</i>	<i>SE</i>	<i>B</i>	<i>t</i>	<i>p</i>	VIF
Current age	-0.01	0.04	-.01	-0.12	.909	1.04
Resilience	0.00	0.00	-.07	-0.70	.483	1.04

Note. $F(2, 107) = 0.28, p = .756, R^2 = .005$.

Hierarchical Linear Regression

Results of the first step of the hierarchical linear regression were not statistically significant, ($F(1, 108) = 0.07, p = .797, R^2 = .001$), suggesting that age does not significantly predict academic performance. Results of the second step of the hierarchical linear regression were also not statistically significant, ($F(2, 107) = 0.28, p = .756, R^2 = .005$), suggesting that age and resilience, in linear combination, do not significantly predict academic performance. The R^2 value increased by approximately 0.40% between steps one and two. Due to non-significance of the overall F test, the individual predictor variables were not examined further. The null hypothesis (H_01) for the research question was not rejected, suggesting that resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities. The results of the hierarchical linear regression are presented in Table 8.

Table 8

*Hierarchical Linear Regression with Age and Resilience Predicting Academic**Performance*

Source	<i>B</i>	<i>SE</i>	<i>B</i>	<i>t</i>	<i>p</i>	VIF
Step One:						
Current age	-0.01	0.04	-.03	-0.26	.797	1.00
Step Two:						
Current age	-0.01	0.04	-.01	-0.12	.909	1.04
Resilience	0.00	0.00	-.07	-0.70	.483	1.04

Note. Step one: $F(1, 108) = 0.55, p = .459, R^2 = .005$; Step two: $F(2, 107) = 0.28, p = .756, R^2 = .005$.

Logistic Regression

Due to the parametric assumptions of normality and homoscedasticity not being met, a binary logistic regression was conducted as a follow-up analysis. A binary logistic regression is an appropriate statistical analysis when assessing the predictive relationship between a group of independent variables and a dichotomous outcome variable (Stevens, 2009). Because a predominant number of participants indicated their GPA was 3.0-3.9 or 4.0, the outcome variable was dichotomized into two groups: 1 = 2.0-3.9 and 2 = 4.0.

Results of the overall model of the binary logistic regression were not statistically significant, ($\chi^2(2) = 0.35, p = .840, \text{Nagelkerke } R^2 = .004$), suggesting that there is not a significant relationship between resilience, age, and academic performance. The Nagelkerke R^2 value suggests that approximately 0.40% of the variance in academic performance can be explained by resilience and age. Due to non-significance of the overall χ^2 test, the individual predictor variables were not examined further. The results

of the logistic regression confirmed the findings of the multiple linear regression. The results of the logistic regression are presented in Table 9.

Table 9

Binary Logistic Regression with Age and Resilience Predicting Academic Performance

Source	<i>B</i>	<i>SE</i>	Wald	<i>p</i>	<i>OR</i>
Current age	-0.06	0.18	0.10	.752	0.95
Resilience	0.01	0.26	0.30	.584	1.01

Note. $\chi^2(2) = 0.35, p = .840, \text{Nagelkerke } R^2 = .004.$

Summary

The purpose of the current study was to evaluate if resilience and age are adequate predictors of academic performance in adult online college students with trauma related disabilities. This chapter presented the findings of the data analysis. Descriptive statistics were used to explore trends in the data. The findings of the regression analyses indicated that resilience and age do not, individually or in linear combination, adequately predict academic performance among adult online students with prior trauma-related disabilities. The next chapter discusses the statistical findings. Connections will be made back to the existing literature and theoretical framework.

Chapter 5: Discussion

Introduction

The purpose of this quasi-experimental study was to evaluate if resilience and age were adequate predictors of academic performance in adult online college students with trauma related disabilities. This study was conducted with consideration for the large number of students who report experiencing a traumatic event, and because there is a lower number of students with trauma-related disabilities who progress through an academic program in comparison to their nondisabled peers (Stewart, Choi, & Mallery, 2010). The desired outcome was information about resilience and age with the idea of contributing to the literature in a way that increases graduation rates of online college students with trauma-related disabilities. However, the results of the current study did not find any significant relationships between the variables and did not support resilience and age as adequate predictors of academic performance. The contents of this chapter will include the interpretation of the findings, limitations of the study, recommendations, implications, and the conclusion.

Interpretation of the Findings

After reviewing the results from the current study and examining the literature that was related to the current study, there were some areas in the existing research that were confirmed and some that were not confirmed, including the role that resilience and age have in PTG. For instance, the results in the study concluded that there were participants who reported a trauma history as well as disabilities in the areas of sensory,

mobility, psychological, and learning impairments. Posttraumatic Stress Disorder (PTSD) was described as a learning disorder by Levy-Gigi et al. (2012) because of cognitive impairments following an experience that resulted in a PTSD diagnosis, and 11.8% of the participants in the current study had PTSD following a traumatic event. Another area that was confirmed by the current study and indicated in the existing literature is that participation is increased by direct emails versus general emails within the university system.

Dekel et al. (2011) indicated that PTG was not predicted by personality, social demographics, or age, which was supported by the current study in the sense that age was not predictive of academic performance. However, it should be noted that high GPAs are typical of adult learners who persist in their academic programs (Wlodkowski, Mauldin, & Gahn, 2001). Stewart et al. (2010) indicated that the variables of age and gender influence performance in online education. The current study did not find support for age predicting academic performance. The idea that PTSD predicted lower GPA, and that trauma influenced academic performance was not supported by the current study's results indicating that 99.1% of the participants' GPA was 3.0 or better.

Limitations

Discussion of the limitations in any study provide the opportunity to examine any challenges that may influence the outcome or results prior to conducting the study in comparison to the actual limitations following the completion of the study. The limitations prior to conducting the study were research design and the self-report

approach with survey research. After this study had been completed, the original concerns mentioned in Chapter One remained a factor; however, some additional limitations were the sample size and composition as well as the selected variables. These were limitations because there were significantly more participants from Concordia University than from Walden University, which means that the results may be university specific instead of online university specific. Additionally, ethnic and gender diversity were not present in the current study's results.

The selected variables of age and resilience were limitations because they did not adequately predict academic performance. Another limitation was that most of the participants reported psychological trauma rather than physical trauma, thereby affecting generalizability of the results. Due to the number of participants reporting only psychological trauma, the results may only be applicable within a small setting and likely do not pertain to those who suffer from physical trauma. As such, those who suffer from physical trauma may not have the same experiences as those with psychological trauma, thereby potentially skewing the results. The number of participants, in general, while exceeding the number required for a medium effect size, was not successful in representing a diverse population.

The ethnic and gender variables were requested in the demographic survey even though they were not variables in the study. As noted in Chapter 4, most of the participants were Caucasian females, which does not permit the generalizability of the results to other ethnicities or male participants since they were not adequately represented

in the sample. There was also a lack of variance in range of GPA, and a lack of variance in range of disabilities. Variability in GPAs among adult learners is typically small (Deschacht & Goeman, 2015). Participant self-report is a concern in terms of responses to the Resilience Scale as well as the self-reported GPA because the participants may lack awareness of themselves in reference to the items on the rating scale (Cho & Park, 2013), or they may have inaccurately reported their GPA (Jordan et al., 2014).

Given the limitations of self-reporting, the variable choices were a limitation because the data for each are gathered through self-reporting, and because the resilience variable was likely too broad. This may be the case because resilience is broadly defined in the psychology field, it may have been more informative to focus on a specific aspect of resilience. For instance, more information may have resulted from breaking resilience down into separate variables for measurement such as social support and resources as indicated by Grasso (2012). This separating of the resilience variable would be beneficial when considering recommendations for further study on the topic in the future.

Recommendations

While the current study indicated that resilience and age do not predict academic persistence with the sample investigated, the study could be improved upon with some changes in how the variables were measured, length of time, and approach to participants. The variables were analyzed using multiple linear regression, which proved to be unsuccessful, as the significance that was found was not at an acceptable level. Additionally, the variance in GPA was limited by the use of a range of numbers instead

of using the specific GPA of each participant. Therefore, this was a major limitation within the study as multiple regression assumes the criterion (dependent) variable is measured on an interval (or ratio) scale, not a nominal scale (categories). A binary logistic regression was implemented as a backup to the originally proposed multiple linear regression because it takes into consideration the categorical nature of the GPA data in the current study. The binary linear regression did not change the outcome of the lack of significance. It is recommended that future researchers gather each students' specific GPA from the university itself, so it is not self-reported, and it is an exact number.

The students at Walden University were sent a recruiting email that included links to several studies in May 2017 that yielded 27 participants in six months, whereas individual email invitations were sent out in October 2017 to recruit participants from Concordia University-Portland. The data were pulled from Survey Monkey after approximately three weeks of survey participation from Concordia students because the number of participants surpassed 68, an acceptable sample size to obtain a medium effect size. It is likely that the number of participants would have increased with more time passing since there were over 2,000 students from Concordia who were sent individual emails to participate.

It may be beneficial to consider gathering participants from opposite sides of the nation, going from north to south versus east to west, and only to the middle of the United States. However, this may be very costly, both in terms of time and money.

Therefore, to mitigate costs, it would be beneficial for future researchers to define the target population in a more restricted manner. It also may be more fruitful to gather information from more than two online schools, depending on how the population is defined within future studies. Additionally, changing the contact method to individual emails over a university-wide invitation would likely yield more participants, specifically based on the higher number of participants from Concordia over Walden in a significantly shorter data gathering timeframe. Another benefit in having more participants is the generalizability would provide more information about the implication for positive social change for the population of online students with trauma-related disabilities. Again, however, this is only achieved if future researchers define their target population, so they can draw a true random sample. If this is not accomplished, future researchers will only be able to generalize speculatively.

Even though the current study did not determine that resilience and age predicted academic performance in the sample, the literature found as part of developing this study did provide insight into some areas of practice to consider for online students with trauma-related disabilities. For instance, the loss that occurs from trauma is often more difficult to cope with than the trauma itself (Hobfall, 1989), which indicates the importance in developing and maintaining trauma support systems within the online university's community for students who are coping with a current or past trauma. Additionally, it has been determined that trauma impacts students' abilities to learn new information and tasks (Levy-Gigi, 2012; Sullivan et al., 2014), which is valuable in

determining individualized education programs for students working with Disabilities Services at the university level. The key consideration for this area is the analysis and dissemination of information that is beneficial to the online university communities to provide more support for students with trauma-related disabilities to persist to graduation.

Implications

Walden University prioritizes social change as an important part of fostering educational growth within the university community, society, and the world. Several studies suggested that the variables that contribute to academic growth may be found in constructs such as coping style (Dekel et al., 2011), social support (Galatzer-Levy et al., 2012; Gan et al., 2013), cognitive abilities (Barton, Boals, & Knowles, 2013; Jin et. al, 2014), and available resources (Grasso, 2012). The implication for social change that came from this study is the responsibility moving forward to examine these constructs in an effort to provide online students with trauma-related disabilities the support they need to progress academically and use their education to contribute to society in a productive manner. The current study set out to contribute to the information available to the people who influence curriculum development within the online setting for students with trauma-related disabilities such as program developers, enrollment advisors, educators, and school counselors.

Since the current study did not find significance in the variables of resilience and age predicting academic performance, the implication for social change lies in the future research as suggested in the recommendations. In terms of future researchers, this study

can contribute to the social change through the compilation of pertinent articles in the areas of trauma and disability, as well as, through eliminating the need to review age as a variable relating to resilience.

Online students with trauma-related disabilities can benefit from the current study through learning about the various characteristics that enhance resilience in the face of adversity, which may be helpful in growth following a traumatic event. From a family systems perspective, families could provide support to their online student with trauma-related disabilities by providing the social and emotional support that is important in coping through adversity, as discussed within the current study.

Conclusion

This chapter provided an examination of the interpretation of the findings, the limitations of the study, recommendations, and social change implications. The interpretation provided the opportunity to understand that parameters of the data in terms of support and rebuttal of the existing literature. The limitations examined the areas of the study that did not assist in achieving significance overall as well as limitations related to the nature of the study. The recommendations offered suggestions of ways to modify the current study in a manner that could increase chances for significance. The social change implications for this current study were limited to the knowledge that age and resilience in their basic form are not adequate predictors of academic performance, and there is more research needed to determine the variables that are factors in predicting academic performance. This study determined that resilience, which is the ability of an

individual to “bounce back” from the challenges and cope by using available assets and resources (Windle, 2010, p. 12), and age, individually or in linear combination, was not able to adequately predict academic performance among online students who previously experienced a traumatic life event that resulted in a disability. A study such as this was needed due to the large number of students who report experiencing a traumatic event (Read et al., 2011), and because there is a lower number of students with trauma-related disabilities who progress through an academic program in comparison to their non-disabled peers (Stewart, Choi, & Mallery, 2010). As such, the findings from this study can assist future researchers examining resilience to develop a study that yields significant results.

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Appendix A: The Resilience Scale

	Disagree					Agree		
1.	When I make plans I follow through with them.	1	2	3	4	5	6	7
2.	I usually manage one way or another.	1	2	3	4	5	6	7
3.	I am able to depend on myself more than anyone else.	1	2	3	4	5	6	7
4.	Keeping interested in things is important to me.	1	2	3	4	5	6	7
5.	I can be on my own if I have to.	1	2	3	4	5	6	7
6.	I feel proud that I have accomplished things in my life.	1	2	3	4	5	6	7
7.	I usually take things in stride.	1	2	3	4	5	6	7
8.	I am friends with myself.	1	2	3	4	5	6	7
9.	I feel that I can handle many things at a time.	1	2	3	4	5	6	7
10.	I am determined.	1	2	3	4	5	6	7
11.	I seldom wonder what the point of it all is.	1	2	3	4	5	6	7
12.	I take things one day at a time.	1	2	3	4	5	6	7
13.	I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
14.	I have self-discipline.	1	2	3	4	5	6	7
15.	I keep interested in things.	1	2	3	4	5	6	7
16.	I can usually find something to laugh about.	1	2	3	4	5	6	7
17.	My belief in myself gets me through hard times.	1	2	3	4	5	6	7
18.	In an emergency, I'm someone people generally can rely on.	1	2	3	4	5	6	7
19.	I can usually look at a situation in a number of ways.	1	2	3	4	5	6	7
20.	Sometimes I make myself do things whether I want to or not.	1	2	3	4	5	6	7
21.	My life has meaning.	1	2	3	4	5	6	7
22.	I do not dwell on things that I can't do anything about.	1	2	3	4	5	6	7
23.	When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7
24.	I have enough energy to do what I have to do.	1	2	3	4	5	6	7
25.	It's okay if there are people who don't like me.	1	2	3	4	5	6	7

Appendix B: Demographic Questionnaire

1. What is the gender you most closely identify?
 - Male
 - Female
2. What is your current age range?
 - 18-25
 - 26-30
 - 31-38
 - 39-45
 - 46 and older
3. Which University are you currently attending?
 - University #1
 - University #2
4. What is your current Grade Point Average range?
 - 4.0
 - 3.0-3.9
 - 2.0-2.9
 - 1.0-1.9
 - < 1.0
5. Have you experienced a traumatic or potentially traumatic event?

- Yes
 - No
6. What type of disability or disabilities are you experiencing following the trauma or potentially traumatic event?
- Sensory
 - Mobility
 - Psychological
 - Learning Difficulties
7. What is the ethnic background with which you mostly closely identify?
- Caucasian/White
 - African American/Black
 - Hispanic/Latino
 - Asian
 - Native American
 - Other
 - Rather Not Say