EXAMINING THE SELF-REGULATED LEARNING BEHAVIORS, CAREER SELF-EFFICACY, AND ACADEMIC ACHIEVEMENT OF ONLINE CAREER AND TECHNICAL EDUCATION HIGH SCHOOL STUDENTS

By

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To those who believe education is a moral right for all
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Instructors must prepare students to meet the learning objectives in a course. When instructors use online learning platforms as the main modality for instruction, learners may find challenges in mastering learning objectives. In particular, career and technical education coursework offered through an online learning platform aims to prepare students with the knowledge, skills, and training needed to be successful in a career. The purpose of this study was to describe the influence of perceived self-regulated learning strategies and career self-efficacy on academic achievement of learners enrolled in career and technical education online-learning courses. A quantitative research design revealed that students enrolled in online career and technical education courses use a variety of learning strategies to excel in coursework, thus leading to students’ reporting a high career self-efficacy. However, data revealed mixed results on how career self-efficacy and self-regulatory learning behaviors influenced academic achievement outcomes. It is recommended that instructors should consider assessing students’ career self-efficacy by examining student use of self-regulatory learning behaviors based on observations on their engagement in an online
career and technical education course. Additionally, instructors in online career and technical education fields should consider how academic achievement is evaluated through their assessment of instructional tasks.
CHAPTER 1
INTRODUCTION

Traditionally, students have attended classes on campus to earn course credit. However, many students have explored alternative means to receiving an education. Today, many students have turned to distance education courses to provide quality education in the comfort of their own homes. Distance education is when one or more technologies are used to deliver instruction (Seaman, Allen, & Seaman, 2018). While distance education has traditionally been used in both informal and formal education, advancements in technology have led to growing concern for creating more formal education courses that are both effective and stimulating for distance learners. As technology advanced, more courses have been designed to meet the needs of distance learners through online platforms (Davis, Chen, Hauff, & Houben, 2018). Over the last 20 years, distance learning programs have continued to change as new technologies have emerged to deliver instruction and curriculum (Davis et al., 2018).

Research regarding online learning began in the late 1990s, with a considerable amount of research examining various learning outcomes between traditional, on campus classroom instruction versus online instruction. Initial research in the field has found that distance learning is just as effective as on-campus instruction (Russell, 1999). In the early 2000s, a shift in online learning research occurred to better understand student motivation in distance education courses. Research has shown that students should be centered as the locus for controlling their own learning in distance education courses (Dutton, Dutton, & Perry, 2002). According to Dutton et al. (2002), students who controlled their learning had greater outcomes regarding student achievement and course success. Since research has suggested that instructional
practices in distance education should be student-centered, this required learners to take more responsibility for their learning, as opposed to students in face-to-face courses (Dutton, Dutton, & Perry, 2002).

Today’s society has increased pressure to integrate technology into instruction in order to enhance the learning outcomes for students, while promoting proficiency in technology use (Davis et al., 2018). As online learning has continued to advance, more institutions have continued to offer more courses online, drawing significant student enrollments. Distance education enrollment has increased every year since 2004, with post-secondary institutions being the leaders in encouraging online learning (Seaman et al., 2018). By the fall of 2016, approximately 32% of all students enrolled in a post-secondary institution in the United States had taken at least one distance education course, which equals 6.3 million students nationwide (Digest of Educational Statistics, 2017; Seaman et al., 2018). As of 2018, online enrollment rates exceeded traditional enrollment rates at the post-secondary level in most subject areas (Rich & Dereshiwsky, 2011; Seaman et al., 2018). While online learning has been increasing at the post-secondary level, considerable interest has developed to explore online learning at the secondary level (Digest of Educational Statistics, 2017).

Online learning has been mainly influenced by policy at the secondary level, since policy has driven spending decisions in education (Horn, 2013). Online learning has created many challenges, especially in states where students have been required to have a certain number of days that they attend school. Various states have passed legislation—either in favor or against the use of online learning in secondary education. Several states, such as Illinois, Maine, New Jersey, and Tennessee, have limited the
use of online learning (Horn, 2013). Many of these states have found funding issues with education, since many students in these states have been able to take online courses outside of their school district (Horn, 2013). Other states such as California, Florida, Louisiana, Michigan, Texas, Utah, and West Virginia have passed legislation that supports the use of online learning, either as a blended learning format or the use of full web-based courses (Horn, 2013). Many states have seen this as an opportunity to provide means of innovative experiences for learners using competency-based learning (Horn, 2013). Overall, the use of online learning has slowly gained attention at the secondary level, largely driven by state policies.

At the secondary level, state legislation has attempted to shape online learning—either by increasing or decreasing its use (Horn, 2013). In 2012, Florida Governor Rick Scott signed House Bill 7063, formally known as the Digital Learning Bill (Florida Department of Education, 2012). This bill amended section 1003.428(2)(c) in state regulations, mandating that every student who chooses to complete the 24-credit option for a high school diploma complete one online course with a minimum 2.0 grade point average on a 4.0 scale (Florida Department of Education, 2017a). Students with an individual educational plan (IEP) or students who started high school during the 2012 school year were exempt from this bill. The Digital Learning Bill was created as an initiative to better prepare secondary students for the growing expansion of online learning at the post-secondary level (Florida Department of Education, 2017a). Therefore, the Digital Learning Bill has led to many students in secondary schools taking online coursework in Florida (Florida Department of Education, 2017a).
With the expansion of online learning, new courses have been created for learners at the secondary level. In particular, Career and Technical Education (CTE) courses have gained attention over the last several years (Florida Department of Education, 2017b). CTE provides students with the academic knowledge, technical skills, and training necessary to enter the workforce (ACTE, 2018a). CTE has taken place for several hundred years in some form or another, with vocational education beginning in non-formal settings. Career and technical education began to expand at the secondary level after passage of the Smith-Hughes National Vocational Education Act, also known as the Vocational Act of 1917. The Smith-Hughes National Vocational Educational Act provided federal funding for CTE programs in agriculture, trade, and industrial development (Smith-Hughes National Vocational Education Act of 1917, 1917). Since the passage of the Smith-Hughes National Vocational Education Act, other important legislative acts have helped shaped CTE into what it is today (Impertore, 2017).

Today, CTE is offered in 16 different career clusters and over 80 career pathways that a learner can specialize in (ACTE, 2018a). The career clusters range from agriculture, finance, health science, law, marketing, and STEM courses related to specific job fields (ACTE, 2018a). Instructors in many of these career clusters have partnered with industry leaders to train learners for technical or job-specific skills (ACTE, 2018a). At the secondary level, student enrollments in CTE courses have continued to grow in recent years. During the 2018-2019 school year, an estimated 94% of all secondary students will enroll in a career and technical education course (ACTE, 2018a). Many of these students have taken these courses to help them prepare for
employment upon completion of the program. In 2018, nearly 8.4 million individuals annually sought certificates or associate degrees in a CTE field after completing high school (ACTE, 2018a). CTE has been continuing to grow as more course takers have become interested in gaining skills that are pertinent to their chosen field of interest.

**Research Problem**

Alternative instruction using online learning platforms should foster student success through meaningful pedagogy of learning objectives (Rashid & Asghar, 2016). Dewey (1938) noted that a learner’s environment has a major role in his or her ability to form impulses and habits, thus producing the motivation to learn. Kolb (1984) went even further by stating that learners acquire new knowledge through meaningful concrete experiences. In traditional face-to-face courses, the instructor is able to create these concrete experiences through direct interaction. When the instructor is no longer able to provide direct instruction in a concrete sequential experience through direct instruction, the learner is left as the main locus for engagement in the teaching and learning process (Rashid & Asghar, 2016). Because there is no direct interaction between the learner and the instructor while the student is engaging in a learning task, instructors have difficulty ensuring that the students are taking responsibility in their own learning (Rashid & Asghar, 2016). In the context of this study, an online learning environment may influence the habits and impulses practiced by learners as they progress through assigned learning tasks.

While every student processes learning differently, research has suggested that an online learning platform can be as effective or more effective than traditional face-to-face learning (Cavanaugh, 2007; McLaren, 2004; Melton, Graf, & Chopak-Foss, 2009; Russell, 1999). Other empirical research has refuted this finding, suggesting that
student attributes and instructional modality greatly influence learning outcomes (Paden, 2006; Smith, Heindel, & Torres-Ayala, 2008). Students' attributes such as self-motivation, self-efficacy, cognitive processing skills, and ability to self-regulate learning through various strategies may influence their level of success in an online course (Cavanaugh, 2007; Melton et al., 2009; Smith et al., 2008). Self-regulated learning is the processes that learners enact systematically to focus on their thoughts, feelings, and actions to attain a learning goal (Zimmerman, 2000). As student enact these critical thinking processes, they are more likely to meet the learning objective in an online course (Cavanaugh, 2007; Melton et al., 2009; Rashid & Asghar, 2016). Integrating technology, such as using a web-based platform as a classroom environment, can create high student motivation and an increase in self-directed learning (Cavanaugh, 2007; Rashid & Asghar, 2016). However, no research has been found to suggest that online CTE courses can provide the ability to support students to enact self-regulated learning behaviors, or how learners’ career self-efficacy is influenced.

As a result of the Digital Learning Bill in Florida, more secondary students have enrolled in courses offered by Florida Virtual School (FLVS). FLVS is one of the oldest, most established online learning platforms in the U.S. for K-12 students, offering over 150 courses (Florida Department of Education, 2017b). During the 2016-2017 school year, FLVS had nearly 87,462 students enrolled in one or more distance education courses—a number that was expected to increase over the next several years (Florida Department of Education, 2017b). As more students have turned towards FLVS to fulfill their degree requirement, FLVS has continued efforts in promoting distance learning for secondary students by expanding in other content areas (FLVS, 2018). FLVS has
worked to develop a plethora of courses that range from both core coursework to various electives (FLVS, 2018). However, FLVS has been particularly interested in being the pioneer for online CTE coursework (FLVS, 2018).

With increased access for online CTE coursework in Florida, conflicting laws may still limit these students to participate in CTE student organizations (Kararo & Knobloch, 2018). A content analysis of policy laws in each state determined (a) each state’s homeschool regulations regarding participation in CTE student organizations and (b) the ability for students to participate based on their enrollment status (Kararo & Knobloch, 2018). In particular, Kararo & Knobloch (2018) examined membership eligibility for homeschooled students into the National FFA Organization based on state policy. The content analysis of these policies revealed a low potential for these students to participate in CTE student organizations for Florida students (Kararo & Knobloch, 2018).

Nonetheless, CTE has provided many personal benefits to students. Students enrolled in a CTE course have been more apt to participate in career and technical education student organizations, achieve better grades, have a higher career self-efficacy, and possess more employability skills for their specific career path (NRC CTE, 2018). Secondly, CTE coursework has led to an increase in problem-solving skills, communication skills, mathematics skills, time-management, and critical thinking skills (Alfeld, Hansen, Aragon, & Stone, 2006; Parr, Edwards, & Leising, 2009; Young, Edwards, Leising, 2009). Furthermore, the increase in student motivation through CTE engagement has led to a greater likelihood that these students will complete their degree on time, thus reducing the number of dropouts in the 11th and 12th grades (Gottfried & Plasman, 2018; NRC CTE, 2018). Additionally, Kriesman and Stange
(2017) found that students who participated in a CTE course earn a higher wage of approximately 3.2% more dollars than students who did not participate in a CTE course during their time in high school.

CTE coursework helps train students, while connecting them with industry. CTE has helped fill employment gaps and shape American business by closing the skills gap, thus building a more competitive workforce (ACTE, 2018a). This has significant impacts for the American economy, both nationally and at the local level. In Oklahoma, graduates from the CareerTech system generated a $3.5 billion economic impact annually to the state (ACTE, 2018a; 2018b). Other states have reported an even greater return on the investment in CTE coursework, including states such as Iowa and Wisconsin (ACTE, 2018a). Because of the many impacts that CTE can have on the economy, many parents have seen the value in CTE. Approximately 89% of parents think that students should receive more education about career choices while they are in high school (ACTE, 2018b; 2018c). Parents have been a main influencer for their child to participate in a particular course, and support for CTE from parents has pushed their child towards internships and on-the-job training opportunities (ACTE, 2018b; 2018c). As CTE continues to gain attention, there is a need to offer this type of education format to benefit the industry, the overall economy, parent’s desires for their child’s learning outcomes, and student satisfaction for lifelong careers.

While students continue to benefit from career and technical education coursework, a growing shift in government and research agenda policies are in support of better understanding career development through technology-based online learning for various CTE areas (NRC CTE, 2018). The National Research Center for Career and
Technical Education (NRC CTE) has discussed research priorities for the next several years. The NRC CTE has suggested research related to (1) online instruction of CTE courses to advance efforts in alternative instruction and (2) research related to career guidance and counseling for students enrolled in CTE courses (NRC CTE, 2018). Through examining the various influences of self-regulated learning and career decision-making self-efficacy of learners’ enrolled in online career and technical education courses, this study aligns with the National Research Center for Career and Technical Education (NRC CTE) research priorities.

In addition, this study aligns with American Association for Agricultural Education (AAAE) National Research Priority Area #4: Meaningful, Engaged Learning in All Environments, which indicated, “creating and evaluating meaningful learning environments is essential to educating future generations. This task is complex and many assumptions about pedagogical practice should be investigated to determine appropriate processes to guide engagement and learning,” (Edgar, Retallick, & Jones, 2016, p. 39).

**Purpose & Objectives**

The purpose of this study was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic achievement of learners in secondary career and technical education online-learning courses. Objectives that guided this study were:

1. Describe the demographic characteristics of online learners enrolled in career and technical education courses.

2. Identify the self-regulated learning strategies used by online learners enrolled in high school career and technical education courses.
3. Determine the self-perceived career decision-making self-efficacy of online learners enrolled in high school career and technical education courses.

4. Examine the relationship between perceived self-regulated learning strategies and academic achievement of online learners enrolled in high school career and technical education courses.

5. Examine the relationship between learners' perceived career decision-making self-efficacy and academic achievement of online learners enrolled in high school career and technical education courses.

6. Examine the relationship between perceived career-decision making self-efficacy and perceived self-regulated learning strategies of online learners enrolled in high school career and technical education courses.

7. Determine if demographic variables of students enrolled in high school career and technical education courses predict self-regulated learning behaviors.

8. Determine if demographic variables of students enrolled in high school career and technical education courses predict career decision-making self-efficacy.

**Significance of Study**

While research has been conducted that describes self-regulated learning strategies that students implement within courses, there has been no known research that examines these strategies using an online learning platform for online learners enrolled in secondary career and technical education courses. Additionally, no known research has been found that explains the role of career readiness of learners enrolled in high school career and technical educational courses. Research is needed to better understand how online learners’ use of self-regulated learning strategies and learners’ career decision-making self-efficacy may influence learners’ academic achievement. By understanding the influence of secondary students' preferred learning strategies and career decision-making self-efficacy on academic achievement in online career and technical education courses, this information will add to the gap in the literature.
Practitioners may benefit from this research. Information learned from this study will assist instructors in designing meaningful curriculum and pedagogical practices for online career and technical education courses. As legislative policy shifts toward increasing distance learning, there has been a need to better understand how learners respond when an online learning platform is used as the main modality for instruction. This research study may help instructors with understanding if these learning activities aide students in their ability to use self-regulatory learning strategies, as well as how instructors may influence learners’ career decision-making self-efficacy. Additionally, this study will help provide information for instructors to build enriched learning experiences that maximize student achievement in career and technical education courses. This research may lead to instructors re-evaluating best practices used in order to better meet the needs of learners in career and technical education courses.

**Definition of Terms**

- **Academic Achievement** — the summation of metacognitive, motivational, and behavioral outcomes of the learning process (Zimmerman & Schunk, 1989). In this study, academic achievement was measured by the course grades collected.

- **Career Decision-Making Self-Efficacy** — the confidence in one’s ability to effectively engage in decision-making tasks or activities relating to his or her career (Betz & Klein, 1996). In this study, a learners’ career decision-making self-efficacy was measured using the Career Decision-Making Self-Efficacy Short Form (CDSE-SF).

- **Distance education** — education that uses one or more technologies to deliver instruction to students who are separated from the instructor (Seaman et al., 2018). Students in this study were enrolled in various online career and technical education courses.

- **Learning strategies** — cognitive strategies that are oriented toward successful task performances (Pressley, Harris, & Marks, 1992). In this study, learning strategies were operationally defined as the strategies that students used to accomplish a learning activity.
• Metacognition — the knowledge of cognition, as well as the regulation of cognition through the use of higher order thinking, reasoning, and learning skills during learning (Schraw, 1997; Zimmerman & Moylan, 2009). In this study, metacognition was operationalized as a construct for self-regulated learning.

• Motivation — the activation and persistence of behavior that is rooted in cognitive activities (Bandura, 1977). In this study, motivation was the underlying construct for self-regulatory learning.

• Online learning environment — the use of the Internet to deliver a course (Seaman et al., 2018). In this study, the online learning environment was students actively participating in the online career and technical education courses selected.

• Self-efficacy — a person’s personal belief concerning his or her ability to establish and implement actions necessary to perform behaviors at various levels (Bandura, 1977). In this study, self-efficacy describes learner’s personal beliefs concerning learning ability levels.

• Self-regulated learning — processes that learners enact systematically to focus on their thoughts, feelings, and actions to attain a goal (Zimmerman, 2000). In this study, self-regulated learning was measured using the SOL-Q.

**Threats to Validity**

The following threats to validity were addressed during this study:

• Maturation threat is the change in participant responses due to the progression of time (Ravid, 2015). This threat was reduced based on a short amount of time allotted for data collection.

• Instrumentation is the way measurements are completed and scored within the study (Ravid, 2015). This study used an electronic data collection service in the online course, thus eliminating errors as respondents responded to the questionnaire items.

• Selection is an internal validity threat in which students are selected based on learner characteristics (Ravid, 2015). This study used simple random sample to select students, and then collected data on learner characteristics.

• Mortality is the loss of respondents during the study (Ravid, 2015). This was eliminated due to a short collection period of data.

**Assumptions**

Several assumptions were made in conducting this study, including the following:
• Respondents of this study were assumed to be bona fide respondents of interest.
• Every participant employed a wide variety of learning strategies that could be assessed through the SOL-Q instrument.
• The CDSE-SF instrument accurately assessed respondents’ career decision-making self-efficacy.
• Respondents of this study accurately and honestly completed the instrument items.

Chapter Summary

Opportunities for high school students to enroll in online coursework has continued to expanded, primarily due to shifting legislation in support of distance education (Davis et al., 2018; Florida Department of Education, 2017a; Horn, 2013; Seaman et al., 2018). As alternative instructional methods using an online learning platform have been created, there has been a need to better understand the learning processes that students enact (Edgar et al., 2016; Rashid & Asghar, 2016; NRC CTE, 2018). In particular, CTE courses have started to gain momentum because of the value and impact that they can have on students’ success during and after high school (Gottfried & Plasman, 2018; Kriesman & Stange, 2017; NRC CTE, 2018; Parr et al., 2009; Young et al., 2009). CTE courses offer students beneficial skills needed to be successful in various career pathways, as well as fill unemployment gaps by bridging skills and competencies in various industries (ACTE, 2018a; 2018b; 2018c). Various sources have been pressuring practitioners to re-create these meaningful learning experiences for CTE in an online platform (Florida Department of Education, 2017b). Therefore, the purpose of this study was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic
achievement of learners in secondary career and technical education online-learning courses.
CHAPTER 2
REVIEW OF LITERATURE

Chapter 1 provided the rationale for examining self-regulated learning strategies and career decision-making self-efficacy of learners enrolled in online career and technical education courses through FLVS. Chapter 1 discussed the purpose of this study, which was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic achievement of learners in secondary career and technical education online-learning courses. Chapter 2 will describe the theoretical and conceptual frameworks guiding this study. This chapter will also present empirical literature pertinent to the conceptual framework.

Theoretical Framework

Self-Regulated Learning Theory

This study was constructed on the foundation of self-regulated learning theory and social cognitive career theory. Self-regulated learning theory, also known as self-regulation, demonstrates the process in which learners focus on their thoughts, actions, and feelings to attain an academic goal (Schunk, 2012; Zimmerman, 1981, 1983; Zimmerman & Martinez- Pons, 1986). Self-regulated learning theory was first introduced by Zimmerman (1981), who founded the theory on the concept that learners actively seek out knowledge and skills through physical and psychological means (Karoly & Kafner, 1982; Zimmerman & Martinez-Pons, 1986). Self-regulated learning has been studied in many forms since it was first introduced. Since self-regulated learning theory was first developed, Zimmerman (2009) expanded the theory to better understand the cognitive and affective aspects in that a learner must utilize to regulate behaviors (See Figure 2-1).
Figure 2-1. Phases and processes of self-regulated learning theory (Zimmerman & Moylan, 2009).
Zimmerman and Moylan (2009) defined self-regulated learning theory using three phases for self-regulation: (a) the forethought phase, (b) the performance phase, and (c) the self-reflection phase.

The forethought phase is where students approach a task or course, analyze the task, and develop self-motivational beliefs. Learners create a plan on how they will achieve the task. The task analysis is the first component of this phase because students must analyze how the task must be accomplished and establish the value of that task for them (Zimmerman & Moylan, 2009). In doing so, a learner must establish a performance level that they want to achieve and establish the standards by which they will be assessed (Winne & Hadwin, 1998). Many students find problems when they are unaware of the expectations of assessment, thus, students have difficulty establishing goals. Additionally, in the forethought phase, a student’s interest and task value are constructs that a learner uses to approach a task (Pintrich, Smith, Garcia, & McKeachie, 1993; Zimmerman & Schunk, 1989). Task value is the personal aspect by which a learning activity helps a learner reach his or her personal goals (Zimmerman & Moylan, 2009). Students who are more interested in the task are more willing to learn from it using reflection, thus activating self-regulated learning strategies (Zimmerman & Schunk, 1989). Interest is guided by emotion, which can be activated through personal meaning that the task has for a learner (Renninger, Hidi, & Krapp, 1992).

After a learner has analyzed the task, the student must decide what self-motivated strategies are most effective to accomplish a learning activity. Elements of self-motivation include: (a) self-efficacy, (b) task orientation, (c) outcome expectations, and (d) goal orientation. Self-efficacy is a student’s personal belief in ones’ ability to
perform the necessary behaviors to successfully accomplish a task (Bandura, 1977, 1997). During a learning activity, self-efficacy is used to maintain an overall positive and emotional well-being (Bandura, 1977, 1997). Various factors can influence a learners’ self-efficacy. Outcome expectations are the beliefs about the success a learner will have once a task is met (Zimmerman, 2011). Outcome expectations are found to be positively related to self-efficacy (Bandura, 1977; Zimmerman, 2011). Students who have low outcome expectations will not make an effort to succeed, in turn, having low self-efficacy (Zimmerman, 2011). Outcome expectation differs from self-efficacy, because of the expected outcome that a learner may have (Zimmerman, 2011).

The performance phase involves a wide variety of variables, and can be divided into two constructs (a) self-control and (b) self-observation. Self-control involves using metacognitive and motivational strategies to meet the goals set in the forethought phase (Zimmerman & Moylan, 2009). Metacognition is the knowledge of cognition, as well as the regulation of cognition through the use of higher order thinking, reasoning, and learning skills during instruction (Schraw, 1997; Zimmerman & Moylan, 2009). Knowledge of cognition refers to how much learners use memory to learn new information (Zimmerman & Moylan, 2009). As knowledge of cognition is acquired, it is then used to regulate memory through learning (Schraw, 1997; Zimmerman & Moylan, 2009). Research has found significant relations between metacognition relating to self-regulated learning (Dinsmore, Alexander, & Loughlin, 2008; Kitsantas & Zimmerman, 2006; Schunk, 2012).

In order for a learner to apply metacognitive learning behaviors, a learner may utilize a wide variety of tactics to help meet the metacognitive aspects needed to reach
self-control (Schunk & Zimmerman, 2008; Zimmerman & Moylan, 2009). The metacognitive strategies that a learner must employ include (a) task strategies, (b) self-instruction, (c) imagery, (d) time management, (e) environmental structuring, and (f) help-seeking tactics (Zimmerman & Moylan, 2009). While each student may use a variety of these tactics through various tasks, the behaviors behind the task must come from a learner’s willingness to learn the answer (Schunk & Zimmerman, 2008). If a learner is willing to learn and not to avoid the instructional task, the learner will be able to regulate metacognitive processes (Schunk & Zimmerman, 2008).

As a learner is engaging in coursework, students may use a variety of motivational strategies, which may include (a) interest incentives and (b) self-consequences (Zimmerman & Moylan, 2009). Interest incentives include using self-directed messages used to remind learners of the goals. Learners use motivation to regulate their interest incentives in a particular task and use interest incentives in instances where they are faced with an exceptionally difficult task (Wolters, 2003; Zimmerman & Moylan, 2009). Self-consequence is used when students quit because the learner feels that they have not made enough progress (Wolters, 2003). Self-consequence can be enhanced through both internal and external factors (Wolters, 2003; Zimmerman & Moylan, 2009). Self-consequence can be enhanced through reward and praise from others, or it can be curved through the use of persistence from an internal locus (Wolters, 2003). If a learner uses this strategy when one smaller goal is achieved, then the learner is more willing to work toward the task with a high interest, thus progressing on the task (Wolters, 2003; Zimmerman & Moylan, 2009).
The self-reflection phase involves learners justifying their success or failure of a task through positive or negative emotions, which can influence a learner’s motivation and self-regulation for future tasks (Wilson & Narayan, 2016; Zimmerman & Moylan, 2009). The self-reflection phase involves both self-judgment and self-reaction (Zimmerman & Moylan, 2009). Self-judgment occurs when a learner self-assesses the quality of his or her work. Within self-judgment, a learner uses both self-evaluation and causal attribution to judge his or her work (Zimmerman & Moylan, 2009). Self-evaluation is the process by which learners evaluate their work based on the criteria and goals in the forethought phase (Zimmerman & Moylan, 2009). Learners may assess their performance using a variety of criteria, thus influencing the attributes that they make (Wilson & Narayan, 2016; Zimmerman & Moylan, 2009).

Self-judgment has an influence in a learner’s self-reaction, and is the response and explanations learners make to determine if they have succeeded or failed (Weiner, 1986; Zimmerman & Moylan, 2009). During self-reaction, a learner makes attributions to their performance from various sources (Zimmerman & Moylan, 2009). Many learners will attribute their performance to internal or external factors, which may include: (a) ability level, (b) luck, or (c) support from others (Weiner, 1986; Zimmerman & Moylan, 2009). As students learn how to judge attributions for failure or success, they influence self-efficacy and their outcome expectations for future tasks through adaptive or defensive decisions (Weiner, 1986; Zimmerman & Moylan, 2009).

As students take into consideration their performance from prior tasks, they are influenced affectively and cognitively towards future tasks (Zimmerman & Moylan, 2009; Zimmerman, 2011). Zimmerman (1986) described this theory as being cyclical in nature
because of the influence of the phase’s on each other. Depending on a student’s decisions made in the self-reflection phase, a learner may have varied self-efficacy, outcome expectations, task value, and goal orientation (Zimmerman & Moylan, 2009). Learners utilize adaptive strategies based on self-reflection to correct mistakes for future tasks (Zimmerman & Moylan, 2009). As a learner adapts, he or she may maintain the learning goals and motivation for future tasks (Zimmerman & Moylan, 2009).

Elements from social cognitive theory have played a role in the development of self-regulation theory, particularly in the development of the forethought phase and the self-reflection phase (Bandura, 1977, 1986; Pintrich & Zusho, 2002; Zimmerman, 1981, 1983, 2000; Zimmerman & Moylan, 2009). Zimmerman (1981; 1983) further described self-regulated learning from a social cognitive perspective because he found that learners choose to participate in a social context, derived from a person’s environment or behavior (Zimmerman, 1981, 2000). Using elements from social cognitive theory, the model has been revised to incorporate more defining information (Zimmerman & Moylan, 2009).

Social Cognitive Career Theory

Social cognitive theory is known as the shared interaction between behaviors, environmental conditions, and personal learner cognition that help to determine motivation (Bandura 1985, 1986; See Figure 2-2). The social cognitive theory explains how an individuals’ cognitive development and environment influence a persons’ behavior (Bandura, 1986). Bandura (1986) described the environment as an individual’s physical and social stimuli. An individual’s environment works synchronously with a person’s individual factors to influence future behaviors (Bandura, 1985, 1986). Social cognitive career theory, which draws on social cognitive theory, suggests that personal
Figure 2-2. Bandura’s Triadic Reciprocal Model (Bandura, 1985).

Figure 2-3. The Social Cognitive Career Theory provides a social cognitive view of the academic–career choice process (Lent et al. 1994).
influences and contextual influences such as self-efficacy or outcome expectations help shape career interests, goals, and actions (Bandura, 1977, 1986; Lent, Brown, & Hackett, 1994; See Figure 2-3).

Social cognitive career theory explains the relationship between cognitive, self-regulatory, and self-reflective processes that influence a person's career development (Bandura, 1986; Lent et al., 1994). Social cognitive career theory draws on constructs such as (a) goal selection, (b) outcome expectations, and (c) career decision-making self-efficacy to explain possible barriers and supports to entering prospective careers (Lent et al. 1994). Demographic inputs such as: (a) age, (b) race, (c) ethnicity, (d) gender, and (e) health are some of the various contexts that influence how a person will discover a career (Lent et al., 1994). As social cognitive career theory has been adapted to formal educational settings, the experiences a learner is exposed to begins to shape their career interests (Betz, Klein, & Taylor, 1996; Lent et al., 1994). Lent et al. (1994) explained that learning experiences that help shape future careers are largely mediated through cognitive processes. A learner draws on their background experience to help determine their career choice prior to exposure to educational experiences about careers (Betz et al., 1996; Lent et al., 1994).

Exposure to various learning experiences, either through formal or informal exposure, will influence a persons' cognitive processing through development of a persons' career decision-making self-efficacy and outcome expectations (Betz et al., 1996; Lent et al., 1994). As a learner is exposed to a variety of career interests, they begin to rely on self-regulatory and self-reflective processes (Lent et al., 1994). Career decision-making self-efficacy and occupational outcomes influence by a persons' career
interest (Betz et al., 1996; Lent et al., 1994). A learner relies on their interest in a career to develop goals and actions necessary to overcome possible barriers to entering that career (Betz et al., 1996; Lent et al., 1994). If a person establishes career goals and actions that cannot be obtained, a person often feels a lower career self-efficacy (Betz et al., 1996; Lent et al., 1994). A learner will draw on their career interest, shaped by prior experiences, in order to maintain career goals and actions to enter into a career (Betz et al., 1996; Lent et al., 1994).

**Previous Research**

**Self-Efficacy**

As self-regulated learning theory and social cognitive theory have been used, research has found a direct correlation with self-efficacy, motivation, and use of independent self-regulatory learning behaviors between both learning theories. Learners with high self-efficacy will present high motivation using various learning strategies that help to meet the performance or task (Bandura, 1985, 1997). Thus, self-efficacy has been shown to influence self-regulated learning and career decision-making behaviors (Bandura 1985; Lent et al., 1994; Zimmerman, 1981, 1983, 2000).

Various forms of self-efficacy have been studied, some of which may include (a) academic self-efficacy, (b) technology self-efficacy, and (c) career decision-making self-efficacy (Bandura 1985; Lent et al., 1994; Zimmerman, 1981, 1983, 2000).

A study conducted by Komarruju & Nadler (2013) examined the relationship between self-efficacy and cognitive-metacognitive orientations to predict academic achievement of undergraduate students enrolled in a university course. Using a quantitative approach, researchers concluded that students with a high self-efficacy indirectly influences higher academic achievement (Komarruju & Nadler, 2013).
Komarruju and Nadler (2013) concluded that learners’ self-efficacy directly influences students’ use of various self-regulatory learning behaviors, which had a direct influence on academic outcomes. This is likely because students feel that they can better control the learning strategies they need to enact to study material, especially if they feel unmotivated or distracted (Komarruju & Nadler, 2013).

A similar study conducted by Wang et al. (2013) examined (a) student characteristics, (b) technology self-efficacy, (c) self-regulated learning strategies, and (d) academic course outcomes of undergraduate and graduate students at a southeastern university in the United States. Wang et al. (2013) concluded that self-efficacy influenced student motivation through the use of self-regulatory learning behaviors (Wang et al., 2013). Learners with a high self-efficacy were able to acquire this knowledge through implementing one or more self-regulatory behaviors. Similarly to Komarruju & Nadler (2013), students with higher self-efficacy are likely to set goals that are challenging and require them to seek out new knowledge (Wang et al., 2013). As learners set goals to accomplish tasks, students have an increased self-efficacy and increased motivation as each goal is accomplished (Komarruju & Nadler, 2013; Wang et al., 2013). Wang et al. (2013) stated that instructors should pay more attention to students who have not taken an online course in the past in order to encourage them to participate, persist, and enact self-regulatory behaviors to promote a higher self-efficacy.

A study conducted by Cho and Shen (2013) examined the relationship of goal orientation and academic self-efficacy on student achievement through examining (a) students’ ability to meditate effort regulation, (b) metacognition regulation, and (c)
interaction regulation of undergraduate students. Researchers found that students who perceived a higher ability to create more achievable goals had self-reported a higher self-efficacy were able to use effective metacognitive processes to regulate their learning (Cho & Shen, 2013). Learners that used intrinsic goal orientation towards classroom instruction had a direct effect on their ability to use metacognitive processes of self-regulation (Cho & Shen, 2013). The use of intrinsic goal orientation, thus, indirectly affected student achievement (Cho & Shen, 2013). However, students' extrinsic goal orientation did not appear to have a direct relationship on any variables measured (Cho & Shen, 2013). Students who have intrinsic goal orientations were able to persist with learning through challenging tasks. Conversely, students with extrinsic goal orientation were unable to persist through coursework (Cho & Shen, 2013). A possible explanation for this may be that students rely on intrinsic motivational factors when creating goals that satisfy their needs (Cho & Shen, 2013). This finding is consistent with other research that found that students’ mastery of goal orientation allows them to engage in learning, suggesting that student learning is positively affected when criteria are explicitly stated (Fraile, Panadero, & Pardo, 2017; Pintrich et. al., 1993).

Bradley, Browne, and Kelley (2017) conducted a study that examined the influence of perceived self-efficacy and use of self-regulatory learning strategies on academic achievement of undergraduate post-secondary learners taking an online course at the university level. Researchers found a strong correlation between students who reported taking previous online courses and their self-efficacy (Bradley et al., 2017, Wang et al., 2013). Students who had taken an online course prior to the study were
more likely to have a higher self-efficacy than those who had not taken an online course (Bradley et al., 2017; Wang et al., 2013). Additionally, learners who have an improved self-efficacy were likely to use more effective self-regulated learning strategies to accomplish learning tasks, compared to learners with a low self-efficacy (Bradley et al., 2017). Bradley et al. (2017) stated that learners with a low self-efficacy were likely to have a low connectedness to school, and thus, were less likely to implement self-regulated learning strategies. Bradley et al. (2017) recommended that instructors using online learning platforms for instruction engage learners and help students improve their self-efficacy through various instructional methods. Instruction should help engage the learner in course content so that students feel more associated to school activities (Bradley et al., 2017). Additionally, Bradley et al., (2017) recommended that the instructor play a crucial role in helping to facilitate and build these strategies with students.

Self-efficacy can have both direct and indirect effects on student achievement (Ibrahim, Was, & Randall, 2010). A study conducted by Ibrahim et al. (2010) explored the relationship between self-efficacy and student achievement using undergraduate students enrolled at a midwestern university (Ibrahim et al., 2010). Self-efficacy had a direct influence in determining the overall student success in the course (Ibrahim et al., 2010). Ibrahim et al. (2010) suggested that this is because students’ belief about their efficacy to manage academic rigor requires them to maintain their emotions through decreasing their stress and anxiety. This is consistent with empirical literature, which suggest that students who have a high self-efficacy are able to maintain their emotional
well-being, and often experience less negative thoughts than students' who report a low self-efficacy (Bandura, 1993; Bandura, 1997; Schunk & Zimmerman, 2008).

Additionally, Ibrahim et al. (2010) noted a negative relationship between student self-efficacy and goal orientation. While this study focused on academic goal orientation rather than career goal orientation, Ibrahim et al., (2010) noted that students who reported a low self-efficacy were more likely to adopt performance-avoidance goals for their learning. A possible explanation is that students who have negative beliefs about their performance are less likely to set goals to accomplish those tasks (Ibrahim et al., 2010). Additionally, students that had a low self-efficacy may not exhibit strong metacognitive skills because those skills are not directly taught in the classroom (Ibrahim et al., 2010). Thus, learners may struggle due to low self-efficacy. Additionally, Ibrahim et al. (2010) found that students' use of academic goal orientation and selection may have an indirect effect on learning strategies used, and is directly affected by students' use of metacognitive self-regulation (Ibrahim et al., 2010). Using goal orientation and selection, a student can apply metacognitive self-regulation skills to help with studying and strategies that help them to succeed (Ibrahim et al., 2010).

Additionally, Ibrahim et al. (2010) noted that students who use at least one or more self-regulated learning strategy well and reported a high goal orientation toward their learning are able to implement organizational skills, critical thinking towards the lesson, and apply problem solving skills well (Ibrahim et al., 2010).

Wilson & Narayan (2016) had also found that self-efficacy was not statistically related to learning strategies use during each learning task in a blended learning course. Respondents self-reported a higher task self-efficacy after having completing a
high task performance, meaning that learners who completed a task with a high task self-efficacy had performed better than expected (Wilson & Narayan, 2016). In short, students who had a high task performance developed a high task self-efficacy and used this during succeeding tasks, rather than relying on self-regulated learning strategies (Wilson & Narayan, 2016). The researchers concluded that students that have a high self-efficacy may not implement effective or may implement fewer learning strategies because they feel over confident in their abilities to perform the task (Wilson & Narayan, 2016). Likewise, learners who report a low self-efficacy may have used more learning strategies or strategies that were more effective to perform well on assigned learning tasks (Wilson & Narayan, 2016).

**Self-Regulated Learning Behaviors**

Higher self-regulation claims to promote more successful career development experiences and, referring to the social cognitive career theory, mastery learning experiences are likely to lead to high career decision-making self-efficacy (Gaylor & Nicol, 2016; Lent & Brown; 2013; Lent et. al., 1994, 2000). Self-regulatory behaviors can be observed through both physical and psychological behaviors in which students enact during learning (Zimmerman, 2013). Zimmerman & Moylan (2009) defined several self-regulatory strategies that learner’s use, some of which include (a) metacognitive monitoring and processing, (b) time management, (c) environmental structuring, (d) help seeking, (e) self-instruction, (f) interest incentives, and (g) self-consequences. Researchers have since consolidated several of these behaviors into three concepts, which include (a) self-instruction, (b) interest incentives, and (c) self-consequences (Jansen, van Leeuwen, Janssen, Kester, & Kalz, 2017). These constructs can be
combined to measure the overall ability of a person to persist through a learning activity (Jansen et al., 2017).

According to Suh and Flores (2017), students that enact self-regulatory learning behaviors are able to mediate their perceived career decision-making self-efficacy. Their study concluded that students who have completed classroom assignments that were rigorous and have enacted effective self-regulatory learning strategies were able to increase their overall career-decision making self-efficacy for that course (Suh & Flores, 2017). Students who have used a high level of self-regulatory processes were able to maintain a high level of career decision-making self-efficacy through mediating emotional and academic well-being (Suh & Flores, 2017). Since the self-regulated learning processes of the study were academically driven, this research highlighted the importance of using self-regulatory processes to improve both academic performance and career development (Gaylor & Nicol, 2016; Suh & Flores, 2017).

Iwamoto, Hargis, Bordner, & Chandler (2017) assessed the level of self-regulated learning strategies that undergraduates' students used in the northern Pacific region. Researchers used a survey methodology using descriptive statistics to analyze learners’ use of regulatory learning behaviors and cognitive strategies (Iwamoto et al., 2017). Iwamoto et al. (2017) found that many students at the undergraduate institution sampled have high self-confidence in completing their education, which reduced their perceived test-anxiety. Since many undergraduate students sampled had a low test-anxiety, many students did not rank their study skills as high. Since students showed a high perceived self-efficacy, this lead to students having a high over self-appraisal (Iwamoto et al., 2017). Although many students reported an over-confidence in their
ability and reported a high intrinsic motivation level, many students were rated low towards the use of cognitive and self-regulated learning practices (Iwamoto et al., 2017).

**Metacognitive Processing:** While various research has supported the relationship between self-efficacy and self-regulated learning, research has suggested that self-efficacy does not have direct effects on metacognitive learning strategies or academic achievement (Fadlelmula, Cakiroglu, & Sungur, 2015; Sen, 2016; Wilson & Narayan, 2016). Rather, self-efficacy had an indirect effect in mediating cognitive learning strategies (Fadlelmula et al. 2015; Sen, 2016). Schraw (1997) stated that both aspects of metacognition are significantly related, but only when learners have a high ability to monitor their learning. Schraw (1997) stated that evidence suggests that the knowledge of cognition may be a prerequisite for regulation of cognition. Conversely, Swanson (1990) demonstrated that metacognition is unrelated to self-regulated learning, and learners with low aptitude used self-regulated learning strategies to compensate. Additionally, researchers have found that metacognition and self-regulated learning strategies were not highly correlated with academic achievement (Pintrich et al., 1993). Millis (2016) stated that metacognition is a critical factor in determining if a student will yield higher learning outcomes. Curriculum can easily be adapted so that learners are challenged to use metacognitive processes (Millis, 2016).

Sen (2016) conducted a study that examined the relationship between high school students' (a) perceived learning strategies, (b) self-efficacy beliefs, and (c) their ability to use effort to regulate their learning. Sen (2016) found that self-efficacy was related with students' deep learning strategies and effort regulation. However, Sen
(2016) stated that self-efficacy varied because of students’ individual motivational attitudes differ. Sen (2016) speculated that individual motivation might differ, according to their individual differences and the structure of the course that was sampled for this study. Learners’ individual motivation is the liaison between self-efficacy, metacognitive learning strategies, and academic achievement. This is similar to previous research findings that state it is important for students to increase their self-efficacy beliefs in order to have students use deep learning strategies and to increase the effort that they forgo in regulating their learning (Komarraju & Nadler, 2013; Sen, 2016).

There are various influences that shape a learners’ ability to succeed, including a student’s ability to find a conducive learning environment that is stimulating (Fadlelmula et al. 2015; Ryan, Gheen & Midgley, 1998). Previous research on classroom goal structure has indicated that a classroom environment that actively adopts academic goals may strengthen student motivation (Fadlelmula et al. 2015; Ryan et al., 1998). Fadlelmula et al. (2015) conducted a study that explored the relationship between students’ (a) motivational beliefs, (b) use of self-regulated learning strategies, and (c) academic achievement. Researchers found that the learning environment can influence a students’ decision to (a) adopt, (b) select, and (c) create academic and career oriented goals (Fadlelmula et al., 2015). Fadlelmula et al., (2015) found that goal structure was positively related to students’ adoption of mastery goals. This research made a clear distinction between the types of goals that students were implementing. Classrooms that focus on mastery of learning tasks, rather than mastery of performance-oriented tasks, showed higher student achievement (Fadlelmula et al., 2015). In addition, goal orientations were found to be positively related to student
organization, elaboration, and metacognitive self-regulation strategies, but was not directly related to student achievement (Fadlelmula et al., 2015). Therefore, the ability to find a conducive classroom environment has an indirect relationship to student achievement through increased motivational behaviors (Fadlelmula et al., 2015).

Persistence relies on a student to draw from an internal locus to avoid academic consequence (Zimmerman & Martinez-Pons, 1986). Students who are able to use self-regulated learning strategies such as persistence were able to work through difficult coursework compared to students who were unable to use one or more self-regulated learning strategies (Komarruju and Nadler, 2013). In the literature, having high persistence may lead to higher adaptive achievement-related outcomes (Harackiewics, Barron, Pintrich, Elliot, & Thrash, 2002). Additionally research has found that learners who are able to persist through their coursework have lower test anxiety, will be less likely to make negative judgments about their work, and will be less likely to avoid challenging work (Middleton & Midgley, 1997; Pintrich & Schunk, 2002). For students who are unable to persist internally, they may rely more heavily on seeking help from others such as other students or the instructor (Komarruju and Nadler, 2013).

Feedback is essential to the development of self-regulated learning. As students become aware of their poor performance, they are likely to have a decreased self-efficacy and a decreased desire to implement self-regulated learning strategies (Wilson & Narayan, 2016). Reciprocally, students who receive positive feedback are likely to have an increased self-efficacy and implement more self-regulated learning strategies (Wilson & Narayan, 2016). Reflection was found to have a significant relationship between past-performance feedback and implementing future learning strategies.
Wilson & Narayan (2016) have suggested that instructors should pick low performing learners and teach them how to implement various learning strategies. Constructive feedback has been found to be a critical element in aiding students in improving their learning strategies, while identifying areas that students could improve upon.

**Conceptual Model**

The proposed framework for self-regulatory processes for career decision making in online coursework combines both self-regulatory learning theory and social cognitive career theory to guide the study. This framework draws on elements of the experiential, cognitive, self-regulatory, and self-reflective processes that influence student success in an online career exploration course. All of the components of the conceptual model are built on the constructs addressed in the literature, suggesting a cohesive model that is both linear and cyclical in nature. The conceptual model suggests that there is a relationship between selected demographic information of interest and a learner’s perceived career-decision making self-efficacy. Additionally, a relationship may exist between demographic information and learners’ use of self-regulatory learning behaviors. A learners’ career self-efficacy and use of self-regulatory learning behaviors may influence their overall academic achievement score (See Figure 2-4).

When first beginning in the course, learners have an initial perceived career decision-making self-efficacy. Based on findings from Gaylor and Nicol (2016), students will likely have a high career decision-making self-efficacy as they progress through the course due to their exposure to various occupations. Students’ use of problem-solving skills allow learners to ascertain challenges associated with their desired career. Based
Figure 2-4. Conceptual Model: Self-regulatory processes for career decision making in online coursework.
on findings from Wright et al. (2016), low perceived barriers consequently lead to positive academic achievement. As students identify barriers associated with their chosen career, the learner is able to use self-appraisal to overcome career challenges. Learners’ use of career goal orientation and career planning lead to an improved career decision-making self-efficacy while progressing through the course. Subsequently, learners identify the necessary steps to overcome career barriers and achieve career goals (Cho & Shen, 2013).

Learners with a high career decision-making self-efficacy will likely present a high motivation using various learning strategies that help to meet course assignments (Bandura, 1997; Gaylor & Nicol, 2016; Suh & Flores, 2017; Komarruju & Nadler, 2013). As students use self-regulatory learning processes to accomplish meaningful career exploration coursework, students conversely improve their overall career decision-making self-efficacy. Metacognitive processing may help students persist through coursework, as well as help students establish a high career decision-making self-efficacy (Fadlelmula et al., 2015; Sen, 2016; Wilson & Narayan, 2016). Students may use a comprehensive list of self-regulated learning strategies, such as time management, help seeking from peers or the instructor, and the ability to persist through coursework. Thus, self-regulated learning behaviors and a learner’s self-efficacy towards deciding a career may directly influence a learner’s ability to perform well in a course.
Chapter Summary

This study is guided by two important theories, which include self-regulatory learning theory and social cognitive career theory (Lent et al., 1994; Zimmerman, 1981, 1983; Zimmerman & Moylan, 2009). Self-regulatory learning theory explains cognitive and affective processes that learners may enact to successfully complete academic coursework (Zimmerman, 1981, 1983; Zimmerman & Moylan, 2009). Social cognitive career theory explains how personal influences and learning experiences may directly influence cognitive career-decision making processes (Lent et al., 1994). Using both theories reveals social and cognitive influences on independent learner behaviors through individual career decision-making self-efficacy (Lent et al., 1994; Zimmerman, 1981, 1983; Zimmerman & Moylan, 2009).

Research has shown that using effective or multiple self-regulatory behaviors have to higher academic achievement (Gaylor & Nicol, 2016; Zimmerman & Moylan, 2009). Learners who possess a high self-efficacy, particularly relating to their career decisiveness, may have a high academic performance outcome (Fadlelmula et al., 2015; Gaylor & Nicol, 2016; Ibrahim et al., 2010; Suh & Flores, 2017). Previous research suggests that demographic characteristics may influence both constructs, thus indirectly influencing academic achievement outcomes (Lent et al., 1994). The conceptual model presented explains how this triadic relationship that may either indirectly or directly influence academic achievement in online career and technical education coursework.
CHAPTER 3
METHODOLOGY

Chapter 1 described the rationale for conducting this study. Chapter 2 described the theoretical research basis for this study using self-regulated learning theory and social cognitive career theory. Previous research described in Chapter 2 provided the empirical literature perspective for this study. Using both theories outlined, the conceptual model defined in Chapter 2 guides the framework for this study. Chapter 3 will discuss the methodology used to accomplish the purpose and objectives outlined in Chapter 1. Chapter 3 will address the (a) research design, (b) population and sample, (c) procedures, (d) instrumentation, (e) data analysis, and (f) identified limitations to the study.

Research Design

This study used a non-experimental, descriptive correlational survey research design. Using recommendations from Creswell and Creswell (2018), this design was chosen to investigate the purpose of this study using a postpositivist philosophical view. As previously mentioned, the purpose of this study was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic achievement of learners in secondary career and technical education online-learning courses. A postpositivist interpretation aims to determine the effects or outcomes among the variables of interest by examining the relationship among them (Creswell & Creswell, 2018). Particularly, a quantitative methodology using a census provided the best data to determine relationships among selected variables (Creswell & Creswell, 2018). Therefore, this design was chosen to accurately accomplish the purpose and objectives of this study.
Population & Sample

The population of this study was students (N = 3,859) enrolled in online career and technical education courses offered by Florida Virtual School (FLVS) in 2018-2019. The courses included (a) Digital Information Technology, (b) Foundations of Web Design, (c) User Interface Design, and (d) Foundations of Programming. While FLVS offers additional career and technical education courses online, the students enrolled in the above mentioned courses were chosen by FLVS to participate in the study. FLVS does not allow researchers to collect samples from the population of interest. As such, the researcher attempted to collect from the entire population. From the entire population, approximately 347 students responded to some aspects of the study. From the 347 responses, 178 were removed due to students not completing all instruments. As a result, 169 responses were usable in this study. Based on the non-disclosure agreement for this study outlined by FLVS, reducing non-response bias was restricted. Since a census could not be obtained, the researcher treated the 169 usable responses as a sample for this study. Therefore, inferential statistics used in this study may not be generalized to the population (Field, 2018).

The respondents were dispersed throughout the state of Florida. Respondents ranged in age from 12 to 19 years old, with the age of the respondents approximately sixteen years old (M = 15.56; SD = 1.24). A majority of the respondents were female (68.64%; f = 116), white (72.19%; f = 122), and freshman (29%; f = 49). The majority of respondents (66.86%; f = 113) reported that they had taken at least five or more online courses, including the courses of interest sampled for this study. An overwhelming majority of respondents (85.20%; f = 144) stated that they were unemployed, and
reported that they had a current course grade of an A (100% to 94%) in their career and technical education course (42%; \( f = 71 \)).

**Procedures**

The data collection period for this study was in the fall semester of 2018. Before data collection, the investigators received approval by the University Internal Review Board (IRB) based on the description and outline of the study (Appendix A). The principal investigator sought approval for the use of the SOL-Q (Appendix B) and the CDSE-SF (Appendix C). Concurrently, approval was sought by Florida Virtual School to conduct this study through a written research proposal request (Appendix D). Upon verbal clarification of the research request proposal, an email was received from FLVS for approval to conduct the study based on the proposal provided (Appendix E). The Principal Investigator completed a non-disclosure agreement form before conducting the study (Appendix F). The Self-Regulated Online Learning Questionnaire (SOL-Q) (Appendix K), Career Decision-Making Self-Efficacy Scale (CDSE-SF) short form (Appendix L), and Demographic Information Questionnaire (DIQ) (Appendix M) were given to students with the help of a research specialist employed by Florida Virtual School.

The frame of this study was students enrolled in an online Career and Technical (CTE) course, and was provided by Florida Virtual School. The CTE courses included in this study were (a) Digital Information Technology, (b) Foundations of Web Design, (c) User Interface Design, and (d) Foundations of Programming. The students received an email containing a link to the informed consent letter, as well as the survey, provided by the FLVS research specialist (Appendix G). The letter explained (a) the nature of the study, (b) information regarding confidentiality and discreet use of data analysis, and (c)
contact information to FLVS research staff and the IRB office pending further questions regarding the study. Before consent was received, students were asked to identify their age.

Students who were under the age of 18 were provided an informed consent letter for their parents to agree to the study (Appendix H). Students who identified as 18 years of age or older were provided an informed consent letter that they could complete (Appendix I). Upon completing the informed consent letter, respondents had access to take the instrument at any time of day for an approximate four-week period. The three instruments took approximately 20 minutes total to complete. Each student in the population was provided a follow up email by the research specialist at approximately two weeks and four weeks after the initial survey was sent (Appendix J).

**Instrumentation**

Three instruments were utilized for data collection. The three instruments were (a) the Self-Regulated Online Learning Questionnaire (SOL-Q; Appendix K), (b) the Career Decision-Making Self-Efficacy Short Form assessment (CDSE-SF; Appendix L), and (c) the Demographic Information Questionnaire (DIQ; Appendix M) that was developed by the Principal Investigator for this study.

**Self-regulated online learning questionnaire**

Due to the lack of instruments that measure self-regulated learning online using a holistic approach, a questionnaire known as the Self-Regulated Online Learning Questionnaire (SOL-Q, Appendix K) was used (Jansen, van Leeuwen, Janssen, Kester, & Kalz, 2017). The SOL-Q is an adapted instrument that uses combined items from the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1993), Metacognitive Awareness Inventory (MAI; Schraw & Dennison, 1994), and Online Self-
Regulated Learning Questionnaire (OSLQ; Barnard, Lan, To, Paton, & Lai, 2009). The instrument specifically measures learning strategies that respondents employ while engaging in online coursework (Jansen et al., 2017). The SOL-Q uses 36 items on a 7-point, Likert-type scale (1 = never true to 7 = always true). The reliability estimates from previous research has shown Cronbach’s alpha scores for each of the five sub-scales relating to (a) metacognition (α = .91), (b) time management (α = .68), (c) environmental structuring (α = .77), (d) persistence (α = .74), and (e) help-seeking strategies (α = .80) (Jansen et al., 2017). A score of 5 or more indicated high use of self-regulated learning behaviors relating to each construct (Jansen et al., 2017). Respondents who score in a range between 3-5 are considered to use some self-regulated learning strategies, while respondents who report a score of 3 or lower were considered to not regularly use these strategies (Jansen et al., 2017).

Career decision-making self-efficacy short form

The Career Decision-Making Self-Efficacy Scale (CDSE-SF, Appendix L) short form was used for this study (Betz & Klein, 1996; Betz, Hammond, & Multon, 2005). The CDSE-SF allowed for the investigator to evaluate students overall career decision-making self-efficacy. The instrument is 25 items using a 5-point, Likert-type scale (1 = no confidence at all to 5 = complete confidence). This instrument uses 25 items to measure five sub-scales to measure self-efficacy expectations toward a future career. The reliability estimates from previous research has shown a Cronbach’s alpha for each sub-scale of interest, which include (a) career goal orientation (α = .84), (b) career planning (α = .84), (c) problem solving (α = .80), (d) exposure to occupational information (α = .82), and (e) self-appraisal (α = .81) (Paulsen & Betz, 2004). Betz et al. (2005) suggests that an overall score to measure career decision-making self-efficacy
can be calculated by adding the total sum of the 25 items and dividing by 25 to return the score to the response continuum.

**Demographic information questionnaire**

The Demographic Information Questionnaire (DIQ, Appendix M), was a researcher-developed instrument. The demographic items of interest included (a) age, (b) gender, (c) class year in school, (d) race, (e) ethnicity, (f) employment status, (g) number of courses completed online, (h) household income, and (i) letter grade in the online course. The instrument used self-reported information as the basis for data collection. These demographic items were chosen based on previous research conducted in this area on these selected demographics.

**Data Analysis**

Data was analyzed using IBM SPSS© version 24. Objectives one, two, and three will be accomplished by using descriptive statistics in SPSS. Descriptive statistics included composite mean, standard deviation, frequency, and percentages. Objectives four, five, and six will be measured using a Pearson product-moment correlation coefficient and interpreted using Pearson’s r. Objectives seven and eight was attained by conducting multiple linear regressions, or a stepwise method, was used to create a predictive model of selected personal demographic variables. Objective seven will be accomplished by using data collected from the Demographic Information Questionnaire (DIQ) and the Self-Regulated Online Learning Questionnaire (SOL-Q). Objective eight will be completed by using data collected from the Career Decision-Making Self-Efficacy short form (CDSE-SF) instrument and the demographic information questionnaire (DIQ). This demographic information was dummy coded and used as independent variables in the regression models (Field, 2009).
A post hoc analysis was conducted on the Cronbach’s alpha scores for the Self-Regulated Online Learning Questionnaire (SOL-Q) and the Career Decision-Making Self-Efficacy short form (CDSE-SF) instrument. The post hoc analysis revealed Cronbach’s alpha scores for the Self-Regulated Online Learning Questionnaire (SOL-Q) on each of the five sub-scales relating to (a) metacognition (α = .94), (b) time management (α = .65), (c) environmental structuring (α = .83), (d) persistence (α = .84), and (e) help-seeking strategies (α = .86). The post hoc analysis revealed Cronbach’s alpha scores for the on Career Decision-Making Self-Efficacy Short Form (CDSE-SF) instrument for each of the five sub-scales relating to (a) career goal orientation (α = .91), (b) career planning (α = .85), (c) problem solving (α = .90), (d) exposure to occupational information (α = .75), and (e) self-appraisal (α = .85).

Limitations
The research design of this study led to several limitations of the study. These included:

- A non-experimental descriptive correlational research design using a survey data collection methodology was used for this study. Therefore, it was impossible to draw a true cause and effect relationship.
- A sample could not be taken from the population as a result of FLVS policy and procedures.
- A third party collected the data via a survey at different points in time.
- The subjects in this study were enrolled in an online career and technical education course through Florida Virtual School. Therefore, results and conclusions cannot be generalized.

Chapter Summary
A descriptive survey research design was used to meet the research objectives outlined in Chapter 1. From the population of an online career and technical education course from FLVS, a consensus was conducted to generate a consensus sample (n =
Respondents were given IRB approved consent forms to complete before participating in the study. Respondents of the sample completed a combination of three instruments to measure the constructs of interest. The Self-Regulated Online Learning Questionnaire (SOL-Q), Career Decision-Making Self-Efficacy Scale (CDSE-SF) short form, and Demographic Information Questionnaire (DIQ) were provided to respondents with the help of research specialists employed by Florida Virtual School. Data collected will be analyzed by using a combination of descriptive statistics, correlational coefficients, and linear regressions to meet the objectives outlined in Chapter 1.
The purpose of Chapter 1 established the need for conducting this research. The purpose of this study was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic achievement of learners in secondary career and technical education online-learning courses. The question addressed in this study was: what are the perceived self-regulated learning strategies and career decision-making self-efficacy and its influence on academic achievement of learners in online-learning career and technical education courses?

Chapter 2 provided the theoretical and conceptual framework guiding this study based on empirical research. Additionally, Chapter 2 provided a summary of relevant literature in this area of research. The purpose of Chapter 3 established the methodology used to meet the purpose and objectives of the study. Moreover, Chapter 3 discussed the instrumentation, population, and summary of data analysis used. Chapter 4 will present the findings of the study using the objectives outlined in Chapter 1. Results of this study will use a combination of descriptive statistics, multiple regressions, and correlational coefficients.

**Objective One: Describe the Demographic Characteristics of Online Learners Enrolled in Career and Technical Education Courses.**

Objective one was analyzed using descriptive statistics. The respondents were primarily female \((f = 116; 69\%)\); white \((f = 122; 72\%)\), and classified as freshman \((f = 49; 29\%\); Table 4-1). The respondents had previously enrolled in 5 or more online courses \((f = 113; 67\%)\), including the current online course sampled in this study (Table 4-1). A majority of the respondents were not employed at the time of this study \((f = 144; 85\%)\), and were unsure of their family income \((f = 98; 58\%\); Table 4-1). The majority of
respondents had reported having an A at the time of the study ($f = 71; 42\%$; Table 4-1). The majority of respondents were approximately sixteen years old at the time of the study ($M = 15.56; SD = 1.24$; Table 4-2).

**Objective Two: Identify the Self-Regulated Learning Strategies Used by Online Learners Enrolled in High School Career and Technical Education Courses.**

Self-regulated learning behaviors were assessed using the Self-Regulated Online Learning Questionnaire (SOL-Q, Appendix K). Respondents overall composite mean was interpreted as somewhat regular behaviors ($M = 4.99; SD = .98$; Table 4-3). In particular, respondents had the highest composite mean score relating to environment structuring ($M = 6.24; SD = 1.13$; Table 4-3). Respondents in this study reported a similarly high composite mean towards persistence ($M = 5.30; SD = 1.26$; Table 4-3). Conversely, respondents reported the lowest composite mean relating to their ability to use help-seeking strategies ($M = 3.02; SD = 1.56$; Table 4-3).

**Objective Three: Determine the Self-Perceived Career Decision-Making Self-Efficacy of Online Learners Enrolled in High School Career and Technical Education Courses.**

The career decision-making self-efficacy of the sample was assessed using the Career Decision-Making Self-Efficacy short form (CDSE-SF; Appendix L). Based on recommendations from Betz et al. (2005), it should be noted that an overall composite mean ($M = 3.83; SD = .76$) was high (Table 4-4). Respondents in this study had the highest composite mean score relating to occupational information ($M = 4.07; SD = .77$; Table 4-4). Respondents also reported a similarly high composite mean relating to self-appraisal ($M = 3.93; SD = .83$; Table 4-4). The lowest construct was problem-solving skills ($M = 3.67; SD = 1.00$; Table 4-4).
Objective Four: Examine the Relationship Between Perceived Self-Regulated Learning Strategies and Academic Achievement of Online Learners Enrolled in High School Career And Technical Education Courses.

There was no statistically significant relationship between learners' use of self-regulated learning strategies and their academic achievement of online instruction (Table 4-5).

Objective Five: Examine the Relationship Between Learners’ Perceived Career Decision-Making Self-Efficacy and Academic Achievement of Online Learners Enrolled in High School Career and Technical Education Courses.

There was no statistically significant relationship between learners’ perceived career decision-making self-efficacy and academic achievement of online instruction (Table 4-6).


There was a statistical significant relationship between learners’ perceived career decision-making self-efficacy and their use of measured self-regulated learning strategies of online CTE instruction (Table 4-7). The direction and strength of the relationship was interpreted as a moderately positive relationship ($r = .47; p = .00$; Table 4-7).

Objective Seven: Determine if Demographic Variables of Students Enrolled in High School Career and Technical Education Courses Predict Self-Regulated Learning Behaviors.

The model explained approximately 21% of the variance ($R^2 = .209$; Table 4-8). One predictor was statistically significant. The predictor was having a C+ (< 80% to 77%) ($\alpha = .00$). It should be noted that no other grade was found as a predictor of students' use of self-regulated learning strategies.

The model explained approximately 33% of the variance ($R^2 = .327$; Table 4-9). One predictor was statistically significant. The predictor was age 13 ($\alpha = .01$). It should be noted that no other age was found to be a statistically significant predictor of learners’ career decision-making self-efficacy.

Chapter Summary

Chapter 4 presented the results of this study based on the objectives described in Chapter 1. The objectives of this study were to: (1) describe the demographic characteristics of online learners enrolled in career and technical education courses, (2) identify the self-regulated learning strategies used by online learners enrolled in high school career and technical education courses, and (3) Determine the self-perceived career decision-making self-efficacy of online learners enrolled in high school career and technical education courses. Objectives 1-3 were analyzed through descriptive statistical analysis.

Subsequently, the following objectives were analyzed using correlation coefficients. The following objectives analyzed using correlational coefficients included: (4) examine the relationship between perceived self-regulated learning strategies and academic achievement of online learners enrolled in high school career and technical education courses, (5) examine the relationship between learners’ perceived career decision-making self-efficacy and academic achievement of online learners enrolled in high school career and technical education courses, and (6) examine the relationship between perceived career-decision making self-efficacy and perceived self-regulated
learning strategies of online learners enrolled in high school career and technical education courses.

Lastly, objectives seven and eight were accomplished using a step-wise method, or through multiple regression analysis of various demographic variables. Objective seven was to determine if demographic variables of students enrolled in high school career and technical education courses predict self-regulated learning behaviors. Objective eight was to determine if demographic variables of students enrolled in high school career and technical education courses predict career decision-making self-efficacy. The data used to meet objectives seven and eight were presented in Table 4-8 and Table 4-9. Chapter 5 will further summarize these findings, draw conclusions based on reported data presented from this chapter, and offer various recommendations to researchers and instructors.
<table>
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<th>$f$</th>
<th>%</th>
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</tr>
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</tr>
<tr>
<td>Female</td>
<td>116</td>
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<td>1.18</td>
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</tr>
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</tr>
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<td>Mixed Ethnicity or Other</td>
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<td>14.21</td>
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<td>6.50</td>
</tr>
<tr>
<td>Black or African American</td>
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<td></td>
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<td>23.7</td>
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<tr>
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<td>Percentage Range</td>
<td>Number</td>
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<td>-------</td>
<td>------------------</td>
<td>--------</td>
</tr>
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<td>(&lt; 80% to 77%)</td>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>D-</td>
<td>(&lt; 64% to 61%)</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>(&lt; 61% to 0%)</td>
<td>0</td>
</tr>
<tr>
<td>Unsure or Prefer Not To Say</td>
<td>7</td>
<td>4.1</td>
</tr>
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</table>

Note. Data represents the number of courses that students have previously taken, including the current course that was sampled from the population; \( n = 169 \).

Table 4-2. Selected Age of FLVS Online CTE Course Takers

<table>
<thead>
<tr>
<th>Age</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>15.56</td>
<td>1.24</td>
<td></td>
</tr>
</tbody>
</table>

Note. \( n = 169 \).

Table 4-3. FLVS Students’ Self-Regulatory Behaviors

<table>
<thead>
<tr>
<th>Construct</th>
<th>( M )</th>
<th>( SD )</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment Structuring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I choose the location where I study for this online course to avoid too much distraction.</td>
<td>5.66</td>
<td>1.70</td>
<td></td>
</tr>
<tr>
<td>I find a comfortable place to study for this online course.</td>
<td>5.92</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>I know where I can study most efficiently for this online course.</td>
<td>5.92</td>
<td>1.56</td>
<td></td>
</tr>
<tr>
<td>I have a regular place set aside for studying for this online course.</td>
<td>5.82</td>
<td>1.69</td>
<td></td>
</tr>
<tr>
<td>I know what the instructor expects me to learn in this online class.</td>
<td>6.24</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>5.91</td>
<td>1.19</td>
<td>Usually true</td>
</tr>
<tr>
<td>Persistence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I am feeling bored studying for this online course, I force myself to pay attention.</td>
<td>4.73</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>When my mind begins to wander during a learning session for this online course, I make a special effort to keep concentrating.</td>
<td>5.05</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>When I begin to lose interest for this online course, I push myself even further.</td>
<td>4.92</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>I work hard to do well in this online course even if I don't like what I have to do.</td>
<td>5.92</td>
<td>1.47</td>
<td></td>
</tr>
<tr>
<td>Even when materials in this online course are dull and uninteresting, I manage to keep working until I finish.</td>
<td>5.91</td>
<td>1.42</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>5.30</td>
<td>1.26</td>
<td>Somewhat true</td>
</tr>
<tr>
<td>Metacognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think about what I really need to learn before I begin a task in this online course.</td>
<td>4.78</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td>I ask myself questions about what I am to study before I begin to learn for this online course.</td>
<td>4.27</td>
<td>1.91</td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>I set short-term (daily or weekly) goals for this online course.</td>
<td>5.44</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>I set long-term (monthly) goals for this online course.</td>
<td>4.85</td>
<td>2.10</td>
<td></td>
</tr>
<tr>
<td>I set goals to help me manage my studying time for this online course.</td>
<td>5.34</td>
<td>1.65</td>
<td></td>
</tr>
<tr>
<td>I set specific goals before I begin a task in this online course.</td>
<td>5.12</td>
<td>1.82</td>
<td></td>
</tr>
<tr>
<td>I think of alternative ways to solve a problem and choose the best one for this online course.</td>
<td>5.35</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td>I try to use strategies in this online course that have worked in the past.</td>
<td>5.62</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>I have a specific purpose for each strategy I use in this online course.</td>
<td>5.38</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>I set goals to help me manage my studying time for this online course.</td>
<td>5.47</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td>Although we don't have to attend daily classes, I still try to distribute my studying time for this online course evenly across days.</td>
<td>4.95</td>
<td>1.87</td>
<td></td>
</tr>
<tr>
<td>I periodically review to help me understand important relationships in this online course.</td>
<td>4.65</td>
<td>1.74</td>
<td></td>
</tr>
<tr>
<td>I find myself pausing regularly to check my comprehension of this online class.</td>
<td>4.66</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>I ask myself questions about how well I am doing while learning something in this online course.</td>
<td>4.94</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>I think about what I have learned after I finish working on this online course.</td>
<td>5.11</td>
<td>1.76</td>
<td></td>
</tr>
<tr>
<td>I ask myself how well I accomplished my goals once I'm finished working on this online course.</td>
<td>5.19</td>
<td>1.70</td>
<td></td>
</tr>
<tr>
<td>I change strategies when I do not make progress while learning for this online course.</td>
<td>5.15</td>
<td>1.67</td>
<td></td>
</tr>
<tr>
<td>I find myself analyzing the usefulness of strategies while I study for this online course.</td>
<td>5.02</td>
<td>1.76</td>
<td></td>
</tr>
<tr>
<td>I ask myself if there were other ways to do things after I finish learning for this online.</td>
<td>4.96</td>
<td>1.82</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td><strong>5.06</strong></td>
<td><strong>1.22</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Somewhat true**

### Time Management

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find it hard to stick to a study schedule for this online course.</td>
<td>3.52</td>
<td>1.71</td>
</tr>
<tr>
<td>I make sure I keep up with the weekly readings and assignments for this online course.</td>
<td>5.50</td>
<td>1.55</td>
</tr>
<tr>
<td>I often find that I don't spend very much time on this online course because of other activities.</td>
<td>3.33</td>
<td>1.85</td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td><strong>4.11</strong></td>
<td><strong>.99</strong></td>
</tr>
</tbody>
</table>

**Neutral**

### Help Seeking

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I do not understand something, I ask other course members in this online course for ideas.</td>
<td>2.64</td>
<td>2.04</td>
</tr>
<tr>
<td>I share my problems with my classmates in this online course so we know how to solve our problems.</td>
<td>2.24</td>
<td>1.83</td>
</tr>
<tr>
<td>I am persistent in getting help from the instructor of this online course.</td>
<td>4.37</td>
<td>2.01</td>
</tr>
<tr>
<td>When I am not sure about some of the material in this course, I check with other people.</td>
<td>3.64</td>
<td>2.08</td>
</tr>
</tbody>
</table>
I communicate with my classmates to find out how I am doing in this online course.

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.20</td>
<td>1.80</td>
<td>Infrequently true</td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>3.02</td>
<td>1.56</td>
<td></td>
</tr>
<tr>
<td><strong>SOL TOTAL</strong></td>
<td>4.99</td>
<td>.98</td>
<td>Somewhat true</td>
</tr>
</tbody>
</table>

*Note. n = 169. Descriptive statistics were interpreted using recommendations from Jansen et al. (2017): 1 - 1.49 = Never true, 1.50 - 2.49 = Rarely true, 2.50 - 3.49 = Infrequently true, 3.50 - 4.49 = Neutral, 4.50 – 5.49 = Somewhat true, 5.50 - 6.49 = Usually true, 6.50 – 7.0 = Always true.*

**Table 4.4. FLVS Students’ Career Decision-Making Self-Efficacy**

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupational Information</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the internet to find information about</td>
<td>4.47</td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>occupations that interest you.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find out the employment trends for an occupation over the next ten years.</td>
<td>3.86</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>Find out about the average yearly earnings of people in an occupation.</td>
<td>4.30</td>
<td>.93</td>
<td></td>
</tr>
<tr>
<td>Talk with a person already employed in a field that you are interested in.</td>
<td>3.60</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>Find information about undergraduate or professional schools.</td>
<td>4.09</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>4.07</td>
<td>.77</td>
<td>Much confidence</td>
</tr>
<tr>
<td><strong>Self-Appraisal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine what your ideal job would be.</td>
<td>3.85</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>Accurately assess your abilities.</td>
<td>3.69</td>
<td>.98</td>
<td></td>
</tr>
<tr>
<td>Decide what you value most in an occupation.</td>
<td>4.04</td>
<td>.96</td>
<td></td>
</tr>
<tr>
<td>Figure out what you are and are not ready to sacrifice to achieve your career goals.</td>
<td>3.89</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>Define the type of lifestyle you want to live.</td>
<td>4.17</td>
<td>1.06</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>3.93</td>
<td>.83</td>
<td>Much confidence</td>
</tr>
<tr>
<td><strong>Career Goal Selection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one major from a list of potential majors you are considering.</td>
<td>3.78</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>Select one occupation from a list of potential occupations that you are considering.</td>
<td>3.80</td>
<td>1.11</td>
<td></td>
</tr>
<tr>
<td>Choose a career that will fit your preferred lifestyle.</td>
<td>3.94</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>Make a career decision and then not worry whether it was right or wrong.</td>
<td>3.18</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>Choose a major or career that will fit your interests.</td>
<td>4.13</td>
<td>1.03</td>
<td></td>
</tr>
<tr>
<td><strong>Composite Mean</strong></td>
<td>3.77</td>
<td>.98</td>
<td>Much confidence</td>
</tr>
<tr>
<td><strong>Career Planning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine the steps to take if you are having academic trouble with an aspect of your chosen major.</td>
<td>3.75</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Persistently work at your major or career goal even when you get frustrated.</td>
<td>4.10</td>
<td>.99</td>
<td></td>
</tr>
<tr>
<td>Change majors if you did not like your first choice.</td>
<td>3.43</td>
<td>1.17</td>
<td></td>
</tr>
</tbody>
</table>
Change occupations if you are not satisfied with the one you entered. 3.54 1.16
Identify some reasonable major or career alternatives if you are unable to get your first choice. 3.82 1.10

**Composite Mean** 3.73 .86  *Much confidence*

### Problem Solving

Make a plan of your goals for the next five years. 3.67 1.24
Determine the steps you need to take to successfully complete your chosen major. 3.94 1.13
Prepare a good resume. 3.64 1.16
Identify employers, firms, and institutions relevant to your career possibilities. 3.71 1.21
Successfully manage the job interview process. 3.39 1.15

**Composite Mean** 3.94 1.13  *Much confidence*

**CDSE Total** 3.67 1.00  *Much confidence*

Note. *n* = 169. Descriptive statistics were interpreted using recommendations from Betz & Klein, (1996): 1 - 1.49 = No confidence at all, 1.50 - 2.49 = *Very little confidence*, 2.50 - 3.49 = *Moderate confidence*, 3.50 - 4.49 = *Much confidence*, 4.50 – 5.0 = Complete confidence.

---

**Table 4-5. Relationship between learners’ perceived Self-Regulated Learning Strategies and Academic Achievement of Online Instruction**

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Achievement</td>
<td>.103</td>
</tr>
</tbody>
</table>

Note. The strength of the relationship was determined using Davis’ (1971) coefficient interpretations: *r* = .00 to .09 = *Negligible*, *r* = .10 to .29 = *Low*, *r* = .30 to .49 = *Moderate*, *r* = .50 to .69 = *Substantial* and *r* ≥ .70 = *Very Strong*; *n* = 162.

---

**Table 4-6. Relationship between learners’ perceived Career Decision-Making Self-Efficacy and Academic Achievement of Online Instruction**

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Achievement</td>
<td>.758</td>
</tr>
</tbody>
</table>

Note. The strength of the relationship was determined using Davis’ (1971) coefficient interpretations: *r* = .00 to .09 = *Negligible*, *r* = .10 to .29 = *Low*, *r* = .30 to .49 = *Moderate*, *r* = .50 to .69 = *Substantial* and *r* ≥ .70 = *Very Strong*; *n* = 162.

---

**Table 4-7. Relationship between learners’ perceived Career Decision-Making Self-Efficacy and perceived Self-Regulated Learning Strategies of online instruction**

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
<th>r-value</th>
<th>Effect size interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Regulated Learning Strategies</td>
<td>.00</td>
<td>.47</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
Note. The strength of the relationship was determined using Davis’ (1971) coefficient interpretations: $r = .00$ to $.09 =$ Negligible, $r = .10$ to $.29 =$ Low, $r = .30$ to $.49 =$ Moderate, $r = .50$ to $.69 =$ Substantial and $r \geq .70 =$ Very Strong; $n = 169$.

Table 4-8. Comparison of online Career and Technical Education students' perceived Self-Regulated Learning Strategies depending on their selected personal demographic characteristics

<table>
<thead>
<tr>
<th>Online Career and Technical Education Students</th>
<th>$R^2 = .209$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Female</td>
<td>.04</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.06</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Asian or Asian American</td>
<td>.08</td>
</tr>
<tr>
<td>Black or African American</td>
<td>.17</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>-</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>.16</td>
</tr>
<tr>
<td>Mixed Ethnicity of Other</td>
<td>.19</td>
</tr>
<tr>
<td>Grade Level</td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>-</td>
</tr>
<tr>
<td>Sophomore</td>
<td>.05</td>
</tr>
<tr>
<td>Junior</td>
<td>-.10</td>
</tr>
<tr>
<td>Senior</td>
<td>-.09</td>
</tr>
<tr>
<td>Enrolled Online Courses</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>-.10</td>
</tr>
<tr>
<td>Two</td>
<td>-</td>
</tr>
<tr>
<td>Three</td>
<td>.08</td>
</tr>
<tr>
<td>Four</td>
<td>-.08</td>
</tr>
<tr>
<td>Five or more</td>
<td>.19</td>
</tr>
<tr>
<td>Course Grade</td>
<td></td>
</tr>
<tr>
<td>A (100% to 94%)</td>
<td>-</td>
</tr>
<tr>
<td>A- (&lt; 94% to 90%)</td>
<td>-.11</td>
</tr>
<tr>
<td>B+ (&lt; 90% to 87%)</td>
<td>-.13</td>
</tr>
<tr>
<td>B (&lt; 87% to 84%)</td>
<td>.00</td>
</tr>
<tr>
<td>B- (&lt; 84% to 80%)</td>
<td>-.13</td>
</tr>
<tr>
<td>C+ (&lt; 80% to 77%)</td>
<td>-.25*</td>
</tr>
<tr>
<td>C (&lt; 77% to 74%)</td>
<td>-.07</td>
</tr>
<tr>
<td>C- (&lt; 74% to 70%)</td>
<td>-</td>
</tr>
<tr>
<td>D+ (&lt; 70% to 67%)</td>
<td>-</td>
</tr>
<tr>
<td>D (&lt; 67% to 64%)</td>
<td>.13</td>
</tr>
<tr>
<td>D- (&lt; 64% to 61%)</td>
<td>-.04</td>
</tr>
<tr>
<td>E (&lt; 61% to 0%)</td>
<td>-</td>
</tr>
<tr>
<td>Unsure or Prefer Not To Say</td>
<td>-.02</td>
</tr>
<tr>
<td>Employed</td>
<td>-.03</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Twelve</td>
<td>.00</td>
</tr>
</tbody>
</table>
| Note: \( p < .05 \). Statistically significant predictors are denoted using an asterisk (*)..

Table 4-9. Comparison of online Career and Technical Education students’ perceived Career Decision-Making Self-Efficacy depending on their selected personal demographic characteristics

<table>
<thead>
<tr>
<th>Online Career and Technical Education Students ( (n = 169) )</th>
<th>( R^2 = .327 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant ( \beta )</td>
<td>( p )-value</td>
</tr>
<tr>
<td>Female</td>
<td>-.12</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.15</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Asian or Asian American</td>
<td>.24</td>
</tr>
<tr>
<td>Black or African American</td>
<td>.38</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>-</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>.52</td>
</tr>
<tr>
<td>Mixed Ethnicity of Other</td>
<td>.40</td>
</tr>
<tr>
<td>Grade Level</td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>-</td>
</tr>
<tr>
<td>Sophomore</td>
<td>-.18</td>
</tr>
<tr>
<td>Junior</td>
<td>-.24</td>
</tr>
<tr>
<td>Senior</td>
<td>.04</td>
</tr>
<tr>
<td>Enrolled Online Courses</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>-.14</td>
</tr>
<tr>
<td>Two</td>
<td>-</td>
</tr>
<tr>
<td>Three</td>
<td>.00</td>
</tr>
<tr>
<td>Four</td>
<td>-.02</td>
</tr>
<tr>
<td>Five or more</td>
<td>-.09</td>
</tr>
<tr>
<td>Income Levels</td>
<td></td>
</tr>
<tr>
<td>$0-$9,999</td>
<td>-.13</td>
</tr>
<tr>
<td>$10,000-$19,999</td>
<td>.05</td>
</tr>
<tr>
<td>$20,000-$29,999</td>
<td>.03</td>
</tr>
<tr>
<td>$30,000-$39,999</td>
<td>-.04</td>
</tr>
<tr>
<td>$40,000-$49,999</td>
<td>.15</td>
</tr>
<tr>
<td>$50,000-$59,999</td>
<td>-.04</td>
</tr>
<tr>
<td>$60,000-$69,999</td>
<td>.15</td>
</tr>
<tr>
<td>$70,000 or more</td>
<td>.06</td>
</tr>
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<td>Unsure or prefer not to say</td>
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<td>Course Grade</td>
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<td>A (100% to 94%)</td>
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<td>A- (&lt; 94% to 90%)</td>
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<tr>
<td>B+ (&lt; 90% to 87%)</td>
<td>-.02</td>
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<tr>
<td>B (&lt; 87% to 84%)</td>
<td>-.03</td>
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<tr>
<td>B- (&lt; 84% to 80%)</td>
<td>-.12</td>
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<td>C+ (&lt; 80% to 77%)</td>
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<td>C (&lt; 77% to 74%)</td>
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<td>C- (&lt; 74% to 70%)</td>
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<td>D+ (&lt; 70% to 67%)</td>
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<td>D (&lt; 67% to 64%)</td>
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<td>D- (&lt; 64% to 61%)</td>
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<td>E (&lt; 61% to 0%)</td>
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<td>Unsure or Prefer Not To Say</td>
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<tr>
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<tr>
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<td>-.26</td>
</tr>
<tr>
<td>Nineteen</td>
<td>.12</td>
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Note: $p < .05$. Statistically significant predictors are denoted using an asterisk (*).
CHAPTER 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to describe the influence of perceived self-regulated learning strategies and career decision-making self-efficacy on academic achievement of learners in secondary career and technical education online-learning courses. Chapter 1 established the need for understanding the relationship between student self-regulatory learning behaviors and learners’ career decision-making self-efficacy for students enrolled in online career and technical education courses. The purpose of Chapter 2 was to provide the theoretical framework guiding this study, which was based on Zimmerman’s self-regulated learning theory and Betz’s social cognitive career theory. Additionally, Chapter 2 discussed the conceptual model guiding this study.

Chapter 3 described the methods and procedures used to conduct the study. Additionally, Chapter 3 outlined the research design, provide information on the population and instrumentation used, and provide a summary of how data was analyzed. Chapter 4 presented the findings of the study to answer the objectives and purpose of the study. Chapter 5 will describe a summary of the findings, discuss conclusions based on empirical literature and findings presented in Chapter 4, and provide recommendations for practitioners and future research.

Objectives

The following objectives guiding this study were:

1. Describe the demographic characteristics of online learners enrolled in career and technical education courses.

2. Identify the self-regulated learning strategies used by online learners enrolled in high school career and technical education courses.
3. Determine the self-perceived career decision-making self-efficacy of online learners enrolled in high school career and technical education courses.

4. Examine the relationship between perceived self-regulated learning strategies and academic achievement of online learners enrolled in high school career and technical education courses.

5. Examine the relationship between learners' perceived career decision-making self-efficacy and academic achievement of online learners enrolled in high school career and technical education courses.

6. Examine the relationship between perceived career-decision making self-efficacy and perceived self-regulated learning strategies of online learners enrolled in high school career and technical education courses.

7. Determine if demographic variables of students enrolled in high school career and technical education courses predict self-regulated learning behaviors.

8. Determine if demographic variables of students enrolled in high school career and technical education courses predict career decision-making self-efficacy.

Summary of Findings

Objective One

Objective one was analyzed using descriptive statistics. The respondents were primarily female \( f = 116; 69\% \); white \( f = 122; 72\% \), and classified as freshman \( f = 49; 29\% \); Table 4-1). The respondents had previously enrolled in 5 or more online courses \( f = 113; 67\% \), including the current online course sampled in this study (Table 4-1). A majority of the respondents were not employed at the time of this study \( f = 144; 85\% \), and were unsure of their family income \( f = 98; 58\% \); Table 4-1). The majority of respondents had reported having an A at the time of the study \( f = 71; 42\% \); Table 4-1). The majority of respondents were approximately sixteen years old at the time of the study \( M = 15.56; SD = 1.24 \); Table 4-2).
Objective Two

Self-regulated learning behaviors were assessed using the Self-Regulated Online Learning Questionnaire (SOL-Q, Appendix K). Respondents overall composite mean was interpreted as somewhat regular behaviors ($M = 4.99$; $SD = .98$; Table 4-3). In particular, respondents had the highest composite mean score relating to environment structuring ($M = 6.24$; $SD = 1.13$; Table 4-3). Respondents in this study reported a similarly high composite mean towards persistence ($M = 5.30$; $SD = 1.26$; Table 4-3). Conversely, respondents reported the lowest composite mean relating to their ability to use help-seeking strategies ($M = 3.02$; $SD = 1.56$; Table 4-3).

Objective Three

The career decision-making self-efficacy of the sample was assessed using the Career Decision-Making Self-Efficacy short form (CDSE-SF; Appendix L). Based on recommendations from Betz et al. (2005), it should be noted that an overall composite mean ($M = 3.83$; $SD = .76$) was high (Table 4-4). Respondents in this study had the highest composite mean score relating to occupational information ($M = 4.07$; $SD = .77$; Table 4-4). Respondents also reported a similarly high composite mean relating to self-appraisal ($M = 3.93$; $SD = .83$; Table 4-4). The lowest construct was problem-solving skills ($M = 3.67$; $SD = 1.00$; Table 4-4).

Objective Four

There was no statistically significant relationship between learners' use of self-regulated learning strategies and their academic achievement of online instruction (Table 4-5).
Objective Five

There was no statistically significant relationship between learners’ perceived career decision-making self-efficacy and academic achievement of online instruction (Table 4-6).

Objective Six

There was a statistical significant relationship between learners’ perceived career decision-making self-efficacy and their use of measured self-regulated learning strategies of online CTE instruction (Table 4-7). The direction and strength of the relationship was interpreted as a moderately positive relationship ($r = .47; p = .00$; Table 4-7).

Objective Seven

The model explained approximately 21% of the variance ($R^2 = .209$). One predictor was statistically significant. The predictor was having a C+ (< 80% to 77%) ($\alpha = .00$). It should be noted that no other grade was found as a predictor of students’ use of self-regulated learning strategies.

Objective Eight

The model explained approximately 33% of the variance ($R^2 = .327$). One predictor was statistically significant. The predictor was age 13 ($\alpha = .01$). It should be noted that no other age was found to be a statistically significant predictor of learners’ career decision-making self-efficacy.

Discussion and Implications

Career and technical education coursework provides a number of benefits for students enrolled (Alfeld, et al., 2006; Gottfried & Plasman, 2018; Kriesman & Stange, 2017; Parr et al., 2009; Young et al., 2009). Therefore, it is important to expose students
from diverse demographics into various career and technical education fields. Using the findings as the basis for discussion, it can be concluded that learners enrolled in online career and technical education courses draws in students from similar demographics into career and technical education studies. In particular, online career and technical education coursework at the secondary level draws in more females into career and technical education fields. Based on this conclusion, it is recommended that administrators should attempt to reach more students from diverse demographics to enroll in online career and technical education courses. Specifically, efforts should be focused on recruiting online learners that are male, Hispanic, and other ethnic backgrounds. Some examples include students from African American or Latino demographics.

It can be concluded that learners relied more heavily on various self-regulated learning strategies. For example, learners’ rely more heavily on their ability to persist and their ability to find a conducive learning environment, as means to compensate for a lack of employing other self-regulatory strategies. Additionally, it can be concluded that learners enrolled in online secondary career and technical education courses do not regularly use time-management skills and use help-seeking strategies from peer-to-peer to excel in coursework. This finding is similar to Iwamoto et al. (2017), who stated that online learners may rely more heavily on internal motivational behaviors rather than cognitive-dependent behaviors to complete learning tasks. In particular, persistence may be a self-regulatory behavior that is easily employable for learners (Harackiewics et al., 2002; Komarruju & Nadler, 2013). Therefore, it is suggested that instructors should consider providing instructional materials for learners on how to better use various self-
regulatory learning behaviors, such as time-management skills and help-seeking strategies through cooperative learning, to accomplish learning tasks.

It can be concluded that learners enrolled in online secondary career and technical education courses have a high overall self-efficacy towards their career-decisiveness. Although students reported an overall high career decision-making self-efficacy, it should be noted that learners may have over-reported their self-efficacy due to sampling error (Creswell & Creswell, 2018). However, students’ career decision-making self-efficacy can be continually improved based on various discrepancies of specific item constructs. Instructors should consider encouraging more opportunities for students in online career and technical education courses to connect with leaders in various career and technical education fields. Yielding to the social cognitive career theory (Lent et al., 1994), learners learn best through social interactions from the learning experience. In particular, social interactions between learners and leaders within career and technical education fields may refine learners’ personal career decision-making self-efficacy. Additionally, it is recommended that administrators should consider incorporating more opportunities for students to practice soft skills for career development. Specifically, this recommendation should be considered for all online career and technical education programs. Examples could be practicing for interviews, résumés, and public speaking. By further developing career exploration through social interactions, by means of soft-skill development, learners may have improved career readiness and career self-efficacy.

The findings revealed mixed results between online learners enrolled in career and technical education courses on their career decision-making self-efficacy, their use
of self-regulatory learning behaviors, and academic achievement outcomes. It can be concluded that academic achievement of learners enrolled in online career and technical education courses is not directly influenced by learners' use of self-regulatory learning strategies. This finding refutes Zimmerman (1981; 1983), who stated that learners are able to focus their thoughts, feelings, and actions in order to attain academic success. As mentioned by Zimmerman (1981; 1983), self-regulatory learning behaviors are measurable processes for student motivation. Conversely, this finding is supports Pintrich et al. (1993) and is similar to Fadlelmula et al. (2015), who each stated that self-regulated learning strategies that involve metacognitive processes are not highly correlated with academic achievement. Therefore, academic achievement outcomes for online career and technical education coursework is not an accurate representation for underlying student motivation.

Additionally, it can be concluded that learners' career decision-making self-efficacy is not statistically related to academic achievement outcomes of learners enrolled in online career and technical education courses. Therefore, academic achievement is not an indicator for individual career exploration and career development. Komarruju & Nadler (2013) and Wang et al., (2013) concluded similar findings. Therefore, instructors for online career and technical education courses may want to examine how academic achievement is evaluated through their assessment of instructional tasks to better meet the career development needs of learners. Instructors may want to encourage more opportunities for students in online career and technical education courses to connect with leaders in various career and technical education
fields. By adopting this strategy, instructors may better promote more opportunities for learners for social interaction and engagement in various occupations.

Betz et al. (1996) states that the learning environment influences a learners’ cognitive processing through the development of ones’ career interests, their career decision-making self-efficacy, and their use of self-regulatory learning processes. It can be concluded that learners’ career decision-making self-efficacy is positively influenced through learners’ use of self-regulatory learning strategies. A number of empirical researchers (Bandura, 1977, 1986; Lent et al., 1994) support this finding. Specifically, mastery of learning leads to a learner perceiving a high career decision-making self-efficacy is similar to previous research findings (Gaylor & Nicol, 2016; Lent & Brown, 2013). This conclusion indicates that student engagement in online career and technical education courses, through the use of self-regulatory learning strategies, influences learners’ career decision-making self-efficacy.

Therefore, when career and technical education coursework is provided online as the main modality for instruction, increased learner engagement in the course may strengthen ones’ career decision-making self-efficacy. Based on the conclusions of this study, it is recommended that instructors should consider assessing students’ career self-efficacy by examining student use of self-regulatory learning behaviors. Instructors may be able to assess this through informal observations on learners’ engagement in an online career and technical education course. By instructors implementing this as part of their informal observation of student learning, instructors may be better able to assess individual career development and career exploration.
Further analysis revealed predictors of learners’ use of self-regulatory learning behaviors. It can be concluded that learners’ with a low academic grade enrolled in an online career and technical education course are more likely to not use various self-regulatory learning behaviors. Although only one statistically significant predictor was found between students who had received a C+ and low use of self-regulatory behaviors. This conclusion is best supported by self-regulated learning theory (Zimmerman, 1981; 1983; Zimmerman & Moylan, 2009). Therefore, instructors may want to consider course grades as means to determine learner motivation for online career and technical education courses. Subsequently, instructors may want to provide intervention opportunities for learners’ with a low course grade as means to help them overcome learning tasks.

Moreover, it can be concluded that learners’ at the age of thirteen or younger enrolled in online career and technical education course are more likely to have a low perceived career decision-making self-efficacy. This finding indicates that learners at a young age may have a lower career decision-making self-efficacy. This conclusion is best supported by the seminal work of Lent et al. (1994). Learners draw their career interest based on their prior experience to shape career goals. Therefore, instructors may want to consider additional opportunities for career exploration for students at a young age. This may lead to recommendations for alternative teaching methods for career exploration and career development for learners, particularly for students thirteen years of age or less.

Nonetheless, a longitudinal investigation should be conducted to compare individual student use of self-regulated learning strategies, as well as compare student
self-efficacy towards career decision-making. This study used a cross-sectional research method using an aggregate data set. Thus, a longitudinal study comparing individual differences of selected variables may yield discerning results. Additionally, a longitudinal study should be conducted to further investigate how academic achievement is influenced by learners’ career decision-making self-efficacy and learners’ use of self-regulated learning strategies. A longitudinal study in this area may lead to better understanding of how academic achievement is influenced. Subsequently, a study should be conducted to further examine academic achievement through other quantitative measurements.

This study should be conducted using other online career and technical education courses, for example online agriscience, health occupation, finance, and engineering. As mentioned, this study was conducted using four selected online career and technical education courses, which included students enrolled in (a) Digital Information Technology, (b) Foundations of Web Design, (c) User Interface Design, and (d) Foundations of Programming. Furthermore, an investigation should be conducted to compare online learners’ enrolled in career and technical education courses with other variables besides their career decision-making self-efficacy, such as career maturity and career indecisiveness. Yielding to social cognitive career theory (Lent et al., 1994; Betz et al., 2005), these variables may better explain how career development is co-created through online instruction.

This study should be conducted to further investigate other demographic variables, such as an analysis of dual enrollment courses, academic extracurricular involvement, and enrollment in advanced placement courses. Involvement in
extracurricular activities may influence online learners’ use of self-regulatory behaviors, as well as learners’ career decision-making self-efficacy. An investigation should be conducted to compare the variables of interest with online learners’ enrolled in career and technical education courses and traditional students enrolled in face-to-face career and technical education courses. Additionally, a qualitative piece should be considered to further investigate the formation of learners’ career decision-making self-efficacy and learners’ use of self-regulated learning strategies. This study was conducted using a pragmatistic view. Therefore, further investigation using an interpretivist philosophical view may provide rich data (Creswell & Creswell, 2018).

**Conclusions**

Based on the findings of the study, the following conclusions can be drawn:

- Learners enrolled in online career and technical education courses draws in students from similar demographics into career and technical education studies.

- Learners enrolled in online secondary career and technical education courses rely heavily on their ability to persist through coursework and find a conducive learning environment in order to excel in coursework. This conclusion is similar to findings by Iwamoto et al. (2017), Harackiewics et al. (2002), and Komarruju & Nadler (2013).

- Learners enrolled in online secondary career and technical education courses do not regularly use time management skills and help-seeking strategies from peer-to-peer to excel in coursework. This conclusion is similar to findings by Iwamoto et al. (2017), Harackiewics et al. (2002), and Komarruju & Nadler (2013).

- Learners enrolled in online secondary career and technical education courses have a high overall self-efficacy towards their career-decisiveness.

- Learners’ use of self-regulatory learning strategies in online career and technical education courses is not statistically related to academic achievement outcomes. This conclusion is best supported Pintrich et al. (1993) and is similar to findings by Fadlelmula et al., (2015). This conclusion is also refuted by Zimmerman (1981; 1983).

- Learners’ career decision-making self-efficacy in online career and technical education courses is not statistically related to academic achievement outcomes.
This conclusion is similar to findings by Komarruju & Nadler (2013) and Wang et al. (2013).

- Learners’ career decision-making self-efficacy is positively influenced by learners’ use of self-regulatory learning strategies in online career and technical education courses. This conclusion is best supported by Bandura (1977; 1986) and Betz et al. (1996). This finding is similar to previous research conducted by Gaylor & Nicol (2016), Lent et al. (1994), and Lent & Brown (2013).

- Learners’ with a low academic grade enrolled in an online career and technical education course are more likely to not use various self-regulatory learning behaviors. This conclusion is best supported by the seminal work of Zimmerman (1981; 1983).

- Learners’ at the age of thirteen or younger enrolled in online career and technical education course are more likely to have a low perceived career decision-making self-efficacy. This conclusion is best supported by Lent et al. (1994).

**Recommendations for Practitioners**

This study was conducted using students enrolled in specific online career and technical education course through Florida Virtual School. Therefore, results and conclusions cannot be generalized. However, several recommendations are suggested for instructors in online secondary career and technical education courses. Based on this study, the following recommendations may be considered:

- Administrators should attempt to reach more students from diverse demographics to enroll in online career and technical education courses.

- Instructors should consider providing instructional materials for learners on how to better use various self-regulatory learning behaviors, such as time-management skills and help-seeking strategies through cooperative learning, to accomplish learning tasks.

- Instructors may want to encourage more opportunities for students in online career and technical education courses to connect with leaders in various career and technical education fields.

- Administrators should consider incorporating more opportunities for students to practice soft skills for career development when developing online career and technical education courses. Examples may include practicing for interviews, résumés, and public speaking.
• Instructors in online career and technical education fields should consider how academic achievement is evaluated through their assessment of instructional tasks.

• Instructors should consider assessing students’ career self-efficacy by examining student use of self-regulatory learning behaviors based on first-hand observation, as well as through observations on their engagement in an online career and technical education course.

• Instructors should consider course grades as means to determine learner motivation for online career and technical education courses, and address these students by means of an intervention.

• Instructors should consider additional or alternative teaching strategies, through online instruction, for career exploration for students at a young age.

Recommendations for Future Research

This study served as an investigational research study based on previous studies that have been conducted related to online learners’ use of self-regulated learning strategies and online learners’ career decision-making self-efficacy. Specifically, this study examined students enrolled in online high school career and technical education courses. Future studies should be conducted in the following areas:

• A longitudinal investigation should be conducted to compare individual student use of self-regulated learning strategies, as well as compare student self-efficacy towards career decision-making.

• A longitudinal study should be conducted to further investigate how academic achievement is influenced by learners’ career decision-making self-efficacy and learners’ use of self-regulated learning strategies.

• A study should be conducted to further examine academic achievement through other quantitative measurements.

• This study should be conducted using other online career and technical education courses, for example online agriscience, health occupation, finance, and engineering.

• An investigation should be conducted to further compare online learners’ enrolled in career and technical education courses with other variables besides their career decision-making self-efficacy, such as career maturity and career indecisiveness.
This study should be conducted to further investigate other demographic variables, such as an analysis of dual enrollment courses, academic extracurricular involvement, and enrollment in advanced placement courses.

An investigation should be conducted to compare the variables of interest with online learners’ enrolled in career and technical education courses and traditional students enrolled in face-to-face career and technical education courses.

A qualitative piece should be considered to further investigate the formation of learners’ career decision-making self-efficacy and learners’ use of self-regulated learning strategies.

Summary

The research objectives and methodology served as the basis for guiding this study. Chapter 1 served as the rationale for conducting this study. Chapter 2 presented the guiding theories directing this study, as well as empirical research conducted in this area. Chapter 3 presented the methodology of the study. Chapter 4 presented the findings of this study, based on the objectives outlined in Chapter 1. In particular, Chapter 5 presented the discussion of the findings, drew conclusions from the data presented, and provided recommendations for practitioners and future research. The conclusions and recommendations were supported by relevant research in this area, as outlined in Chapter 2. As opportunities for online career and technical education courses continue to expand for secondary students, there is a need to investigate outcomes from online career and technical education coursework.
APPENDIX A
IRB APPROVAL LETTER

Institutional Review Board
UNIVERSITY of FLORIDA

DATE: 8/16/2018
TO: Tyler D’Angelo
Rolls Hall
GAINESVILLE, Florida 32611-0540
FROM: Tru Fischer, Ph.D., Professor Emeritus
Chair IRB-02
IRB #: IRB201801091
TITLE: Career Self-Efficacy, Self-Regulatory Learning, and Academic Achievement Influences in Online Career and Technical Education

Approved as Exempt

You have received IRB approval to conduct the above-listed research project. Approval of this project was granted on 8/15/2018 by IRB-02. This study is approved as exempt because it poses minimal risk and is approved under the following exempt category/categories:

1. Research conducted in established or commonly accepted educational settings involving normal educational practices such as research on regular and special education instructional strategies, or research on the effectiveness of or the comparison among instructional techniques, curricula or classroom management methods.

Special notes to Investigator (if applicable):

In the myIRB system, Exempt approved studies will not have an approval stamp on the consents, flyers, emails, etc. However, the documents reviewed are the ones that should be used. So, under ATTACHMENTS you should find the document that has been reviewed and approved. If you need to modify the document(s) in any manner, then you’d need to submit to our office for review and approval prior to implementation.

Principal Investigator Responsibilities:

The PI is responsible for the conduct of the study. Important responsibilities described at the above link include:

• Using currently approved consent form to enroll subjects (if applicable)
• Renewing your study before expiration
• Obtaining approval for revisions before implementation
• Reporting Adverse Events
• Retention of Research Records
• Obtaining approval to conduct research at the VA
• Notifying other parties about this project’s approval status

Should the nature of the study change or you need to revise the protocol in any manner please contact this office prior to implementation.

Study Team:

James Bunch Co-Investigator
Brian Myers Co-Investigator
APPENDIX B
APPROVAL FOR SOL-Q
Dear Tyler D'Angelo,

Thank you for sending me an email. If you want to use the SOL-Q, you may of course do so, as long as you appropriately cite my colleagues and me in your report describing your study.

Concerning the suitability of the measurement instrument. Whether the SOL-Q is suitable depends on how the courses are organized. If they are fully online, and allow students to study when and where they want, I would recommend using the SOL-Q. As I describe in the article, other SRL measures are focused on traditional, campus-based education, and therefore have a large number of items that are not suitable for online education. For instance, items that focus on attending lectures and keeping up with weekly assignments. Sideneote is however that I tested and used the instrument for university students. Your study population is younger. Other instruments for SRL measurement have in some cases been tested, or even specifically developed, for high school students. This would be an advantage of using these other measures. I would however consider the benefits of having an instrument that is suitable for your setting (online) more important than having an instrument that has been tested in your specific population. If I would have to make the decision, I would therefore use the SOL-Q, but of course the decision is up to you.

Best of luck with your research,
Renée Jansen
APPENDIX C
APPROVAL FOR CDSE-SF
Hi Tyler
I attach the scale and scoring key but please do inquire about the student discount!!
I'm happy to help!!
NB
Research Request Proposal

Florida Virtual School’s (FLVS) Research Committee reviews each proposal in great detail; proposals that do not receive a minimum score on the research rubric will not be approved. Proposals are considered for acceptance based on the clarity of the proposal, agreement to the terms and conditions outlined below, completion of a Non-Disclosure Agreement, and ability of FLVS to provide the necessary data and/or resources needed to complete the project. Due to privacy and confidentiality issues, research requests that include face-to-face contact or video recording will most likely be denied.

Please answer the following questions completely and thoroughly; if a proposal is partially completed, questions are not answered, or survey/interview questions are not provided, your proposal will be returned for revision prior to review by the FLVS Research Committee. You may be asked to provide further details about your project prior to and after the Research Committee Meeting before a final decision can be made.

1. Date: 8/16/18

2. Name: Tyler L. D’Angelo

3. Telephone Number: [redacted]

4. Email Address: tylerdan3@ufl.edu

5. Title of Research Project: Career Self-Efficacy, Self-Regulatory Learning, and Academic Achievement Influences in Online Career and Technical Education

6. University/College Affiliation: University of Florida

7. Company/Organization Affiliation: Department of Agricultural Education & Communication

8. Name and Title of Dissertation Chairman: Dr. Brian Myers & Dr. JC Bunch

9. Telephone Number of Dissertation Chairman: [redacted]

10. Email Address of Dissertation Chairman: hmyers@ufl.edu, bunchj@ufl.edu

11. Are you a current or former employee of Florida Virtual School? a. If you are a current employee, what is your position? b. If you are a former employee, did you leave FLVS in good standing?

   I am not a current or former employee of Florida Virtual School.

12. What is the overall purpose of your study?

   The purpose of this study is to describe the perceived self-regulated learning strategies and perceived career-decision making self-efficacy influences on academic achievement of learners in a career and technical education online-learning course.
13. Who is the intended audience of your research?
   The population of this study included students enrolled in the 2018-2019 online career and technical education course offered by Florida Virtual School (FLVS) titled, “Career Research & Decision Making”.

14. What are your intentions for publication of your findings?
   I intent to publish my findings in the Journal of Career & Technical Education.

15. What are your intentions for presentation of your findings?
   I intent to present my findings to the Association for Career & Technical Education.

16. When is your desired start date?
   For data collection, I intent to administer my survey sometime at the end of September after students in my sample have completed all IRB paperwork.

17. When is your desired completion date?
   For data collection, I intent to finish collecting completely around mid to late October, depending on when enough survey responses have been received. I would like to collect my data collection within in a three-week period from beginning to end. For academic achievement, I would like to collect final grades of participants in December.

18. List your research questions & objectives.
   The purpose of this study is to describe the perceived self-regulated learning strategies and perceived career-decision making self-efficacy influences on academic achievement of learners in a career and technical education online-learning course. Therefore, the question addressed in this study is- what are the perceived self-regulated learning strategies and perceived career-decision making self-efficacy influences on academic achievement of learners in a career and technical education online-learning course? The objectives of the study are to:
   - Describe the demographic characteristics of the high school CTE online learners;
   - Identify the self-regulated learning strategies used by secondary students enrolled in online CTE courses, as reported by enrolled students;
- Determine the self-perceived career decision-making self-efficacy of online Florida CTE course takers;
- Examine the relationship between learners' perceived self-regulated learning strategies and self-perceived career-decision making self-efficacy of online instruction;
- Examine the relationship between learners' self-perceived career-decision making self-efficacy and academic achievement of online instruction;
- Examine the relationship between learners' perceived self-regulated learning strategies and academic achievement of online instruction;
- Determine the variance of academic achievement of online CTE students explained by the linear combination of demographic variables;
- Determine the variance of self-regulated learning strategies of online CTE students explained by the linear combination of demographic variables;
- Determine the variance of self-perceived career decision-making self-efficacy of online CTE students explained by the linear combination of demographic variables.

19. List your hypotheses.

The null hypothesis of my study is that students who have a higher perceived career decision-making self-efficacy will likely use more effective self-regulated learning strategies. As students implement more effective self-regulated learning strategies, they are more likely to be higher achieving learners in online career and technical education courses.

20. What do you intend to measure?

Three instruments were applied for data collection, which included: the Self-Regulated Online Learning Questionnaire (SOL-Q), the Career Decision-Making Self-Efficacy Short Form assessment (CDSE-SF), and a demographic information survey (Demographic Information Survey or DIS- See Appendix X) that was developed by the principal investigator for this study. Self-regulation. Due to the lack of instruments that measure self-regulated learning online using a holistic approach, a questionnaire known as the Self-Regulated Online Learning Questionnaire (SOL-Q) was used (Jansen, van Leeuwen, Janssen, Kester, & Kalz, 2017). The
SOL-Q is an adapted instrument that uses combined items from the Motivated Strategies for Learning Questionnaire (MSLQ), Metacognitive Awareness Inventory (MAI), Online Self-Regulated Learning Questionnaire (OSLQ), and Learning Strategies Questionnaire (LS). The SOL-Q allowed the researcher to evaluate self-regulatory learning strategies that participants employed while engaging in the course. The SOL-Q uses 36 items to measure 5 sub-scales relating to- metacognition ($\alpha = .91$), time management ($\alpha = .58$), environmental structuring ($\alpha = .77$), persistence ($\alpha = .74$), and help-seeking strategies ($\alpha = .80$) (Jansen et al., 2017). The SOL-Q uses a 7-point, Likert- type scale (1 = never true to 7 = always true). The SOL-Q measures the self-reported frequency that participants use self-regulated behaviors of interest. To confirm internal construct validity, a pilot survey was conducted on one course of interest. The internal construct validity scores for the pilot test included: metacognition ($\alpha = .XX$), time management ($\alpha = .XX$), environmental structuring ($\alpha = .XX$), persistence ($\alpha = .XX$), and help-seeking strategies ($\alpha = .XX$).

**Career decision self-efficacy.** The Career Decision-Making Self-Efficacy Scale (CDSE-SF) short form was used for this study (Betz & Klein, 1996; Betz, Hammond, & Multon, 2005). The CDSE allowed for the investigator to evaluate students overall career decision-making self-efficacy. The instrument uses a 5-point, Likert- type scale (1 = no confidence at all to 5 = complete confidence). This instrument uses 25 items to measure five sub-scales to measure self-efficacy expectations toward a future career. The sub-scales of interest include- career goal orientation ($\alpha = .84$), career planning ($\alpha = .84$), problem solving ($\alpha = .80$), exposure to occupational information ($\alpha = .82$), and self-appraisal ($\alpha = .81$) (Paulsen & Betz, 2004). A pilot test for this instrument was not conducted for internal construct validity, since this instrument has shown consistent Cronbach’s alpha scores (Betz & Klein, 1996; Betz, Hammond, & Multon, 2005; Paulsen & Betz, 2004).

**Demographics.** The Demographic Information Survey (DIS, See Appendix X), was a self-generated instrument, which subsumed a mix of ordinal and nominal data. The demographic data of interest included- gender, class year in school, race and ethnicity, employment status, number of courses completed online, free or reduced lunch status, household income, and letter grade in the online course. The instrument used self-reported information as the basis for data collection.

**Academic Achievement.** Achievement will be assessed by collecting final grades of students in December.

21. Explain your research design.

This study used a descriptive correlational research design using a survey data collection methodology. This design was chosen to accurately accomplish the objectives and purpose of this study. The purpose of this study was to describe the perceived self-regulated learning strategies and perceived career-decision making self-efficacy of learners in a career and technical education online-learning course. The main objective of this study is to examine the relationship between learners’ perceived self-regulated learning strategies and self-perceived career-decision making self-efficacy of online instruction.

22. Explain your intended method of data analysis.

Data will be analyzed using IBM SPSS© version 24. Objectives 1, 2, and 3 will be accomplished by using descriptive statistics in SPSS. Objective 1 was to describe the
demographic characteristics of the high school CTE online learners. Objective 2 was to identify the self-regulated learning strategies used by secondary students enrolled in online CTE courses, as reported by enrolled students. Objective 3 was to determine the self-perceived career decision-making self-efficacy of online Florida CTE course takers. Descriptive statistics analyzed for objectives 1-3 will distinguish the sampled characteristics of the population. Data will be analyzed using measures of central tendency mean, median, mode, and measures of spread. Additionally, objectives 2 and 3 will be achieved by calculating construct means, quotes, and frequency of respondents.

Objectives 4, 5, and 6 will be measured using a correlation coefficient in SPSS between the three independent constructs: career decision-making self-efficacy, self-regulatory behaviors, and academic achievement. Objective 4 was to examine the relationship between learners’ perceived self-regulated learning strategies and self-perceived career-decision making self-efficacy of online instruction. Objective 5 was to examine the relationship between learners’ self-perceived career-decision making self-efficacy and academic achievement of online instruction. Objective 6 was to examine the relationship between learners’ perceived self-regulated learning strategies and academic achievement of online instruction. Objectives 4, 5, and 6 will be interpreted using Pearson’s r.

Objectives 7, 8, and 9 will be attained by conducting multiple linear regressions in SPSS. Objective 7 was to determine the variance of academic achievement of online CTE students explained by the linear combination of demographic variables. Objective 8 was to determine the variance of self-regulated learning strategies of online CTE students explained by the linear combination of demographic variables. Objective 9 was to determine the variance of self-perceived career-decision-making self-efficacy of online CTE students explained by the linear combination of demographic variables.

Objective 7 will be accomplished by using academic achievement data collected at the end of the fall semester course and the Demographic Information Survey (DIS). Objective 8 will be completed by using data collected from the SOL-Q instrument and the self-regenerated demographic instrument. Objective 9 will be met by using data collected from the CDSE short form and the demographic instrument.

23. How many participants do you anticipate are necessary to complete your research project?

In order to meet saturation of the population, we expect to conduct a census on every student enrolled in the course titled, “Career Research & Decision Making”. We expect to have approximately 275-325 participants in the study to meet saturation.

24. What are the risks in this study for the participants?

There are no known risks associated with this research project. While demographic information will be collected, participants of this study will have their information stored in a locked and secure jump drive.
25. Are there any monetary or other compensation or inducements for taking part in this study?

There are no foreseen monetary compensations needed. However, we are hoping to have the ability to reach the students via their student account with the help of Florida Virtual School regional specialists. We hope that the Florida Virtual School regional specialists will help aide in collecting the necessary paperwork for IRB.

26. What are the financial costs to FLVS or participants to take part in the study?

There are no known financial costs to FLVS or participants to take part in the study.

27. What are participants’ rights if they take part in the study?

Each participant will not have to do anything extra to participate in this study. The survey will be administered on the FLVS student portal and will take approximately 15-20 minutes to complete. Each participant’s identity will be kept confidential to the extent of the law, and compiled under aggregate data. Each student’s participation in this study is voluntary. Each student has the right to withdraw consent at any time without consequence.

28. What will be done to assure the confidentiality of participants?

All participants will be assigned a random number using a number generator to identify each participant so that no known names can be traced back. Data will be stored on a jump-drive in a locked and secure location. Data will be aggregated into one file once all the necessary data has been collected to further ensure that no identifying information can be traced back. Once the data has been analyzed, the data will be destroyed.

29. Do you intend to use audio recordings?

No

30. If you intend to use audio recordings, please answer the following questions:

a. Where will the information be stored during the study? b. Who will review audio recordings besides the researcher? c. Who will have access to the recordings? d. When will the recordings be destroyed?

N/A

31. What is the significance of your research to the field of literature regarding this topic?

While research has been conducted that describes self-regulated learning strategies that students implement within secondary education courses, there has been a lack of research that examines these strategies using an online learning platform in a career and technical education course. Additionally, there is very little research that explores if a student’s career decision-making self-efficacy may influence their use of self-regulatory behaviors or if there is any influence on academic achievement. As more courses have been created in CTE, there is a need to better understand the self-regulated learning strategies that students are using. By understanding these influences on academic achievement in an online CTE courses, this will add to the gap in the literature. As more online courses are expanded to other content areas such as career and technical education, additional research will need to be conducted and will help practitioners develop meaningful instruction.
32. What are the anticipated benefits and significance of this research to FLVS?

Practitioners may benefit from this research. Information gained from this study will assist instructors design meaningful curriculum and pedagogical practices for career and technical education online courses. As policy shifts toward increasing distance learning, there has been a need to better understand how learners respond when an online learning platform is used as the main modality for instruction. This research will better aide instructors in understanding if these learning activities aide students in making a decision about of a future career path and influence their ability to use self-regulatory learning strategies. Additionally, this study will help practitioners build enriched learning experiences that maximize student achievement in career and technical education courses, all while enhancing the learner’s ability to explore various career paths. This research may lead to practitioners re-evaluating best practices used in order to better meet the needs of learners in career and technical education courses.

33. Attach a copy of your literature review.

34. Attach a copy of your dissertation proposal/prospectus.

35. Attach a copy of your reference/biography page.

36. Attach a copy of your survey instrument(s), or list the survey questions you intend to ask participants.

37. Attach a copy of your interview questions, or list the interview questions you intend to ask participants.

   N/A

38. Attach a copy of your IRB approval.

39. Remember to have this form notarized before submission.
Submitting a research proposal to FLVS indicates that you agree to the following statements and will adhere to the guidelines accordingly, and you understand that failure to comply may result in withdrawal of your research approval.

1. I understand that throughout the duration of my project, I will update the Research Manager through email, phone calls, or survey responses as to the progress and status of my project.

2. I understand that of any and all data collected and/or given to me must remain confidential and/or anonymous at all times before, during, and after the research is completed.

3. I understand it is not permitted to contact FLVS personnel directly and that I must contact the FLVS Research Manager for all data, interview, or other research needs from FLVS.

4. I understand that FLVS will review my research findings prior to dissertation or prospectus defense, publication, presentation, and/or any and all correspondence regarding this research project.

5. I understand that FLVS reserves the right to remove its name from my research findings prior to dissertation or prospectus defense, publication, presentation, and/or any and all correspondence regarding this research project.

6. Any data or information gathered for this research project will be used solely for the project outlined above; I understand that additional research projects using this data and/or information will need to be approved in advance by the FLVS Research Committee.

7. I understand that I will have 18 months from the date of approval to complete this research project; if additional time is needed, I will need to submit a request to the FLVS Research Committee for an extension with an explanation as to why an extension is needed and the new anticipated completion date.

8. I understand that FLVS will post a minimum of the abstract of my manuscript, and possibly the entire manuscript, on their research website at the following address:
   http://www.flvs.net/educators/Pages/ResearchOpportunities.aspx

9. I understand that I will be asked to complete fingerprinting and a background check prior to the release of data and/or access to faculty/staff or students. (Fingerprinting can be done at our contracted provider with locations nationwide at a cost to the researcher.)

10. I understand that I need to have my completed research request proposal notarized for consideration. The notary can be completed on the final page of this document.

11. I understand that I will need to complete a Non-Disclosure Agreement prior to dissemination of data and/or information

12. I understand that I must submit IRB approval prior to dissemination of data and/or information.
The FLVS Research Committee will be assessing your proposal using the following rubric:

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<th>Area</th>
<th>Ranking (1-5)</th>
<th>Comments</th>
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<td>The overall purpose of the study is clear.</td>
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<td>The intended audience is identified.</td>
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<td>The timeline of the project is clear and feasible.</td>
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<td>The research questions are relevant and clear.</td>
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<td>FLVS is able to provide the data requested.</td>
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<td>The financial costs (including human resources) to FLVS are minimal, and the perceived benefit to FLVS is appreciable.</td>
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<td>Issues of confidentiality are sufficiently addressed.</td>
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<td>The literature review and/or dissertation prospectus demonstrates a need for the research to be conducted.</td>
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<tr>
<td>The survey/interview questions were included and support the research: (enter &quot;5&quot; if this is N/A to the study).</td>
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<td>IRB approval is provided.</td>
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Please have your completed Research Request Proposal notarized below.

I, Tyler D'Angelo, being duly sworn, have carefully read this application in its entirety and certify the information herein is true or true to the best of my knowledge and belief. I fully understand failure to make a truthful disclosure of any fact or item of information required may result in the denial of my application, revocation of my Board Certification if granted, or disciplinary action by Florida Virtual School. STATE OF Florida.

Signature of Applicant COUNTY OF Alachua.

The foregoing instrument was sworn to and subscribed before me this 16th day of August, 2018, by Tyler D'Angelo, who personally appeared before me at the time of notarization, and who is personally known to me or who has produced as identification.

NOTARY PUBLIC: Sign Catherine L. Clark (Seal)
Print Catherine L. Clark
Fleetwood, April <afleetwood@flvs.net>
Mon 10/29, 3:24 PM

Good afternoon, Tyler. Great news—we will be able to forge ahead with your study. I need to review a couple of things with you before we begin. Do you have any free time for about 15 minutes to chat over the phone tomorrow? Please forward this information to your advisor, as well.
Thanks,
April

April Fleetwood, Ed D.
Research and Evaluation Administrator – Analysis, Assessment, and Accountability
C: 352.219.0494
afleetwood@flvs.net
www.flvs.net
flvs

2145 Metrocenter Blvd., Suite 100, Orlando, FL 32835
APPENDIX F
NON-DISCLOSURE AGREEMENT FORM

MUTUAL NONDISCLOSURE AGREEMENT

This Mutual Nondisclosure Agreement (this “Agreement”) is made and entered into as of 10/20/18 by and between Florida Virtual School, a state of Florida entity, and University of Florida (referred to from this point as “Company”). Florida Virtual School (FLVS) and the Company agree as follows:

1. Purpose. The parties wish to explore a business opportunity of mutual interest and in connection with this opportunity, each party may disclose to the other certain confidential technical and business information that the disclosing party desires the receiving party to treat as confidential.

2. "Confidential Information" means any information disclosed by either party to the other party, either directly or indirectly, in writing, orally or by inspection of tangible objects (including without limitation documents, prototypes, samples, plant and equipment), which is designated as "Confidential," "Proprietary" or some similar designation. Information communicated orally shall be considered Confidential Information if such information is confirmed in writing as being Confidential Information within a reasonable time after the initial disclosure. Confidential Information may also include information disclosed to a disclosing party by third parties. Confidential Information shall not, however, include any information which: (i) was publicly known and made generally available in the public domain prior to the time of disclosure by the disclosing party; (ii) becomes publicly known and made generally available after disclosure by the disclosing party to the receiving party through no action or inaction of the receiving party; (iii) is already in the possession of the receiving party at the time of disclosure by the disclosing party as shown by the receiving party’s files and records immediately prior to the time of disclosure; (iv) is obtained by the receiving party from a third party without a breach of such third party’s obligations of confidentiality; (v) is independently developed by the receiving party without use of or reference to the disclosing party’s Confidential Information, as shown by documents and other competent evidence in the receiving party’s possession; or (vi) is required by law to be disclosed by the receiving party, provided that the receiving party gives the disclosing party prompt written notice of such requirement prior to such disclosure and assistance in obtaining an order protecting the information from public disclosure.

3. Non-use and Non-disclosure. Each party agrees not to use any Confidential Information of the other party for any purpose except to evaluate and engage in discussions concerning a potential business relationship between the parties. Each party agrees not to disclose any Confidential Information of the other party to third parties or to such other party’s employees, except to those employees of the receiving party who are required to have the information in order to evaluate or engage in discussions concerning the contemplated business relationship. Neither party shall reverse engineer, disassemble or decompile any prototypes, software or other tangible objects which embody the other party’s Confidential Information and which are provided to the party hereunder.

4. Maintenance of Confidentiality. Each party agrees that it shall take reasonable measures to protect the secrecy of and avoid disclosure and unauthorized use of the Confidential Information of the other party. Without limiting the foregoing, each party shall take at least those measures that it takes to protect its own most highly confidential information and shall ensure that its employees who have access to Confidential Information of the other party have signed a non-use and non-disclosure agreement in content similar to the provisions hereof, prior to any disclosure of Confidential Information to such employees. Neither party shall make any copies of the Confidential Information of the other party unless the same are previously approved in writing by the other party. Each party shall reproduce the other party’s proprietary rights notices on any such approved copies, in the same manner in which such notices were set forth in or on the original.

5. No Obligation. Nothing herein shall obligate either party to proceed with any transaction between them, and each party reserves the right, in its sole discretion, to terminate the discussions contemplated by this Agreement concerning the business opportunity.

6. No Warranty. ALL CONFIDENTIAL INFORMATION IS PROVIDED “AS IS”. EACH PARTY MAKES NO WARRANTIES, EXPRESS, IMPLIED OR OTHERWISE, REGARDING ITS ACCURACY, COMPLETENESS OR PERFORMANCE.

7. Return of Materials. All documents and other tangible objects containing or representing Confidential Information which have been disclosed by either party to the other party, and all copies thereof which are in the possession of the other party, shall be and remain the property of the disclosing party and shall be promptly returned to the disclosing party upon the disclosing party’s written request.
8. **No License.** Nothing in this Agreement is intended to grant any rights to either party under any patent, mask work right or copyright of the other party, nor shall this Agreement grant any party any rights in or to the Confidential Information of the other party except as expressly set forth herein.

9. **Term.** The obligations of each receiving party hereunder shall survive until such time as all Confidential Information of the other party disclosed hereunder becomes publicly known and made generally available through no action or inaction of the receiving party.

10. **Remedies.** Each party agrees that any violation or threatened violation of this Agreement may cause irremediable injury to the other party, entitling the other party to seek injunctive relief in addition to all legal remedies.

11. **Solicitation of Employees.** Each Party (FLVS and Contractor) agrees that, during the Term of this Agreement and for a period of twelve months following the termination of this Agreement for any reason, such Party shall not, directly or indirectly, on its own behalf or as a representative of any other person or entity, solicit or induce any employee of the other Party to terminate his or her employment relationship or to enter into employment with any other person or entity.

12. **Public Records.** Florida Virtual School is a public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida’s Public Records Law including: (a) keeping and maintaining public records that ordinarily and necessarily would be required by the BOARD in order to perform the service; (b) providing the public with access to public records on the same terms and conditions that the BOARD would provide the records and at a cost that does not exceed the cost provided in chapter or as otherwise provided by law; (c) ensuring that public records that are exempt or that are confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law, and (d) meeting all requirements for retaining public records and transfer at no cost to the BOARD, all public records in possession of the contractor upon termination of the Agreement and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the BOARD in a format that is compatible with the information technology systems of the BOARD. The parties agree that if the contractor fails to comply with a public records request, then Florida Virtual School must enforce the contract provisions in accordance with the contract and as required by Section 119.0701, Florida Statutes.

**IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT, CustodianofRecords@flvs.net, OR BY PHONE 407-513-3325, OR BY MAIL TO: 2145 METROCENTER BLVD., SUITE 100, ORLANDO, FL 32835.**

13. **Miscellaneous.** This Agreement may be executed in one or more counterparts, each of which shall be an original and all of which together shall constitute one instrument. This Agreement shall bind and inure to the benefit of the parties hereto and their successors and assigns. This Agreement shall be governed by the laws of the State of Florida, without reference to conflict of laws principles. In any action arising out of or related to this Agreement, the parties hereto consent to the exclusive jurisdiction and venue in the courts located in the Orange County of Florida. This document contains the entire agreement between the parties with respect to the subject matter hereof, and neither party shall have any obligation, express or implied by law, with respect to trade secret or proprietary information of the other party except as set forth herein. Any failure to enforce any provision of this Agreement shall not constitute a waiver thereof or of any other provision. This Agreement may not be amended, nor any obligation waived, except by a writing signed by both parties hereto.
IN WITNESS WHEREOF, the parties have caused this Mutual Nondisclosure Agreement to be executed by their duly authorized representatives as of the date first written above.

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<th>Florida Virtual School</th>
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<tr>
<td>Signature:</td>
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<tr>
<td>Print Name: Tyler L. D'Angelo</td>
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<tr>
<td>Title: Graduate Assistant</td>
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<td>Company/School/District:</td>
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<tr>
<td>University of Florida</td>
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<tr>
<td>Phone Number:</td>
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<tr>
<td>Email: <a href="mailto:Tylerdan3@ufl.edu">Tylerdan3@ufl.edu</a></td>
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APPENDIX G
STUDENT ASSENT LETTER

Description of the Study & Your Part In It
Dr. J.C. Bunch, Dr. Brian Myers, and Mr. Tyler D'Angelo are inviting you to take part in a research study. Dr. Bunch and Dr. Myers are faculty members at the University of Florida, and Mr. D'Angelo is an agricultural education graduate student at the University of Florida. The purpose of this study is to examine the relationship between career self-efficacy, self-regulated learning behaviors, academic achievement, and attributes of students in online career and technical education courses.

Your part in the study will be to complete the survey. It will take you about 15 to 20 minutes to complete the survey for this study.

Risks and Discomforts
There are no anticipated risks or discomforts to you by participating in this research study.

Possible Benefits
The data collected from this survey will help instructors better prepare students for lifelong careers upon graduation through online instruction.

Incentives
No incentives will be provided.

Protection of Privacy and Confidentiality
We will do everything we can to protect the confidentiality of the data. Electronic survey responses will be stored with the principal investigator and analyzed with the assistance of the co-investigators. The results of this study may be published in scientific journals, professional publications, or educational presentations; however, no individual participant will be identified.

Choosing to Be in the Study
Your participation in this study is not a requirement and is completely voluntary. You may choose not to take part and you may choose to stop taking part at any time. You will not be punished in any way if you decide not to be in the study or to stop taking part in the study.

Contact Information
If you have any questions about this research protocol, please contact April Fleetwood at (352) 219-0494 or via email at afleetwood@flvs.net. Questions or concerns about your rights as a researcher participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.
Dear Parent/Guardian,

As a future educator in Florida, it is my goal to make sure that students are provided as many opportunities to help them with their academic and career success. It is my desire to help students taking FLVS courses to be successful in preparing for various careers. I am currently working on my graduate degree in the Department of Agricultural Education and Communication at the University of Florida. I am conducting research that is exploring the influence of career self-efficacy and self-regulated learning behaviors on academic achievement under the supervision of Dr. Brian Myers.

The purpose of this study is to examine the relationship between career decision-making self-efficacy, self-regulated learning behaviors, academic achievement, and student attributes. The results of this study may help instructors better prepare students for lifelong careers upon graduation.

Your child will not have to do anything extra to participate in this study. The survey will be administered on the FLVS student portal and will take approximately 15-20 minutes to complete. Your child’s identity will be kept confidential to the extent of the law.

Your child’s participation in this study is voluntary. You and your child have the right to withdraw consent for your child’s participation at any time without consequence. No compensation will be offered for participants.

If you have any questions about this research protocol, please contact April Fleetwood at (352) 219-0494 or via email at afleetwood@flvs.net. Questions or concerns about your child’s rights as a researcher participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Parent Informed Consent Form

Please respond to one of the following statements below.

- I have read the procedure described above. I voluntarily give consent for my child to participate in this study. I have received a copy of this description.
- I do not voluntarily give consent for my child to participate in this study.
APPENDIX I
INFORMED CONSENT FORM (18 AND OLDER)

Dear FLVS Student,

As a future educator in Florida, it is my goal to make sure that students are provided as many opportunities to help them with their academic and career success. It is my desire to help students taking FLVS courses to be successful in preparing for various careers. I am currently working on my graduate degree in the Department of Agricultural Education and Communication at the University of Florida. I am conducting research that is exploring the influence of career self-efficacy and self-regulated learning behaviors on academic achievement under the supervision of Dr. Brian Myers.

The purpose of this study is to examine the relationship between career decision-making self-efficacy, self-regulated learning behaviors, academic achievement, and student attributes. The results of this study may help instructors better prepare students for lifelong careers upon graduation.

You will not have to do anything extra to participate in this study. The survey will be administered on the FLVS student portal and will take approximately 15-20 minutes to complete. Your identity will be kept confidential to the extent of the law.

Your participation in this study is voluntary. You have the right to withdraw consent for your participation at any time without consequence. No compensation will be offered for participation.

If you have any questions about this research protocol, please contact April Fleetwood at (352) 219-0494 or via email at afleetwood@flvs.net. Questions or concerns about your rights as a researcher participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611. (352) 392-0433.

Informed Consent Form

Please respond to one of the following statements below.

☐ I voluntarily agree to participate in the study and I have received a copy of this description. I have read the procedure described above.

☐ I do not voluntarily agree to participate in the study.
Dear FLVS Students,

Please be sure to respond to the following survey from the University of Florida if you have not done so already. The following survey can be taken at: https://survey.ax1.qualtrics.com/jfe/form/SV_5v7zU0zz1DrhS5n7

Thank you!

Dear FLVS Students,

Please be sure to respond to the following survey from the University of Florida if you have not done so already by December 14th, 2018. The following survey can be taken at: https://survey.ax1.qualtrics.com/jfe/form/SV_5v7zU0zz1DrhS5n7

Thank you!
APPENDIX K
SELF-REGULATED ONLINE LEARNING QUESTIONNAIRE (SOL-Q)

The self-regulated online learning questionnaire (SOL-Q)

**Metacognitive skills**

1. I think about what I really need to learn before I begin a task in this online course.
2. I ask myself questions about what I am to study before I begin to learn for this online course.
3. I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the whole online course).
4. I set goals to help me manage my studying time for this online course.
5. I set specific goals before I begin a task in this online course.
6. I think of alternative ways to solve a problem and choose the best one for this online course.
7. I try to use strategies in this online course that have worked in the past.
8. I have a specific purpose for each strategy I use in this online course.
9. I am aware of what strategies I use when I study for this online course.
10. Although we don’t have to attend daily classes, I still try to distribute my studying time for this online course evenly across days.
11. I periodically review to help me understand important relationships in this online course.
12. I find myself pausing regularly to check my comprehension of this online course.
13. I ask myself questions about how well I am doing while learning something in this online course.
14. I think about what I have learned after I finish working on this online course.
15. I ask myself how well I accomplished my goals once I’m finished working on this online course.
16. I change strategies when I do not make progress while learning for this online course.
17. I find myself analyzing the usefulness of strategies while I study for this online course.
18. I ask myself if there were other ways to do things after I finish learning for this online course.

**Time management**

19. I find it hard to stick to a study schedule for this online course.
20. I make sure I keep up with the weekly readings and assignments for this online course.
21. I often find that I don’t spend very much time on this online course because of other activities.
Environmental structuring

22. I choose the location where I study for this online course to avoid too much distraction.
23. I find a comfortable place to study for this online course.
24. I know where I can study most efficiently for this online course.
25. I have a regular place set aside for studying for this online course.
26. I know what the instructor expects me to learn in this online course.

Persistence

27. When I am feeling bored studying for this online course, I force myself to pay attention.
28. When my mind begins to wander during a learning session for this online course, I make a special effort to keep concentrating.
29. When I begin to lose interest for this online course, I push myself even further.
30. I work hard to do well in this online course even if I don’t like what I have to do.
31. Even when materials in this online course are dull and uninteresting, I manage to keep working until I finish.

Help seeking

32. When I do not fully understand something, I ask other course members in this online course for ideas.
33. I share my problems with my classmates in this course online so we know what we are struggling with and how to solve our problems.
34. I am persistent in getting help from the instructor of this online course.
35. When I am not sure about some material in this online course, I check with other people.
36. I communicate with my classmates to find out how I am doing in this online course.

Items are answered on a 7-point Likert scale, ranging from “not at all true for me” (= 1) to “very true for me” (= 7). All items are presented in randomized order.
APPENDIX L
CAREER DECISION-MAKING SELF-EFFICACY SHORT FORM (CDSE-SF)

CDSE–Short Form

INSTRUCTIONS: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the key. Mark your answer by filling in the correct circle on the answer sheet.

<table>
<thead>
<tr>
<th>NO CONFIDENCE</th>
<th>VERY LITTLE CONFIDENCE</th>
<th>MODERATE CONFIDENCE</th>
<th>MUCH CONFIDENCE</th>
<th>COMPLETE CONFIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT ALL</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: How much confidence do you have that you could:

a. Summarize the skills you have developed in the jobs you have held?

If your response was 'Moderate Confidence,' you would fill out the number 3 on the answer sheet.

HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

1. Use the internet to find information about occupations that interest you.
2. Select one major from a list of potential majors you are considering.
3. Make a plan of your goals for the next five years.
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major.
5. Accurately assess your abilities.
6. Select one occupation from a list of potential occupations you are considering.
7. Determine the steps you need to take to successfully complete your chosen major.
8. Persistently work at your major or career goal even when you get frustrated.
9. Determine what your ideal job would be.
10. Find out the employment trends for an occupation over the next ten years.
11. Choose a career that will fit your preferred lifestyle.
12. Prepare a good resume.
13. Change majors if you did not like your first choice.
15. Find out about the average yearly earnings of people in an occupation.
16. Make a career decision and then not worry whether it was right or wrong.
17. Change occupations if you are not satisfied with the one you enter.
18. Figure out what you are and are not ready to sacrifice to achieve your career goals.
19. Talk with a person already employed in a field you are interested in.
20. Choose a major or career that will fit your interests.
21. Identify employers, firms, and institutions relevant to your career possibilities.
22. Define the type of lifestyle you would like to live.
23. Find information about graduate or professional schools.
24. Successfully manage the job interview process.
25. Identify some reasonable major or career alternatives if you are unable to get your first choice.

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### APPENDIX M
DEMOGRAPHIC INFORMATION SURVEY QUESTIONNAIRE (DIQ)

**What is your gender?**
- Male
- Female
- Prefer Not To Respond/ Other

**What year in school are you?**
- Freshman
- Sophomore
- Junior
- Senior

**Are you Hispanic/ Latino?**
- Yes
- No

**What is your race?**
- Caucasian/ White
- African American/ Black
- American Indian or Alaskan Native
- Asian
- Native Hawaiian or Pacific Islander
- Other

**Are you currently employed?**
- Yes
- No
Please indicate the number of online classes that you have previously taken or are currently taking (including this course).

1
2
3
4
5 or more

Please indicate what FLVS online course you are enrolled in:

What is your age?

What is your current household income?

$0-$9,999
$10,000-$19,999
$20,000-$29,999
$30,000-$39,999
$40,000-$49,999
$50,000-$59,999
$60,000-$69,999
$70,000 or more
Unsure or Prefer Not to Say
What is your current grade for your online course?

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100% to 94%</td>
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<tr>
<td>A-</td>
<td>&lt; 94% to 90%</td>
</tr>
<tr>
<td>B+</td>
<td>&lt; 90% to 87%</td>
</tr>
<tr>
<td>B</td>
<td>&lt; 87% to 84%</td>
</tr>
<tr>
<td>B-</td>
<td>&lt; 84% to 80%</td>
</tr>
<tr>
<td>C+</td>
<td>&lt; 80% to 77%</td>
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<tr>
<td>C</td>
<td>&lt; 77% to 74%</td>
</tr>
<tr>
<td>C-</td>
<td>&lt; 74% to 70%</td>
</tr>
<tr>
<td>D+</td>
<td>&lt; 70% to 67%</td>
</tr>
<tr>
<td>D</td>
<td>&lt; 67% to 64%</td>
</tr>
<tr>
<td>D-</td>
<td>&lt; 64% to 61%</td>
</tr>
<tr>
<td>E</td>
<td>&lt; 61% to 0%</td>
</tr>
<tr>
<td>Unsure or Prefer Not To Say</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF REFERENCES


Horn, M. B. (2013). Digital roundup: states legislatures scramble to boost, or in some cases block, online learning. Education Next, (4), 22.


BIOGRAPHICAL SKETCH

Tyler Lee D’Angelo was born and raised in Deland, Florida. His interest in agriculture was sparked after enrolling in agricultural education courses in high school. He became an active member of the National FFA Organization and his local 4-H club during his time in high school. During his time in both organizations, Tyler went on to serve as Vice-President of his local FFA chapter and was slated as a Florida FFA State Officer Candidate.

After graduating with honors from Deland High School (Deland, Florida) in 2013, he went on to pursue a degree in agricultural education from Abraham Baldwin Agricultural College (ABAC). During his time at ABAC, he was involved in ABAC’s Student Government Association (SGA) and collegiate FFA organization. Tyler went on to serve as a Senator for the school of agriculture and natural resources. He graduated magna cum-laude in the spring of 2015.

Upon completing his time at ABAC, Tyler transferred to the University of Florida to complete a bachelor’s degree in agricultural education and communication. As an undergraduate student, Tyler was involved with many professional organizations. Tyler served as a National Teach Ag Ambassador, under the leadership of the National Association of Agricultural Educators, for the University of Florida. During his time as ambassador, where he worked to promote the agricultural education profession through his travels across the United States. Tyler completed his degree with honors after completing his student teaching internship at Lafayette County Middle-High School in Mayo, Florida.

Tyler began the master’s program during the fall of 2017. During his time as a graduate student, he worked to promote the Florida Youth Institute as a camp counselor.
and staff member. He continued his work by volunteering with the Global Youth Institute in Des Moines, Iowa by serving on the Board of Reviewers. Tyler continued to expand his network by eventually working for Florida Ag in the Classroom as a facilitator. To date, Tyler serves as the lead teaching assistant for the AEC 3030 course, *Effective Oral Communication in Agricultural and Life Sciences*. 