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**EXAMINING A HIGH-IMPACT, FIRST-SEMESTER SEMINAR CLASS
ON ONLINE UNDERGRADUATE STUDENT SELF-REGULATION,
SELF-DIRECTION, ONLINE LEARNING SELF-EFFICACY, AND
PERSISTENCE**

Jacqueline Stephen

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EXAMINING A HIGH-IMPACT, FIRST-SEMESTER SEMINAR CLASS ON
ONLINE UNDERGRADUATE STUDENT SELF-REGULATION, SELF-DIRECTION,
ONLINE LEARNING SELF-EFFICACY, AND PERSISTENCE

by

Jacqueline S. Stephen

A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education

Major: Instruction and Curriculum Leadership

The University of Memphis

May 2020

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Dedication

This work is dedicated to my daughter, Miranda Alexis Stephen. I hope that I have inspired you to never stop learning, and to always put forth your best effort to achieve your goals. I love you.

I also dedicate this dissertation in memory of my father, Frederick Jabbour Stephen. I felt your presence all those late nights as I worked on my manuscript. In the short time we had together, you taught me to work for what I want, and to work harder when challenged. I love you and miss you dearly.

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To my friends and colleagues, Dr. Christine Coombe, Lori Faber, Nancy Gilbert, Khaled Temsah, Dr. Priscilla Danheiser, Dr. Gail Johnson, Dr. Lynn Clemons, Laurie Rea, and Dr. Fred Bongiovanni: I thank each of you for your support, encouragement, and willingness to ensure that I had what I needed to complete this project.

To my advisor and dissertation chair, Dr. Amanda Rockinson-Szapkiw: I have learned so much from you. You did much more than provide instruction and advisement. You went above and beyond to provide mentorship, encouragement, and empowerment. Thank you for helping me to rediscover my love of writing and to develop an appreciation for research.

To my dissertation committee members, Drs. Victoria Lowell, Christian Mueller, and Andrew Atef Tawfik: Thank you for the expertise you shared with me during the past year. This manuscript was made possible with your feedback and guidance,

To my classmates, Logan Caldwell and Stephanie Shipley: We have been on this journey together since 2017. Thank you for being there (virtually!) during times that only those members of a cohort can best relate to.

Last, but not least, I thank my family and friends. You were all very understanding when I could not be available because of my commitment to this manuscript. I thank you for tolerating me during this process, allowing me to go off-topic because I could not get this manuscript off my mind, and offering me unwavering support.

Abstract

Student enrollment continues to increase in online programs, but there is concern surrounding the reported high rates of attrition in online classes compared to face-to-face classes. Undergraduate students are poorly prepared and lack the human agency necessary for success in the online learning environment. To address the lack of persistence of undergraduate online students, universities must create and implement interventions that prepare students for the online learning environment and help them develop as autonomous learners. This study examined whether differences in self-regulation, self-direction, and online learning self-efficacy exist between students participating in an experimental high-impact First-Semester Seminar (FSS) class and a traditional FSS class, while controlling for pre-existing factors. A quantitative, quasi-experimental, pretest-posttest research design was used for this study with nonequivalent control groups, and a multivariate analysis of covariance (MANCOVA) and follow up analyses of covariances (ANCOVA) were used to analyze the data. A chi-square test of independence was conducted to determine if student persistence differed based on FSS class type participation. MANCOVA results revealed a statistically significant difference between groups. Follow-up ANCOVAs revealed differences between the posttest scores of the traditional FSS class and the high-impact FSS class on the measurements for self-directed learning and self-regulated learning. Persistence was measured using re-enrollment in a course the next semester, and results demonstrated no difference between the two groups. Persistence of students in both groups was over 80%.

Keywords: self-regulation, self-direction, self-efficacy, online learning, persistence, undergraduate students

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List of Abbreviations

Analysis of Covariance (ANCOVA)
First-Semester Seminar (FSS)
First-Year Seminar (FYS)
Grade Point Average (GPA)
High-Impact Practices (HIPs)
Internal Review Board (IRB)
Learning Management System (LMS)
Multivariate Analysis of Covariance (MANCOVA)
National Center for Education Statistics (NCES)
Online Learning Self-Efficacy Scale (OLSES)
Online Self-Regulated Learning Questionnaire (OSLQ)
Self-Direction (SD)
Self-Efficacy (SE)
Self-Rating Scale of Self-Directed Learning (SRSSDL)
Self-Regulation (SR)
Statistical Package for Social Sciences (SPSS)

CHAPTER ONE: INTRODUCTION

There are now fewer undergraduates studying on campus than in 2012 (Seaman et al., 2018), although student enrollment continues to increase in online programs (Friedman, 2018; National Center for Education Statistics, 2017; Seaman et al., 2018) and this growth is projected to continue into 2026 (Hussar & Baily, 2018). While online undergraduate enrollment increases, however, high rates of attrition in online classes compared to face-to-face classes are a concern (Bloemer et al., 2018; Fetzner, 2013; Hachey et al., 2013; Lee et al., 2013; Murphy & Stewart, 2017). Attrition rates in online classes have been documented as 10% to 20% higher than traditional face-to-face classes (Bawa, 2016; Jaggars et al., 2013; Kauffman, 2015) and online persistence rates are low, as well. Only 17% of US undergraduate online students graduated within three years and only 35% earned their degree within six years (Allen & Seaman, 2015).

Persistence in an online class is associated with a number of factors including self-regulated learning (Barnard et al., 2008; Lee et al., 2013), self-directed learning (Brookfield, 2013; Rovai, 2003), and online learning self-efficacy (Chu & Chu, 2010; Prior et al., 2016; Zimmerman & Kulikowich, 2016). Self-regulated learning is the degree to which a student takes an active role in their learning by setting goals, experimenting in the use and adaptation of different strategies to help them achieve their goals, engaging in self-monitoring and self-evaluation activities, managing their time efficiently, and associating results to causes (Zimmerman, 1998, 2002). Similarly, students who are self-directed also take an active role in their learning by setting goals and engaging in self-evaluation. Additionally, self-directed students independently initiate coursework, diagnose their learning needs, and identify the resources they may need to achieve their goals (Knowles, 1975). Self-direction, like self-regulation, is a process. However, these two very similar constructs can be differentiated and

some researchers have noted that students must demonstrate effective self-regulation in order to be self-directed and achieve their goals (Brydges et al., 2010). Consequently, students must develop self-regulation before they can be self-directed (Jossberger et al., 2010). In other words, a student who is self-directed needs to be able to self-regulate; however, a student who is self-regulated may not be self-directed.

To self-regulate and self-direct their learning, students need to have a high level of self-efficacy. Self-efficacy is situated in the literature on persistence as fundamental to student self-regulation and self-direction (Garrison, 1997; Knowles, 1975; Zimmerman, 2002). Self-efficacy involves a student's awareness "... of their capabilities to organize and execute a course of action required to attain designated types of performances" (Bandura, 1986, p. 391). Self-efficacy is a motivational orientation that promotes persistence, supports intention and long-term planning, and encourages self-regulation and self-correcting actions (Bandura, 1997). High self-efficacy in students is associated with high levels of self-motivation and independence (Zimmerman, 2000). Self-efficacy is contextual; students might have a high sense of self-efficacy in terms of their ability to complete an assignment and a low sense of self-efficacy in terms of their ability to perform well on a quiz (Bandura, 1997). Thus, online learning self-efficacy is a student's perception of his or her ability to complete class work online. Zimmerman & Kulikowich (2016) identified specific dimensions of online learning self-efficacy that students must demonstrate to help them persist in an online class, such as technology use, time management, and learning in the online environment. Self-regulated learning (Barnard et al., 2008; Lee et al, 2013; Williamson, 2007; Zimmerman, 2002), self-directed learning (Brookfield, 2013; Knowles, 1989; Rovai, 2003) and online learning self-efficacy (Bandura, 1997; Tinto,

1993, 2017; Zimmerman & Kulikowich, 2016) are necessary components of online student persistence (Stephen et al., 2020).

The term *human agency* is used in this study to refer collectively to self-regulation, self-direction, and online learning self-efficacy. From a social cognitive perspective, human agency is fundamental to human functioning because it enables individuals to exercise control over their cognitive functioning and monitor the impact of their behaviors (Bandura, 1989, 2001; Zimmerman, 1989). Bandura (2006) contended that human agency consists of four core properties: intentionality, forethought, self-reactiveness, and self-reflectiveness. He described intentionality as the formation of action plans and selection of strategies, forethought as the setting of goals and anticipated outcomes, self-reactiveness as self-regulators, and self-reflectiveness as self-examiners of personal functioning and self-efficacy. Bandura's description of human agency encompasses factors associated with self-regulation (i.e., study habits, goal commitment, learning preferences, time management), self-direction (i.e., interpersonal skills, goal commitment, learning preferences), and online learning self-efficacy (i.e., computer literacy, computer-based interaction, self-esteem, interpersonal relationships, accessibility to services). Figure 1 illustrates the relationships among the three mechanisms of human agency and persistence in this study. The use of the term *mechanisms* signifies the importance of the shared significance of self-regulation, self-direction, and self-efficacy to online undergraduate student persistence.

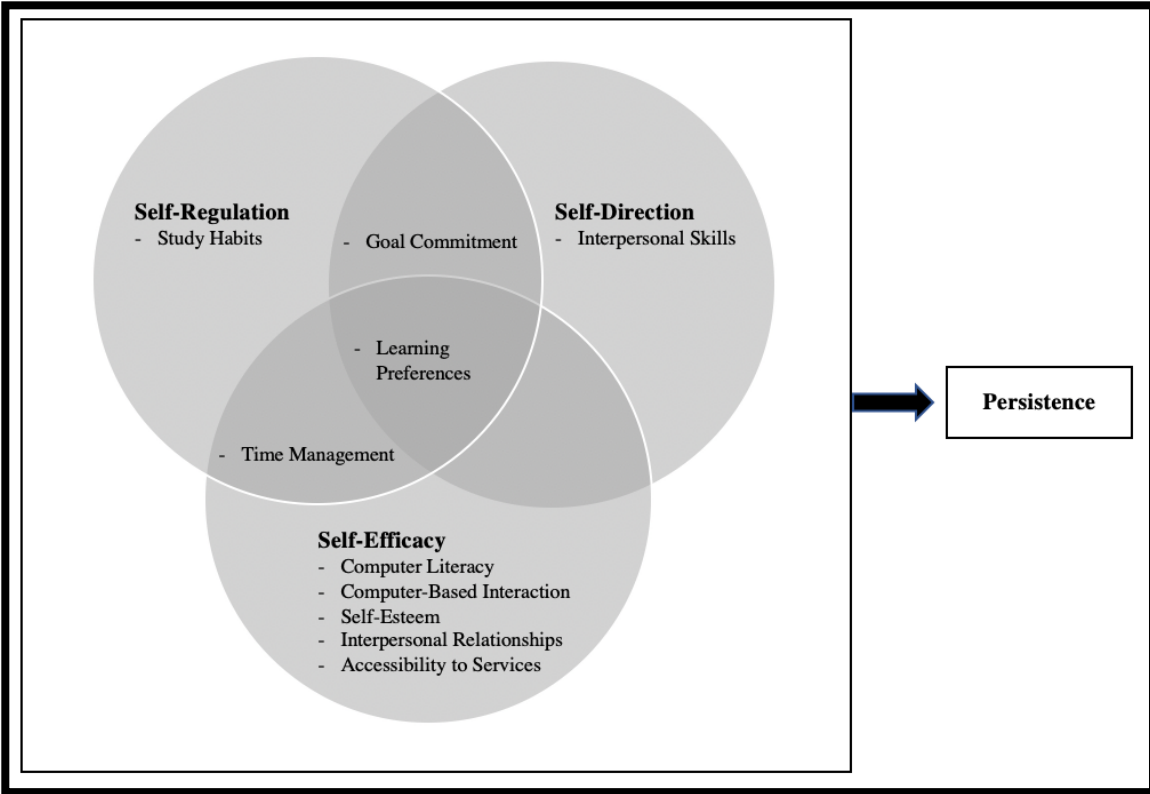


Figure 1

Relationships Among Self-regulation, Self-direction, Online learning self-efficacy, and Persistence

Not all factors related to online student persistence are within the institution’s control. However, there are factors, such as human agency, within its scope that need to be promoted by the institution to improve persistence rates (Bean & Metzner, 1985; Diaz, 2002; Rovai, 2003; Tinto, 1975, 1987, 1993). If institutions are to promote persistence, they need to help students develop human agency, so they can “...seek to persist” (Tinto, 2017, p. 254). Online student orientation, regular advisement, technology training, and the use of self-assessments to determine student readiness for online learning are some of the strategies that institutions of higher education can employ to support students’ agency, and thus, their persistence (Hart, 2012; Lee &

Choi, 2011). For example, one institution's required orientation centered on the online class environment (i.e., navigation, tool use). An examination of the effectiveness of the orientation found a decrease in online student class withdrawals and an overall increase in student grades (Taylor et al., 2015). Another institution of higher education also experienced an increase in online student retention after implementing an online orientation focused on technology use, help-seeking, virtual communication, and tips for success as an online learner (Jones, 2013). While these studies are promising and support the positive impact of such interventions, they were primarily concerned with developing skill and self-efficacy with technology, and the literature surrounding the outcomes and impact of such interventions is sparse (Parkes et al., 2015). Interventions facilitating technology use may enhance technical skills, but students need to develop additional elements of human agency to persist in undergraduate online classes and programs. Those interventions intended to develop human agency need to be examined to determine their impact on online undergraduate student persistence.

A study on undergraduate student preparedness for online learning found that students did not feel prepared to navigate an online class, manage their learning, engage with others online, interact with class content, and manage their time (Parkes et al., 2015). Similarly, Chumbley et al. (2018) studied undergraduate online students' self-regulation and found that students with limited experience in online learning exhibited anxiety and were unclear on class expectations and their role and responsibilities. Undergraduate students often fail to persist in online classes and programs because they are unprepared and lack human agency.

Problem Statement

To address the persistence of undergraduate online students, universities must proactively create and implement interventions to prepare students for the online learning environment and

to help them develop human agency. High-impact practices for residential students have been created to positively impact success, including persistence. While some universities are starting to develop high-impact practices for online students, the development and research is sparse. These interventions need to incorporate models of student persistence (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1993) supported by findings from recent literature (Barnard et al., 2008; Tinto 2017; Williamson 2007; Zimmerman & Kulikowich, 2016).

If students are to continue enrolling in online programs and universities plan to increase their undergraduate online program offerings, then the high rates of attrition in online classes must not be overlooked. Interventions aimed at promoting human agency in online undergraduate students are essential to student success and, ultimately, university success as persistence rates are vital to accreditation, funding, and reputation (Tinto, 2017; Yang et al., 2017).

Purpose Statement

The purpose of this study was to examine if differences in self-regulation, self-direction, and online learning self-efficacy exist between students participating in the experimental high-impact, First-Semester Seminar (FSS) class and the traditional First-Semester Seminar (FSS) class. Persistence rates between the two groups were also examined. The current study examined the impact of an intervention predicated on theories of persistence (Bandura, 1997; Knowles, 1989; Rovai, 2003; Tinto, 1993, 2017; Zimmerman, 2002) and research on online undergraduate students' human agency and persistence (Barnard et al., 2008; Williamson, 2007; Zimmerman & Kulikowich, 2016). The independent variable in this study was participation in either the experimental high-impact FSS class or the traditional FSS class, while the dependent variables of interest were self-regulated learning, self-directedness in learning, online learning self-efficacy,

and persistence. The population for this study was new and transfer students enrolled in undergraduate classes during the Summer and Fall 2019 academic semesters at a private institution of higher education within the southeast United States. Intact FSS classes were examined because random assignment of participants was not possible.

The traditional FSS class (one of the independent variables) is a three-credit course required of all undergraduate students at the onset of their studies and requires a minimum passing letter grade of C. The class is offered in hybrid, online, and face-to-face formats and this study examined those students completing the class in the online format, which is designed to prepare undergraduate online students for college-level learning. The outcomes emphasize time management, critical thinking, study habits, study skills, technology use, information literacy skills, academic policies and procedures, support services and resources, and university culture and history.

The experimental high-impact FSS class (i.e., the second independent variable), incorporated bi-weekly learning logs to encourage continuous student engagement and reflection in the learning process through self-management, self-monitoring, and self-evaluation. Planning and reflection activities have been associated with promoting human agency in students (Barnard-Brak et al., 2010; Chang, 2007; Connor-Greene, 2000; Dignath-Van Ewijk et al., 2015; Merriam, 2001; Pilling-Cormick & Garrison, 2007; Williamson, 2007; Zimmerman, 1989; Zimmerman & Campillo, 2003; Zimmerman & Kulikowich, 2016).

The dependent variable of self-regulated learning is defined as the degree to which a student takes an active role in their learning by setting goals, experimenting in the use and adaptation of strategies to help them achieve their goals, engaging in self-monitoring and self-evaluation activities, managing their time efficiently, and associating results to causes

(Zimmerman, 1998, 2002). The 24-item Online Self-Regulated Learning Questionnaire (OSLQ) was used to measure undergraduate student self-regulation on the subscales of goal setting, environment structuring, time management, help-seeking, task strategies, and self-evaluation (Barnard-Brak et al., 2010).

The dependent variable of self-direction is defined as the active role a student takes to initiate coursework independently, diagnose their learning needs, and identify the resources they may need to achieve their goals (Knowles, 1975). The 60-item Self-Rating Scale of Self-Directed Learning (SRSSDL) was used to measure undergraduate student self-direction on the subscales of self-awareness, learning strategies, learning activities, self-evaluation, and interpersonal skills (Williamson, 2007).

The dependent variable of self-efficacy is defined as a student's awareness "of their capabilities to organize and execute a course of action required to attain designated types of performances" (Bandura, 1986, p. 391). High self-efficacy in students is associated with high levels of self-motivation and independence (Zimmerman, 2000). Thus, online learning self-efficacy is defined as a student's perception of his or her capabilities to complete course work online (Zimmerman & Kulikowich, 2016). The 22-item Online Learning Self-Efficacy Scale (OLSES) was used to measure undergraduate online student self-efficacy on the subscales of online learning, time management, and technology use (Zimmerman & Kulikowich, 2016).

Finally, the dependent variable of persistence is defined as the successful completion of an online class and enrollment in an online class in the next semester (Hart, 2012; Park & Choi, 2009; Rovai, 2003). Next-semester registration records were used to measure undergraduate online student persistence.

Theoretical Framework

Much of the literature on online student attrition and persistence draws its theoretical framework from research by Tinto, Bean, Metzner, and Rovai and this study relied on their theories for guidance. Tinto (1975, 1987) sought to explain traditional undergraduate student attrition through the Institutional Departure Model, emphasizing factors associated with the institution and the student experience. He later revised his model to include nontraditional learners, focusing on pre-entry attributes of family background, skills and abilities, prior schooling, student goals and commitment to goals, student experiences at the institution, as well as academic and social integration (1993). Tinto argued that students' experiences in college are composed of social integration and academic integration, which can influence students' goals and commitments and that collaborative learning activities and assessment methods are fundamental in promoting and supporting social and academic integration (1987, 1993). Student background and personal attributes can affect integration, and thus persistence (Bean, 1980, 1982; Bean & Metzner, 1985; Rovai, 2003; Tinto, 1987, 1993, 2006-2007).

Building on the work of Tinto, above, and Bean (1980, 1982), Bean and Metzner (1985) sought to explain student attrition through the Student Attrition Model, emphasizing factors applicable to nontraditional students, with a focus on academic and psychological variables. Their model aimed to differentiate between the persistence of traditional and nontraditional students. They argued that nontraditional learners required different encouragement than traditional students "because their reference group of peers, friends, family, and employers is thought to be largely external to the institution" (Bean & Metzner, 1985, p. 506). This is in contrast to Tinto's (1987) model, which assigns the responsibility of student support and encouragement to the institution. Bean and Metzner's (1985) analysis of attrition factors for

nontraditional students culminated in the identification of four variables that influence persistence: (a) academic variables; (b) background and defining variables; (c) environmental variables; and (d) academic and psychological outcomes.

Rovai (2003) synthesized Tinto's (1975, 1987, 1993) and Bean and Metzner's (1985) attrition models in his Composite Persistence Model to address the specific needs of undergraduate students enrolled in online classes. Rovai (2003) incorporated student characteristics (age, ethnicity and gender, intellectual development, academic performance, academic preparation) deemed influential to persistence prior to admission. Additionally, he incorporated external factors (e.g., finances, hours of employment, family responsibility, outside encouragement, opportunity to transfer, life crises) and internal factors (e.g., study habits, advising, absenteeism, course availability, program fit, current GPA, utility, stress, satisfaction, commitment academic and social integration, goal commitment, institutional commitment, learning community) that can impact student persistence after admission. To address persistence in online students, Rovai contended that students need specific skills (computer and information literacy, time management, reading and writing skills, and computer-based interaction) prior to admission to an online class or program. He also argued that online students have specific needs after admission (internal factors of program clarity, self-esteem, identification with the institution, interpersonal relationships, access to services) that help them to persist. Rovai (2003) further maintained that while online students need to be self-directed in their learning, they also "expect a pedagogy that matches their learning style" (p. 11), consequently adding pedagogy (learning preferences and teaching styles) as a necessary internal factor after admission.

As evidenced by these theories, persistence is complex and a single intervention cannot address all factors associated with persistence. Therefore, the intervention used in, and the focus

of, this study was based on what Rovai (2003) identified as internal factors needed to support student persistence in an online class: goal commitment, study habits, and learning preferences. These factors were conceptualized as self-regulation, self-direction, and self-efficacy (Bandura, 1997; Knowles, 1975; Zimmerman 1998; 2002). Undergraduate online students who demonstrate a commitment to their goals, apply effective study habits, and adapt their learning preference are more likely to persist because they are self-regulated (Barnard-Brak et al., 2010; Knowles, 1975; Zimmerman 1998; 2002) and self-directed (Bandura, 1996; Williamson, 2007) in their learning. Undergraduate online students also need to demonstrate high self-efficacy to persist (Bandura, 1986; Zimmerman, 2000; Zimmerman & Kulikowich, 2016) by committing to their goals, applying effective study habits, and adapting their learning preference. Thus, the current study examined the impact of an intervention predicated on theories of persistence and research on online undergraduate students' human agency and persistence and was based on the assumption that the elements of human agency are salient in the persistence of online students (Stephen et al., 2020) and need to be integrated into interventions aimed at improving persistence. See Figure 2.

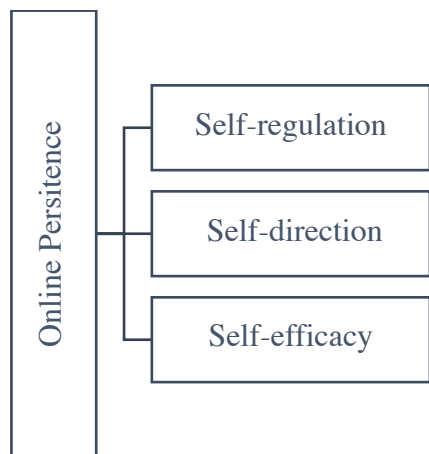


Figure 2

Elements of Human Agency and the Persistence of Online Students

Research Questions

The research questions for this study were:

Research Question 1. What significant differences, if any, exist in the pretest scores on the combination of the self-regulation, self-direction, and online learning self-efficacy of online students who participate in the experimental high-impact First-Semester Seminar (FSS) class and the traditional First-Semester Seminar (FSS) class?

Sub-Research Question 1.1. While controlling for pre-existing factors using the pretest, what differences, if any, exist in students' self-regulation when participating in the experimental high-impact FSS class compared to the traditional FSS class?

Sub-Research Question 1.2. While controlling for pre-existing factors using the pretest, what differences, if any, exist in students' self-direction when participating in the experimental high-impact FSS class compared to the traditional FSS class?

Sub-Research Question 1.3. While controlling for pre-existing factors using the pretest, what differences, if any, exist in students' online learning self-efficacy when participating in the experimental high-impact FSS class compared to the traditional FSS class?

Research Question 2. What differences, if any, exist in the persistence of online students who participate in the experimental high-impact FSS class compared to the traditional FSS class?

Null Hypotheses

The null hypotheses for this study were:

Null Hypothesis 1. There is no significant difference between undergraduate online students' combined self-regulated learning, self-directed learning, and online learning self-

efficacy scores based on the type of First-Semester Seminar (FSS) class they participated in, while controlling for pretest score.

Null Hypothesis 1.1. There is no significant difference between undergraduate online students' self-regulated learning scores based on the type of class participated in, while controlling for pretest score.

Null Hypothesis 1.2. There is no significant difference between undergraduate online students' self-directed learning scores based on the type of class participated in, while controlling for pretest score.

Null Hypothesis 1.3. There is no significant difference in undergraduate online students' online learning self-efficacy score based on the type of class participated in, while controlling for pretest score.

Null Hypothesis 2. There is no significant difference in the persistence rates of students participating in the experimental high-impact FSS class and the traditional FSS class.

Definitions

Distance education. Education that uses at least one form of technology to provide instruction to students who are geographically separated from the instructor (Seaman et al., 2018).

First-semester seminar (FSS). A term used interchangeably in the literature with First-Year Seminar (FYS). It was used in this study to describe a seminar class an undergraduate student enrolls in during their first semester at a university.

First-year seminar (FYS). A class designed and structured to assist first-year students in their academic and social development as they transition to learning at the undergraduate college level (Barefoot & Fidler, 1996; Hunter & Linder, 2005).

High-impact practices. Practices that involve students as active participants in learning experiences to achieve deep learning, resulting in a positive differential impact (Kuh & O'Donnell, 2013).

Human agency. This term is used to refer collectively to self-regulation, self-direction, and online learning self-efficacy. From a social cognitive perspective, human agency is considered fundamental to human functioning because it enables individuals to exercise control over their cognitive functioning and monitor the impact of their behaviors (Bandura, 2001).

Nontraditional student. Undergraduate students who meet at least one of the following characteristics: 25 years or older, delayed college enrollment, enrollment on a part-time basis, employment that exceeds 35 hours per week, financially independent, married with or without dependents, a single parent (National Center for Education Statistics, 2017).

Online class. A class in which all instructional activities take place through distance education (Seaman et al., 2018).

Online program. A program of study for which all required classes and instructional activities can be completed through distance education classes (Seaman et al., 2018).

Online learning. A class in which the student receives all instruction and class materials online (Kauffman, 2015).

Online learning self-efficacy. A student's perception of his or her capabilities to complete class work online (Zimmerman & Kulikowich, 2016).

Persistence. A student's enrollment in an online class the next semester (Hart, 2012; Park & Choi, 2009; Rovai, 2003).

Self-efficacy. A student's awareness "of their capabilities to organize and execute a course of action required to attain designated types of performances" (Bandura, 1986, p. 391).

High self-efficacy in students is associated with high levels of self-motivation and independence (Zimmerman, 2000).

Self-directed learning. The active role a student takes in their learning to initiate classwork independently, diagnose their learning needs, and identify the resources they may need to achieve their goals (Knowles, 1975).

Self-regulated learning. The degree to which a student takes an active role in their learning by setting goals, experimenting in the use and adaptation of strategies to help them achieve their goals, engaging in self-monitoring and self-evaluation activities, managing their time efficiently, and associating results to causes (Zimmerman, 1998, 2002).

Traditional student. Undergraduate students who are 24 years of age or younger, enrolled as full-time students, employed 34 hours or less per week, and who do not have dependents (National Center for Education Statistics, 2017).

Undergraduate student. A traditional or nontraditional student who is enrolled in a bachelor's degree-granting program (Undergraduate, n.d.).

CHAPTER TWO: LITERATURE REVIEW

Research has shown that attrition rates in online classes and programs are higher than those for traditional face-to-face classes and programs (Bawa, 2016; Bloemer et al., 2018; Fetzner, 2103; Hachey et al., 2013; Lee et al., 2013; Murphy & Stewart, 2017). While some factors related to student persistence are beyond the institution's control (Bean & Metzner, 1985; Diaz, 2002; Rovai, 2003; Tinto, 1975), many factors associated with persistence can be influenced by the institution (Rovai, 2003). Theories and theoretical frameworks have been developed to explain institutional and student factors associated with student persistence. Self-regulated learning (Barnard et al., 2008; Lee et al., 2013; Williamson, 2007; Zimmerman, 2002), self-directed learning (Brookfield, 2013; Knowles, 1989; Rovai, 2003) and self-efficacy (Bandura, 1997; Tinto, 1993; Zimmerman & Kulikowich, 2016) are considered necessary to online student persistence according to the theoretical and empirical literature. Stephen et al., (2020) found that online undergraduate semester-to-semester persistence can be explained by the combination of self-efficacy, self-regulation, and self-directedness. As such, the impact of interventions predicated on theories of persistence (Bandura, 1997; Knowles, 1989; Zimmerman, 2002) and research on online undergraduate students' self-regulation, self-direction, self-efficacy, and persistence (Barnard et al., 2008; Williamson, 2007; Zimmerman & Kulikowich, 2016) were examined in this review of the literature.

A comprehensive literature search was performed to investigate undergraduate student persistence in online classes and programs. Databases such as ABI/INFORM Collection (ProQuest), Academic Search Complete (EBSCO), ScienceDirect (Elsevier), SpringerLink, and Wiley Online Library were used to access scholarly articles and journals. The interdisciplinary

nature of the topic under investigation necessitated research across the disciplines of counseling, education, psychology, and technology.

Terms such as *online student retention*, *online student entry characteristics*, *student dropout*, *student attrition*, *online class abandonment*, and *undergraduate online classes* were used to guide the search, as well as *distance learning*, *online learning*, *first-time online students*, and *online orientation*. A subsequent search focused on student persistence related to *online student skills* and *online student behaviors*. Further searches substituted the terms *learner* with *student* and *attrition* with *persistence*. *Student success*, *first-year seminars*, and *student study skills class* were researched and student readiness was investigated using the phrases *readiness for online learning* and *preparedness for online learning*. Additional terms were added as the literature search developed and formed potential connections, such as *help-seeking*, *goal commitment*, *self-evaluation*, *study skills*, *technology skills*, and *self-monitoring*. Because the focus was on undergraduate students, the term *undergraduate* was used to filter search results. Finally, a systematic search was then used to investigate the factors of *self-regulation*, *self-direction*, and *self-efficacy*. Terms were examined individually and in combination. The date range for results was set to 2015-2019 to retrieve the most recent research studies and was expanded to years prior to 2015 to yield additional relevant results pertaining to theory development and seminal sources. Finally, the theoretical frameworks related to *social cognitive theory*, *student persistence*, *student beliefs*, and *student behaviors* were reviewed, as well as models intended to explain student persistence.

Conceptual Framework

A myriad of factors seen as contributors to online undergraduate student persistence emerged from the literature review. Therefore, a conceptual framework is an appropriate choice

to guide this research since it “lays out the key factors, constructs, or variables, and presumes relationships among them” (Miles & Huberman, 1994, p. 440). Following is a synthesis of the literature and discussion of a conceptual framework for student persistence, emphasizing self-regulation, self-direction, and self-efficacy. In this review of the literature, the term *student* will be used to refer to the population under research and study. However, the term *learner* will be used when referring to broader applications of theory.

Student Persistence and Attrition Models

As noted earlier, a number of theoretical models have been developed over the years to explain student persistence in traditional, nontraditional, and online classes. Tinto (1975, 1987, 1993) sought to explain traditional student attrition through the Institutional Departure Model, emphasizing factors associated with the institution and the student experience. The model encompasses pre-entry attributes of family background, skills and abilities, prior schooling, student goals and commitment to goals, and student experiences at the institution, as well as academic and social integration. Tinto (1975) postulated that a student’s level of integration shapes his or her level of commitment, which is reflected in persistence until degree completion. Building on the work of Tinto and Bean (1980, 1982), Bean and Metzner (1985) sought to explain student attrition through the Student Attrition Model, emphasizing factors applicable to those categorized as nontraditional students, with a focus on academic and psychological variables. Tinto’s (1975, 1987, 1993) and Bean and Metzner’s (1985) models would later be synthesized by Rovai (2003) to develop the Composite Persistence Model for Online Students that addresses characteristics, internal and external factors, and student skills associated specifically with online learning.

Tinto's Institutional Departure Model

Tinto's (1975) model is intended to explain the reasons for undergraduate student dropout and was based upon his study of traditional residential students. The model connected the environment of an educational institution with rates of student retention by suggesting that students who can immerse themselves in the educational context are more likely to thrive and persist (Tinto, 1975). He further explained that students' experiences in college are composed of social integration and academic integration, which can influence students' goals and commitments (1987, 1993). Therefore, students who lacked community were more likely to feel disconnected and drop out. Whereas, students who felt as if they were a part of the institution through social and academic integration were more likely to persist. He maintained that collaborative learning activities and assessment methods are significant in promoting and supporting social and academic integration.

Initially, Tinto's model did not take into consideration any differences in student demographics or status. He eventually updated his model to include new groups beyond traditional residential students and recognized the importance of student demographics, such as age, family status, employment status, and enrollment status. The revised model includes nontraditional students and transfer students and it proposes that elements of a student's background, experiences, and characteristics of an institution can be contributing factors to a student's decision to drop out or withdraw (Tinto, 1993). Salient to this study is Tinto's (2017) most current work that recognizes students' self-efficacy as "the foundation upon which student success is built" (p. 3).

Bean and Metzner's Nontraditional Student Attrition Model

Though Tinto revised his model in 1993 to include nontraditional students, Bean and Metzner (1985) had already critiqued his work and its application for nontraditional students. They proposed a conceptual model specifically designed to explain attrition among nontraditional commuter students. In contrast to a traditional student, a nontraditional student is older than 24, enrolled on a part-time basis, employed more than 35 hours per week, and/or has dependents (National Center for Education Statistics, 2017). Bean and Metzner's model aimed to differentiate between the persistence of traditional and nontraditional students. They argued that nontraditional students require different encouragement than traditional students "because their reference group of peers, friends, family, and employers is thought to be largely external to the institution" (Bean & Metzner, 1985, p. 506). Their analysis identification of four attrition factors for nontraditional students: (a) academic variables, (b) background and defining variables, (c) environmental variables, and (d) academic and psychological outcomes.

Academic variables include a student's study habits, academic advisement, absenteeism, program of study, and class availability. Background and defining variables include a student's age, enrollment status, residence, educational goals, high school performance, ethnicity, and gender. Finance, hours of employment, external support and encouragement, family status, and transfer opportunities are classified as environmental variables. Grade point average (GPA) is categorized as an academic outcome, while degree utility, program/class satisfaction, commitment to goals, and stress are categorized as psychological outcomes. The academic variable of study habits and the psychological outcome of goal commitment are salient to this study because of their direct effect on student GPA and intent to leave, which results in a student's decision to persist (Bean & Metzner, 1985).

Tinto (1975, 1987, 1993) and Bean and Metzner (1985) presented models explaining factors associated with persistence for traditional and nontraditional students in face-to-face classroom settings. Because the focus of this study is on online undergraduate persistence, it is vital to also examine a model that explains factors associated with persistence in an online undergraduate education setting.

Rovai's Composite Persistence Model for Online Students

Rovai (2003) synthesized Tinto's (1975, 1987, 1993) student integration model and Bean and Metzner's (1985) student attrition model with online learning research (Berge & Huang, 2004; Beaudoin et al., 2009; Cochran et al., 2014; Diaz, 2002; Mancini et al., 2018; Park & Choi, 2009) to construct a composite persistence model to address the specific needs of undergraduate students enrolled in online programs. Rovai (2003) purported that student skills, student needs, and pedagogy influence online student persistence. Citing Cole (2000) and Rowntree (1995), Rovai contended that students need specific skills upon admission to an online class or program, such as computer and information literacy, time management, reading and writing, and computer-based interaction. Online students also have specific needs post-admission. Workman and Stenard (1996) argued that online students' post-admission needs must be met if they are to persist. He identified post-admission factors to include internal and external factors such as program clarity, self-esteem, identification with the institution, interpersonal relationships, and access to services and argued that, "Online students also expect a pedagogy that matches their learning style" (2003, p. 11). Figure 3 illustrates Rovai's model (2003).

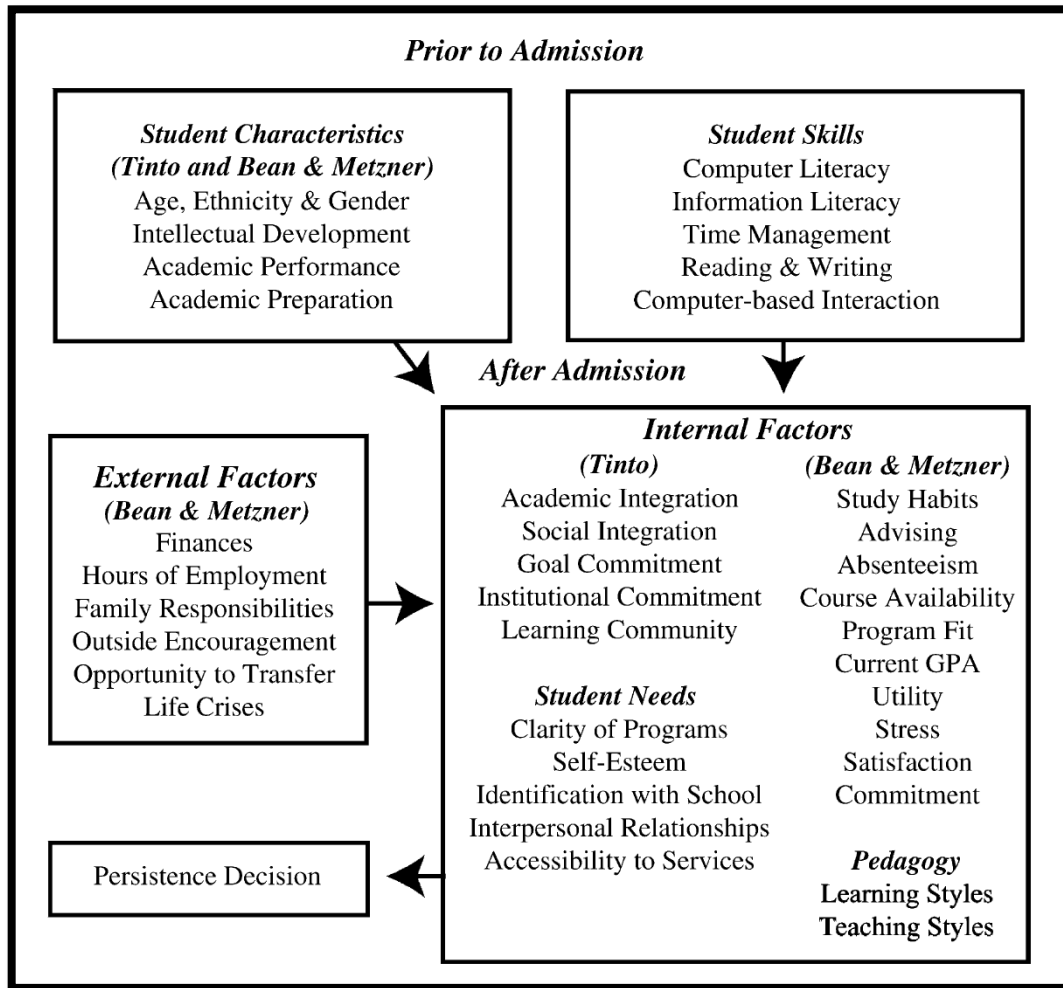


Figure 3

Rovai's Composite Persistence Model (2003). Reprinted with permission (Appendix A).

Recent online research has confirmed parts of Rovai's model, specifically the student skills of time management, computer literacy, information literacy, computer-based interaction (Broadbent, 2017; You, 2016) and the factors of goal commitment, study habits, self-esteem, learning preferences, interpersonal relationships, and accessibility to services (Cigdem & Ozturk, 2016; Kizilcec et al., 2017; Schommer-Aikins & Easter, 2018; Song et al., 2016). While Rovai used the terms *skills* and *factors* to describe elements of his model, other researchers referred to these as orientations, behaviors, and processes of self-regulation, self-direction, and self-efficacy.

For example, time management, goal commitment, study habits, and learning preferences describe behaviors, metacognitive processes, and motivational processes that promote self-regulation (Barnard et al., 2008; Zimmerman, 1989, 2002). Constructs of goal commitment, learning preferences, and interpersonal relationships describe processes that promote self-direction (Brookfield, 1986; Hiemstra, 1994; Knowles, 1975; Williamson, 2007). In the context of an online learning environment, self-efficacy is used to describe a student’s belief in their abilities to successfully complete tasks required of them as online students (Zimmerman & Kulikowich, 2016). These tasks, which are also present in Rovai’s (2003) model, include time management, computer literacy, information literacy, computer-based interaction, self-esteem, learning preferences, interpersonal relationships, and accessibility to services (Zimmerman & Kulikowich, 2016). Ultimately, self-efficacy has been described as essential to self-regulation (Zimmerman, 1989, 2002) and self-direction (Knowles, 1975; Garrison, 1997). Table 1 illustrates each construct of interest in this study from Rovai’s Composite Persistence Model (2003) and delineates their associations with self-regulation, self-direction, and self-efficacy.

Table 1

Constructs of Interest from Rovai’s Composite Persistence Model (2003) and their Association with Self-Regulation, Self-Direction, and Self-Efficacy

Constructs	Placement in Rovai’s composite persistence model (2003)	Promotes Student Self-Regulation	Promotes Student Self-Direction	Promotes Student Online Learning Self-Efficacy
Time Management	Prior to Admission, Student Skills	x		x
Computer Literacy	Prior to Admission, Student Skills			x

Table 1 Continued

Constructs	Placement in Rovai's composite persistence model (2003)	Promotes Student Self- Regulation	Promotes Student Self- Direction	Promotes Student Online Learning Self-Efficacy
Information Literacy	Prior to Admission, Student Skills			x
Computer-Based Interaction	Prior to Admission, Student Skills			x
Interpersonal Relationships	After Admission, Internal Factor, Student Needs		x	x
Accessibility to Services	After Admission, Internal Factor, Student Needs			x
Self-Esteem	After Admission, Internal Factor, Student Needs			x
Study Habits	After Admission, Internal Factor	x		
Goal Commitment	After Admission, Internal Factor	x	x	
Learning Preferences	After Admission, Internal Factor, Pedagogy	x	x	

As illustrated in Table 1, the constructs of interest in this study are associated with online student persistence. As explained in Chapter 1, the term *human agency* is used in this study to collectively refer to constructs of self-regulation, self-direction, and online learning self-efficacy.

Not all factors associated with online student persistence are within the institution's control, but research reveals there are factors, such as human agency, within its scope that need to be promoted by the institution to improve persistence rates (Bean & Metzner, 1985; Diaz, 2002; Rovai, 2003; Tinto, 1975, 1987, 1993). Rovai (2003) emphasized that students must be skilled in time management, computer literacy, information literacy, and computer-based interaction prior to admission and that they have additional needs (i.e., goal commitment, learning preferences, study habits, interpersonal skills and relationships, self-esteem, accessibility to services) throughout the duration of an online class or program influencing their persistence. Yet, undergraduate online students continue to enroll in online classes despite lacking these necessary pre-admission student skills (Broadbent, 2017; Parkes et al., 2015; You, 2016) and without developing the necessary human agency to persist (Cigdem & Ozturk, 2016; Kizilcec et al., 2017; Schommer-Aikins & Easter, 2018; Song et al., 2016). Rovai (2003) argued that if institutions are to promote persistence, they need to consider helping students develop human agency, so they can "seek to persist" (Tinto, 2017, p. 254). Hence, institutions assume a key responsibility in helping online undergraduate students develop mechanisms of human agency to persist.

Bandura (2001) emphasized that human agency is driven by individuals' goals and intentions, and, as agents, an individual can exert intentional influence over their processes and actions to persist. Thus, the constructs of interest in this study were selected because they are agentic behaviors, metacognitive processes, and motivational processes that can be controlled by a student and cultivated by institutions. For example, students do not automatically develop skills of self-regulation while enrolled in an online class, but there are high-impact practices that can be applied at the class level to promote self-regulation in undergraduate online students (Barnard

et al., 2010; Zimmerman, 1989). And, while some theorists have described self-direction as an inherent personality trait, others have emphasized that it can be learned and cultivated (Brockett & Hiemstra, 1991; Connolly et al., 2004; Knowles, 1975; Merriam et al., 2007). Self-efficacy is also learned through performance accomplishments, vicarious learning, persuasion, and physical/affective status (Bandura, 1997). Tinto (2017) described self-efficacy as a manifestation of a student's self-perception through interactions with others and locus of control. In the context of an online learning environment, self-efficacy refers to a student's perception of their abilities to complete tasks required of online learners (Zimmerman & Kulikowich, 2016). Given that these constructs can be cultivated or learned, it is fundamental to examine high-impact interventions designed to promote human agency in undergraduate online students.

Mechanisms of Human Agency

Self-regulated learning (Barnard et al., 2008; Lee et al., 2013; Zimmerman, 2002), self-directed learning (Brookfield, 2013; Knowles, 1989; Rovai, 2003; Williamson, 2007) and online learning self-efficacy (Bandura, 1997; Tinto, 1993, 2017; Zimmerman & Kulikowich, 2016) emerged in the review of theory and empirical literature as significant to online undergraduate student persistence. Figure 4 synthesizes existing student persistence models and illustrates specific elements of Rovai's (2003) composite persistence model central to this study.

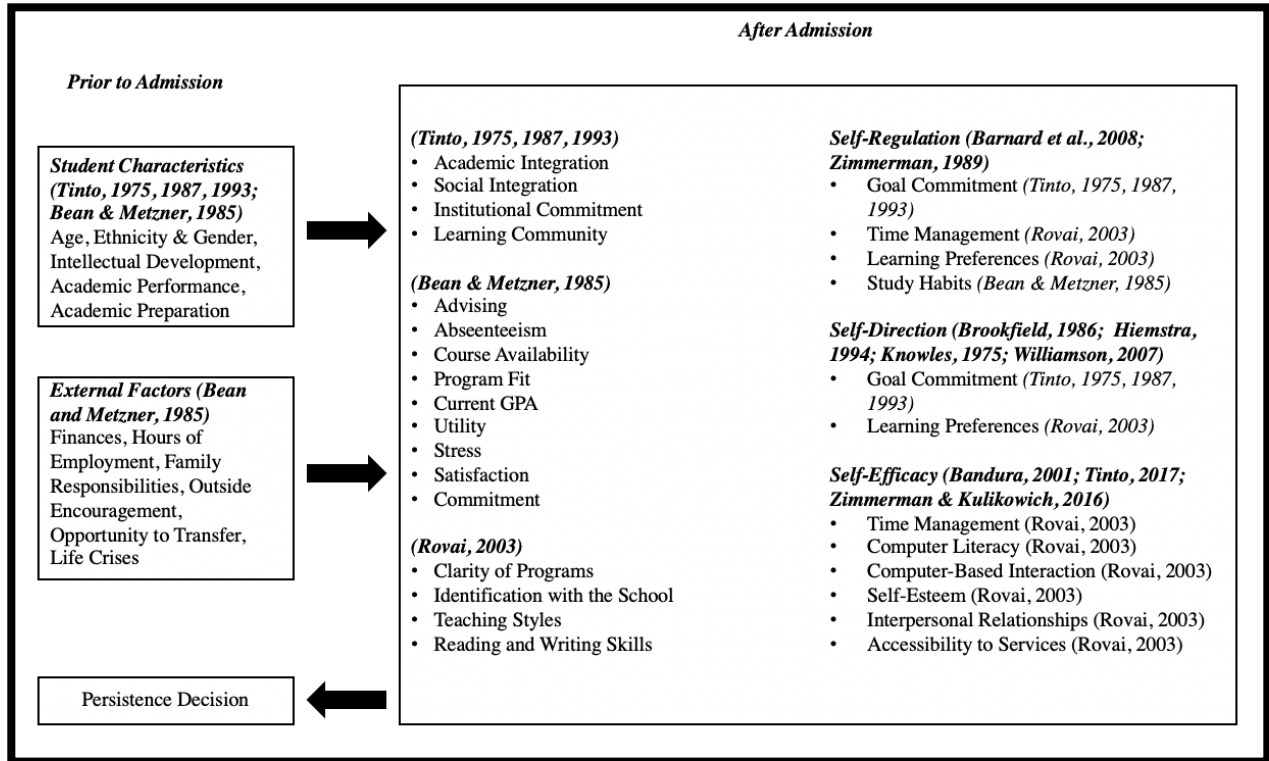


Figure 4

Student Persistence Models and Their Elements Associated with Human Agency

Self-regulation

Zimmerman (1989) described self-regulation as the extent to which a student participates in their learning by applying specific behaviors and employing metacognitive and motivational processes. He subsequently identified specific skills that promote self-regulated learning:

- setting specific goals,
- employing strategies to reach goals,
- self-monitoring for progress,
- reorganizing physical and social context for goal alignment,
- using time efficiently,
- self-evaluating methods used to reach goals,

- attributing causes to results, and
- adapting methods for future use (Zimmerman, 2002, p. 66).

Zimmerman described goal setting as a means to establish a standard or objective and he maintained that goals are present across the different phases of self-regulation, from forethought to performance control and self-reflection (1998). He argued that, “Learning is an activity that students do for themselves in a proactive way rather than a covert event that happens to them in a reaction to teaching” (Zimmerman, 2002, p. 65). As such, the process he introduced begins with students setting specific and proximal goals for themselves. After the establishment of goals, students need to select and apply task and learning strategies to help them achieve self-control such as the use of imagery, self-instruction, attention-focusing, and task strategies. Students also need to engage in “cognitive tracking of personal functioning” (Zimmerman, 2002, p. 68) to become aware of the amount of time spent completing classwork and studying so that they can attribute actions (i.e., group study session) to results (i.e., an improved test score) and make adaptations if needed. By applying various strategies and engaging in self-monitoring, self-reflection, and self-evaluation activities, students can then determine effective methods for future use and adapt accordingly (Zimmerman, 2002). He emphasized not just goal setting, but commitment to one’s goals, which is also emphasized in the models introduced by Tinto, Bean and Metzner, and Rovai. Lack of commitment to goals has been cited as a contributing factor to a student’s decision to depart an institution (Tinto, 1975, 1987, 1993).

Tinto’s (1993) model emphasizes a student’s goal commitment before admission to degree completion. Rovai’s Composite Persistence Model (2003) incorporates Tinto’s (1993), and Bean and Metzner’s (1985) concept of goal commitment as an internal factor that affects students after admission. Rovai’s model (2003) also incorporates student skills, such as time

management, reading and writing, information literacy, and study habits, which align themselves to Zimmerman's (1989) definition of self-regulation and the abilities of a student to apply specific behaviors and employ metacognitive and motivational processes.

Barnard et al. (2008) identified specific constructs of self-regulation in the context of an online learning environment: environment structuring (i.e., study location and time), goal setting (i.e., quality of classwork and learning, short- and long-term priorities), time management (i.e., time allocation, scheduling), help-seeking (i.e., support systems and resources), task strategies (i.e., study skills and habits), and self-evaluation (i.e., reflection). Goal setting (i.e., commitment, goal commitment), time management, help-seeking (i.e., advising, accessibility to services), task strategies (i.e., computer and information literacy; reading and writing skills, study habits) and evaluation (i.e., commitment, goal commitment, program fit, satisfaction, current GPA) have all been associated with residential and online student persistence (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1987, 1993). While a student using any of these strategies is engaged in self-regulated learning (Zimmerman & Schunk, 2011), their use does not necessarily lead to the development of strong self-regulated learners (Zimmerman, 1990). That is, students may not use the most appropriate self-regulated learning strategy for their needs and their use of these strategies is unlikely to improve just because they are enrolled an online class (Barnard-Brak et al., 2010).

Given that students do not necessarily become self-regulated learners while enrolled in an online class, empirical research reveals practices to promote student self-regulation in online classes and to foster the use of appropriate self-regulated learning strategies (Barnard et al., 2010; Zimmerman, 1989). Information should be provided to students on the importance of self-regulation, including tips for online student success (Hu & Driscoll, 2013), goal setting, test

preparation, time management, and note-taking (Dabbagh & Kitsantas, 2005). Additionally, engaging students in regular self-reflection activities (Chang, 2007; Dignath-van Ewijk et al., 2015; Zimmerman & Campillo, 2003) and creating help-seeking opportunities for students that encourage them to interact with peers and support services have been shown to improve self-regulated learning (Abdous et al., 2012; Cheng et al., 2013).

Self-direction

Both Tinto (1975, 1987, 1993) and Rovai (2003) argued that self-directed learning skills and strategies are necessary beyond admission to support student persistence in class or program completion. While self-regulated learners have been described as those who apply specific behaviors centered on metacognitive and motivational processes (Zimmerman, 1989), self-directed learners have been characterized as those who are proactive in the learning process (Garrison, 1997; Knowles, 1975) and capable of making decisions about what to learn, when to learn, how much to learn, and whether additional learning is necessary (Brookfield, 2013). Knowles (1975) described self-directed learners as those who independently initiate a diagnosis of their learning needs, formulate goals, identify the human and material resources they may need to achieve their goals or address their learning needs, and self-evaluate the outcomes of their learning. Other researchers have further refined Knowles' 1975 definition, describing self-direction as a process during which learners initiate the planning, implementation, and evaluation of their own learning, determining whether their learning is independent or collaborative, to achieve their learning goals (Brookfield, 1986; Hiemstra, 1994).

A central focus of self-direction is on external control features (Pilling-Cormick & Garrison, 2007). Williamson (2007) identified five broad areas of self-directed learning:

- Awareness: Students' understanding of factors that help them to become self-directed (i.e., time management, study habits, utility, commitment);
- Learning strategies: Strategies students must adopt to become self-directed (i.e., learning and teaching styles);
- Learning activities: Essential learning activities that students must engage in to become more self-directed (i.e., computer and information literacy, reading and writing skills);
- Evaluation: Specific attributes for self-monitoring (i.e., commitment, goal commitment, program fit, satisfaction, current GPA); and
- Interpersonal skills: Communication skills (i.e., computer-based interaction, advising, interpersonal relationships, accessibility to and use of services).

These five areas have all been associated with online and residential student persistence (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1987, 1993). Goal setting, time management, learning and study strategies, interpersonal skills, and evaluation have also been associated with constructs of self-regulation (Bandura 1986, 1997; Barnard et al., 2008; Zimmerman, 1989, Zimmerman & Schunk, 2001).

While theorists describe self-direction as an inherent personality trait, they also emphasize that it can be learned and cultivated (Brockett & Hiemstra, 1991; Connolly et al., 2004; Merriam et al., 2007). In his argument that self-direction is “a basic human competence – the ability to learn on one’s own” (1975, p. 17), Knowles also acknowledged that one might not possess the skills necessary for effective self-direction. And, those with inherent personality traits associated with self-direction may exhibit such behaviors and skills with varying effectiveness, based on environment or context (Candy, 1991; Hiemstra, 1994).

Knowles (1975) maintained that self-directed students must take an active role in their learning by independently initiating classwork, diagnosing their learning needs, and identifying resources they may need to achieve their goals. These actions are especially important in online learning, due to the independent nature of the learning environment. Students who lack the skills and strategies necessary to execute these actions upon admission are likely to fail (Knowles, 1980). This shift from teacher to student responsibility for organizing time, completing classwork, and meeting deadlines, along with the evolving role of an instructor from teacher to facilitator, prompted Rovai (2003) to add learning preference and teaching style as pedagogical factors that can impact persistence after admission. Student development of self-direction is essential to persistence in an online class (Moore & Kearsley, 1996) and it has been noted that students must be taught about self-directed learning and provided with clarification on expectations (Knowles, 1975). Changes to pedagogy are fundamental to maximize the potential of self-directed students (Fein, 2014), and this includes a redesign of assignments and classwork that foster critical thought and student engagement (Chu & Tsai, 2009). Grow (1991) emphasized the responsibility of instructors to lead students toward greater self-direction through coaching with immediate feedback, inspiring goal setting and employment of various learning strategies, facilitating engaging discussions, and providing individual and small-group consultation (p. 130). However, students also share the responsibility for developing their self-regulation. Students must want to learn, be interested in the attainment of knowledge and skills (Dweck et al., 2014), and initiate learning through independent engagement with the online class material (Comer et al., 2015). As such, instructors shift from their traditional roles of teaching to facilitating and students shift from passive to active learners who take responsibility for and control of their learning.

Self-efficacy

Self-efficacy is essential to long-term planning, self-regulation, and self-correcting actions, all of which are constructs of self-regulated learning (Zimmerman, 2002) and self-directed learning (Knowles, 1975; Garrison, 1997). Zimmerman contended that self-efficacy was an important element in self-regulated learning (1989), and Workman and Stenard (1996) argued that a student's heightened sense of self-esteem can lead to improved learning experiences, resulting in persistence. Tinto (2017) also identified self-efficacy as a salient factor to persistence. Chickering (1969) defined self-esteem as a learner's sense of competence that can either help or hinder their efforts to overcome a fear of failure and develop the necessary confidence to persist. Bandura (1997) contended that self-esteem does not necessarily result in improved performance, but, if for example, a student has high levels of self-efficacy in online learning in which he/she invested much self-worth, their self-esteem and self-efficacy will likely be linked. While Knowles (1975), Garrison (1997), and Barnard et al. (2008) characterized self-directed learners, and Zimmerman (2002) and Williamson (2007) described actions and behaviors of self-regulated learners, Bandura (1997) aimed to define self-efficacy, to identify its sources, and to describe its impact on student persistence. He described self-efficacy as a motivational orientation that promotes persistence, supports intention and long-term planning, and encourages self-regulation and self-correcting actions.

Sources of self-efficacy include mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Bandura, 1997). Bandura described mastery experiences as the most influential source of efficacy because they provide evidence of success and non-success (1977). For example, an online student who previously experienced success in an online class is likely to be confident in taking another online class because of their increased

self-efficacy. In contrast, a negative experience can cause a student to lose confidence, decreasing their self-efficacy. A student can also develop higher self-efficacy when they see a peer experience success, for example, in an online class. However, witnessing others experience failure can lead to a decreased sense of self-efficacy. Tinto (2017) described self-efficacy as a manifestation of a learner's self-perception through their locus of control and interactions with others. Thus, self-efficacy is learned or acquired through these interactions and not inherent. Verbal persuasion is another source of self-efficacy that can be influenced positively through encouragement and negatively by discouragement. Bandura (1977) explained that self-efficacy develops from sensations and it is the individual's interpretations of these sensations that influence their beliefs of self-efficacy. For example, when a student encounters a difficult task in an online class, they may become easily frustrated and anxious, which can lead to a lowered sense of self-efficacy, or they might attempt to resolve the issue independently or enlist the help of other resources and support systems, which can lead to a heightened sense of self-efficacy.

Self-efficacy in the context of an online learning environment can be classified as specific types (Wang & Baker, 2015), such as technology self-efficacy (Miltiadou & Yu, 2000), computer self-efficacy (Pellas, 2014), Internet self-efficacy (Kuo et al., 2014; Tang & Tseng, 2013), and learning management system (LMS) self-efficacy (Martin et al., 2010). While the aforementioned categories emphasize technical skills, students also need to possess higher self-efficacy in self-direction, communication, and time management to help them persist (Artino, 2010; Ko & Rossen, 2010; Zimmerman & Kulikowich, 2016).

In this study, online learning self-efficacy was defined as "an individual's perception of his or her abilities to successfully complete specific tasks required of online learners"

(Zimmerman & Kulikowich, 2016, p. 181). Zimmerman and Kulikowich (2016) identified dimensions of online learning self-efficacy as:

- Technology use: Using synchronous and asynchronous communication tools, resolving technical issues, and accessing support and resources;
- Time management: Using time effectively, meeting deadlines, overcoming distractions, and planning; and
- Learning in the online environment: Navigating the various functions of the learning management system, learning independently, using the Internet for research, completing individual and group work online, and seeking help from instructors and peers.

Student skills (i.e., computer and information literacy, time management, computer-based interaction), student needs (i.e., interpersonal relationships, self-esteem, accessibility to services) and pedagogy (i.e., learning and teaching styles preferences) were previously identified as internal factors that contribute to learner persistence in an online class (Rovai, 2003).

In addition to self-efficacy's association with student persistence, it also influences self-regulated learning (Zimmerman, 1989) because a student's efficacy beliefs affect their decision to persist in the learning process. Thus, to engage in the learning process through self-management and self-monitoring, self-regulation requires students to have a sense of self-efficacy, among other factors (Pilling-Cormick & Garrison, 2007). Furthermore, a student's ability to employ appropriate strategies to engage in the learning process, maintain a commitment to their goals, and manage and monitor their learning have been associated with self-direction (Williamson, 2007).

Bartimote-Aufflick et al. (2015) summarized concrete strategies that instructors can use to promote online learning self-efficacy in students, such as creating opportunities for peer learning, assisting students in addressing their own misconceptions, optimizing the use of technology for learning, providing additional relevant resources and activities, and encouraging student sharing of experiences. Interventions aimed at supporting student development of online learning self-efficacy have also proven to be effective (Gargallo et al., 2016; Wernersbach et al., 2014). The significance of self-regulated learning, self-directed learning, and online learning self-efficacy to student persistence in online classes commands further examination to determine the design and impact of interventions to support online student development of human agency and is the combined responsibility of institutions, instructors, and students.

Mechanisms of Human Agency

Self-regulation, self-direction, and online learning self-efficacy are salient to online, undergraduate student persistence; thus, the subsequent review of the literature presents an analysis of recent studies on the individual and combined impact of self-regulation, self-direction, and self-efficacy on online student persistence. Additionally, the review examines studies about interventions intended to support student development of skills, behaviors, and attitudes associated with self-regulation, self-direction, online learning self-efficacy, and persistence in an online class or program.

Self-Regulation

Research has substantiated the significance of self-regulation to student achievement and persistence in the online learning environment (Barnard, et al., 2008; Lee, et al., 2013; Shea & Bidjerano, 2010) and in face-to-face classes (Kramarski & Gutman, 2006; Kramarski & Mizrachi, 2006; Lan, 1996; Orange, 1999). Many of these studies have relied on self-report

instruments aimed at measuring online and face-to-face student self-regulation to study self-regulated learning (Barnard et al., 2009; Pintrich et al., 1993).

Researchers have examined associations between student self-regulation and performance in online classes. Broadbent (2017) compared the self-regulated learning strategies and academic performance of 606 undergraduate students enrolled in online and blended classes. A validated instrument used to measure student self-regulation (Pintrich et al., 1993) was administered to students enrolled in online and blended classes. The results revealed that students enrolled in online classes had to use more self-regulated learning strategies, such as elaboration, organization, metacognition, time management, and effort regulation than students enrolled in blended classes. Time management was found to be a significant predictor of academic performance. The instrument used in Broadbent's study defined elaboration and organization as cognitive strategies the student employs in the learning process, such as study skills and strategies, metacognition referred to metacognitive strategies such as planning, skimming, and self-monitoring for comprehension, and time management and effort regulation referred to resource management, which promotes a student's persistence to overcome barriers while completing classwork (Pintrich & DeGroot, 1990). The study's findings affirmed the need for students to exercise time management skills, demonstrate commitment, and employ skills and strategies that support their learning to help them persist in an online class or program (Barnard, et al., 2008; Bean & Metzner, 1985; Rovai, 2003; Zimmerman, 2002).

Another study also found time management to be a key predictor of student academic achievement. Broadbent and Poon (2015) conducted a meta-analysis of self-regulation in online learning environments. Their evaluation of 11 peer-reviewed journal articles published between 2004 and 2014 confirmed a significant and positive association between self-regulation strategies

and student achievement. Correlations were identified among factors of metacognition, time management, effort regulation, student achievement, and persistence. Broadbent and Poon (2015) concluded that online students who demonstrate time management skills, awareness of their learning behavior, and perseverance to understand and learn are more likely to persist in an online class. The results of this meta-analysis confirm the importance of goal commitment, time management, learning preferences, and study habits to online student persistence.

Self-regulated learning strategies were also the focus of a quantitative study conducted by Kizilcec et al. (2017). This study provided further evidence for self-regulation in the online learning environment, involving 4,831 students across six MOOCs. A survey administered at the onset of the class included questions about student demographics, time commitment, class intentions, prior experience with the topic, concurrent enrollment in other online classes, and the number of completed online classes and it also incorporated the Online Learning Enrollment Intentions scale (Kizilcec & Schneider, 2015), which consists of 13 open-ended items centered on students' motivations. In addition, it included a measure of self-regulated learning adapted from other established instruments (Barnard-Brak et al., 2010, Pintrich, 1991; Rigotti et al., 2008; Schraw & Dennison, 1994; Warr & Downing, 2000) and a selection of self-regulated learning strategy subscales from other instruments (Azevedo et al., 2008; Taub et al., 2014). The survey measured goal setting, strategic planning, self-evaluation, task strategies, elaboration, and help-seeking and demonstrated reliability for all strategy subscales, with Cronbach's alpha of 0.75. An analysis of student survey results, final scores, and observations of student interactions with class content showed that students who engaged in activities related to goal setting and planning skills achieved their goals. The study also found that students who committed more time to the class demonstrated stronger use of and consistent application of self-regulation. These

findings are consistent with prior research on self-regulated strategy use by students centered on goal commitment and time management (Barnard et al., 2008; Rovai, 2003; Schunk, 2005; Zimmerman & Pons, 1986; Zimmerman, 2000; Zimmerman, 2002).

To persist, students must be prepared to be active participants in their learning (Garrison, 1997; Knowles, 1975; Zimmerman, 1989). Chumbley et al. (2018) conducted a study to determine self-regulatory behaviors and skills necessary for student success, and ultimately, persistence in online agriculture classes. They administered a survey to 146 students enrolled in an online undergraduate class that measured constructs of self-regulation (e.g., environment structuring, goal setting, time management, help-seeking, task strategies, self-monitoring) in an online agriculture class. A significant relationship was found between past experience in online learning and all constructs of self-regulated learning, confirming that self-regulation can take time to develop (Zimmerman & Schunk, 2001).

Given self-regulation's association with student performance, achievement, success, and persistence in the online learning environment, interventions to promote it need to be developed and tested. When faced with challenges, an online student must employ strategies to help them sustain their efforts (Pintrich & DeGroot, 1990). In addition to time and effort regulation, online students need to be prepared to modify certain behaviors associated with persistence, such as employing strategies to achieve goals, structuring their environment, seeking help, and evaluating their performance (Barnard, et al., 2008; Rovai, 2003; Zimmerman, 2002). Because of self-regulated learning's significance to online and face-to-face students' persistence, it is postulated that this construct is central to the development of any intervention aimed at promoting student persistence in an online class.

Self-direction

Self-direction, like self-regulation, has also been presented in the literature as necessary to student success, achievement, and persistence (Brookfield, 1986; Guglielmino, 1997; Hiemstra, 1994; Knowles, 1975, 1980). Research has demonstrated strong associations between self-directed learning and student achievement in face-to-face classes (Ally, 2004; Beishuizen & Steffens, 2011; Richardson et al., 2012; Wang et al., 2013) and in online classes (Martin et al., 2014; Wladis et al., 2016). Self-report instruments intended to measure online and face-to-face student self-directedness have been developed and used to study self-directed learning as a factor in online and face-to-face students' achievements (Guglielmino, 1997; Khiat, 2015; Williamson, 2007).

Recent studies confirm the importance of self-direction to student achievement and persistence in the online learning environment. Cigdem and Ozturk (2016) examined readiness for online learning and end-of-class achievement in 155 postsecondary students, 120 of whom had prior experience in online learning. An online questionnaire was used to collect demographic information and measure online learner readiness based on the Online Learning Readiness Scale (Hung et al., 2010), which had been translated into Turkish and tested for use with a similar population. Although the original scale (McVay, 2000; Hung et al., 2010) consisted of five dimensions (computer/Internet self-efficacy, self-directed learning, motivation for learning, learner control, and online communication self-efficacy), the researchers used only the dimensions of computer/Internet self-efficacy, self-directed learning, and motivation for learning for their study. A reliability analysis was performed for each dimension and produced Cronbach's alpha levels from .75 to .80. Results of the study indicated student motivation for online learning was significantly higher than their orientation to self-directed learning and demonstrated a significant positive relationship between end-of-class student grades and self-

directed learning orientation. Another key finding from this study was that students' self-direction towards online learning was the strongest predictor of their achievements in the class. These particular findings echo previous research revealing that students must want to learn and be interested in the attainment of knowledge and skills (Dweck et al., 2014), initiate learning through independent engagement with the online class material (Comer et al., 2015), employ computer-based interaction skills, and adapt their learning preferences to the online environment (Rovai, 2003; Zimmerman, 1989).

Schommer-Aikins and Easter (2018) also conducted a study on online student self-direction and their tendencies toward cognitive flexibility. Their study found that students with higher cognitive flexibility were better at performing self-directed activities such as exploring online sources, engaging with peers and instructors, and self-monitoring. Instruments used to measure cognitive flexibility (Martin & Rubin, 1995), procrastination (Tuckman, 1991) and self-directed learning online (Khiat, 2015) were combined into an online survey and data were collected from over 200 college students across two universities. The instrument used to measure self-directed online learning consisted of statements related to assignment management, online learning proficiency, and technical proficiency (Khiat, 2015). The instrument items related to cognitive flexibility measured student interaction with peers and instructors in an online class, studying and learning in an online environment, and use of technology (Martin & Rubin, 1995). Cognitive flexibility was significantly correlated with student self-directedness. These findings support the need for students to adapt their learning preference to the online learning environment, interact with their peers and instructors, and engage in self-monitoring activities (Bean & Metzner, 1985; Rovai, 2003; Williamson, 2007; Zimmerman, 1989).

The preceding research findings support the theoretical literature and arguments that online students must apply specific behaviors centered on metacognitive and motivational processes (Zimmerman, 1989) and take an active role in the learning process (Garrison, 1997; Knowles, 1975). Because of its significance to online and face-to-face student academic performance and achievement, it is postulated that self-direction, in addition to self-regulation, is crucial to the development of any intervention aimed at promoting student persistence in an online class.

Self-Efficacy

In addition to self-regulation and self-direction, self-efficacy has also been associated with student academic performance, academic achievement, and persistence in face-to-face classes (Concannon et al., 2018; Drago et al., 2018; Lent et al., 1984; Pajares, 1996; Baier et al., 2016) and in online classes (Hauser et al., 2012; Huang & Mayer, 2018; Shen et al., 2013). Self-report instruments aimed at measuring online learning self-efficacy have been developed to address the online learning environment (Joo et al., 2000; Torkzadeh & Van Dyke, 2001; Zimmerman & Kulikowich, 2016). Emphasis on self-efficacy in the online learning environment demonstrates its significance to student persistence.

Recent studies have substantiated the significance of self-efficacy to student achievement and persistence in the online learning environment. Bandura (1977) maintained that mastery experiences are the most influential source of efficacy because they provide evidence of success and non-success. Hence, students without prior experience in online learning can experience a higher level of anxiety. Abdous (2019) examined prior online learning experience and preparedness to take an online class in 4,117 undergraduate online students. While all respondents experienced some degree of anxiety, it was highest among students without prior

online learning experience. Consequently, prior learning experience was found to be a significant predictor of feelings of anxiety, which can be triggered by a low sense of self-efficacy (Bandura, 1994).

Abdous' (2019) findings substantiate the results of a previous study by Parkes et al. (2015) that examined students' perceptions of preparedness to learn online. The results showed that while students felt prepared to use technology for learning, they did not necessarily feel confidence in their use of the Learning Management System. Another key finding was that students indicated a lack of readiness to engage virtually with others to learn. Online students with low-self efficacy beliefs in their abilities to use instructional technology and engage virtually with others to learn are less likely to persist (Bandura, 2001; Rovai, 2003; Tinto, 2017; Zimmerman & Kulikowich, 2016).

Sources of self-efficacy have also been examined in an online undergraduate class environment. Huang and Mayer (2018) supplemented an online statistics lesson with Bandura's (1997) sources of self-efficacy, namely, mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. They designed a lesson based on these sources and incorporated modeling examples, mental practices, attributional feedback, and strategies for coping with anxiety. The results showed improvement in the self-efficacy beliefs of students participating in the experimental group. Strategies aimed at helping students to strengthen their self-efficacy are fundamental to academic performance and persistence (Bandura, 1997; Bandura & Schunk, 1981). These findings support the association between self-efficacy and student success, achievement, and persistence (Bandura, 2001; Tinto, 2017).

Another study attributed the self-efficacy source of mastery experiences to online student achievement. Bradley et al. (2017) examined the influence of self-efficacy on the achievement of

266 undergraduate online students. The findings showed a strong correlation between online student self-efficacy and self-regulatory behaviors. Students with high self-efficacy performed better at applying self-regulatory skills in the online learning environment. This study also revealed that students with previous success in online learning demonstrated higher self-efficacy in accomplishing their goals, engaging in online tasks, completing classwork, seeking resources and support, and interacting with others. This confirms the findings of previous studies on the influence of mastery experiences on online student achievement, academic performance, and ultimately, persistence.

Given its influence in the theoretical and empirical literature on student success, achievement, and persistence, it is imperative that interventions aimed at helping students to strengthen their self-efficacy are examined in greater depth. The preceding research findings support the argument that students must be prepared for the unique nature of online learning. Since technology is the medium, students must be able to demonstrate skills associated with the use of technology for learning, communication, finding information, and help-seeking. Academic interventions aimed at helping online undergraduate students strengthen their self-efficacy need further study.

High-Impact Practices

Studies have shown that initiatives aimed at student success can improve student persistence and retention rates in undergraduate students, whether residential (Hankin, 1996; Kimbark et al., 2017; Stupka, 1993) or online (Brewer & Yucedag-Ozcan, 2013). Kuh (2008) identified 11 undergraduate residential initiatives regarded as high-impact practices (HIPs) deemed critical to student success and persistence. Kuh described HIPs as experiences that require a considerable investment in time and effort by students; connect learning in the

classroom with the real world; encourage collaboration between faculty, students, and other diverse populations; and depend on in-depth feedback. He argued that all higher education institutions should seek to provide at least two HIP experiences for all undergraduate students. Unfortunately, much of the research and focus on HIPs has been aimed primarily at undergraduate, residential experiences, despite the fact that online learning continues to grow at an exponential rate, surpassing that of residential higher education programs (Seaman et al., 2018). HIPs specifically for online environments have not been identified. Kuh identified 10 HIPs, listed below (2008), and the 11th was added in 2016 (Watson et al., 2016). These are:

- First-year experiences (e.g., first year seminars);
- Common intellectual experiences;
- Learning communities;
- Writing-intensive courses;
- Collaborative assignments and projects;
- Undergraduate research;
- Diversity/global learning;
- Service learning, community-based learning;
- Internships; and
- Capstone courses and projects (Kuh, 2008, p. 9-11); and
- ePortfolios (Watson et al., 2016, p. 66).

Salient to this study are First-Year Seminars (FYS), given their effectiveness at helping residential undergraduate students to persist (Barefoot, 2004; Tinto, 2012). The terms *student success class*, *freshman seminar*, and *First-Year Seminar (FYS)* are used interchangeably in the literature and by institutions to describe similar interventions aimed at improving student

retention. Barefoot (2004) contended that while first-year student success classes vary by institution, they all ultimately seek to improve student retention. The U.S. Department of Education referred to college success classes, freshman seminars, and First-Year Seminars, collectively, as First Year Experience classes (U.S. Department of Education, 2016). Researchers have described an FYS as a class designed and structured to assist first-year students in their academic and social development as they transition to learning at the undergraduate college level (Barefoot & Fidler, 1996; Hunter & Linder, 2005).

The content and structure of First-Year Seminars vary across institutions. First-year experience initiatives consist of programs that promote active learning (Eckton & Palfreyman, 2017), study skills (Kimbark et al., 2017), time and stress management (Crisp & Taggart, 2013), relationship-building between students and instructors (Tinto, 2012), awareness of the environment (Tinto, 2012), a sense of belonging and self-efficacy (Tinto, 2012), and institutional expectations (Karp & Bork, 2014). Barefoot (2000) argued that an FYS should have the following research-based objectives:

- Increase student-to-student interaction,
- Increase faculty-to-student interaction beyond the classroom,
- Increase student involvement and time spent on campus,
- Align the curriculum and co-curriculum,
- Increase academic expectations,
- Increase levels of academic engagement, and
- Assist students who are inadequately prepared for college academics (p. 14).

Despite the differences in the characteristics and formats of such interventions, they are critical to student persistence. Tinto (2012) argued that “regardless of the form and focus,

evidence of the effectiveness of freshman seminars, when properly implemented, is widespread” (p. 34). The studies described in the sections below provide evidence to support Tinto’s (2012) argument and highlight high-impact practices to foster student development of human agency.

Undergraduate Residential Students

Many institutions offer a mandatory or optional First-Year Seminar (FYS) to new and transfer undergraduate residential students. FYSs have been associated with student persistence. Tinto’s (1975, 1997) theory of attrition reinforced the importance of the first year to a student’s dropout decision. After reviewing 2,500 studies on first-year experiences, Pascarella and Terenzini (1991) concluded that such programs are positively linked with student persistence. Gardner (1986) described the FYS as the foundation for a student’s college experience and they have been used in residential higher education as academic interventions to meet student needs (Permzadian & Credé, 2016; Upcraft et al., 2005).

First-Year Seminars for residential students show positive results. Al-Sheeb et al. (2018) evaluated the effects of an FYS class on residential student awareness, use of resources, and interaction. The class significantly and positively impacted student awareness of campus resources and led to an improvement in the interaction rate with class instructors and academic advisors. While this study focused on the impact of the class on student resource use and interaction with support systems, another study examined the impact of an FYS on cognitive variables. Jenkins-Guarnieri et al. (2015) found that students who participated in the FYS showed significant improvements in their academic standing. The seminar class incorporated learning activities deliberately designed to help students develop cognitive abilities associated with time management and study skills (Jenkins-Guarnieri et al., 2015). First-Year Seminars have also demonstrated a positive effect on student persistence. Kimbark et al. (2017) used a

mixed-methods research design to examine the difference in persistence rates between residential undergraduate students who participated in the FYS and those who did not. The class was focused on topics such as study skills, relationship-building, and increasing academic confidence, and 99% of those who participated persisted to the following semester, with 68% persisting to the following fall semester. The results also showed that students who participated in the FYS class experienced an increase in their social skills, study skills, and confidence. Kimbark et al.'s (2017) findings confirm that students who complete a First-Semester Seminar (FSS) are more likely to persist because they engage in activities that help them to strengthen their human agency (i.e., self-regulation, self-direction, self-efficacy).

The preceding research findings support the argument that interventions centered on preparing students for learning can lead to higher rates of persistence. Although these interventions were implemented in a residential setting, the use of the high-impact practice of First-Year Seminars may be applicable to online settings, since time management, use of resources and services, study skills, self-confidence, and interpersonal relationships have also been shown necessary for online student persistence (Bean & Metzner, 1985; Rovai, 2003). These studies demonstrate that institutions are attempting to address student persistence through various forms of high-impact practices implemented at the onset of a student's academic journey. First-Year Seminars have been shown to improve awareness, interaction, engagement, and persistence in undergraduate residential students. Approximately 90% of American higher education institutions reported that they offered some type of FYS to undergraduate residential students (Young & Hopp, 2014). Given the impact of these initiatives on residential student persistence, similar interventions to promote persistence in online first-year students need to be developed and tested.

Undergraduate Online Students

While the research on First-Year Seminars for online students is non-existent or limited, studies have been conducted on similar practices that have been effective in helping online students to persist (Kuep, 2018). For example, orientations and interventions for online students have been developed and found effective, but they have been limited in scope, focusing primarily on how to use technology. Taylor et al. (2015) designed a standalone online module to orient over 800 undergraduate students to the online class environment (i.e., getting started, navigation, posting to discussions, submitting assignments, accessing grades and feedback). Qualitative and quantitative measures were used to evaluate student success and the grade distributions in the classes that delivered the module were also examined before and after the introduction of the module. The results showed a reduced number of withdrawals in four of the five classes compared to the previous year, and an overall increase in letter grades at the conclusion of the class compared to the previous year. While other factors could have contributed to these changes, the results were viewed by the researchers and participating instructors as a hopeful indicator for student persistence in online classes. An increase in online student retention was experienced at another higher education institution after implementing a mandatory online orientation centered on technology, best practices for online learning, relevant student services, navigating the LMS, virtual communication, and online assignment submission (Jones, 2013). Online class retention rates prior to implementation were at 71.8% and increased to 79.5% after one year and continued to increase three years later, reaching 84%. Liu and Adams (2016) conducted a similar study to explore the impact and effectiveness of an online undergraduate student orientation class designed to prepare students for online learning. 95% of the 600 students who volunteered to participate in the class gained technology competencies, demonstrated an understanding of learning strategies required in an online class, and identified characteristics of successful online

learners. While the findings were promising, these interventions are limited to student use of technology tools to learn and communication. Given that persistence in an online class requires more than just computer-based interaction and computer literacy, it is critical to examine additional interventions aimed at helping students develop human agency.

Many of the objectives of a First-Year Seminar proposed by Barefoot (2000) are aligned to mechanisms of human agency (i.e., study habits, interpersonal skills, interpersonal relationships, learning preferences, accessibility to services, goal commitment, self-esteem, and computer literacy) necessary for persistence in an online class. Table 2 presents an adaptation of Barefoot's (2000) FYS objectives for online students and elements of these objectives that are present in the First-Semester Seminar (FSS) online class in this study. The FSS online class incorporated elements recommended in the literature as interventions for online students, such as technology use, virtual communication, information on practices and characteristics of online learners, use of virtual student services, and LMS use (Jones, 2013; Liu & Adams, 2016; Taylor et al., 2015). Further, the FSS online class encompassed the following pedagogies identified in the literature for online and hybrid FYS classes and synthesized by Kuep (2018): (a) etiquette for online spaces, (b) expectations for distance learning, (c) collaborative work, (d) discussion boards, (e) communication of content, (f) and hands-on application assignments.

Table 2

Adaptation of Barefoot's (2000) FYS Objectives for Online Students and Elements Present in the FSS Online Class

Objective for Residential FYS	Adapted Objective for Online FYS	Elements Present in the FSS
Increase student-to-student interaction	Increase student-to-student interaction through the use of virtual tools and activities	<ul style="list-style-type: none"> • Synchronous virtual class meetings at the start of each module • Group-based asynchronous discussions with requirements for peer engagement • Peer review and feedback through asynchronous discussions
Increase faculty-to-student interaction beyond the classroom	Increase faculty-to-student interaction through the use of virtual tools and activities	<ul style="list-style-type: none"> • Synchronous virtual meetings (e.g., small group, one-on-one, class) • Flexible synchronous virtual office hours • Group-based discussions with faculty engagement • Feedback through text, audio, and video • Asynchronous communication tools (e.g., email, class announcements)
Increase student involvement and time spent on campus	Increase student involvement with virtual campus resources	<ul style="list-style-type: none"> • One-on-one virtual consultation with a librarian to complete a research assignment • One-on-one virtual consultation with an online math tutor to verify understanding of a quantitative study • Virtual meeting with an academic advisor to complete advisement worksheets • Virtual consultation with a career and professional development counselor to verify understanding and use of personal and learning preferences self-assessment results • Virtual consultation with an online writing center tutor for feedback on a written assignment (i.e., grammar, spelling, format)

Table 2 Continued

Objective for Residential FYS	Adapted Objective for Online FYS	Elements Present in the FSS
Align the curriculum and co-curriculum	Align the curriculum and co-curriculum	<ul style="list-style-type: none"> • Initial virtual class meeting covering the course learning objectives • Modules provide information on how students can apply what they are learning to other classes (i.e., time management, use of technology, use of services, study skills) • Students complete a WebQuest using the University Catalog to search for information relevant to their program of study • Research assignment based on an area related to program of study, exposing students to relevant library databases for research in another class
Increase academic expectations	Increase academic expectations	<ul style="list-style-type: none"> • Self-paced orientation embedded into the first module presents information on the role of an online student, practices that make online students successful, and characteristics of online students who successfully completed the class • Instruction provided on how to review and address originality reports generated through plagiarism-detection software • Course syllabi delineate student time commitment expectations for direct and indirect instruction • Instructions provided in different formats (i.e., text, video, audio) for each graded class component • Examples of completed assignments from former students (used with permission) are provided • Grading rubrics are used for most assignments • Deadlines are established on the first day of class and adhered to • Discussions require engagement and interaction

Table 2 Continued

Objective for Residential FYS	Adapted Objective for Online FYS	Elements Present in the FSS
Increase levels of academic engagement	Increase levels of academic engagement	<ul style="list-style-type: none"> • Synchronous virtual meetings (e.g., small group, one-on-one, class) • Engagement with a librarian for research • Engagement with the online writing lab tutor for feedback on written assignments • Engagement with the online math tutor for guidance in understanding a quantitative study • Self-paced modules with embedded videos, audio, infographics, and external links for additional resources and learning • Interactive video-based lessons with built-in formative self-check assessments
Assist students who are inadequately prepared for college academics	Assist students who are inadequately prepared for online college academics	<ul style="list-style-type: none"> • Online hands-on orientation on the use of the Learning Management System (LMS) • Strategies for studying, time management, notetaking, listening (i.e., video and audio content), critical thinking, online test-taking, and reading. • Class goals and objectives established • Personal and academic strengths, weaknesses, opportunities, and threats are discussed

Reflection as a High-Impact Practice in Residential and Online FYS

Reflection activities have been associated with promoting human agency in residential students (Merriam, 2001; Pilling-Cormick & Garrison, 2007) and online students (Barnard-Brak et al., 2010) and need to be considered relevant. Reflection can occur through activities such as student use of online journals, learning diaries, learning logs, self-assessments, rubrics, scripts, portfolios, reports, and questionnaires (Helyer, 2015; Helyer & Kay, 2015). Larsen et al. (2016)

maintained that reflection activities can be used to “influence students’ learning from experience, increase their awareness of their thoughts and actions, and increase their perceived recall of experiences” (p. 285). When students engage in a reflective activity, they are retrieving information from memory and experience. Lin, et al. (1999) argued that students have to pause and reflect on the decisions they’ve made and the appropriateness of the strategies they’ve used to help them identify improvements, if any, they must make in their future learning. For example, a student can reflect on the effectiveness of the strategies they used to complete an assignment and whether they would use these same strategies to complete an assignment in the future. This process of reflection can help students develop an awareness of what they did before, during, and after a learning experience (Lin et al., 1999).

Reflection exercises (i.e., online journals, reflective observations) have been recommended for inclusion in online First-Year Seminars (Kuep (2018) and studies show they have a positive impact on mechanisms of human agency. Dignath-Van Ewijk et al. (2015), for example, studied the effects of using a learning diary. At the start of each week, students were asked to complete a learning diary entry that included their plan to complete the week’s learning activities and their goals. During the middle of the week, participants were instructed to monitor their progress and update their learning diaries. At the end of the week, participants were instructed to evaluate and discuss goal attainment. The study revealed that the learning diaries had a positive effect on students’ metacognitive skills, metacognitive attitude, and on their time management and over 90% of the 33 students who participated in the study recommended the use of learning diaries for all first-year students. Dignath-Van Ewijk et al.’s (2015) findings support the argument that online students must apply specific behaviors centered on

metacognitive and motivational processes, as well as time management (Broadbent & Poon, 2015; Garrison, 1997; Knowles, 1975; Pintrich & Groot, 1990; Zimmerman, 1989).

Metacognitive and motivational processes, as well as time management, are associated with mechanisms of human agency. Metacognition is associated with student learning preferences and study habits, both of which are constructs of self-regulation and self-direction (Knowles, 1975; Zimmerman, 1989). Time management is a construct of self-regulation and self-efficacy (Zimmerman, 1989). As such, students need to engage in activities designed to help them develop their metacognition, motivation, and time management to persist in an online class.

Recent meta-analyses support the use of self-assessment interventions to promote self-efficacy and self-regulation in students. Panadero et al. (2017) explored the effects of self-assessments on student self-regulation and self-efficacy. They conducted four meta-analyses of 19 studies and 2305 students. Some of the intervention types used in these studies to promote self-assessment included logs for students to record their performance (used for self-monitoring), self-assessment questionnaires (used for self-evaluation), and rubrics or scripts (used for planning, monitoring, and self-assessment). In all but two of the 19 studies, students were provided with feedback by instructors. The interventions were shown to have a positive effect on student self-regulation and a substantial impact on student self-efficacy. Further, the intervention types all had the same effect on students' self-regulation and self-efficacy. The results of this meta-analysis support the use of interventions aimed at helping students to engage in self-assessment activities to develop self-regulation and self-efficacy (Panadero et al., 2017). Planning, self-monitoring, and self-assessment are associated with all three mechanisms of human agency and are necessary for self-regulation (Zimmerman, 1989), self-direction (Knowles, 1975), and self-efficacy (Bandura, 2001) because they support a student's

commitment to their goals (Barnard et al., 2008; Williamson, 2007; Zimmerman & Kulikowich, 2016). As such, students need to engage in activities designed to help them regularly plan their classwork, monitor their progress, and assess their performance. While the First-Semester Seminar online class incorporated elements recommended in the literature as interventions for residential and online students, it does not include an activity specifically aimed at supporting reflection, evaluation, observation, and reaction. Given the role of reflection as a high-impact practice that improves human agency (Bandura, 2001; Knowles, 1975; Kuep, 2018; Panadero et al., 2017; Zimmerman, 1989), it is important to include a form of reflective activity, such as a learning log, into the online class to examine its impact on student human agency.

Summary

While some factors (i.e., student characteristics, finances, employment and family status, life crises) related to student persistence are beyond the institution's control (Bean & Metzner, 1985; Diaz, 2002; Rovai, 2003; Tinto, 1975, 1987, 1993), I concluded through my review of the literature that there are many other factors within an institution's influence related to student persistence (i.e., student skills, pedagogy, advisement, resources, support, integration, and communication). Key findings from recent studies showed the need for online students to demonstrate specific behaviors (i.e., computer-based interaction, time management, interpersonal skills, interpersonal relationships, self-esteem, use of services, study habits, learning preferences, and goal commitment) necessary for persistence (Abdous, 2019; Broadbent, 2017; Cigdem & Ozturk, 2016); Kizilcec et al., 2017; Parkes, et al., 2015; Schommer-Aikens & Easter, 2018; Song et al., 2016; You, 2016). These behaviors are situated in the literature as constructs of self-regulation, self-direction, and self-efficacy, which are all factors of human agency that can be cultivated by institutions of higher education and learned by students (Bandura, 1989, 1997,

2001; Brocket & Hiemstra, 1991; Connolly et al., 2004; Knowles, 1975; Merriam et al., 2007; Tinto, 2017; Zimmerman & Kulikowich, 2016).

Findings from the aforementioned studies confirm the need for online undergraduate students to demonstrate mechanisms of human agency associated with persistence in an online class or program (Rovai, 2003). Moreover, the findings revealed that students continue to enroll in online classes and programs despite deficiencies in mechanisms of human agency associated with persistence. Whether students simply prefer this method of instructional delivery or choose it due to its convenience and flexibility, educational institutions must find ways to promote persistence (Tinto, 2017).

Research has shown that interventions during the first semester impact persistence. However, the literature surrounding the impact of interventions on online undergraduate student human agency, and persistence is sparse (Parkes, et al., 2015). To contribute to the literature, the current study examined a high-impact, first-semester seminar class to assess its effects on online undergraduate human agency and persistence. Chapter 3 elaborates on the intervention, methodology, selection of participants, measurement, data analysis procedures, data analysis, hypotheses testing, and limitations.

CHAPTER THREE: METHODOLOGY

Student enrollment continues to increase in online programs (Seaman et al., 2018; National Center for Education Statistics, 2017) and this growth is projected to continue into 2026 (Hussar & Baily, 2018). Unfortunately, the rates of attrition in online classes are higher than face-to-face classes (Bawa, 2016; Bloemer et al., 2018; Fetzner, 2103; Hachey et al., 2013; Lee et al., 2013; Murphy & Stewart, 2017; Patterson & McFadden, 2009).

To address the persistence of undergraduate online students, universities must be proactive in creating and implementing interventions that prepare students for the online learning environment and help them develop human agency. These interventions need to incorporate models of student persistence and recent literature about undergraduate online student persistence (Barnard et al., 2008; Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1993, 2017; Zimmerman & Kulikowich, 2016). Interventions aimed at promoting human agency in online undergraduate students are essential to student success, and ultimately, university success, because persistence rates are vital to accreditation, funding, and reputation (Tinto, 2017; Yang et al., 2017).

To contribute to the literature, the current study examined the influence of a high-impact intervention predicated on theories of persistence and research on online undergraduate students' human agency and persistence (Bandura, 1997; Barnard et al., 2008; Knowles, 1989; Rovai, 2003; Williamson, 2007; Zimmerman, 2002; Zimmerman & Kulikowich, 2016).

While theories (Bandura, 1997; Knowles, 1980; Zimmerman, 1989) and studies (Pellas, 2014; Zimmerman & Kulikowich, 2016; Wang & Baker, 2015) have established the significant influence of self-regulation, self-direction, and self-efficacies on student persistence, well-known models of student persistence (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1993) do not include

all of these variables or their constructs. Current research does, however, demonstrate that these three constructs are associated with one another and can be used to predict the persistence of online students (Rockinson-Szapkiw et al., 2019; Stephen et al., 2020). Furthermore, the majority of the constructs that make up these factors are positioned in Rovai's (2003) Composite Student Persistence model as student skills necessary prior to admission. However, this study proposed that if students do not enter an online program or class with these factors of human agency, they can be cultivated by the institution through a high-impact intervention. This study was guided by and sought to apply theories and persistence models, employing previous studies and current research.

The Investigation Plan

The purpose of this research was to examine if differences exist between students participating in an experimental high-impact, First-Semester Seminar (FSS) class and a traditional FSS class on the combination of self-regulation, self-direction, and online learning self-efficacy. Persistence rates between the two groups were also examined. The independent variables in this study are the experimental high-impact FSS class and the traditional FSS class, while the dependent variables of interest are self-regulation, self-direction, online learning self-efficacy, and persistence. The following sections detail the selected research design, the method used to initiate the investigation, the instrument, the intervention, data collection, and analysis procedure for this study.

Creswell (2003) posited that a quantitative approach is the ideal methodology if the research goals are centered on the identification of factors that influence an outcome, the use of an intervention, or understanding predictors of outcomes. Established models of student persistence, learning theories, and research were used to design a high-impact experimental FSS

intervention and examine its impact on factors of human agency and persistence, therefore a quantitative research approach is most appropriate for this study (Shank, Pringle, & Brown, 2018).

Since random assignment of participants into the First-Semester Seminar classes was not possible and I wished to compare intact groups of students, a quasi-experimental, non-equivalent control group design was chosen as the most appropriate and rigorous method (Campbell & Stanley, 1963; Creswell, 2015; Gall et al., 2007). Further, quasi-experimental designs have been used in similar studies that examined interventions in online education settings. For example, Peterson (2016) used a quasi-experimental design to test an intervention for increasing undergraduate student performance and satisfaction in a required statistics class. Another study used a quasi-experimental design to examine the effects of learner-to-learner interactions on undergraduate online students' satisfaction and learning (Kurucay & Inan, 2017). These examples of its use to test interventions in education settings confirm the appropriateness of a quasi-experimental research design for this research.

In this study, intact FSS classes offered during the 2019 Summer and Fall semesters comprised of undergraduate transfer and new students were analyzed. While participants could not be randomly assigned, classes were randomly designated as either high-impact or traditional FSS classes. Students in the control group participated in the existing traditional FSS classes. Students in the experimental group participated in the high-impact FSS classes. The seminar class experience was exactly the same for both groups, with the exception of the intervention in the experimental group (Gall et al., 2007, Graziano & Raulin, 2013). One instructor, with more than five years' experience in online learning, taught all the classes.

A pretest and posttest self-regulated learning, self-directed learning, and online learning self-efficacy measure was used to determine if the type of FSS class affected human agency in the participants. The pretest and posttest were administered to each class at the same time during each semester, as recommended by Gall et al. (2007). The pretest was given one week prior to the first day of the seminar class and the posttest on the last day of class. To control for the selection threat to validity and ensure homogeneity between the experimental and control group (Gall et al., 2007), the pretests were used as covariates in the statistical analysis and students in the experimental group were matched with students in the control group based on gender and ethnicity because these two variables are often associated with the dependent variables (Bidjerano, 2005; Pajares, 2002; Zimmerman & Martinez-Pons, 1990). Persistence was quantified as a function of enrollment in an online class the next semester and was examined for differences between groups.

Participants

The sample for this study was new and transfer students enrolled in undergraduate-level online classes, drawn from a sampling frame of new and transfer students enrolled in at least one online class during the Summer and Fall 2019 academic semesters at a private institute of higher education within southeast United States. The students were majoring in Communications, Organizational Leadership, Informatics, Liberal Studies, Human Services, Pre-Nursing, Pre-Pharmacy, Psychology, Education, and Business and were in their first semester of study at the university taking an online class or classes. Participants were a mix of first-year undergraduate students and first-, second-, third-, or fourth-year undergraduate transfer students, all new to the institution. A nonprobability, convenience sampling method was used to identify study

participants (Gall et al., 2007) because the sample was drawn from a population that was conveniently available to me as an employee of the university (Shank et al, 2018).

Students in the sample ranged from 20 to 52 years old, primarily classified as nontraditional students based on demographic data such as age, employment status, and family status. Not all students enrolled in the classes opted to participate in the study. Students were not asked to provide a reason for non-participation. The total number of students that could have participated was 95. Forty-nine Traditional FSS class members and 35 High-Impact FSS class members opted to participate in this study through informed consent. Thirteen of the 49 Traditional FSS class members were removed from the dataset because they did not complete the posttest. This resulted in 36 participants from the Traditional FSS class. Eight of 35 High-Impact FSS class members were removed from the dataset because they did not complete the posttest. This resulted in 27 participants in the High-Impact FSS class. Participant information is reported in Chapter 4. The sample size was 48.

Setting

The setting for this study was a required credit-bearing First-Semester Seminar (FSS) class offered during the Summer and Fall 2019 semesters at a nonprofit, degree-granting, private institute of higher education in the Southeast region of the United States. The university is categorized by the Carnegie Classification of Institutions of Higher Education as a Doctoral University with High Research Activity (R2), and is accredited to award bachelor's, master's, and doctoral degrees through its schools (Business and Economics, Engineering, Law, Medicine, Music, Theology) and colleges (Education, Health Professions, Liberal Arts, Nursing, Pharmacy, Professional Advancement). The three-credit, eight-week FSS is required of all undergraduate students at the onset of their studies, and is a class that requires a minimum passing letter grade

of C. The class is offered in blended, online, and face-to-face delivery formats each session. All online degree-seeking students are advised to enroll in the online section; others have the option to enroll in any delivery format. The focus of this study was the online delivery format of the class. Although this class had been offered for many years, it was updated in 2015 to incorporate learning outcomes centered on instructional technology.

Traditional First-Semester Seminar (FSS) Class

The First-Semester Seminar (FSS) class was designed to prepare and orient undergraduate students to college-level online learning. The student outcomes emphasized time management, critical thinking, study habits, study skills, technology use, information literacy skills, knowledge of university academic policies and procedures, access to academic support services and resources, and knowledge of the university culture and history. The eight-week class was delivered using the university's learning management system (LMS). The class was structured into four modules, each module spanning two weeks and incorporating a variety of activities such as discussions, quizzes, and assignments. Modules were released every two weeks and students could not access future modules, but they had access to past modules.

An announcement was posted at the start of each module and was accompanied by a screencast that elaborated the learning activities, providing tips and best practices. Grades were updated each week and students were reminded on a weekly basis to monitor their grades, review the feedback provided, and encouraged to ask any questions about their grades or feedback.

Assignments were embedded within modules. There was no final exam, the classwork and points for graded components were distributed across all four modules. At the onset of the class, before a student could progress to Module 1, they had to complete a syllabus quiz, which they could take more than once until they achieved the required grade. Module 1 remained

locked until the student passed a syllabus quiz with a full mark. The syllabus quiz was designed to allow students to review feedback on questions marked wrong before they attempted the quiz again. In Modules 2 and 4, students completed a quiz consisting of multiple choice, multiple answer, and true-false questions extracted from the content of the modules and the assigned readings. Modules 1, 2, and 3 incorporated discussion assignments prompting students to interact with one another on an assigned topic. The class also included assignments such as interviewing a librarian and faculty member. An announcement was posted when grades were updated to remind students to check their grades and feedback regularly.

Recommended and required activities that supported the three elements of human agency were incorporated throughout the class (Barnard, et al., 2008; Bean & Metzner; Rovai, 2003; Tinto, 1975, 1987, 1993, 2017). For example, students developed a study and classwork schedule, applied and evaluated the effectiveness of techniques for note-taking, reading, writing, and time management, sought consultation from support systems and resources, set goals, and evaluated their commitment to their goals. Assignments and activities also supported the development of self-direction (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1987, 1993; Williamson, 2007). Examples include a student discussion on the competencies of successful online learners, assignments that required students to engage with various support systems across the university, synchronous and asynchronous peer-to-peer learning, completion of a learning preferences inventory and an intelligences self-assessment, and computer and information literacy assignments. Activities also supported online learning self-efficacy (Artino, 2010; Bandura, 1977, 1986, 2012; Ko & Rosen, 2010; Miltiadou & Yu, 2000; Rovai, 2003; Zimmerman, 2000; Zimmerman & Kulikowich, 2016). For example, students completed a hands-on orientation on the use of the LMS and utilized various synchronous and asynchronous

communication tools to seek support from services across the university. See Table 3 for a complete list of the topics, objectives, activities, and assignments in the class.

The four sources of self-efficacy were also present in the class. To promote mastery experiences, students were instructed to complete a hands-on self-paced tutorial on the use of the LMS at the start of the class. Students were also encouraged to engage in an introductory discussion forum with their peers and instructor. Vicarious experiences were provided to students through the use of timely and positive feedback from the instructor. The instructor also shared experiences and feedback from past students on behaviors and actions that led to their success in the class. Social persuasion was supported through the regular synchronous and asynchronous interactions with individual students and student groups. Permission was sought from students to share examples of submitted work. On-going and timely feedback was also provided to students by the instructor. Physiological factors were addressed through the use of a variety of methods to provide instructions, feedback, encouragement, and support. Instructions for assignments are provided in screencast and text formats. Examples of assignments from previous students were provided for additional guidance. The instructor also administered an anonymous feedback survey mid-semester to address any student concerns or questions.

Finally, recommended practices for online class design and delivery to support students' self-efficacies (Rovai; 2003; Zimmerman & Kulikowich, 2016) exist throughout the class. Examples include the use of scaffolding for assignments and the weekly modules are structured to support the learning path.

Table 3*Traditional First-Semester Seminar (FSS) Class Components*

Module Topic	Objectives	Activities & Assignments
Module 1 - The Online Learning Environment	Students will demonstrate effective use of academic and instructional technology and the ability to identify, access, and use university support systems.	<ul style="list-style-type: none">• Participate in a synchronous virtual class meeting.• Complete a self-paced, hands-on orientation on the use of various functions and tools of the Learning Management System.• Engage in a group discussion focusing on the competencies of online learners.• Create a quick-reference guide that identifies all support services and resources provided by the university.• Develop a study and classwork schedule.• Initiate a meeting with an academic advisor and construct a class plan.

Table 3 Continued

Module Topic	Objectives	Activities & Assignments
Module 2 - Time Management Skills and Habits of Successful Learners	Students will employ life management skills and basic study skills necessary for college success.	<ul style="list-style-type: none">• Participate in a synchronous virtual class meeting.• Engage in a group discussion on the results of a listening skills self-assessment.• Employ a note-taking technique for a reading assignment and engage in a discussion to compare/contrast notes and reflect on effectiveness of the technique.• Employ a time management technique for one week and reflect on the results and its effectiveness for future application.• Analyze personal and academic strengths, weaknesses, opportunities, and threats and establish class goals that incorporate strategies, services, and resources covered during Modules 1 and 2.• Consult with a career counselor on the results of the personality and learning preferences self-assessments and reflect on the impact of these findings• Complete a quiz on reading assignments in Modules 1 and 2.
Module 3 - Academic Skills and Strategies for Success	Students will demonstrate basic habits that contribute to their capacity to read, write, think, and reason quantitatively on a level consistent with college academic work and employ skills that facilitate library research and the use of library resources.	<ul style="list-style-type: none">• Participate in a synchronous virtual class meeting.• Engage in a group discussion about an article on critical thinking and its importance to education, work, and daily life and provide examples discovered through further research.• Write a proposal that outlines a research topic for an annotated bibliography and an action plan for selecting and reading three relevant and peer-reviewed articles.• Initiate a one-on-one consultation with a librarian for an orientation to available resources and services.

- Initiate a meeting with the online math tutor to learn how to access the resource and about the services offered.

Table 3 Continued

Module Topic	Objectives	Activities & Assignments
Module 4 - Being a Member of the University Community	Students will identify crucial components of the university's organizational structure, culture, and history, explain key academic policies and procedures, and practice ethical decision-making through the application of the university's honor code.	<ul style="list-style-type: none"> • Participate in a synchronous virtual class meeting. • Edit a draft of the annotated bibliography based on feedback from the Online Writing Lab and the originality report generated through the plagiarism-detection software. • Complete a WebQuest using the Student Handbook, University Catalog, and University website. • Create a profile using an application supported by career services to stay abreast of internships, employment, and workshops for professional and career development. • Complete a quiz on reading assignments in Modules 3 and 4. • Write a reflection on class progress and goal achievement by revisiting the personal and academic self-analysis and goals in Module 2.

Table 4 lists class activities and assignments with the theoretical construct(s) each aims to effect in the FSS.

Table 4

First-Semester Seminar (FSS) Class Activities and Theoretical Constructs they Aim to Effect

Activity	Construct(s)
Participate in synchronous virtual class meetings at the start of each module.	<ul style="list-style-type: none"> • Online learning self-efficacy

Complete a self-paced, hands-on orientation on the use of various functions and tools of the LMS.	<ul style="list-style-type: none"> • Online learning self-efficacy
Engage in asynchronous group discussions.	<ul style="list-style-type: none"> • Self-direction • Online learning self-efficacy

Table 4 Continued

Activity	Construct(s)
Develop a study and classwork schedule.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-regulation
Initiate a meeting with an academic advisor and construct a class plan.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction • Self-regulation
Employ a note-taking technique for a reading assignment and engage in a discussion to compare/contrast notes and reflect on effectiveness of the technique.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction • Self-regulation
Employ a time management technique for one week and reflect on the results and its effectiveness for future application.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-regulation
Analyze personal and academic strengths, weaknesses, opportunities, and threats and establish class goals that incorporate strategies, services, and resources covered during Modules 1 and 2.	<ul style="list-style-type: none"> • Self-direction • Self-regulation
Consult with a career counselor on the results of the personality and learning preferences self-assessments and reflect on the impact of these findings.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction • Self-regulation
Initiate a one-on-one consultation with a librarian for an orientation to available resources and services.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction
Initiate a meeting with the online math tutor to learn how to access the resource and about the services offered.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction

Submit a draft of the annotated bibliography to the Online Writing Lab and reflect on plans to incorporate the feedback.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction • Self-regulation
Write a reflection on class progress and goal achievement by revisiting the personal and academic self-analysis and goals in Module 2.	<ul style="list-style-type: none"> • Self-direction • Self-regulation

Table 4 Continued

Activity	Construct(s)
Maintain a learning log during each module to plan future classwork activities and reflect on previous classwork activities and performance.	<ul style="list-style-type: none"> • Online learning self-efficacy • Self-direction • Self-regulation

Experimental High-Impact First-Semester Seminar (FSS) Class

Despite the incorporation of many recommended practices to foster human agency in the FSS being studied and across interventions in the literature, some students continue to face challenges in managing their time, applying study skills, using appropriate strategies, staying committed to their academic goals, and engaging in self-monitoring and self-evaluation, all of which are instrumental to persistence in an online class (Abdous, 2019; Broadbent, 2017; Heo & Han, 2018; Parkes et al., 2015; Schommer-Aikins and Easter, 2018; You, 2016). As such, the experimental high-impact FSS class incorporated learning logs requiring reflection, which has been identified as a practice that improves human agency (Panadero et al., 2017), and incorporated characteristics of HIPs, including requiring students to invest time and effort, connect learning in the classroom with the real world, and apply in-depth feedback.

The purpose for introducing the bi-weekly student learning logs was to encourage continuous student engagement and reflection in the learning process. Students' self-efficacy beliefs influence their decisions to persist by engaging in the learning process (Zimmerman, 1989). Thus, to engage in the learning process through self-management and self-monitoring,

self-regulation requires students to develop a sense of self-efficacy, among other factors (Pilling-Cormick & Garrison, 2007). Furthermore, a student's ability to employ appropriate strategies to engage in the learning process, maintain a commitment to their goals, and manage and monitor their learning has been associated with self-direction (Williamson, 2007). Studies show reflective activities can foster improvement in students' time management, application of study skills and strategies, goal commitment, self-monitoring and self-evaluation (Chang, 2007; Connor-Greene, 2000; Dignath-Van Ewijk et al., 2015; Zimmerman & Campillo, 2003), all of which have been associated with successful learning (Merriam, 2001). Reflection activities are recommended for inclusion in online first-year seminars (Kuep, 2018) and meta-analyses (Panadero et al., 2017) found interventions such as online journals, learning diaries, learning logs, self-assessments, rubrics, scripts, and questionnaires to have positive effects on student self-regulation and online learning self-efficacy.

Student Learning Logs as an Intervention

The quiz tool in the LMS was used to create the learning logs for each module. Each learning log consisted of reflective questions and the quiz tool was selected because it allowed for the development of the log in a questionnaire format. The quiz tool also allowed students to review logs from previous modules and allowed the instructor to provide feedback easily on each response. As each student completed the learning log, the instructor provided feedback within 24 to 48 hours in the form of praise, encouragement, suggestions for different strategies (as applicable), and recommended resources and services accordingly (as needed). Effective instructor-student interactions are often a precursor to successful learning experiences (Kuh et al., 2005) and, as Poge and Ah Yun (2006) noted, instructor immediacy facilitates student learning and affect. Teacher immediacy and presence existed in both classes. The instructor

provided immediacy and was present in both the experimental and control group classes as evidenced by grading assignments and providing feedback on all assignments within 48 hours, responding to emails in 24 hours, and offering online office hours. The experimental group also received feedback on their learning logs during each module.

To further promote mastery experiences, the instructor responded to students’ learning log entries within 24 hours to emphasize positive actions taken towards goal achievement. Vicarious experiences were further promoted through the use of feedback from other students who utilized various university resources and support services to overcome similar challenges. Social persuasion was further supported through timely engagement and response to the learning log entries with praise and positive communication. Physiological factors were addressed even further through the use of regular encouragement and reminders of university resources and support services.

Table 5 indicates the use of the learning log in each module and Table 6 outlines each learning log prompt, the literature used to inform the development of each question, and the association between each question and the dependent variables in this study.

Table 5

High-Impact First-Semester Seminar (FSS) Class Components

Module Topic	Objectives	Activities
Module 1 - The Online Learning Environment	Students will demonstrate effective use of academic and instructional technology and the ability to identify, access, and use university support systems.	<ul style="list-style-type: none"> • Participate in a synchronous virtual class meeting. • Complete the Module 1 Learning Log. • Complete a self-paced, hands-on orientation on the use of various functions and tools of the Learning Management System. • Engage in a group discussion focusing on the competencies of online learners.

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- Create a quick-reference guide that identifies all support services and resources provided by the university.
 - Initiate a meeting with an academic advisor and construct a class plan.

Table 5 Continued

Module Topic	Objectives	Activities
Module 2 - Time Management Skills and Habits of Successful Learners	Students will employ life management skills and basic study skills necessary for college success.	<ul style="list-style-type: none"> • Participate in a synchronous virtual class meeting. • Complete the Module 2 Learning Log. • Engage in a group discussion on the results of a listening skills self-assessment. • Employ a note-taking technique for a reading assignment and engage in a discussion to compare/contrast notes and reflect on effectiveness of the technique. • Employ a time management technique for one week and reflect on the results and its effectiveness for future application. • Consult with a career counselor on the results of the personality and learning preferences self-assessments and reflect on the impact of these findings • Complete a quiz on reading assignments in Modules 1 and 2.
Module 3 - Academic Skills and Strategies for Success	Students will demonstrate basic habits that contribute to their capacity to read, write, think, and reason quantitatively on a level consistent with college academic work and employ skills that facilitate library research and the use of library resources.	<ul style="list-style-type: none"> • Participate in a synchronous virtual class meeting. • Complete the Module 3 Learning Log. • Engage in a group discussion about an article on critical thinking and its importance to education, work, and daily life and provide examples discovered through further research. • Write a proposal that outlines a research topic for an annotated bibliography and an action plan for selecting and reading three relevant and peer-reviewed articles. • Initiate a one-on-one consultation with a librarian for an orientation to available resources and services. • Initiate a meeting with the online math tutor to learn how to access the resource and about the services offered.

Table 5 Continued

Module Topic	Objectives	Activities
Module 4 - Being a Member of the University Community	Students will identify crucial components of the university's organizational structure, culture, and history, explain key academic policies and procedures, and practice ethical decision-making through the application of the university's honor code.	<ul style="list-style-type: none"> • Participate in a synchronous virtual class meeting. • Complete the Module 4 Learning Log. • Edit a draft of the annotated bibliography based on feedback from the Online Writing Lab and the originality report generated through the plagiarism-detection software. • Complete a WebQuest using the Student Handbook, University Catalog, and University website. • Create a profile using an application supported by career services to maintain abreast of internships, employment, and workshops for professional and career development. • Complete a quiz on reading assignments in Modules 3 and 4.

Table 6

Learning Log Prompts, Development of Prompts, and Their Association with Self-Regulation, Self-Direction, and Online Learning Self-Efficacy

Learning Log Prompt	Modules	Literature Used to Inform Development of Prompts	Associated Dependent Variables
After reviewing the contents of this module, enter 3 to 5 learning goals for this module.	1, 2, 3, 4	<ul style="list-style-type: none"> • Barnard-Brak et al., 2010; Williamson, 2007; Zimmerman & Kulikowich, 2016 	<ul style="list-style-type: none"> • Self-regulation (goal setting); Self-direction (awareness); Self-efficacy (online learning)

Table 6 Continued

Learning Log Prompt	Modules	Literature Used to Inform Development of Prompts	Associated Dependent Variables
Identify the resources (i.e., Online Writing Lab, Library, Internet, etc.) you will need to accomplish your goals during this module.	1, 2, 3, 4	<ul style="list-style-type: none"> Barnard-Brak et al., 2010; Williamson, 2007; Zimmerman & Kulikowich, 2016 	<ul style="list-style-type: none"> Self-regulation (help-seeking); Self-direction (learning strategies, interpersonal skills); Self-efficacy (online learning)
How many hours during this module do you plan to dedicate to achieving your goals?	1, 2, 3, 4	<ul style="list-style-type: none"> Barnard-Brak et al., 2010; Zimmerman & Kulikowich, 2016 	<ul style="list-style-type: none"> Self-regulation (time management) Self-efficacy (time management)
Which days of the week do you plan to work on your goals during this module?	1, 2, 3, 4	<ul style="list-style-type: none"> Barnard-Brak et al., 2010; Zimmerman & Kulikowich, 2016 	<ul style="list-style-type: none"> Self-regulation (time management) Self-efficacy (time management)
Where do you plan to do your classwork during this module (i.e., Library, home office, dining room, etc.)?	1, 2, 3, 4	<ul style="list-style-type: none"> Barnard-Brak et al., 2010 	<ul style="list-style-type: none"> Self-regulation (environment structuring)
List each graded item due in this module and indicate the grade you hope to achieve on each item.	1, 2, 3, 4	<ul style="list-style-type: none"> Barnard-Brak et al., 2010 	<ul style="list-style-type: none"> Self-regulation (goal setting)

Table 6 Continued

Learning Log Prompt	Modules	Literature Used to Inform Development of Prompts	Associated Dependent Variables
Revisit your goals from the previous module and enter them below. For each goal, indicate whether or not you achieved it. a. If you achieved it, discuss the resources you used to help you achieve the goal, the days/hours you spent on the goal, the location where you completed the work towards the goal, and whether or not you earned the grade you had hoped for. b. If you did not achieve it or earned the grade you had hoped for, discuss the reasons why you were not able to achieve the goal and what you will do differently in the next module to help you achieve your goals and earn the desired grades.	2, 3, 4	• Barnard-Brak et al., 2010; Williamson, 2007; Zimmerman & Kulikowich, 2016	• Self-regulation (task strategies, self-evaluation); Self-direction (awareness, evaluation); Self-efficacy (online learning, time management, technology use)

Instrumentation

The pretest-posttest consisted of self-regulated learning, self-directed learning, and online learning self-efficacy instruments. The constructs measured by each instrument were incorporated into the design of the intervention for the experimental high-impact FSS class.

Online Self-Regulated Learning Questionnaire

The Online Self-Regulated Learning Questionnaire (OSLQ) (Barnard-Brak et al., 2010) was used to measure undergraduate online student self-regulation. It includes the subscales of goal setting, time management, help-seeking, task strategies, and self-evaluation, however, the composite score including all the subscales was used for this study. This instrument is comprised of 24 items, each measured on a five-point Likert-type scale (e.g., strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, and strongly agree) and have values ranging from strongly agree (5) to strongly disagree (1). The average of all subscales provides a measure of overall self-regulated learning, with higher scores indicating higher levels of self-regulation. The items are presented in the instrument as statements, such as, “I set standards for my assignments in online courses,” “I choose the location where I study to avoid too much distraction,” and, “I prepare my questions before joining in the chat room and discussion.”

Prior studies found OSLQ to be reliable and valid in measuring online student self-regulation. In a study aimed at comparing perceptions of students enrolled in online and blended learning classes, researchers reported internal reliabilities of 0.80 and higher for each of the subscales (Barnard et al., 2009), which is considered sufficient (Gall, et. al, 2007). The results also indicated evidence of construct validity. A confirmatory factor analysis was performed, resulting in statistics reflecting fit (Barnard et al., 2009). The root mean square error of approximation (RMSEA) was 0.06, indicating an acceptable fit due to its proximity to 0.05 (Brown & Dudek, 1993). The Non-Normed Fit Index (NNFI) was .93, and the Comparative Fit Index (CFI) was .95, indicating a good fit due their proximity to .95 (Hu & Bentler, 1999). The OSLQ has been used to delineate characteristics of self-regulated online students (Barnard-Brak et al., 2010). Cronbach’s alpha coefficient was calculated to determine the reliability of the

instrument with the sample population in this study and is reported in Chapter 4. The instrument is included in Appendix B.

Self-Rating Scale of Self-Directed Learning

The Self-Rating Scale of Self-Directed Learning (SRSSDL) (Williamson, 2007) was also incorporated into the pretest-posttest to measure undergraduate online student self-direction. Items in the SRSSDL instrument emphasize the areas of awareness (understanding of the factors that contribute to self-directed learning), learning strategies (use of strategies recommended for self-directed learning), learning activities (engaging in self-directed learning activities), evaluation (attributes necessary for self-monitoring), and interpersonal skills (prerequisite skills to becoming a self-directed learner). Combined with the items in the Online Self-Regulated Learning Questionnaire (OSLQ), it yielded additional insight into student skills, strategies, and behaviors that promote persistence. The constructs of interest in this instrument have previously been associated with student success and persistence (Brookfield, 2013; Garrison, 1997; Kirmizi, 2015; Knowles, 1975, 1989, 1980; Rovai, 2003; Zimmerman, 1989, 2002).

To develop this instrument, Williamson (2007) enlisted the help of experts through a Delphi method to reach a consensus on 60 items, equally divided into five categories: awareness, learning strategies, learning activities, evaluation, and interpersonal skills. A Likert-type five-point scale is used for the self-rating of items. The lowest score of one indicates never, a two indicates seldom, a three indicates sometimes, a four indicates often, and the highest score of five indicates always. Higher scores indicate higher self-directed learning behaviors. Scores can range from a minimum of 60 to a maximum of 300. According to Williamson (2007), students who score between 60 and 140 require definitive guidance, those who score between 141 and 220 requirement improvement in some areas of self-direction, and those who score between 221

and 300 are considered self-directed. Each category of items provides respondents with an opportunity to enter an item manually that they feel is not represented but is applicable to them. However, in this study, these “any other” open-ended items were removed from the instrument prior to use, since the combination of this instrument with the two other instruments was comprehensive.

To test the instrument’s validity and reliability, Williamson (2007) administered the instrument to 30 undergraduate students during which she read each item aloud and provided explanations, as needed. Upon completion, a scoring sheet was used to calculate each participant’s responses. Williamson used a known-group method to test for validity, in which she compared the scores of graduating seniors to those of first-year students, with the graduating seniors demonstrating a higher score. Further testing by Williamson demonstrated instrument reliability with the coefficient alpha of each of the five categories ranging from 0.71 to 0.79, which is considered acceptable (Cortina, 1993). Cronbach’s alpha coefficient was calculated to determine the reliability of the instrument with the sample population in this study and is reported in Chapter 4. The instrument is included in Appendix C.

Online Learning Self-Efficacy Scale

The Online Learning Self-Efficacy Scale (OLSES) (Zimmerman & Kulikowich, 2016) was incorporated into the pretest-posttest to measure undergraduate online student self-efficacy in online learning, time management, and use of technology. Combined with the items from the OSLQ and the SRSSDL, it yielded additional insight into student skills and behaviors related to learning in the online environment, time management, and the use of technology for academic purposes. The constructs of interest in this instrument have previously been associated with

student success and persistence (Bandura, 1977, 1986, 2001; Concannon, 2018; Pajares, 1996; Rovai, 2003).

While only the composite score was used in this study, this instrument has three subscales, including learning in the online learning environment, time management, and technology use. It is comprised of twenty-two items with a corresponding six-point scale for each item. The items are presented in the instrument as statements, such as, “Navigate online course materials efficiently,” “Complete all assignments on time,” and “Learn without being in the same room as the instructor.” Students use the six-point scale to indicate their perceptions of their performance on each of the items. The lowest end of the scale, one, denotes poor performance. A score of two indicates somewhat poor performance, three indicates somewhat efficient performance, four indicates efficient performance, and five indicates very efficient performance. The highest point on the scale, six, denotes expert level performance.

Zimmerman and Kulikowich (2016) tested the OLSES with 338 students to determine its reliability and validity. They found the reliability of the instrument to be high with subscale scores ranging from 0.84 to 0.90, considered sufficient (i.e., higher than 0.80) for most research purposes (Gall et al., 2007). The authors also found the convergent and divergent validity scores to be moderately correlated. Such scores are described as types of test-criterion evidence used to support claims of validity in the interpretation of test scores (Gall, et al., 2007). Cronbach’s alpha coefficient was calculated to determine the reliability of OLSES with the sample population in this study and is reported in Chapter 4. The instrument is included in Appendix D.

Demographic and Persistence Information

Demographic data was requested from the Registrar on all participants by university-issued student identification number, such as educational background, degree type, program

delivery mode (i.e., online, blended), discipline, age, family status, employment status, financial aid status, ethnicity, and gender. This was used to control for pre-existing factors if the differences between the two groups was significant. Information on the participants' enrollment status in the next semester was also requested from the Registrar and used to measure persistence, which was operationally defined as enrollment in an online course the next semester. This information was collected during the start of the Spring 2020 semester using university-issued student emails to verify enrollment. Students who enrolled in an online class during the Spring 2020 semester were coded with a 1. Students who did not enroll in an online class during the Spring 2020 semester were coded with a 0.

Procedures

I secured approval from the Internal Review Board (IRB) at the institution where the study occurred and at the institution at which I am enrolled as a student. This request to collect data during the Summer 2019 semester and Fall 2019 semester was approved by both institutions (See Appendix E). Each class site was made available one week prior to the actual start date to inform students of the study and invite them to participate. An announcement was posted to each class and it included information about the study (See Appendix F). A link to the Informed Consent information was included in the announcement (See Appendix G). Once students followed the embedded link to the Informed Consent, they were instructed to review the information provided and invited to participate in the study. If students did not want to participate in the study, they were still required to participate in the class, but their data was not included in the study. If students opted to participate in the study, they were instructed to agree to their participation and use of their data for the study.

The pretest was made available to participants one week before the start of the class and the posttest was made available at the end of the final week of the class. Students were asked to provide their university-issued identification number to match the pretest-posttest data and to request demographics data, final grade, and enrollment status in the next semester. The Qualtrics and learning management systems, subscribed to by the university and supported by the information technology department, were used to provide security for the participants information and the collected data.

The data of those respondents who consented to their participation in the study was downloaded from Qualtrics and, to facilitate alignment, imported into Microsoft Excel. Participants belonging to the experimental group were coded with a 1 and participants belonging to the control group were coded with a 0. Response data from the pretest-posttests of participants in the high-impact FSS class and the traditional FSS class was imported into the Statistical Package for Social Sciences (SPSS) software for analysis.

Data Analysis

SPSS was used to conduct descriptive and inferential statistical analyses. Because the independent variables of self-regulation, self-directedness, and online learning self-efficacy are correlated in the literature, a Pearson correlational analysis was conducted to examine the association and degree of relationship between the covariate and the dependent variable (Graziano & Raulin, 2013). The correlation confirmed positive and significant associations between online learning self-efficacy with self-regulation and self-direction, therefore, a multivariate analysis of covariance (MANCOVA) was employed because it allowed for the testing of significant differences on a combination of associated variables between the two groups while controlling for the covariate (Harlow, 2014; Warner, 2012). The use of

MANCOVA instead of ANCOVAs or an independent samples *t*-test decreases the probability of a Type I error because it controls for the association among the dependent variables and increases statistical power (Harlow 2014; Warner, 2012). A chi-square test of independence was used to examine if the proportion of students who persisted differed based on the FSS participated in.

Prior to analyses, assumption testing was conducted. Before the MANCOVA, Pearson's *r* data analysis revealed significant associations between each pair of dependent variables. The Pearson's *r* values were below the critical cut-off value of .9 (Tabachnick & Fidell, 2007), therefore, the assumption of no multicollinearity was satisfied. A scatterplot matrix was used to examine the assumption of linearity. The homogeneity of regression of slopes assumption needed to be tenable, so interaction between the covariates (i.e., pretest) and the intervention or independent variable was assessed using one-way MANCOVA modeling . The Shapiro-Wilk test was run to check for the univariate normality assumption. Each class (i.e., traditional and high-impact) was examined to determine if any of the data for the dependent variables were normally distributed ($p > .05$). The assumption of extreme outliers was assessed. Inspection of the boxplots was used to reveal univariate outliers in the data with values greater than 1.5 box-lengths from the box and univariate extreme outliers with values greater than 3 box lengths. The Mahalanobis distance values were checked to test for multivariate outliers and normality to ensure the maximum value for the distance for any cell in the data set did not exceed the maximum allowable critical value of 18.47 for 3 dependent variables (Tabachnick & Fidell, 2017). The assumption of homogeneity of variances and covariances was tested using Box's M test. Prior to conducting the chi-square analysis, the assumption of minimum expected cell frequency was examined to make sure that each cell analyzed had 5 cases. Fisher's exact test was conducted as

the assumption was violated. Table 7 illustrates each type of test and purpose for using it.

Chapter 4 discusses the results.

Table 7

Types of Statistical Tests Used

Statistical Tests in SPSS	Purpose
Cronbach's alpha coefficient	Determine the reliability of the instruments with the sample population in this study.
Pearson's r	Reveal any significant associations between each pair of the dependent variables and test the assumption of multicollinearity.
Scatterplot matrix	Examine the interaction between the covariate and the independent variable using one-way MANCOVA modeling to test whether the slopes were different and assess the assumption of homogeneity of regression of slopes.
Shapiro-Wilk test	Check for the univariate normality assumption.
Boxplots	Reveal any univariate outliers in the data.
Mahalanobis distances	Check for the assumption of multivariate outliers and normality.
Box's M test	Test the assumption of homogeneity of variances and covariances.
MANCOVA	Examine if there were statistically significant differences in the online learning self-efficacy, self-directed learning, and self-regulated learning of participants in the experimental and traditional group, while controlling for the pretests.
ANCOVA	Determine if significant differences existed in the high-impact FSS class' self-regulation, self-direction and online learning self-efficacy while controlling for pretest scores. The covariate was the pretest score and source of variation uncontrolled for in the experiment and the response was the posttest.
Chi-square test of independence	Examine if the proportion of students who persisted differed based on the FSS participated in. Fisher's exact test was conducted to test the assumption of minimum expected cell frequency.

CHAPTER FOUR: RESULTS

The purpose of this study was to examine if differences existed between students participating in the experimental high-impact, First-Semester Seminar (FSS) class and the traditional FSS class on their combination of self-regulation, self-direction, and online learning self-efficacy, while controlling for the pretest. A multivariate analysis of covariance (MANCOVA) was conducted. The covariate and dependent variables were measured using the scores on the pretest and posttest, which were comprised of the Online Self-Regulated Learning Questionnaire (OSLQ), Self-Rating Scale of Self-Directed Learning (SRSSDL), and Online Learning Self-Efficacy Scale (OLSES). Reliability analyses were calculated for each scale. All three scales demonstrated excellent reliability with a Cronbach's alpha coefficient of .96 for the OLSES, .95 for the SRSSDL, and the OSLQ had a Cronbach's alpha coefficient of .90. Reliability for the pretest-posttest measure, as a whole, demonstrated excellent reliability with a Cronbach's alpha coefficient of .97. Persistence between the two groups was also examined using a chi-square test of independence.

Preliminary Pretest-Posttest Responses

Ninety-five students participated in the courses and completed the pretest, but not all students opted to participate in the study or completed the posttest. Fifty-six of those students participated in the traditional FSS class and 39 in the high-impact FSS. Forty-nine traditional FSS class members and 35 high-impact class members opted to participate in this study through informed consent. Thirteen of the 49 traditional class members were removed from the dataset because they did not complete the posttest. This resulted in 36 participants from the traditional class. Eight of 35 high-impact FSS class members were removed from the dataset because they did not complete the posttest. This resulted in 27 participants in the high-impact class.

Group Matching

It is noteworthy that the 63 cases from the high-impact class (i.e., treatment group) and from the traditional class (i.e., control group) were not homogenous in terms of gender, ethnicity, and age. Therefore, participants from each group were matched based on gender and ethnicity to create two equal groups that were homogenous in nature. Age and family data were also considered in the matching process. The decision to create homogenous groups using gender and ethnicity was based upon research demonstrating that these factors are often associated and influence self-efficacy, self-direction, and self-regulation (Bidjerano, 2005; Pajares, 2002; Zimmerman & Martinez-Pons, 1990). Using these variables as covariates was considered; however, the addition of covariates to the analysis would significantly decrease the power of the analysis, especially because the sample size was small.

The final number of participants for this study was 48, with each group consisting of 24 participants. The matched groups each consisted of nine Black or African-American females, three Black or African-American males, nine White females, and three Hispanic or Latino females.

Participant Demographics

This study included 48 participants. Forty-two (88%) of the participants were female, and six (12%) were male. Twenty-four (50%) of the participants reported their ethnicity as Black or African-American, 18 (38%) reported White, and 6 (12%) reported Hispanic or Latino. Twenty-six participants (54%) ranged in age from 22 to 30, 16 (33%) were between the ages of 31 and 40, and 6 (13%) were aged 41 to 52. Students matriculated into their 4-year programs through varied academic trajectories; twenty-nine (60%) were transfer students, 10 (22%) earned a high

school diploma, 5 (10%) had completed an Associate's Degree, and 4 (8%) had earned a General Educational diploma (GED).

The majority of students were enrolled in a Bachelor of Science degree program. Thirty-five participants (73%) were pursuing a Bachelor of Science degree, while seven (15%) were enrolled in Bachelor of Arts degrees, and six (12%) were enrolled in a Bachelor of Business Administration degree program. Thirty-three (69%) were enrolled in online programs, while 15 (31%) were enrolled in blended programs. Disciplines represented included:

- Psychology ($n = 8, 17\%$)
- Homeland Security and Emergency Management ($n = 6, 13\%$)
- Healthcare Leadership ($n = 5, 11\%$)
- General Business ($n = 5, 11\%$)
- Communication ($n = 4, 8\%$)
- Human Services ($n = 3, 6\%$)
- Liberal Studies ($n = 3, 6\%$)
- Criminal Justice Leadership ($n = 2, 4\%$)
- Health Informatics ($n = 2, 4\%$)
- Informatics ($n = 2, 4\%$)
- Organizational Leadership ($n = 2, 4\%$)
- Human Resource Management ($n = 1, 2\%$)
- Human Resources Administration and Development ($n = 1, 2\%$)
- Information Technology and Informatics ($n = 1, 2\%$)
- Management ($n = 1, 2\%$)
- Pre-Education/Elementary/Special Education ($n = 1, 2\%$), and
- Pre-Nursing ($n = 1, 2\%$).

Students were in different life and family stages. Fifteen (32%) were single with children, 14 (29%) were single with no children, 14 (29%) were married with children, 3 (6%) were married with no children, and 2 (4%) were divorced with children. All participants ($N = 48$) received some form of financial assistance, including educational loans, tuition remission, and/or tuition reimbursement. Thirty-seven (77%) were employed full time, nine (19%) were unemployed, and two (4%) were employed part time.

When asked about previous online learning experiences, 71% ($n = 34$) indicated they had successfully completed an online class in the past, 21% ($n = 10$) indicated they had never taken an online class before, and 8% ($n = 4$) indicated that they had attempted an online class in the past but were not successful.

MANCOVA

Assumption Testing

Prior to conducting the MANCOVA, assumption testing was completed. The assumption of multicollinearity was examined via the pairwise Pearson's correlation analyses. Each set of dependent variables was examined and found to be significantly, positively associated. However, none of the Pearson r coefficients were above .9 (see Table 8), so the assumption of multicollinearity was met. Given the positive, significant pairwise correlations, it was appropriate to proceed with the MANCOVA.

Table 8*Correlations Between the Three Dependent Variables (N = 48)*

Dependent Variable	Online Learning Self-Efficacy	Self-Direction	Self-Regulation
Online Learning Self-Efficacy	—	.68*	.56*
Self-Direction	.68	—	.64*

Note. * $p < 0.01$

Scatterplots were used to assess the assumption of linearity and demonstrated a linear relationship between each of the dependent variables in each group. Therefore, the assumption of linearity was met. There was homogeneity of regression slopes, as assessed by the interaction term between pretests and treatment and control group, $p > .05$.

Normality was assessed using the Shapiro-Wilk test. The assumption of normality was tenable for both groups across all three variables (see Table 9).

Table 9*Test of Normality, Shapiro-Wilk*

Dependent Variable	Group	Value	<i>P</i>
Online Learning Self-Efficacy	Traditional FSS Class	.95	.21
	High-Impact FSS Class	.95	.31
Self-Direction	Traditional FSS Class	.96	.37
	High-Impact FSS Class	.98	.95
Self-Regulation	Traditional FSS Class	.96	.35
	High-Impact FSS Class	.94	.14

Via inspection of the boxplots, one extreme outlier was identified in the data (Case 48) for OSLQ. After examining the data, I determined that the case was a valid response. Moreover,

the analysis was run with and without the outlier and the results were similar; therefore, the decision was made to not remove the outlier.

Mahalanobis' distance was used to examine multivariate normality and outliers. The data's highest distance value was compared to the critical value for Mahalanobis' distance based on three variables of 16.24 (Tabachnick & Fidell, 2013). This assumption was tenable because the highest score found in the data was 13.49, which was below the cut-off value. The assumption of the homogeneity of variance and covariance was assessed using Box's test of equality of covariance matrices and was found to be tenable, Box's test $M = 13.22$, $F(6, 15331.02) = 2.05$, $p = .056$. Table 10 summarizes the assumption testing results.

Table 10

Summary of Assumption Testing and Results

Assumption	Evaluation	Outcome	Conclusion
Univariate Normality	Shapiro-Wilk	Normality of assumption was not violated because $p > 0.05$	Assumption met
Linearity	Scatterplots	Linear relationship between each of the dependent variables in each group	Assumption is met
Homogeneity of regression of slopes	Multivariate Test for interaction term	$p > .05$	Assumption is met
Multicollinearity	Pairwise Pearson correlation coefficients	None of the Pearson r coefficients were above a .9	Assumption is met
No significant extreme outliers	Boxplots	One extreme outlier was identified	No gross violations; one outlier was retained
Multivariate normality and outliers	Mahalanobis' distance	All scores below the cut-off value of 16.24	Assumption is met

Table 10 Continued

Assumption	Evaluation	Outcome	Conclusion
Homogeneity of variance and covariance	Box's M test	Box's $M = 13.22$, $F(6, 15331.02) = 2.05$, $p = .056$.	Assumption is met

Descriptive Statistics

Descriptive statistics for means and standard deviations and estimates of the adjusted means and standard error of the means are reported in Table 11.

Table 11

Means, Adjustment Means, Standard Deviations, and Standard Errors for the Two Groups for Each Variable

Group	Pretest OLSES		Posttest OLSES		Pretest SRSSDL		Posttest SRSSDL		Pretest OSLQ		Posttest OSLQ	
	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)	<i>M</i> (<i>SD</i>)	<i>M_{adj}</i> (<i>SE</i>)
Traditional FSS Class	103.08 (14.56)	103.08 (2.97)	102.67 (18.92)	102.67 (3.31)	239.83 (23.34)	239.83 (4.76)	227.42 (30.89)	227.70 (4.95)	95.79 (15.44)	95.79 (3.15)	93.21 (12.15)	93.46 (1.9)
High-Impact FSS Class	102.67 (19.44)	102.67 (3.97)	110.46 (14.47)	110.45 (3.31)	243.92 (22.45)	243.92 (4.58)	251.71 (24.59)	251.42 (4.95)	98.17 (7.76)	98.17 (1.58)	100.71 (6.59)	100.46 (1.9)

MANCOVA Results

Results revealed a statistically significant multivariate main effect on the combination of the three dependent variables of self-regulation (OSLQ), self-direction (SRSSDL), and online learning self-efficacy (OLSES), Wilks' $\Lambda = .768$, $F(3, 41) = 4.126$, $p = .012$, *partial* $\eta^2 = .232$. Power was .81, accounting for 81% accuracy of results. These findings provided evidence to reject the main null hypothesis.

Given the significance of the MANCOVA, the univariate main effects were examined using a series of one-way ANCOVAs (analysis of covariance) for each of the three dependent

variables separately. The Bonferroni adjusted alpha level of .016 (.05/3) was used as the cut-off value for determining statistical significance (Rovai et al, 2013; Tabachnick & Fidell, 2013). Significant univariate main effects were found in self-direction (i.e., SRSSDL) and self-regulation (i.e., OSLQ) (see Table 12). Consequently, there is significant evidence to reject null sub-hypotheses 1.1 and 1.2 and to conclude that there is a statistically significant difference between the mean scores of the traditional FSS class and the high-impact FSS class in the two dependent variables of self-direction and self-regulation. Students in the high-impact FSS class had significantly higher self-direction (i.e., SRSSDL) and self-regulation (e.g., OSLQ) than students in the traditional FSS class. While the high-impact FSS class had higher mean scores on the dependent variable of online learning self-efficacy (i.e., OLSES), the difference was not significant. See Table 11 for the descriptive statistics.

The effect size for the relationship between the two groups and each of the dependent variable scores was small to medium (see Table 12). Partial eta squared is the effect size used for a one-way ANCOVA. According to Richardson (2011) and Cohen (1969, pp.278-280) partial eta squared values of .0099 and .0588 are used as benchmarks for small and medium effect sizes, respectively. In this analysis, the partial eta squared for online learning self-efficacy (OLSES) and self-regulation (OSLQ) were .1 or less, which indicated a small effect size. The partial eta squared for self-direction (SRSSDL) was .2, which indicated a medium effect size. Table 12 shows the observed power for each of the dependent variables.

Table 12*ANCOVA Results*

Dependent Variable	<i>F</i>	<i>P</i>	Partial Eta Squared	Observed Power
Online learning self-efficacy (OLSES)	2.73	.106	.060	.365
Self-direction (SRSSDL)	11.39	.002*	.209	.910
Self-regulation (OSLQ)	6.69	.013*	.135	.715

Note. * $p \leq 0.016$.

Chi Square Results

Enrollment in an online class the following semester was used to measure persistence. A chi-square test of independence was conducted between the type of FSS classes and persistence (yes, no). As one cell had a frequency of 2, less than five, Fisher's exact test was conducted. There was no statistically significant association between FSS classes and persistence (yes, no), $p = .245$. Over 80% of students across both groups enrolled in an online the next semester. Of the 24 students enrolled in the high-impact FSS class, 20 of the students persisted. Similarly, 22 of the 24 students persisted in the traditional FSS class.

Summary

The results of the MANCOVA were significant. Follow-up ANCOVAs revealed a statistically significant difference between the posttest scores of the traditional FSS class and the high-impact FSS class on the two dependent variables of self-directed learning and self-regulated learning. Students in the high-impact class scored significantly higher than students in the traditional FSS class on measures aimed at assessing self-regulation (i.e., SRSSDL) and self-

direction (i.e., OSLQ). However, there was no statistical difference between the traditional FSS class and the high-impact FSS class on the dependent variable of online learning self-efficacy (i.e., OLSES). Potential explanations for these findings are addressed in Chapter 5.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to examine if differences exist between students participating in the experimental high-impact, First-Semester Seminar (FSS) class and the traditional FSS class on their self-regulation, self-direction, and online learning self-efficacy while controlling for pre-existing factors using the pretests. A quantitative, quasi-experimental pretest-posttest nonequivalent control group research design was used for this study, and a multivariate analysis of covariance (MANCOVA) and follow up analyses of covariances (ANCOVA) were used to analyze the data. A chi-square test of independence was conducted to determine if student persistence differed based on FSS class type participation. The previous chapter detailed the data and findings from the research questions and hypotheses. In this Chapter, I discuss the results, limitations, and implications. The chapter concludes with recommendations for further research.

Summary of Results

Results revealed a statistically significant difference for the MANCOVA. Follow-up ANCOVAs revealed differences between the posttest scores of the traditional FSS class and the high-impact FSS class on the measurements for self-directed learning and self-regulated learning. Students in the high-impact FSS class scored significantly higher than students in the traditional FSS class on the Self-Rating Scale of Self-Directed Learning (SRSSDL) and Online Self-Regulated Learning Questionnaire (OSLQ). While the average score on the posttest for the Online Learning Self-Efficacy Scale (OLSES) was higher for the high-impact FSS class ($M = 110.46$) than the traditional class ($M = 102.67$), there was no statistically significant difference between the traditional FSS class and the high-impact FSS class on the dependent variable of online learning self-efficacy. Persistence was measured using re-enrollment in a class the next

semester, and results demonstrate no difference between the two groups. Persistence of students in both groups was over 80%, well over the national average of 50% (U.S. Department of Education, 2016). This percentage does not account for students across classes who decided not to participate and may have dropped out.

Discussion of Results

Despite the incorporation, in the FSS studied, of many recommended practices to foster human agency, some students continued to face challenges in managing their time, applying study skills, using appropriate strategies, staying committed to their academic goals, and engaging in self-monitoring and self-evaluation. This was clearly shown in the results of the study; i.e., the traditional FSS students scored significantly lower than the high-impact FSS students on self-regulation and self-direction. Both FSS classes incorporated concepts related to student development of human agency, but the self-regulation and self-direction scores of students who participated in the high-impact FSS class were higher. This is consistent with findings from other studies (Abdous, 2019; Broadbent, 2017; Heo & Han, 2018; Parkes et al., 2015; Schommer-Aikins and Easter, 2018; You, 2016), demonstrating that simply incorporating concepts related to human agency may not be sufficient to improve these factors and persistence. As such, an intervention aimed specifically at improving and strengthening human agency is essential.

Previous research has demonstrated that interventions incorporating reflection can improve human agency (Panadero et al., 2017). Moreover, reflection requiring students to invest time and effort, connect learning in the classroom with the real world, and use in-depth feedback are characteristic of high-impact practices (HIPs) used in residential settings (Chang, 2007; Connor-Greene, 2000; Merriam, 2001; Pilling-Cormick & Garrison, 2007; Williamson, 2007;

Zimmerman, 1989; Zimmerman & Campillo, 2003). Thus, students in the high-impact FSS class in this study were required to complete a reflective learning log consisting of questions closely associated with constructs of self-regulation (i.e., goal-setting, help-seeking, time-management, environment-structuring, task strategies, self-evaluation) and self-direction (i.e., awareness, learning strategies, interpersonal skills, evaluation). The incorporation of the required reflection through the learning log assisted students with developing self-regulation and self-direction. Students set goals, identified the resources and strategies they needed to achieve their goals, and evaluated their progress to attribute actions to results. These findings cohere with previous research demonstrating that the inclusion of reflective activities in classes can help foster improvements in students' time management, application of study skills and strategies, goal commitment, self-monitoring, and self-evaluation (Chang, 2007; Connor-Greene, 2000; Dignath-Van Ewijk et al., 2015; Zimmerman & Campillo, 2003), all of which have been associated with successful learning and are similar to the constructs of self-regulation and self-direction (Merriam, 2001).

The findings can be explained further by theory, which has demonstrated that the three interdependent cognitive processes of self-observation, self-evaluation, and self-reaction are central to these constructs of human agency (Bandura, 1986; Schunk, 1995). Both self-regulation and self-direction require specific cognitive and metacognitive processes. Self-regulation is the process of setting goals, continuously monitoring progress toward goals, checking outcomes, and redirecting efforts when not successful. In order for students to be self-regulated, they need to be aware of their own thought process and be motivated to participate actively in the process of meeting the set goal (Zimmerman, 2001), which participation in the learning logs required them to do. Moreover, self-regulation usually involves three cyclical phases of forethought (i.e.,

processes that precede effort to act), performance control (i.e., processes occurring while exerting effort), and self-reflection (i.e., processes occurring after performance) (Zimmerman, 1998). In the learning logs, students were asked to engage in the forethought phase by reviewing the module requirements at the start of the week, establishing proximal and realistic goals, and devising a plan (i.e., days, times, and location to complete classwork) to reach their goals. To engage students in the performance control phase, they were asked in the learning log to identify the resources (i.e., library, Internet) they needed to execute their plan. Finally, students were asked to monitor their progress through self-reflection and discuss the self-control strategies that helped them to remain engaged and motivated.

Engaging in reflection on and developing self-regulation through the learning logs may, as some researchers have suggested, have helped students to become self-directed (Jossberger et al., 2010). Specific elements of the learning logs may also have contributed to their self-direction. Self-direction is the process of determining learning needs, setting goals, identifying the resources needed to achieve goals, and engaging in self-evaluation. In order for students to be self-directed, they need to be proactive in the learning process and capable of making decisions on what to learn, when to learn, how much to learn, and whether additional learning is necessary (Brookfield, 2013; Garrison, 1997; Knowles, 1975). Moreover, self-direction usually involves developing an awareness of the factors that help or hinder learning, adopting various learning strategies, engaging in a variety of learning activities, and monitoring progress (Brookfield, 1986; Guglielmino, 1997; Hiemstra, 1994; Knowles, 1975, 1980). In the learning logs, students were asked to revisit their goals after each module to discuss whether they achieved each goal and elaborate on factors and strategies that helped or hindered their achievement (Knowles, 1975). Students were also asked to identify the resources they would need to accomplish their

goals during each module (i.e., library, Online Writing Lab, online math tutor) and then were prompted to discuss whether they used the selected resources (Knowles, 1975). Finally, students were asked to monitor and evaluate their progress through self-reflection and discuss learning strategies and activities that helped them to achieve their goals, as well as factors that hindered their progress (Knowles, 1975). Therefore, it is not surprising that students in the high-impact FSS class scored higher on the posttest surveys measuring self-regulation and self-direction, given the learning log's emphasis on the constructs of self-direction (awareness, learning strategies, interpersonal skills, evaluation) and self-regulation (goal setting, help-seeking, time management, environment structuring, task strategies, self-evaluation).

While the learning log also emphasized reflection on online learning self-efficacy, there was no statistical difference in the mean scores of the traditional FSS class and the high-impact class in the dependent variable of online learning self-efficacy. Researchers like Zimmerman and Schunk (2001) argue that self-efficacy motivates students to work toward goals and persist in a self-regulated manner. Therefore, it is foreseeable that online learning self-efficacy supported students' development of self-regulation and self-direction. This idea is supported by the results of the Pearson's r correlations analyses in this study, which revealed positive and significant associations between online learning self-efficacy and self-regulation and self-direction. Further investigation and more sophisticated statistical modeling are needed to explore further the interaction across the dependent variables and the intervention.

Both classes showed an increase in factors associated with persistence. However, it did not impact persistence, defined in this study as enrollment in an online class the next semester. Both groups had persistence rates of over 80%, higher the national average (Bawa, 2016). These findings, in part, demonstrate the complexity of persistence. As illustrated in the review of

literature, persistence is complex and there are many factors associated with a student's decision to persist (Bean & Metzner, 1985; Rovai, 2003; Tinto, 1975, 1987, 1993), including developing human agency, as well as personal and institutional factors. Interestingly, the sample in this study had a high persistence rate. While participation in either the traditional or high-impact FSS may have assisted them in persisting, there were likely other factors that promoted persistence.

The population for this study consisted primarily of nontraditional students at different stages of life, the majority of which were female, Black or African American, employed full-time, and single parents. While previous studies of online persistence have found that women and those from traditionally minoritized populations often face barriers to persistence (Rockinson-Szapkiw et al., 2016; Ward & Wolf-Wendel, 2014), this population is also often highly motivated to obtain an education (Lopez & Gonzalez-Barrera, 2014). Student background factors are present in the persistence models that informed this study (Bean, 1980; Bean & Metzner, 1985; Rovai, 2003; Tinto; 1975, 1987, 1993) and any study on persistence cannot overlook external factors related to persistence that are beyond the institution's control.

Limitations and Recommendations

While there were many significant findings, the study had several limitations and these limitations provide ideas for future study. This study had limited generalizability due to the small sample size of 48 undergraduate online students from two consecutive semesters, enrolled in a class required by one college of the university. The sample was also unique in that it did not necessarily represent the typical undergraduate population of Caucasian traditional students in the United States (NCES, 2018). This study focused on a population that is often neglected or underrepresented in the literature, yet the results may not be generalized to the population of online undergraduate students. Hence, the population for this study is not representative of

undergraduate online students at other colleges within the university or undergraduate online students at other universities. Extending this study to include other populations across other types of institutions would improve the external validity of the findings. Expanding to graduate and doctoral populations would also improve the generalizability of the results.

Moreover, the study consisted of two comparison groups who both received an intervention. The inclusion of a wait-list control group would extend the study and assist with further conclusions about the influence not only of the learning logs but inclusion of FSS classes at institutions. Additionally, future study may necessitate distinction between male and female needs and characteristics in online classes. When compared to their male counterparts, women tend to experience higher levels of stress in establishing and maintaining a family-work-life-study balance, more so than men (Rockinson-Szapkiw et al., 2016; Ward & Wolf-Wendel, 2014). Furthermore, ethnicity and life stages can influence higher education persistence (Mason et al., 2013), so future study may also consider specific student factors.

Another limitation of this study was the use of the pretest-posttest measure, which was constructed from self-rating instruments that yield results based on a student's perception of their knowledge, skills, behaviors, and experiences. One of the risks of relying on this self-reported data is the likelihood of participants to overestimate or underestimate their self-regulation, self-direction, and online learning self-efficacy. Students may have rated themselves higher on the pretest-posttest measure because they may have perceived it as a form of assessment, resulting in ceiling effect. Further, the inclusion of all three self-rating instruments resulted in a lengthy pretest-posttest measure, which could have led to survey fatigue. Therefore, future research should incorporate an observation of actual behavior that would be indicative of self-regulation, self-efficacy, and self-direction. For example, researchers could examine the number of late or

missed assignments, note engagement with peers in synchronous and asynchronous activities, as well as interaction and communication with the class instructor, and survey student use of support services and resources. In other words, examining learning analytics that demonstrate human agency is recommended.

The internal threats to validity of history and testing may have also been limitations. It may be possible that the differences in pretest-posttest scores were a result of other factors (e.g., activities that occurred in other classes) between the first and second measurement. Moreover, giving the students the same pretest-posttest measure may have led to familiarity with the instrument. While the use of a control group assisted with controlling for these threats, they are notable.

The study was also limited by non-ignorable, non-response. This study looked only at individuals who completed the pretest and posttest and did not include those who completed the pretest only or chose to not participate at all. Of the 84 traditional FSS and high-impact FSS class members, 21 withdrew or abandoned the class, 11 from the traditional FSS and 10 from the high-impact FSS. An additional seven chose to not participate in the study. Their reasons for not participating or for dropping out are not known because this data was not collected, so the results do not account for these students.

Online learning self-efficacy was measured using the subscales of learning in the online environment, time management, and technology use. Future research needs to examine other dimensions of online learning self-efficacy, such as self-efficacy to complete an online class, and self-efficacy to virtually interact with peers, instructors, and university resources and services. Another limitation was teaching presence. Planning and forethought were essential to the deliberate design of the online class environment and the learning activities. Timely and

supportive feedback were critical. And, assignment instructions and instructional content were provided in different formats (i.e., screencast, text). It is recommended that instructional designers guide and assist instructors in the design and development of a similar FSS class. It is also recommended that class size is capped to allow for timely and regular feedback. Classes used in this study consisted of a maximum of 18 students.

Last, the way persistence was defined for this study, as semester-to-semester enrollment, was a limitation. This is a narrow definition of persistence and does not account for other indicators such as degree completion and achievement. Future research needs to include a longitudinal study to examine student persistence beyond just the next semester. It is also recommended that efforts are made to follow up with students who withdraw or abandon an online class to learn more about their persistence decisions.

Implications

Despite limitations, the findings of this study contribute to the body of knowledge surrounding the use of high-impact practices and interventions to help students develop human agency to persist in online classes and, ultimately, programs. The high rates of attrition in online classes is well-documented in the literature (Bawa, 2016; Jaggars et al., 2013; Kauffman, 2015) and must not be overlooked if students are to continue to enroll in online programs and if universities plan to increase their undergraduate online program offerings. As factors that contribute to student persistence in an online class are better understood, universities need to design and develop best practices and interventions aimed at those factors (Tinto, 2017; Yang et al., 2017).

While high-impact practices to improve student success, including persistence, in residential university and college settings are well established, little research on high-impact

practices for online settings exists (Kuep, 2018). Previous research has identified the need to develop high-impact practices specifically for online learning environments (Jones, 2013; Liu & Adams, 2016; Taylor et al., 2015) and this study provides evidence for an effective online high-impact practice. Similar to research that identified FSS classes as a high-impact practice for residential students (Barefoot, 2004; Tinto, 2012), the findings of this study support the use of a similar FSS (Barefoot, 2000) as a high-impact practice in the online environment. It is noteworthy that the high-impact FSS class used an intervention emphasizing student self-reflection (i.e., learning logs), which was recommended for inclusion in an online first-year seminar class because of its positive impact on mechanisms of human agency (Kuep, 2018).

Results of this study provided evidence that FSS classes for online students need to incorporate reflection activities (i.e., learning logs, self-assessments, rubrics) to help students to develop an awareness of what they did before, during, and after a learning experience. This is above and beyond FSS activities focused on self-efficacy, self-regulation, and self-direction. It is recommended that instructors incorporate the use of reflective activities, prompt students to engage in reflection, and provide timely feedback. Course designers could use built-in LMS tools (i.e., quizzes, rubrics, assignments) or external tools (i.e., blogs, online journals) to design reflective activities.

It is also important to recognize that a key factor of this intervention may have been instructor presence and immediacy. The instructor regularly prompted students to complete the learning log, provided encouragement and feedback, and redirected students to resources and services. Teaching presence, including timely and supportive feedback, is a dimension of the Community of Inquiry (CoI) framework and research has shown it facilitates student learning in online environments (Garrison, 2017). This implies that as high-impact practices continue to be

developed and examined for the online environment that distance education theory and research must be considered in the design.

Specifically, in this study, dimensions of the CoI framework (Garrison, 2017) were considered in developing both FSS classes and especially the high-impact FSS, as further design considerations. Teaching presence was established through the use of modules to guide students through the content, provide opportunities for practice, and present content and instructions in various formats (i.e., video, text). Student grades and feedback were updated once a week. Announcements were regularly posted to introduce each module, remind students of upcoming deadlines, and summarize key points after each module.

Social presence was also important in this class. The class incorporated learning activities that encouraged student engagement with their peers, the instructor, and support systems. Opportunities existed for students to interact with their peers through weekly student-led asynchronous discussions and instructor-led synchronous virtual meetings. Moreover, students were required to utilize the various resources and services available to them through the university. Assignments required students to meet virtually with their academic advisor, librarians, tutors, and career counselors.

Finally, cognitive presence was significant. Reflective activities were embedded into most assignments. For example, after receiving feedback from a tutor on a writing assignment, students were prompted to reflect on their experience working with a tutor and drafting a plan on how to incorporate the feedback. At the start of the class, students completed an assignment that oriented them to the LMS. Instructions were provided on how to perform various functions (i.e., submit an assignment, post to a discussion), followed by hands-on practice through the completion of required tasks. Another assignment required students to complete interactive

video-based lessons with embedded questions to check their understanding. In sum, it is recommended that instructors and designers use modules to structure, organize, and present content in a variety of formats (i.e., audio, video, text) and provide opportunities for hands-on practice. It is also recommended that instructors create opportunities for regular synchronous and asynchronous interaction with students, communicate regularly with students, foster student interaction with university services and resources, maintain an updated online gradebook, and provide timely feedback and response.

Findings and implications for stakeholders are illustrated in Appendix H.

Conclusion

While the mechanisms of human agency increasingly have been found essential to online learning, they have not been well incorporated, especially collectively, into theoretical models that seek to explain online persistence or used to develop interventions in the online environment. Moreover, research establishing high-impact practices for the online environment is limited. Therefore, in this study, I addressed the gap in the literature by accounting for the three mechanisms of human agency collectively to develop an intervention to influence student success and, ultimately, persistence, and to provide evidence for an online high-impact practice. While semester-to-semester enrollment was not influenced by the intervention, the intervention did influence student self-regulation and self-direction, suggesting that further study needs to examine its influence on degree completion. The study findings provide evidence for online high-impact practices to improve students' human agency and thus, potentially, their success.

Finally, moderate-to-strong positive associations were found between each mechanism of human agency (i.e., self-efficacy, self-directed learning, and self-regulated learning) and two of the constructs were found to be significantly affected by the high-impact FSS class. Therefore,

this study supports Schunk and Zimmerman's (1997) assertion that human agency mechanisms, such as self-regulation, are learned and influenced socially, supporting application of theory to high-impact practices in online environments.

REFERENCES

- Abdous, M. (2019). Influence of satisfaction and preparedness on online students' feelings of anxiety. *The Internet and Higher Education, 41*, 34-44.
- Abdous, M., He, W., & Yen, C. (2012). Using data mining for predicting relationships between online question theme and final grade. *Educational Technology & Society, 15*(3), 77-88.
- Al-Sheeb, B., Abdulwahed, M., & Hamouda, A. (2018). Impact of first-year seminar on student engagement, awareness, and general attitudes toward higher education. *Journal of Applied Research in Higher Education, 10*(1), 15-30.
- Allen, I. E., & Seaman, J. (2015). *Grade level: Tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group, LLC.
<http://www.onlinelearningsurvey.com/reports/gradelevel.pdf>
- Ally, M. (2004). Foundations of educational theory for online learning. *Theory and Practice of Online Learning, 2*, 15-44.
- Artino, A. (2010). Online or face-to-face learning? Exploring the personal factors that predict students' choice of instructional format. *The Internet and Higher Education, 13*(4), 272-276.
- Azevedo, R., Moos, D., Greene, J., Winters, F., & Cromley, J. (2008). Why is externally-facilitated regulated learning more effective than self-regulated learning with hypermedia? *Educational Technology Research and Development, 56*(1), 45-72.
- Baier, S., Markman, B., & Pernice-Duca, F. (2016). Intent to persist in college freshmen: The role of self-efficacy and mentorship. *Journal of College Student Development, 57*(5), 614-619.
- Bandura, A. (1986). *Social foundations of thought and action*. Prentice-Hall.

- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175-1184.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*(1), 1-26.
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, *1*(2), 164-180.
- Bandura, A., & Schunk, D. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, *41*(3), 586-598.
- Barefoot, B. (2000). The first-year experience: Are we making it any better? *About Campus*, *4*(6), 12-18.
- Barefoot, B. (2004). Higher education's revolving door: Confronting the problem of student drop out in US colleges and universities. *Open Learning: The Journal of Open, Distance and e-Learning*, *19*(1), 9-18.
- Barefoot, B. and Fidler, P. (1996). *The 1994 national survey of freshman seminar programs: Continuing innovations in the collegiate curriculum*. National Resource Center for The Freshman Year Experience and Students in Transition.
<https://files.eric.ed.gov/fulltext/ED393386.pdf>
- Barnard, L., Lan, W., To, Y., Paton, V., & Lai, S. (2009). Measuring self-regulation in online and blended learning environments. *The Internet and Higher Education*, *12*(1), 1-6.

- Barnard, L., Paton, V., & Lan, W. (2008). Online self-regulatory learning behaviors as a mediator in the relationship between online course perceptions with achievement. *International Review of Research in Open and Distance Learning*, 9(2), 1-11.
- Barnard-Brak, L., Lan, W., Paton, V. (2010). Profiles in self-regulated learning in the online learning environment. *International Review of Research in Open and Distance Learning*, 11(1), 61-79.
- Bartimote-Aufflick, K., Bridgeman, A., Walker, R., Sharma, M., & Smith, L. (2016). The study, evaluation, and improvement of university student self-efficacy. *Studies in Higher Education*, 41(11), 1918-1942.
- Bawa, P. (2016). Retention in online courses: Exploring issues and solutions—A literature review. *SAGE Open*, 6(1), 1-11.
- Bean, J. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education*, 12(2), 155-187.
- Bean, J. (1982). Student attrition, intentions, and confidence: Interaction effects in a path model. *Research in Higher Education*, 17(4), 291-320.
- Bean, J., & Metzner, B. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485-540.
- Beaudoin, M., Kurtz, G., & Eden, S. (2009). Experiences and opinions of e-learners: What works, what are the challenges, and what competencies ensure successful online learning. *Interdisciplinary Journal of E-Learning and Learning Objects*, 5(1), 275-289.
- Beishuizen, J., & Steffens, K. (2011). A conceptual framework for research on self-regulated learning. In R. Carneiro, P. Lefrere, K. Steffens, & J. Underwood (Eds.) *Self-regulated learning in technology enhanced learning environments* (pp. 1-19). Springer.

- Berge, Z., & Huang, Y. (2004). A model for sustainable student retention: A holistic perspective on the student dropout problem with special attention to e-learning. *DEOSNEWS*, 13(5).
<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=DF93880F840F541D328F89864AA2CF66?doi=10.1.1.129.1495&rep=rep1&type=pdf>
- Bloemer, W., Swan, K., Day, S., & Bogle, L. (2018). Digging deeper into the data: The role of gateway courses in online student retention. *Online Learning*, 22(4), 109-127.
- Bradley, R., Browne, B., & Kelley, H. (2017). Examining the influence of self-efficacy and self-regulation in online learning. *College Student Journal*, 51(4), 518-530.
- Brewer, S. A., & Yucedag-Ozcan, A. (2013). Educational persistence: Self-efficacy and topics in a college orientation course. *Journal of College Student Retention: Research, Theory & Practice*, 14(4), 451-465.
- Broadbent, J. (2017). Comparing online and blended learner's self-regulated learning strategies and academic performance. *The Internet and Higher Education*, 33, 24-32.
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1-13.
- Brockett, R., & Hiemstra, R. (1985). Bridging the theory–practice gap in self-directed learning. *New Directions for Adult and Continuing Education*, (25), 31-40.
- Brookfield, S. (1986). *Understanding and facilitating adult learning: A comprehensive analysis of principles and effective practices*. McGraw-Hill Education (UK).
- Brookfield, S. (2013). *Powerful techniques for teaching adults*. Jossey-Bass.

- Brydges, R., Dubrowski, A., & Regehr, G. (2010). A new concept of unsupervised learning: Directed self-guided learning in the health professions. *Academic Medicine*, 85(10), S49-S55.
- Campbell, D., & Stanley, J. (1963). Experimental and quasi-experimental designs for research on teaching. In N. L. Gage (Ed.), *Handbook of Research on Teaching* (pp. 171-246). Rand McNally.
- Chang, M. (2007). Enhancing web-based language learning through self-monitoring. *Journal of Computer Assisted Learning*, 23(3), 187-196.
- Cheng, K., Liang, J., & Tsai, C. (2013). University students' online academic help-seeking: The role of self-regulation and information commitments. *The Internet and Higher Education*, 16, 70-77.
- Chu, R., & Chu, A. (2010). Multi-level analysis of peer support, Internet self-efficacy and e-learning outcomes—The contextual effects of collectivism and group potency. *Computers & Education*, 55(1), 145-154.
- Chu, R., & Tsai, C. (2009). Self-directed learning readiness, Internet self-efficacy and preferences towards constructivist Internet-based learning environments among higher-aged adults. *Journal of Computer Assisted Learning*, 25(5), 489-501.
- Chumbley, S., Haynes, J., Hainline, M., & Sorensen, T. (2018). A measure of self-regulated learning in online agriculture courses. *Journal of Agricultural Education*, 59(1), 153-170.
- Chickering, A. W. (1969). *Education and identity*. Jossey-Bass.
- Cigdem, H., & Ozturk, M. (2016). Factors affecting students' behavioral intention to use LMS at a Turkish post-secondary vocational school. *International Review of Research in Open and Distributed Learning*, 17(3), 276-295.

- Cochran, J., Campbell, S., Baker, H., & Leeds, E. (2014). The role of student characteristics in predicting retention in online courses. *Research in Higher Education*, 55(1), 27-48.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Lawrence Erlbaum Associates.
- Cohen, P. J. (1969). Decision procedures for real and p-adic fields. *Communications on Pure and Applied Mathematics*, 22(2), 131-151.
- Comer, D. R., Lenaghan, J. A., & Sengupta, K. (2015). Factors that affect students' capacity to fulfill the role of online learner. *Journal of Education for Business*, 90(3), 145-155.
- Concannon, J., Serota, S., Fitzpatrick, M., & Brown, P. (2019). How interests, self-efficacy, and self-regulation impacted six undergraduate pre-engineering students' persistence. *European Journal of Engineering Education*, 44(4), 484-503.
- Connor-Greene, P. A. (2000). Making connections: Evaluating the effectiveness of journal writing in enhancing student learning. *Teaching of Psychology*, 27(1), 44-46.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Sage.
- Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Pearson.
- Crisp, G., & Taggart, A. (2013). Community college student success programs: A synthesis, critique, and research agenda. *Community College Journal of Research and Practice*, 37(2), 114-130.
- Dabbagh, N., & Kitsantas, A. (2005). Using web-based pedagogical tools as scaffolds for self-regulated learning. *Instructional Science*, 33(5-6), 513-540.

- Diaz, D. P. (2002). Online drop rate revisited. *The technology source*, May/June.
<https://eric.ed.gov/?id=EJ656128>
- Dignath-van Ewijk, C., Fabriz, S., & Büttner, G. (2015). Fostering self-regulated learning among students by means of an electronic learning diary: A training experiment. *Journal of Cognitive Education and Psychology*, *14*(1), 77-97.
- Drago, A., Rheinheimer, D., & Detweiler, T. (2018). Effects of locus of control, academic self-efficacy, and tutoring on academic performance. *Journal of College Student Retention: Research, Theory & Practice*, *19*(4), 433-451.
- Dweck, C. S., Walton, G. M., & Cohen, G. L. (2014). *Academic tenacity: Mindsets and skills that promote long-term learning*. Bill & Melinda Gates Foundation.
- Fein, M. L. (2014). *Redefining higher education: How self-direction can save colleges*. Transaction.
- Fetzner, M. (2013). What do unsuccessful online students want us to know? *Journal of Asynchronous Learning Networks*, *17*(1), 13-27.
- Friedman, J. (2018). 4 expectations for online education in 2018. U.S. News & World Report.
<https://www.usnews.com/higher-education/online-education/articles/2018-01-11/study-more-students-are-enrolling-in-online-courses>
- Gall, M., Gall, J., & Borg, W. (2007). *Educational research: An introduction* (8th ed.). Allyn and Bacon.
- Gall, M.D., Gall, J.P., & Borg, W.R. (2015). *Applying educational research: How to read, do, and use research to solve problems of practice* (7th ed.). Prentice Hall.
- Gardner, J.N. (1986). The freshman year experience. *College and University*, *61*(4), 261-274.

- Gargallo, B., Campos, C., & Almerich, G. (2016). Learning to learn at university. The effects of an instrumental subject on learning strategies and academic achievement. *Culture and Education*, 28(4), 771-810.
- Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly*, 48(1), 18-33.
- Garrison, D. R. (2017). *E-learning in the twenty-first century: A community of inquiry framework for research and practice*. Taylor & Francis.
- Graziano, A., & Raulin, M. (2013). *Research methods: A process of inquiry* (8th ed.). Pearson.
- Grow, G. (1991). Teaching learners to be self-directed. *Adult Education Quarterly*, 41(3), 125-149.
- Hachey, A., Conway, K., & Wladis, C. (2013). Community colleges and underappreciated assets: Using institutional data to promote success in online learning. *Online Journal of Distance Learning Administration*, 16(1), 1-18.
- Hankin, J. (1996). The door that never closes: Continuing education needs of community college leaders. *New Directions for Community Colleges*, 1996(95), 37-46.
- Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, 11(1), 19-42.
- Hauser, R., Paul, R., & Bradley, J. (2012). Computer self-efficacy, anxiety, and learning in online versus face to face medium. *Journal of Information Technology Education: Research*, 11(1), 141-154.
- Helyer, R. (2015). Learning through reflection: The critical role of reflection in work-based learning (WBL). *Journal of Work-Applied Management*, 7(1), 15-27.

- Helyer, R., & Kay, J. (2015). Building capabilities for your future. In R. Helyer, & J. Kay (Eds.), *The work-based learning student handbook*, (pp. 31-50). Palgrave Macmillan.
- Hu, H., & Driscoll, M.P. (2013). Self-regulation in e-learning environments: A remedy for community college? *Journal of Educational Technology & Society*, 16(4), 171-184.
- Huang, X., & Mayer, R. (2019). Adding self-efficacy features to an online statistics lesson. *Journal of Educational Computing Research*, 57(4), 1003-1037.
- Hiemstra, R. (1994). Self-directed adult learning. In T. Husen, & T.N. Postlethwaite (Eds.), *International Encyclopedia of Education* (pp. 9-19). Pergamon Press.
- Hung, M.L., Chou, C., Chen, C.H., & Own, Z.Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education*, 55(3), 1080-1090.
- Hunter, M.A., & Linder, C.W. (2005). First-year seminars. In M.L. Upcraft, J.N. Gardner, & B.O. Barefoot (Eds.), *Challenging and supporting the first year student: A handbook for improving the first year of college* (pp. 275-291). Jossey-Bass.
- Hussar, W.J., & Bailey, T.M. (2018). *Projections of education statistics to 2026* (NCES 2018-019). National Center for Education Statistics. U.S. Department of Education.
- Jaggars, S., Edgecombe, N., & Stacey, G. (2013). *What we know about online course outcomes*. Community College Research Center.
- Jenkins-Guarnieri, M., Horne, M., Wallis, A., Rings, J., & Vaughan, A. (2015). Quantitative evaluation of a first-year seminar program: Relationships to persistence and academic success. *Journal of College Student Retention: Research, Theory & Practice*, 16(4), 593-606.
- Jones, K. R. (2013). Developing and implementing a mandatory online student orientation. *Journal of Asynchronous Learning Networks*, 17(1), 43-45.

- Joo, Y., Bong, M., & Choi, H. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and Internet self-efficacy in web-based instruction. *Educational Technology Research and Development*, 48(2), 5-17.
- Jossberger, H., Brand-Gruwel, S., Boshuizen, H., & Van de Wiel, M. (2010). The challenge of self-directed and self-regulated learning in vocational education: A theoretical analysis and synthesis of requirements. *Journal of vocational education and training*, 62(4), 415-440.
- Karp, M., & Bork, R. (2014). They never told me what to expect, so I didn't know what to do: Defining and clarifying the role of a community college student. *Teachers College Record*, 116(5), 1-40.
- Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology*, 23, 1-13.
- Khiat, H. (2015). Measuring self-directed learning: A diagnostic tool for adult learners. *Journal of University Teaching & Learning Practice*, 12(2), 2-16.
- Kimbark, K., Peters, M., & Richardson, T. (2017). Effectiveness of the student success course on persistence, retention, academic achievement, and student engagement. *Community College Journal of Research and Practice*, 41(2), 124-138.
- Kizilcec, R., Pérez-Sanagustín, M., & Maldonado, J. (2017). Self-regulated learning strategies predict learner behavior and goal attainment in massive open online courses. *Computers & Education*, 104, 18-33.
- Kizilcec, R., & Schneider, E. (2015). Motivation as a lens to understand online learners: Toward data-driven design with the OLEI scale. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 22(2), 6. <https://doi.org/10.1145/2699735>

- Knowles, M. (1975). *Self-directed learning: A guide for students and teachers*. Follett.
- Knowles, M. (1989). *The making of an adult educator*. Jossey-Bass.
- Ko, S., & Rossen, S. (2010). *Teaching online: A practical guide* (3rd ed). Taylor and Francis.
- Kramarski, B., & Gutman, M. (2006). How can self-regulated learning be supported in mathematical E-learning environments? *Journal of Computer Assisted Learning*, 22(1), 24-33.
- Kramarski, B., & Mizrachi, N. (2006). Online discussion and self-regulated learning: Effects of instructional methods on mathematical literacy. *The Journal of Educational Research*, 99(4), 218-231.
- Kuep, J.R. (2018). First-year seminars. In K. E. Linder, & C. M. Hayes (Eds.), *High impact practices in online education: Research and best practices*. Stylus.
- Kuh, G. D. (2008). *Excerpt from high-impact educational practices: What they are, who has access to them, and why they matter*. Association of American Colleges and Universities.
- Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2005). Never let it rest: Lessons about student success from high-performing colleges and universities. *Change: The Magazine of Higher Learning*, 37(4), 44-51.
- Kuh, G. D., & O'Donnell, K. (2013). *Taking HIPs to the next level. Ensuring quality and taking high-impact practices to scale*. Association of American Colleges and Universities.
- Kuo, Y., Walker, A., Schroder, K., & Belland, B. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *The Internet and Higher Education*, 20, 35-50.

- Kurucay, M., & Inan, F. A. (2017). Examining the effects of learner-learner interactions on satisfaction and learning in an online undergraduate course. *Computers & Education, 115*, 20-37.
- Lan, W. Y. (1996). The effects of self-monitoring on students' course performance, use of learning strategies, attitude, self-judgment ability, and knowledge representation. *The Journal of Experimental Education, 64*(2), 101-115.
- Larsen, D. P., London, D. A., & Emke, A. R. (2016). Using reflection to influence practice: Student perceptions of daily reflection in clinical education. *Perspectives on Medical Education, 5*(5), 285-291.
- Lee, Y., & Choi, J. (2011). A review of online course dropout research: Implications for practice and future research. *Educational Technology Research and Development, 59*(5), 593-618.
- Lee, Y., Choi, J., & Kim, T. (2013). Discriminating factors between completers of and dropouts from online learning courses. *British Journal of Educational Technology, 44*, 328-337.
- Lent, R., Brown, S., & Larkin, K. (1984). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology, 31*(3), 356-362.
- Lin, X., Hmelo, C., Kinzer, C. K., & Secules, T. J. (1999). Designing technology to support reflection. *Educational Technology Research and Development, 47*(3), 43-62.
- Liu, J. C., & Adams, A. (2017). Design of online student orientation with conceptual and procedural scaffolding. In F. Lai, & J. Lehman (Eds.), *Learning and knowledge analytics in open education* (pp. 41-68). Springer.
- Lopez, M., & Gonzalez-Barrara, A. (2014, March 6). *Women's college enrollment gains leave men behind*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2014/03/06/womens-college-enrollment-gains-leave-men-behind/>

- Mancini, M., Cipher, D., & Ganji, D. (2018). Maximizing retention and progression to graduation in online programs: A case study in “Designing with the End in Mind.” In R. C. Black (Ed.), *Critical assessment and strategies for increased student retention* (pp. 211-225). IGI Global.
- Martin, F., Tutty, J. I., & Su, Y. (2010). Influence of learning management systems self-efficacy on e-learning performance. *Journal on School Educational Technology*, 5(3), 26-35.
- Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review*, 42(3), 221-241.
- Martin, M., & Rubin, R. (1995). A new measure of cognitive flexibility. *Psychological Reports*, 76(2), 623-626.
- Mason, M. A., Wolfinger, N. H., & Goulden, M. (2013). *Do babies matter?: Gender and family in the ivory tower*. Rutgers University Press.
- McFarland, J., Hussar, B., de Brey, C., Snyder, T., Wang, X., Wilkinson-Flicker, S., Gebrekristos, S., Zhang, J., Rathburn, A., Barmer, A., Bullock Mann, F., & Hinz, S. (2017). *The Condition of education 2017*. National Center for Education Statistics. U.S. Department of Education. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017144>.
- McVay, M. (2000). *Developing a web-based distance student orientation to enhance student success in an online bachelor's degree completion program*. [Unpublished manuscript.] Nova Southeastern University.
- Merriam, S. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult and Continuing Education*, 2001(89), 3-14.
- Merriam, S., Caffarella, R., & Baumgartner, L. (2007). *Learning in adulthood: A comprehensive guide*. John Wiley & Sons.

- Merriam-Webster. (2003). Undergraduate. In *Merriam-Webster's dictionary* (11th ed.). Merriam-Webster.
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- Miltiadou, M., & Yu, C. H. (2000). *Validation of the Online technologies Self-Efficacy Scale (OTSES)*. (ERIC Document Reproduction Service No. ED 445672).
- Moore, M. G., & Kearsley, G. G. (1996). *Distance education: A systems view*. Wadsworth.
- Murphy, C., & Stewart, J. (2017). On-campus students taking online courses: Factors associated with unsuccessful course completion. *The Internet and Higher Education, 34*, 1-9.
- Orange, C. (1999). Using peer modeling to teach self-regulation. *The Journal of Experimental Education, 68*(1), 21-39.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-578.
- Panadero, E., Jonsson, A., & Botella, J. (2017). Effects of self-assessment on self-regulated learning and self-efficacy: Four meta-analyses. *Educational Research Review, 22*, 74-98.
- Park, J. H., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Journal of Educational Technology & Society, 12*(4), 207-217.
- Parkes, M., Stein, S., & Reading, C. (2015). Student preparedness for university e-learning environments. *The Internet and Higher Education, 25*, 1-10.
- Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual world of Second Life. *Computers in Human Behavior, 35*, 157-170.

- Permazadian, V., & Credé, M. (2016). Do first-year seminars improve college grades and retention? A quantitative review of their overall effectiveness and an examination of moderators of effectiveness. *Review of Educational Research*, 86(1), 277-316.
- Peterson D. J. (2016). The flipped classroom improves student achievement and course satisfaction in a statistics course: A quasi-experimental study. *Teaching of Psychology*, 43(1), 10–15.
- Pilling-Cormick, J., & Garrison, D. R. (2007). Self-directed and self-regulated learning: Conceptual links. *Canadian Journal of University Continuing Education*, 33(2), 13-33.
- Pintrich, P. R. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ). (ERIC Document Reproduction Service No. ED 338122).
<https://files.eric.ed.gov/fulltext/ED338122.pdf>
- Pintrich, P., & DeGroot, E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(1), 33-40.
- Pintrich, P. R., Smith, D. A., Garcia, T., & Mckeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement*, 53(3), 801-813.
- Pogue, L. L., & AhYun, K. (2006). The effect of teacher nonverbal immediacy and credibility on student motivation and affective learning. *Communication Education*, 55(3), 331-344.
- Prior, D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91-97.
- Richardson, J. T. (2011). Eta squared and partial eta squared as measures of effect size in educational research. *Educational Research Review*, 6(2), 135-147.

- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, *138*(2), 353-387.
- Rigotti, T., Schyns, B., & Mohr, G. (2008). A short version of the occupational self-efficacy scale: Structural and construct validity across five countries. *Journal of Career Assessment*, *16*(2), 238-255.
- Rockinson-Szapkiw, A. J., Holmes, J., & Stephen, J. S. (2019). Identifying personal and program factors that predict online EdD students' program integration. *Online Learning*, *23*(4), 313-335.
- Rockinson-Szapkiw, A. J., Spaulding, L. S., & Spaulding, M. T. (2016). Identifying significant integration and institutional factors that predict online doctoral persistence. *The internet and higher education*, *31*, 101-112.
- Rovai, A. (2003). In search of higher persistence rates in distance education online programs. *The Internet and Higher Education*, *6*(1), 1-16.
- Schommer-Aikins, M., & Easter, M. (2018). Cognitive flexibility, procrastination, and need for closure linked to online self-directed learning among students taking online courses. *Journal of Business and Educational Leadership*, *8*(1), 112-123.
- Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, *19*(4), 460-475.
- Schunk, D. H. (2005). Commentary on self-regulation in school contexts. *Learning and Instruction*, *15*(2), 173-177.

- Seaman, J., Allen, I., Seaman, J., (2018). *Grade increase: Tracking distance education in the United States*. Babson Survey Research Group.
- https://babson.qualtrics.com/jfe/form/SV_djbTFMIjZGYDnVb
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002) *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Houghton-Mifflin.
- Shank, G., Pringle, J., & Brown, L. (2018). *Understanding education research: A guide to critical reading* (2nd ed). Routledge.
- Shea, P., & Bidjerano, T. (2010). Learning presence: Towards a theory of self-efficacy, self-regulation, and the development of a communities of inquiry in online and blended learning environments. *Computers & Education*, 55(4), 1721-1731.
- Shen, D., Cho, M., Tsai, C., & Marra, R. (2013). Unpacking online learning experiences: Online learning self-efficacy and learning satisfaction. *The Internet and Higher Education*, 19, 10-17.
- Song, H., Kalett, A., & Plass, J. (2016). Interplay of prior knowledge, self -regulation and motivation in complex multimedia learning environments. *Journal of Computer Assisted Learning*, 32, 31-50.
- Stansfield, M., McLellan, E., & Connolly, T. (2004). Enhancing student performance in online learning and traditional face-to-face class delivery. *Journal of Information Technology Education: Research*, 3(1), 173-188.
- Stephen, J. S., Rockinson-Szapkiw, A. J., Dubay, C. (2020). Persistence model of non-traditional online learners: Self-efficacy, self-regulation, and self-direction. *American Journal of Distance Education*. <https://doi.org/10.1080/08923647.2020.1745619>

- Stupka, E. (1993). Sacramento City College. In B.O. Barefoot (Ed.), *Exploring the evidence: Reporting outcomes of freshman seminars* (pp. 23-24). Center for the Freshman Year Experience.
- Tang, Y., & Tseng, H. W. (2013). Distance learners' self-efficacy and information literacy skills. *The Journal of Academic Librarianship*, 39(6), 517-521.
- Taub, M., Azevedo, R., Bouchet, F., & Khosravifar, B. (2014). Can the use of cognitive and metacognitive self-regulated learning strategies be predicted by learners' levels of prior knowledge in hypermedia-learning environments? *Computers in Human Behavior*, 39, 356-367.
- Taylor, J., Dunn, M., & Winn, S. (2015). Innovative orientation leads to improved success in online courses. *Online Learning*, 19(4), 1-9.
- Terenzini, P., & Pascarella, E. (1991). Twenty years of research on college students: Lessons for future research. *Research in Higher Education*, 32(1), 83-92.
- Tinto, V. (1975). Dropouts from higher education: A theoretical synthesis of recent literature. *A Review of Educational Research*, 45(1), 89-125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). University of Chicago Press.
- Tinto, V. (2006-2007). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory and Practice*, 8(1), 1-19.
- Tinto, V. (2012). Enhancing student success: Taking the classroom success seriously. *Student Success*, 3(1), 1-8.

- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254-269.
- Torkzadeh, G., & Van Dyke, T. (2001). Development and validation of an Internet self-efficacy scale. *Behaviour & Information Technology*, 20(4), 275-280.
- Tuckman, B. W. (1991). The development and concurrent validity of the procrastination scale. *Educational and Psychological Measurement*, 51(2), 473-480.
- Upcraft, M., Gardner, J., Barefoot, B., & Associates (Eds.). (2005). Challenging and supporting the first-year student: A handbook for improving the first year of college. San Francisco, CA: Jossey-Bass.
- U.S. Department of Education. (2016). *WWC intervention report: First year experience courses*. https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_firstyear_071916.pdf
- Wang, Y., & Baker, R. (2015). Content or platform: Why do students complete MOOCs? *MERLOT Journal of Online Learning and Teaching*, 11(1), 17-30.
- Wang, C., Shannon, D., & Ross, M. (2013). Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. *Distance Education*, 34(3), 302-323.
- Warr, P., & Downing, J. (2000). Learning strategies, learning anxiety and knowledge acquisition. *British Journal of Psychology*, 91(3), 311-333.
- Watson, C. E., Kuh, G. D., Rhodes, T., Light, T. P., & Chen, H. L. (2016). ePortfolios—The eleventh high impact practice. *International Journal of ePortfolio*, 6(2), 65-69.
- Wernersbach, B. M., Crowley, S. L., Bates, S. C., & Rosenthal, C. (2014). Study skills course impact on academic self-efficacy. *Journal of Developmental Education*, 37(3), 14-33.

- Williamson, S. (2007). Development of a self-rating scale of self-directed learning. *Nurse Researcher, 14*(2), 66-83.
- Wladis, C., Conway, K., & Hachey, A. (2016). Assessing readiness for online education—Research models for identifying students at risk. *Online Learning, 20*(3), 97-109.
- Wolf-Wendel, L., & Ward, K. (2015). Academic mothers: Exploring disciplinary perspectives. *Innovative Higher Education, 40*(1), 19-35.
- Workman, J., & Stenard, R. (1996). Student support services for distance learners. *Education at a Distance, 10*(7), 18-22.
- Yang, D., Baldwin, S., & Snelson, C. (2017). Persistence factors revealed: Students' reflections on completing a fully online program. *Distance Education, 38*(1), 23-36.
- You, J. (2016). Identifying significant indicators using LMS data to predict course achievement in online learning. *The Internet and Higher Education, 29*, 23-30.
- Young, D. G., & Hopp, J. M. (2014). *2012-2013 National survey of first-year seminars: Exploring high-impact practices in the first college year. Research Reports on College Transitions No. 4*. National Resource Center for The First-Year Experience and Students in Transition.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339.
- Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17.
- Zimmerman, B. J. (1998). Academic studying and the development of personal skill: A self-regulatory perspective. *Educational Psychologist, 33*(2-3), 73-86.

- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91.
- Zimmerman, B. J. (2002). Becoming a self-regulated student: An overview. *Theory into Practice* (41)2, 64-70.
- Zimmerman, B. J., & Campillo, M. (2003). Phases and subprocesses of self-regulation. In J. E. Davidson & R. J. Sternberg (Eds.), *The nature of problem solving* (pp. 239). Cambridge University Press.
- Zimmerman, B. J., & Pons, M. M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal*, 23(4), 614-628.
- Zimmerman, B. J., & Schunk, D. H. (2011). Self-regulated learning and performance: An introduction and an overview. In B. J. Zimmerman, & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 1-12). Routledge.
- Zimmerman, W., & Kulikowich, J. (2016). Online learning self-efficacy in students with or without online learning experience. *American Journal of Distance Education*, 30(3), 180-191.

APPENDIX A: ROVAI'S COMPOSITE PERSISTENCE MODEL (2003)

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APPENDIX B: ONLINE SELF-REGULATED LEARNING QUESTIONNAIRE (OLSQ)

Following is a list of the twenty-four items reflected in the OLSQ questionnaire, in the order presented by the author (Barnard-Brak, Lan, Paton, 2010, p. 19):

1	I set standards for my assignments in online courses. (Goal Setting)
2	I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester). (Goal Setting)
3	I keep a high standard for my learning in my online courses. (Goal Setting)
4	I set goals to help me manage studying time for my online courses. (Goal Setting)
5	I don't compromise the quality of my work because it is online. (Goal Setting)
6	I choose the location where I study to avoid too much distraction. (Environment Structure)
7	I find a comfortable place to study. (Environment Structure)
8	I know where I can study most efficiently for online courses. (Environment Structure)
9	I choose a time with few distractions for studying for my online courses. (Environment Structure)
10	I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom. (Task Strategies)
11	I read aloud instructional materials posted online to fight against distractions. (Task Strategies)
12	I prepare my questions before joining in the chat room and discussion. (Task Strategies)
13	I work extra problems in my online courses in addition to the assigned ones to master the course content. (Task Strategies)
14	I allocate extra studying time for my online courses because I know it is time-demanding. (Time Management)
15	I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule. (Time Management)
16	Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days. (Time Management)
17	I find someone who is knowledgeable in course content so that I can consult with him or her when I need help. (Help-Seeking)
18	I share my problems with my classmates online, so we know what we are struggling with and how to solve our problems. (Help-Seeking)
19	If needed, I try to meet my classmates face-to-face. (Help-Seeking)

20	I am persistent in getting help from the instructor through e-mail. (Help-Seeking)
21	I summarize my learning in online courses to examine my understanding of what I have learned. (Self-Evaluation)
22	I ask myself a lot of questions about the course material when studying for an online course. (Self-Evaluation)
23	I communicate with my classmates to find out how I am doing in my online classes. (Self-Evaluation)
24	I communicate with my classmates to find out what I am learning that is different from what they are learning. (Self-Evaluation)

**APPENDIX C: SELF-RATING SCALE FOR SELF-DIRECTEDNESS IN LEARNING
(SRSSDL)**

Following is a list of the sixty items reflected in the SRSSDL questionnaire, in the order presented by the author (Williamson, 2007, p. 79-83):

1	Awareness
1.1	I identify my own learning needs
1.2	I am able to select the best method for my own learning
1.3	I consider teachers as facilitators of learning rather than providing information only
1.4	I keep up to date on different learning resources available
1.5	I am responsible for my own learning
1.6	I am responsible for identifying my areas of deficit
1.7	I am able to maintain self-motivation
1.8	I am able to plan and set my learning goals
1.9	I have a break during long periods of work
1.10	I need to keep my learning routine separate from my other commitments
1.11	I relate my experience with new information
1.12	I feel that I am learning despite not being instructed by a lecturer
1.13	Any other
2	Learning Strategies
2.1	I participate in group discussions
2.2	I find peer coaching effective
2.3	I find “role play” as a useful method for complex learning
2.4	I find interactive teaching-learning sessions more effective than just listening to lectures
2.5	I find simulation in teaching-learning useful
2.6	I find learning from case studies useful

2.7	My inner drive directs me towards further development and improvement in my learning
2.8	I regard problems as challenges
2.9	I arrange my self-learning routine in such a way that it helps develop a permanent learning culture in my life
2.10	I find concept mapping is an effective method of learning
2.11	I find modern educational interactive technology enhances my learning process
2.12	I am able to decide my own learning strategy
2.13	Any other
3	Learning Activities
3.1	I rehearse and revise new lessons
3.2	I identify the important points when reading a chapter or article
3.3	I use concept mapping/outlining as a useful method of comprehending a wide range of information
3.4	I am able to use information technology effectively
3.5	My concentration intensifies, and I become more attentive when I read complex study content
3.6	I keep annotated notes or a summary of all my ideas, reflections and new learning
3.7	I enjoy exploring information beyond the prescribed course objectives
3.8	I am able to relate knowledge with practice
3.9	I raise relevant questions in teaching-learning sessions
3.10	I am able to analyze and critically reflect on new ideas, information, or any learning experiences
3.11	I keep an open mind to others' point of view
3.12	I prefer to take a break in between any learning task
3.13	Any other
4	Evaluation
4.1	I self-assess before I get feedback from instructors
4.2	I identify the areas for further development in whatever I have accomplished

4.3	I am able to monitor my learning progress
4.4	I am able to identify my areas of strength and weakness
4.5	I appreciate when my work can be peer reviewed
4.6	I find both success and failure to inspire me to further learning
4.7	I value criticism as the basis of bringing improvement to my learning
4.8	I monitor whether I have accomplished my learning goals
4.9	I check my portfolio to review my progress
4.10	I review and reflect on my learning activities
4.11	I find new learning challenging
4.12	I am inspired by others' success
4.13	Any other
5	Interpersonal Skills
5.1	I intend to learn more about other cultures and languages I am frequently exposed to
5.2	I am able to identify my role within a group
5.3	My interaction with others helps me to develop the insight to plan for further learning
5.4	I make use of any opportunities I come across
5.5	I need to share information with others
5.6	I maintain good interpersonal relationships with others
5.7	I find it easy to work in collaboration with others
5.8	I am successful in communicating verbally
5.9	I identify the need for interdisciplinary links for maintaining social harmony
5.10	I am able to express my ideas effectively in writing
5.11	I am able to express my views freely
5.12	I find it challenging to pursue learning in a culturally diverse milieu
5.13	Any other

APPENDIX D: ONLINE LEARNING SELF-EFFICACY SCALE (OLSES)

Following is a list of the twenty-two items reflected in the OLSES questionnaire, in the order presented by the authors (Zimmerman & Kulikowich, 2016, p. 184):

1	Navigate online course materials efficiently
2	Find the course syllabus online
3	Communicate effectively with my instructor via e-mail
4	Communicate effectively with technical support via e-mail, telephone, or live online chat
5	Submit assignments to an online drop box
6	Overcome technical difficulties on my own
7	Navigate the online grade book
8	Manage time effectively
9	Complete all assignments on time
10	Learn to use a new type of technology efficiently
11	Learn without being in the same room as the instructor
12	Learn without being in the same room as other students
13	Search the Internet to find the answer to a course-related question
14	Search the online course materials
15	Communicate using asynchronous technologies (discussion boards, e-mail, etc.)
16	Meet deadlines with very few reminders
17	Complete a group project entirely online
18	Use synchronous technology to communicate with others (such as Skype)
19	Focus on schoolwork when faced with distractions
20	Develop and follow a plan for completing all required work on time
21	Use the library's online resources efficiently
22	When a problem arises, promptly ask questions in the appropriate forum (e-mail, discussion board, etc.)

APPENDIX E: IRB APPROVALS

IRB approvals from Mercer University and The University of Memphis for Summer 2019 and Fall 2019.



Institutional Review Board
For Research Involving Human Subjects

Tuesday, April 23, 2019

Ms. Jacqueline Stephen
3001 Mercer University Drive, Suite 310
Leadership Studies
Atlanta, GA 30341

RE: Examining the Impact of a Course's Learning Activities on Student Self-Regulation, Self-Direction, and Self-Efficacies. (H1904114)

Dear Ms. Stephen:

On behalf of Mercer University's Institutional Review Board for Human Subjects Research, your application submitted on 18-Apr-2019 for the above referenced protocol was reviewed in accordance with the 2018 Revised Federal Regulations [46.104](#) under category(ies) _1, _2 and is **Exempt from further review at this time.**

Any changes to the above protocol *MUST* be resubmitted for IRB review to ensure that risks to the subject have not changed.

Item(s) Approved (23-Apr-2019):

New application for applied research study using testing to examine the impact of a course's learning activities on student's self-regulation, self-direction, and self-efficacies in the online learning environment.

NOTE: Although this study has been reviewed and exempt under the 2018 revision of the common rules, the IRB may ask that you submit a status report should the study continue beyond one year.

We at the IRB and the Office of Research Compliance are dedicated to providing the best service to our research community. As one of our investigators, we value your feedback and ask that you please take a moment to complete our [Satisfaction Survey](#) and help us to improve the quality of our service.

It has been a pleasure working with you and we wish you much success with your project! If you need any further assistance, please feel free to contact our office.

Respectfully,

A handwritten signature in cursive script, appearing to read "Ava Chambliss-Richardson".

Ava Chambliss-Richardson, Ph.D., CIP, CIM.
Director of Research Compliance
Member
Institutional Review Board

"Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization's (ICH) Guidelines for Good Clinical Practice."

Mercer University IRB & Office of Research Compliance
Phone: 478-301-4101 | Email: ORC_Mercer@Mercer.Edu | Fax: 478-301-2329
1501 Mercer University Drive, Macon, Georgia 31207-0001

**Human Subject Research
Request for Research Use of Student Records**

Principal Investigator's Name: Jacqueline Stephen
Undergraduate Graduate Faculty Fellow Staff/Administration
Request Date: July 15, 2019 Request Due Date: July 20, 2019
Telephone 678-547-6017 Fax Email Address Stephen_js@mercer.edu
College/School, Department, Division Penfield College


I have asked for a similar report before: Yes If Yes When _____ No

Purpose and Audience:
Purpose of the Request: Retrieving demographic data and course grade, and recoding student identification numbers.
How will you use the report? To determine correlation between students' final grade in a course and the results of the pretest-posttest and student demographic data.
Why do you need the data? To gain a deeper understanding of the effectiveness of the learning activities and determine future instructional needs and requirements of students during their first semester.
Who is the intended audience? College, Research Publications, Conference Presentations
**Privacy and Access Rights-Under the rules of the Family Educational Rights and Privacy Act (FERPA), information from student records can only be released under certain circumstances.

Data Fields Requested:
Year(s) Requested: Summer 2019
Special Instructions: Only data from the following course will be collected: UNIV110, 2019-SU-MUL-01 (Instructor: Jacqueline Stephen)
Special Requirements for sorting/grouping reported data. Recode student identification numbers to Student_1, Student_2, etc.

Preferred Format of Data: Excel file Word file PDF File Printed Report

REQUIRED SIGNATURES:


Requestor's Signature/Date

 04/23/2019
IRB Approver's Signature/Date

Requestor's Written Name

Mercer University IRB
Approval Date 04/23/2019
Protocol Expiration Date 04/22/2020

IRB Date Stamp

11/2012

Student's Advisor Signature/Date


Dean/Designee Signature/Date

Registrar/Registrar Designee Signature/Date

IRB #: PRO-FY2019-573

Title: Undergraduate Online Student Self-Regulation, Self-Direction, and Self-Efficacies

Creation Date: 4-11-2019

End Date:

Status: **Approved**

Principal Investigator: Jacqueline Stephen

Review Board: University of Memphis Full Board

Sponsor:

Study History

Submission Type	Initial	Review Type	Exempt	Decision	Exempt
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Key Study Contacts

Member	Role	Contact
Jacqueline Stephen	Principal Investigator	jstphen2@memphis.edu
Amanda Rockinson-Szapkiw	Co-Principal Investigator	rcknsnsz@memphis.edu
Jacqueline Stephen	Primary Contact	jstphen2@memphis.edu

APPENDIX F: CALL FOR PARTICIPANTS

[Announcements](#) > [Volunteers Wanted for a Research Study](#)

[Edit](#) ⋮



Volunteers Wanted for a Research Study

[Jacqueline S. Stephen](#)
[All Sections](#)

You are being invited to volunteer to participate in a research study. Please read through the information provided to you below to consider when deciding if you want to participate. Below is a summary of the details of this research. More detailed information is provided to you in the following document: [IRB_Memphis_Informed_Consent.pdf](#)

Research Study Title: Examining the Impact of an Intervention on Online Undergraduate Student Self-Regulation, Self-Directedness, Self-Efficacy, and Persistence

Purpose: The purpose of this research is to examine the impact of the student success orientation course's on online undergraduate student self-regulation, self-directedness, online learning self-efficacy, and persistence.

Duration: It is expected that your participation will last 8 weeks. Completion of the pretest-posttest may take a total of 20 minutes of your time to complete both. Your participation will take place online through the completion of the pretest-posttest.

Risk: Some of the foreseeable risk or discomforts of your participation include a time commitment to complete the pretest-posttest and survey fatigue. You may also experience stress if you feel that there are too many statements to read through.

Benefits: While there are not direct immediate benefits, the researcher hopes to learn more about the effectiveness of the student success orientation course and its impact on student self-regulation, self-direction, and online learning self-efficacies.

Alternatives: Participation is voluntary, and the only alternative is to not participate.

Compensation: There is no compensation for participating in this research. You will not lose or gain points in this course by participating or not participating in this research.

Researchers: Jacqueline Stephen of Mercer University, Department of Leadership Studies is in charge of the study. His/her faculty advisor is Dr. Amanda Rockinson-Szapkiw. Members of the research team do not have a financial interest or conflict of interest related to the research.

Contact Information for the Researchers:

Ms. Stephen, (678) 547-6017 Stephen_JS@mercer.edu

Dr. Rockinson-Szapkiw, 901.678.1432 rcknsnsz@memphis.edu

Unread 👁 ⬆ ⬇

APPENDIX G: INFORMED CONSENT



Institutional Review Board
315 Administration Bldg.
Memphis, TN 38152-3370
Office: 901.678.2705
Fax: 901.678.2219

Consent for Research Participation

Title	Examining the Impact of an Intervention on Online Undergraduate Student Self-Regulation, Self-Directedness, Self-Efficacy, and Persistence
Researcher(s)	Ms. Jacqueline Stephen, Mercer University Dr. Amanda Rockinson-Szapkiw, The University of Memphis
Researchers Contact Information	Ms. Stephen, (678) 547-6017 Stephen_JS@mercer.edu Dr. Rockinson-Szapkiw, 901.678.1432 rcknsnsz@memphis.edu

You are being asked to participate in a research study. The box below highlights key information for you to consider when deciding if you want to participate. More detailed information is provided below the box. Please ask the researcher(s) any questions about the study before you make your decision. If you volunteer, you will be one of about 60 people to do so.

Key Information for You to Consider

Voluntary Consent: You are being asked to volunteer for a research study. It is up to you whether you choose to participate or not. There will be no penalty or loss of benefit to which you are otherwise entitled if you choose not to participate or discontinue participation. As a student, if you decide not to take part in this study your choice will not affect your academic status or grade in your class.

Purpose: The purpose of this research is to examine the impact of the student success orientation course's on online undergraduate student self-regulation, self-directedness, online learning self-efficacy, and persistence.

Duration: It is expected that your participation will last 8 weeks.

Procedures and Activities: If you volunteer to participate, you will complete an online pretest and posttest. You will be presented with statements about self-directed learning, self-regulated learning, and online learning self-efficacies and you will be presented with a scale from which you will indicate which statements best apply to you as an online undergraduate student. You will also be asked to provide your university-issued student identification number. This will be used by the Registrar's office to add your educational background, degree type, medium of degree, discipline, age, family status, employment status, financial aid status,

ethnicity, gender, enrollment status in the next semester, and final course grade. The Registrar will then remove your university-issued student identification number from the data and recode it to retain your confidentiality. Collecting the demographic data of participants will help us to control for pre-existing factors that can impact online undergraduate student persistence. Collecting your final grade and enrollment status in the next semester will help us to measure your persistence in passing the course and continuing enrollment in an online course in the next semester. You will also be asked to indicate if this is your first time enrolled in an online course or if you were previously enrolled in an online course and were successful or unsuccessful. You can skip any question that makes you uncomfortable and you can stop at any time. Two classes will be asked to volunteer to participate in this research. One class will be asked to maintain a bi-weekly learning log. The other class will not be asked to maintain a bi-weekly learning log. The bi-weekly learning log will be randomly assigned to one of the classes. The learning logs will not be graded and you will not receive or lose points for completion or non-completion.

Risk: Some of the foreseeable risk or discomforts of your participation include a time commitment to complete the pretest-posttest and survey fatigue. You may also experience stress if you feel that there are too many statements to read through.

Benefits: While there are not direct immediate benefits, the researcher hopes to learn more about the effectiveness of the student success orientation course and its impact on student self-regulation, self-direction, and online learning self-efficacies.

Alternatives: Participation is voluntary, and the only alternative is to not participate.

Who is conducting this research?

Jacqueline Stephen of Mercer University, Department of Leadership Studies is in charge of the study. His/her faculty advisor is Dr. Amanda Rockinson-Szapkiw. Members of the research team do not have a financial interest or conflict of interest related to the research.

Why is this research being done?

The purpose is to examine the impact of the student success orientation course's on online undergraduate student self-regulation, self-directedness, online learning self-efficacy, and persistence. You are being invited to participate because you are an undergraduate online student enrolled in the student success orientation course.

How long will I be in this research?

The research will be conducted online. It should take no more than 10 minutes to complete the pretest and no more than 10 minutes to complete the posttest. The duration of this research will be over an eight-week period.



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Fax: 901.678.2219

What happens if I agree to participate in this Research?

If you agree you will be asked to:

- Complete an online pretest and posttest. You will be presented with statements about self-directed learning, self-regulated learning, and online learning self-efficacies and you will be presented with a scale from which you will indicate which statements best apply to you as an online undergraduate student.
- Provide your university-issued student identification number. This will be used by the Registrar's office to add your educational background, degree type, medium of degree, discipline, age, family status, employment status, financial aid status, ethnicity, gender, enrollment status in the next semester, and final course grade. The Registrar will then remove your university-issued student identification number from the data and recode it to retain your confidentiality. Collecting the demographic data of participants will help us to control for pre-existing factors that can impact online undergraduate student persistence. Collecting your final grade and enrollment status in the next semester will help us to measure your persistence in passing the course and continuing enrollment in an online course in the next semester.
- Indicate if this is your first time enrolled in an online course or if you were previously enrolled in an online course and were successful or unsuccessful.
- You can skip any question that makes you uncomfortable and you can stop at any time.
- Two classes will be asked to participate in this research. One class will be asked to maintain a bi-weekly learning log. The other class will not be asked to maintain a bi-weekly learning log. The bi-weekly learning log will be randomly assigned to one of the classes. The learning logs will not be graded and you will not receive or lose points for completion or non-completion.

What happens to the information collected for this research?

Information collected for this research will be used to inform the redesign of the student success orientation course and to disseminate findings within the university and beyond, through a publication and/or presentation. Your name will not be used in any reports or presentations. Although we may publish and/or present the results of this research, your student identification number and other identifying information will remain confidential. Once the Registrar's office removes your student identification data from the dataset, then we will use this as the primary dataset for analysis. The collected data from the pretest-posttest will not be used or distributed for future research studies.

How will my privacy and data confidentiality be protected?

3



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Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Ms. Jacqueline Stephen at Stephen_JS@Mercer.edu and/or Dr. Amanda Rockinson-Szapkiw at rcknsnsz@gmail.com. If you have any questions about your rights as a volunteer in this research, contact the Institutional Review Board staff at the University of Memphis at 901-678-2705 or email irb@memphis.edu. We will give you a signed copy of this consent to take with you.

STATEMENT OF CONSENT

I have had the opportunity to consider the information in this document. I have asked any questions needed for me to decide about my participation. I understand that I can ask additional questions through the study.

By signing below, I volunteer to participate in this research. I understand that I am not waiving any legal rights. I have been given a copy of this consent document. I understand that if my ability to consent for myself changes, my legal representative or I may be asked to consent again prior to my continued participation.



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Name of Adult Participant **Signature of Adult Participant** **Date**

Researcher Signature (To be completed at the time of Informed Consent)

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understand the information described in this consent and freely consent to participate.

Name of Research Team Member **Signature of Research Team Member** **Date**

APPENDIX H: FINDINGS AND IMPLICATIONS FOR ADMINISTRATORS AND INSTRUCTORS

Findings & Implications

For Administrators and Instructors



Finding: Reflection activities influence mechanisms of human agency in online students.

Implications for Instructors:

- Incorporate the use of reflection activities (i.e., self-assessments, rubrics, learning logs, learning journals).
- Prompt students to complete the activities.
- Provide feedback, redirection, and encouragement regularly.



Finding: A first-semester seminar class influences online student success.

Implications for Administrators:

- Introduce a high-impact first seminar class for undergraduate online students.
- Provide online students virtual access to services and resources.

Implications for Instructors:

- Use modules to structure and organize course content.
- Present course content and instructions in a variety of formats (i.e., audio, video, screencast)
- Provide opportunities for hands-on practice.
- Enter grades regularly.
- Provide all deadlines on the first day of class.
- Introduce and summarize modules using course announcements.
- Create opportunities for virtual interaction with peers.
- Design assignments that encourage student virtual interaction with university resources and services.
- Incorporate regular virtual synchronous class meetings.
- Interact with students through asynchronous class discussions.
- Provide timely feedback and response.