Examining Self-Regulation, Satisfaction, and Completion in Self-Paced Online Professional Development

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DEDICATION

For Coco

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ABSTRACT

Self-paced online learning is largely self-regulated (Koçdar et al., 2018), and purposeful Self-Regulation (SR) is a necessity for adult learners in self-paced online learning environments (Hodges et al., 2016; Kizilcec et al., 2017; Lee et al., 2021; Ranieri et al., 2018; Wijekumar et al., 2006). In these environments, where learners experience little to no social interaction (Naidu, 2008; Thiessen, 2016; Yan, 2020; Yan, Lin, et al., 2021), the use of Self-Regulated Learning (SRL) strategies become ever more critical (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021; Xu et al., 2022). There is a growing number of studies examining self-paced Online Professional Development (OPD) (Asgar & Ratra, 2020; Chen et al., 2023; Dhaliwal et al., 2018; Gumbo & Twinomurinzi, 2023; Ranieri et al., 2018; Rhode & Krishnamurthi, 2016; Rizzuto, 2017). Some consider the complex relationship between self-regulation and satisfaction (Cho & Heron, 2015; Kim & Hodges, 2012; Wolters, 2003), but few focus on the link between self-regulation, specifically SRL strategies, learner satisfaction, and completion of self-paced OPD. The purpose of this study was to understand the role of SRL strategies and their influence on learner satisfaction and completion in self-paced OPD learning environments. This study engaged a nonexperimental, descriptive correlational research design using quantitative methods to explore the relationships among SRL strategies, learner satisfaction, and completion in a self-paced OPD course. Descriptive correlational research designs describe the variables and the relationships between variables. Data collection methods consisted of a survey and follow-up questions. This study analyzed the extent to which participants used SRL strategies and their satisfaction with and completion of self-paced

OPD. Survey data were analyzed using descriptive statistics, correlational analyses, logistic regression, multiple regression, and MANOVA. Follow-up questions were analyzed using qualitative techniques. Results indicated participants use SRL strategies. However, in alignment with previous research, satisfaction and completion in self-paced online courses were low. Finally, I discuss theoretical, conceptual, and practical implications and recommendations.

Keywords: Online learning, self-paced, online professional development, self-regulation, professional development, higher education, self-regulated learning strategies, satisfaction with online learning, completion of online learning

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

HE – Higher Education

ID – Instructional Design

IHE – Institutions of Higher Education

MOOCS – Massive Open Online Courses

MSLQ – Motivated Strategies for Learning Questionnaire

OPD – Online Professional Development

OSLQ – Online Self-Regulated Learning Questionnaire

PD – Professional Development

SCT – Social Cognitive Theory

SLT – Social Learning Theory

SPO – Self-Paced Online

SR – Self-Regulation

SRL – Self-Regulated Learning

SRQ – Self-Regulation Questionnaire

SRT – Self-Regulation Theory

CHAPTER ONE

INTRODUCTION

This research explores how learners self-regulate and their satisfaction with self-paced Online Professional Development (OPD). Specifically, this study examines the relationships among Self-Regulated Learning (SRL) strategies, learner satisfaction, and learner completion in self-paced OPD environments offered in a higher education context for educators (i.e., faculty, instructors, and instructional designers).

For educators, professional development (PD) can improve the quality of course design and teaching, helping to bridge the gap between theory and practice. However, today's institutions of higher education (IHE) confront reduced budgets and dwindling support for professional development (Blumenstyk, 2015; Meyer, 2014). Therefore, institutions need to come up with innovative faculty development activities that provide the greatest gains from limited resources (Elliott et al., 2015) such as self-paced OPD. Self-paced online learning is purported to be more cost-effective (Gatta, 2003). Rhode and Krishnamurthi (2016) declared the cost-efficiency of online training, stating that self-paced online training can train faculty more rapidly than costly training programs. In a large-scale study for the Navy, Carey et al. (2010) found self-paced courses reduced times to train by 22%, which translated to a savings of about 3.5 million dollars per year. While reducing costs, self-paced online learning offers the potential to reach more learners (Thiessen, 2016).

In addition to its potential for being cost-effective and cost-efficient, self-paced OPD is advantageous because it is flexible and accessible without great effort. Self-paced online learning can be accessed on demand, 24 hours per day, 7 days a week. When a learner has the time and inclination, they can begin, continue, or finish self-paced OPD.

Self-paced online learning allows students to learn at their own pace. Learners can work rapidly through familiar material but slow down when they need to focus on new material (Paranto & Neumann, 2006).

There is no formal or universally accepted definition of self-paced online learning or self-paced e-learning (Ritzhaupt, 2019). Self-paced or learner-paced implies the learner is in control of and responsible for their learning; they determine the rate at which they advance through and complete a course (Naidu, 2008). The terms e-learning, online learning, and distance learning are used inconsistently throughout literature and are often used interchangeably; there is no consensus among researchers for how each of these terms should be defined (Moore et al., 2011). For the purposes of this study, I will define self-paced online learning as instructional content delivered through a Course Management System (CMS) or a Learning Management System (LMS) via the Internet in a self-paced asynchronous (accessed at a time, pace, and place determined by the learner and not faculty led or mediated) format.

In pursuit of PD, educators must overcome many challenges: a lack of time, time conflicts, and time constraints due to workplace responsibilities (Dailey-Hebert et al, 2014; Elliott et al., 2015; Lowenthal, 2008; McMartin et al., 2008; Nellis et al., 2002; Sener & Hawkins, 2007; Thomas et al., 2012), faculty isolation (Miller, 2015), dissatisfaction with program delivery methods (Dailey-Hebert et al., 2014) and a nescience of available programming or a lack of interest in the programming (Dailey-Hebert et al., 2014; Elliott et al., 2015; Lian, 2014). To alleviate some of these challenges, institutions of higher education (IHE) are offering more OPD opportunities including self-paced OPD options. Added to these are a number of self-paced OPD options available outside of IHEs (e.g., LinkedIn Learning, Coursera, edX and Canvas.net).

However, self-paced online learning has some limitations. For example, self-paced online courses have very limited to no social interaction (Russell, Kleiman, et al., 2009; Yan, 2020; Thiessen, 2016). They are self-directed and not instructor-led, which reduces the opportunity to interact with an instructor, facilitator, or learning designer. In self-paced environments, learners access the course at different times, ranging from every day, to once a week, or even once a month, making it difficult to create any meaningful connection with other learners. Participants typically only have access to an online coordinator who answers technical questions or refers learners to other materials (Russell, Kleiman, et al., 2009). These limitations may contribute to the low participation rates of OPD (Lian, 2014) and to the low completion rates of self-paced online courses (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Educators even reported feeling dissatisfied with OPD initiatives, preferring traditional face-to-face offerings (Balayan, 2016).

The use of self-regulatory strategies is important in online learning environments (Cho & Kim, 2013) and critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). With little to no opportunities for social interaction, self-paced online environments can be isolating. Feelings of isolation can generate negative emotions, and negative emotions can affect learners' self-regulatory behaviors, which in turn can negatively impact their motivation (Kim & Hodges, 2012; Wolters, 2003), and satisfaction with self-paced online learning environments (Cho & Heron, 2015). However, learners who use self-regulatory strategies have higher self-efficacy and are more likely to complete self-paced online courses even with little to no social interaction (Koçdar et al., 2018; Littlejohn et al., 2016).

Massive Open Online Courses or MOOCs are very large open-access online courses; some are self-paced, and some are instructor-led but most are asynchronous with varying degrees of student-student and student-instructor interaction. Most learners who complete MOOCs already have a college degree and some even have a graduate degree (DeVore et al., 2017), suggesting college graduates have the self-regulatory skills and motivation to complete self-paced online courses. However, they represent only a small percentage of individuals taking MOOCs, which overall have very low participation and completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). As college graduates, faculty should possess the SRL skills to be successful in self-paced online learning environments.

In recent years, there have been a growing number of studies examining self-paced OPD (Dhaliwal et al., 2018; Ranieri et al., 2018; Rhode & Krishnamurthi, 2016; Rizzuto, 2017) some drawing conclusions about the design of self-paced training, but few focus on the link between self-regulation, learner satisfaction, and completion of self-paced OPD. Thus, there is a real need to understand the role of self-regulation and SRL strategies and their influence on faculty satisfaction and completion in self-paced OPD learning environments. A better understanding of how these variables relate could lead to improved self-paced OPD. Without an understanding, IHE could squander resources on what they believe to be a cost-effective solution.

Problem Statement

Self-paced OPD can be costly and not well-attended. Self-paced asynchronous online learning environments with their limited social interaction and low completion rate create challenges for faculty seeking PD in light of the many barriers—time conflicts and constraints, technological challenges, and faculty isolation—they have to overcome. For designers of self-paced OPD, the barriers experienced by educators make it even more challenging to create environments that satisfy learners and increase the likelihood they will complete the course. Self-paced online learning is largely self-regulated (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021), and purposeful self-regulation is a necessity for adult learners in self-paced online learning environments (Hodges et al., 2016; Ranieri et al., 2018; Wijekumar et al., 2006). In these environments where learners experience little to no social interaction (Naidu, 2008; Yan, 2020; Thiessen, 2016), the use of SRL strategies become ever more important (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021; Xu et al., 2022). There is a growing number of studies examining self-paced OPD (Dhaliwal et al., 2018; Ranieri et al., 2018; Rhode & Krishnamurthi, 2016; Rizzuto, 2017). Some consider the complex relationship between self-regulation and satisfaction (Cho & Heron, 2015; Kim & Hodges, 2012; Wolters, 2003), but few focus on the link between self-regulation (SR), specifically SRL strategies, learner satisfaction, and completion of self-paced OPD. Thus, there is a real need to understand the role of SRL strategies and their influence on learner satisfaction and completion in self-paced OPD learning environments.

Study Purpose

The purpose of this study is to explore the relationships among learners' characteristics, SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation), satisfaction (hard to learn--easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying), and completion in self-paced OPD environments offered in a higher education context for educators (i.e., faculty, instructors, and instructional designers).

Research Questions

1) Who are educators (what are their characteristics) pursuing self-paced OPD and to what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?
2) How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how do they relate to educator characteristics?
3) How does the use of SRL strategies affect completion in a self-paced OPD course? Which SRL strategies predict learner satisfaction?
4) How does learner satisfaction impact completion and how does completion impact satisfaction in a self-paced OPD course?

Scholarly Significance/Implications

The importance of SRL in an online environment is well documented but, given the limitations of the environment demonstrated by low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018), more needs to be understood about how individuals self-regulate in online self-paced environments. Additionally, only limited research exists examining SRL strategies and their relationship to satisfaction with and completion of self-paced online courses. Furthermore, the scales specifically developed for measuring self-regulation (Koçdar et al., 2018) and satisfaction (Ritzhaupt, 2019) in self-paced online learning environments are relatively new and applying them to a specific self-paced online learning environment such as professional development could add to existing research. Additionally, measuring the SRL skills of educators in self-paced online learning environments could provide a detailed understanding of how educators self-regulate in this environment. Finally, study results could identify areas for improving self-regulatory supports in self-paced online learning environments which could potentially lead to recommendations for instructional designers, teachers, and trainers.

Assumptions, Delimitations, and Limitations

Assumptions

There are a few assumptions to this study. First, this study assumes that participants will possess SRL skills. Given that participants signed up for OPD courses on the Coursera, edX, and Canvas.net networks, which offer courses in higher education contexts, it is assumed that most participants will be college graduates. According to DeVore et al. (2017), participants with college degrees are more likely to have the self-regulatory skills and motivation to complete self-paced online courses. Second, it assumes that instructors will build courses that include SRL strategies to support learners. Third, this study assumes that professional development is sought out by individuals and not assigned or required by an organization. Finally, it assumes that participants taking OPD courses are not cherry-picking content and intend to complete the course.

Delimitations

This study is delimited by the sample and the context. A nonrandom self-selection sample was used in this study. Data was collected from consenting participants taking self-paced OPD courses available through the Coursera, edX, and Canvas.net platforms.

Limitations

There are limitations associated with this study. These limitations relate to self-paced online course design, the sample and population, the participants, and the study instruments.

Self-paced online course design. This study may be limited by the design of the self-paced online training taken by educators. Their perceptions of an online course that is not engaging may affect satisfaction and completion rates. Poorly designed training could limit users just as well-designed training may attract users and potentially return users. If poorly designed, the self-paced online training could affect whether it is used and whether it continues to be used (user persistence). Professional development opportunities should meet the needs of faculty. Not conducting a needs analysis or learner analysis as part of the course design process may result in a course that does not meet learner needs. In addition, studies show that if a design is visually appealing and easy to use, people are motivated to use it (Bezerra-Barbosa & Pino-Juste, 2011; Carroll & Kop, 2016; Pinicotti & Verba, 2013), which may increase user persistence and, in turn, satisfaction and completion. If all educators surveyed took the same self-paced online course and that course was poorly designed, it could influence the study. However, this study's survey was disseminated in several self-paced online OPD courses.

Sample and population. The sample was entirely made up of volunteers, which is biased and can affect the internal and external validity of a research design (Bordens & Abbott, 2014). Volunteerism may cause slight variations in volunteer related dependent variables affecting "inferred causality" (Rosenthal & Rosnow, 1975) and, therefore, internal validity. According to Huck (2012), using volunteers can limit "the valid range of generalization" (p. 7), and reduce external validity. Using volunteers can also lead to self-selection bias; a participant's decision to participate could reveal an inherent bias toward, for example, self-regulation, professional development, online courses, or self-directed learning.

Participants. Since this study uses survey instruments that ask participants to report their perceptions, it is limited by self-report bias, which can cause reliability and validity problems. With self-report methods, participants may report what they believe paints them in a positive light, convey what they believe is expected by the researcher, or exaggerate their feelings, knowledge, or beliefs. However, this study employed an Internet survey and using this type of survey can produce comparable results to those of traditional surveys, if it is not asking participants to report on sensitive issues and consideration is given to sampling, reliability, and validity (Bordens & Abbott, 2014).

Instruments. Although information regarding reliability and validity is known about the instruments—scale for measuring self-regulation in self-paced open and distance learning environments (Koçdar et al., 2018) and the Electronic Learner Satisfaction Scale (eLSS) (Ritzhaupt, 2019)—as of the time of the writing of this study, they had not been tested in many self-paced online environments (e.g., mobile, simulation, educational gaming, and other virtual learning environments). More research with other audiences in other courses accessed via other technologies will be needed to gain a better understanding of the capabilities of these instruments.

Conceptual Framework

This study explores the use of SRL strategies in self-paced OPD courses. Through the literature review, I identified the context, OPD and self-paced online learning in higher education, and the constructs and variables, SRL strategies, satisfaction, and completion, and the theory underpinning this study, self-regulated learning. The conceptual framework outlines this study's variables and how I expect SRL strategies, satisfaction, and completion of self-paced online OPD to relate to each other and explore the relationship between them. Constructing a conceptual framework helped me define the variables, determine survey questions and data points, and it provides a platform from which to create or predict. Included in the conceptual framework is a theoretical framework, which describes the theories underpinning the research problem. To gain an understanding of how theory, Self-Regulation Theory (SRT), relates to the constructs, I have included a theoretical framework; the lens through which I examine SRL strategies, satisfaction, and completion of self-paced online OPD. Since my conceptual framework is derived from my literature review, a more detailed conceptual framework and map will be presented in chapter three, methodology (Figure 2.6).

Definition of Terms

Asynchronous Online Learning

Asynchronous online learning environments are described as “in their own time, at their own pace, and from their own place” (Naidu, 2008, p. 259). For participants of asynchronous environments, learning occurs at different times and from different places but typically happens within a specified amount of time among a network of learners. Examples of asynchronous online learning include: self-paced online courses, MOOCs, discussion boards, social networks, and resource-sharing websites (Bates et al., 2016).

Completion

The process of finishing an online course including all content (e.g., materials, activities, quizzes, etc.). To reach a state of completion, conclusion, or reaching the end of an online course.

Distance Learning

Education that occurs over the internet when instructor and student are separated by place and by time. The terms online learning, e-learning, and distance learning are used inconsistently throughout literature; they are often used interchangeably (Moore et al., 2011).

e-Learning

Historically, researchers described e-learning as learning that uses tools that are either web-based, web-capable, or web-distributed (Nichols, 2003), while others indicate that it includes delivery methods such as CD-ROM, the Internet or Intranet (Benson et al., 2002; Clark, 2002) but also audio and videotape, interactive TV, and satellite broadcast (Ellis, 2004). The content delivered with these methods is intended to build skills that meet organizational or individual goals (Clark, 2002). Conducting a study to build a new definition of e-learning, Sangrà et al. (2012) concluded that "e-learning is part of the new dynamic that characterises educational systems at the start of the 21st century, resulting from the merge of different disciplines, such as computer science, communication technology, and pedagogy" (p. 154). They expect e-learning and therefore its definition to continue to evolve for some time. As a result, they indicate any new definitions need to be generic and flexible. The terms online learning, e-learning, and distance learning are used inconsistently throughout literature; they are often used interchangeably (Moore et al., 2011).

Online Learning

Learning experiences delivered online via the internet; there are no face-to-face meetings. The terms online learning, e-learning, and distance learning are used inconsistently throughout literature; they are often used interchangeably (Moore et al., 2011).

Online Professional Development (OPD)

OPD is PD in an online learning context. OPD is any PD delivered online, over the internet (Fishman, 2016). Delivery of OPD can be broadly described as asynchronous or synchronous.

Professional Development (PD)

Fishman (2016) defined PD as "learning activities related to the profession of teaching" (p. 14). Whether focusing on new technologies or good pedagogy, the goal of faculty development is professional growth by increasing knowledge or learning a new skill and applying it to practice. PD needs to be relevant, provide training for new skills, and vary in scope and duration (Wilson, 2012).

Satisfaction

In a broad sense, learner satisfaction is described by Chau (2017) as the "degree of enjoyment and gratification that a learner experience[s] through participation in workplace self-paced e-learning" (p. 343). Shee and Wang (2008) define satisfaction in a self-paced online environment as "the pleasure and contentment that one person feels when she/he does something or gets something that she/he wanted or needed to do or get" (p. 895).

Self-Paced Learning

Learners access activities, materials, and other content, selecting when, where, and how to study as they advance at their own pace through the course (Butler, 2002). For example, in a self-paced online course, learners may begin their courses at various times during the year and complete them at their own pace. In this type of flexible environment, learners are more independent and therefore self-direct and self-regulate their own pace and task toward learning (Garrison, 2000).

Self-Paced OPD

Self-paced OPD is OPD that occurs in self-paced online learning environment.

Social Learning Theory (SLT)

SLT claims that individuals acquire new information by observing and emulating modeled behavior.

Self-Regulated Learning (SRL)

Self-Regulation is defined by Panadero and Alonso-Tapia (2014) as "the control that students have over their cognition, behaviour, emotions and motivation through the use of personal strategies to achieve the goals they have established" (p. 450).

Self-Regulated Learning Strategies

SRL strategies are defined by Pintrich (1999) as "the strategies that students use to regulate their cognition as well as the use of resource management strategies that students use to control their learning" (p. 459). According to Schunk (2012b), the key processes of self-regulation are outcome expectations, values, goal setting, self-evaluation of goal progress, self-monitoring, cognitive modeling, and self-instruction. Zimmerman and Martinez-Pons (1986) identified SRL strategies such as self-evaluating, organizing and transforming, goal-setting and planning, and rehearsing. Dabbagh and Kisantas (2005) and Zimmerman and Risemberg (1997) refined SRL skills as goal-setting, coding and repeating, monitoring performance, requesting help, and self-confidence in ability. Koçdar et al. (2018) constructed a scale specifically for measuring SRL skills in a self-paced online environment. Scale items specific to learners in self-paced online environments, identified through factor analyses, include the SRL strategies goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation.

Self-Regulation Theory (SRT)

Self-Regulation refers to a learner's ability to act metacognitively, motivationally, and behaviorally as active agents of their own learning processes (Zimmerman, 2000), through the self-generated thoughts, feelings, and actions that they use to attain goals (Zimmerman & Schunk, 2003). Self-Regulated learners reach goals by managing and guiding their own thoughts, behaviors, and feelings.

Self-paced Online Learning

For the purposes of this study, self-paced online learning is defined as instructional content delivered through a Course Management System (CMS) or a Learning

Management System (LMS) via the Internet in a self-paced asynchronous (accessed at a time, pace, and place determined by the learner and not faculty led or mediated) format. Please see the Self-Paced Online Learning definition in Chapter Two Literature Review for a detailed definition and how I arrived at this definition.

Social Cognitive Theory (SCT)

SCT is a broad learning theory encompassing various theories centered on learning in a social environment and grounded by assumptions about human learning (Schunk, 2012a). The components of SCT are observational learning, triadic reciprocal causality, motivational influences, and self-efficacy.

Synchronous Online Learning

Synchronous online learning environments that are “at the same time and at the same pace.…but from different places” (Naidu, 2008, p. 260). Synchronous online learning is a real-time event. In these environments the virtual learning experience attempts to provide something similar to an in-person experience. Generally, in these environments, technology is not used to transform the learning experience, but is used to mimic a classroom experience (Bates et al., 2016). Examples of synchronous online learning include: webinars, distance education courses with virtual meetings, and virtual coaching.

Study Organization

This study is organized into six chapters. In chapter one, I introduced the study and include a problem statement, study purpose, research questions, study significance, assumptions and limitations, a brief introduction to the conceptual framework, and definitions of terms used in this study. The second chapter is a critical review of the literature applicable to this study. It explores the context (PD, OPD, self-paced learning), including the theory underpinning this study. In the third chapter, I present the methodology, which provides my conceptual framework, study purpose, and research questions, followed by the research design including study setting, participants, data collection processes, study procedures, and data analysis methods by research question. Chapter four will discuss and illustrate the study results. Chapter five will consist of a summary and discussion of results. Finally, chapter six discusses the implications of the finding and offers recommendations for further study.

CHAPTER TWO

LITERATURE REVIEW

Learning to self-regulate is essential to succeed in online environments. However, if we do not already know how to self-regulate before taking an online course, then taking an online course where there is no one to model behaviors would prove difficult and a self-paced online course even more difficult. What if a learner was not good at managing time or setting short term goals? What if they did not know how to create a productive work environment, organize and code information, or know how or where to seek help? To be successful, a learner would have to already have self-regulated learning skills before beginning a course or supports that guide a learner would have to be built into the course.

Who possesses SRL strategies? Do all learners possess self-regulatory behaviors? Research suggests that most successful students, students that reach higher education, possess the self-regulatory strategies necessary to succeed (DeVore et al., 2017). If true, then why do they not seem successful in self-paced online learning environments (low completion and high dropout rates)? According to Zimmerman (1986), students are self-regulated when they are "metacognitively, motivationally, and behaviorally, active participants in their own learning process" (p. 308). Why do learners not self-regulate during all learning experiences or in all learning environments?

Educators spend time and money producing self-paced OPD courses. Why spend time and money on developing self-paced online learning if very few learners are satisfied with it and very few learners are completing it? What would change this? Research suggests that SR behaviors are vital for success in online and online self-paced learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Xu et al., 2022). Does using SRL strategies in self-paced online courses result in a higher rate of satisfaction and completion? Could it be a combination of quality online experiences and the use of SRL strategies?

The primary purpose of this literature review is to determine the historical, theoretical, and methodological contexts for this study. In it I explore previous research to help identify a gap. A rigorous literature review informs a conceptual framework and provides the scope and structure of a problem; helps define variables, research questions, and generate hypothesis. The secondary purpose of this literature review is to identify and discuss the theories underpinning this study. The goal is by examining previous research, I can provide a big picture of the problem: to examine if using SRL learning strategies will impact whether educators are satisfied with self-paced OPD and whether they will complete it, which may help make better decisions about whether self-paced asynchronous OPD is a good option for educator professional development given the cost (time + effort) that it takes to develop.

The literature begins with an examination of PD and OPD in a higher education context. Following this is a discussion of self-paced learning, a definition of self-paced online learning, and self-paced OPD. Then, I explore Self-Regulation, Social Cognitive Theory, and Self-Regulated Learning. Finally, I consider SRL and the Online Learner, SRL in self-paced OPD, and SRL strategies in self-paced OPD.

Professional Development (PD) in a Higher Education (HE) Context

PD Definition

Professional development in higher education has broad implications. The nature of PD in HE reaches beyond the classroom whether online or traditional face-to-face into the many other roles and responsibilities required of academics. Ja'afar (2012) defined faculty development as a structured program that helps faculty to advance their "capacity to become more efficient and effective teachers as well as to carry out other aspects of their multifaced academic roles such as contribution to administrative and managerial activities, conducting research as well as writing and presenting publishable materials" (p. 2). Other PD definitions take a narrower view of PD in HE focusing on teaching and the role of technology. Wilson (2012) indicated that faculty felt professional development efforts focused more on technical skills like online learning than on issues related to good pedagogical practices. Correspondingly, Thiessen (2016) suggested pedagogical innovation is second to the adoption of new technology tools. Whether focusing on new technologies or good pedagogy, the goal of faculty development is professional growth by increasing knowledge or learning a new skill and applying it to practice. Desimone (2009) presented five core characteristics of faculty development associated with changes in knowledge and practice: content focus, active-learning, coherence, duration, and collective participation. Beyond characteristics that create change, Wilson (2012) suggested that faculty PD also needs to be relevant, provide training for new skills, and vary in scope and duration.

Reactive Nature of PD

Although some researchers describe the need for structured PD, the reality can be somewhat different. According to Fletcher and Patrick, (1998) and Lowenthal (2008), faculty developers have a tendency to wait until there is a request, then, look for ways to respond instead of proactively initiating PD. On the other hand, it is not just faculty developers that can be reactive but also faculty themselves. Bodily (2008) suggested that reactive faculty only participate in PD in response to external forces and only to satisfy an accreditation or institutional mandated policy. His study found that reactive faculty most value collegiality and collaboration but do not value self-direction, personal development, or institutional recognition and accreditation. This attitude may be because faculty perceive PD in different ways depending on their positions and motivation to participate (Wood, 2015). Next, I will look at some common activities offered through faculty development programs.

PD Activities in HE

Research examining faculty development activities focused on activities developed for campus-based faculty (Elliott et al., 2015), excluding some adjunct faculty as well as online faculty and instructors. Faculty PD opportunities extend from short-term trainings to long-term courses; long-term courses often lead to qualifications while short trainings focused on providing new skills (Wilson, 2012). Face-to-face workshops are touted to be more efficient but may not be the most effective means of improving teaching quality (Holmgren, 2005).

According to Asgar and Ratra (2020), continuous professional development at a university includes activities, such as virtual faculty development programs, webinars, online/ virtual conferences, and workshops. Burgstahler (2003) states that faculty development initiatives can be comprised of “on-site training, printed materials, distance learning, web-based self-paced instruction, and video presentations” (p. 179). Gumbo and Twinomurinzi (2023) suggest professional development strategies incorporate internet resources, academic databases, and discussion forums. Meyer (2014) and Meyer and Murrell (2014), investigating faculty development training and cost, compiled a comprehensive list of faculty professional development activities and content areas.

Some of the training activities and initiatives included: e-newsletters, one-on-one sessions, hands-on sessions, summer semester training, year-long training, consortial training, webinars, online courses, peer training, train-the-trainer, course peer review, and use of instructional design students (Meyer, 2014, p. 3). They noted training content consisted of Learning Management System (LMS) use, blogs, wikis, podcasts, social media, mobile pedagogies, problem-based learning, experiential learning, critical thinking, community engagement, blended instruction, assessment, instructional design models, discipline-specific training, and other advanced topics (Meyer, 2014, p. 3). In a systematic review of faculty development for teacher educators, Phuong et al. (2018) found 81 distinct faculty development activities reported in 22 separate studies. Examining the frequency of occurrence, they discovered formal training accounted for the majority of occurrences. These activities consisted of workshops/seminars, conferences, professional meetings, training courses, advanced degrees, collaborative research, and formal professional relationship: formal mentoring, coaching, peers.

Despite the various opportunities, PD has low participation rates (Lian, 2014). As a result of these low participation rates, many colleges and universities express concern about a mismatch between PD activities offered and changing faculty needs (Lian, 2014). Moreover, in a study that examined teachers' OPD participation behaviors, Chen et al. (2023) found that teachers favored shallow participation, like sharing resources and experience, but avoided deep participation behaviors, such as developing teaching and research practices or suggesting knowledge topics. Teachers who participated more often in OPD had diminished participation quality and repeated shallow participation (Chen et al., 2023). Like other researchers, Chen et al. (2023) suggested better PD support. Next, we will discuss the cost-effectiveness and cost-efficiency of PD.

Cost-Effective, Cost-Efficient, or Just Plain Costly Delivery Method for PD in HE

Constrained state budgets mean less money for IHE (Blumenstyk, 2015; Meyer, 2014), challenging faculty development programs to do more with less. Meyer (2014) conducted a national study of 39 US IHE to answer questions about faculty development costs. She wanted to understand how institutions, with dwindling budgets, were making decisions about faculty development activities and content. She found faculty development programs were expanding training activities that only marginally added to the cost (e.g. online training, e-newsletters, webinars) or that shared responsibilities with those other than faculty development program staff (e.g. peer-training, train the trainer), while reducing or eliminating training activities that relied heavily on staff (e.g. multiple sessions, year-long training). Rhode and Krishnamurthi (2016) suggested that “the savings realized from adopting existing training and resources may outweigh the benefits of custom development” (p. 379).

In her study, Meyer (2014) makes a distinction between cost-efficiency and cost-effectiveness. She defines cost-efficiency as “the provision of education at either less cost or more students at the same cost” (p. 2). Cost-effectiveness she describes as “the provision of more or better learning at the same or lower cost” (p. 2). For an institution of higher education, self-paced online training can be cost-efficient and cost-effective. Cost-efficient because it serves more faculty than face-to-face, for example, but presumably at a lower cost. Cost-effective because self-paced online training can potentially offer a better or at least more flexible learning experience at the same or lower cost than other faculty development activities.

Keengwe and Kyei-Blankson (2012) indicated that online faculty development "ensures cost saving and an increased access to professional development learning opportunities for instructors while they direct their own development" (p. xvii). Self-paced online learning can free learners from a rigid timetable and is purported to be more cost effective (Gatta, 2003). Rhode and Krishnamurthi (2016) declare the cost-efficiency of online training, stating that self-paced online training can train faculty more rapidly than costly training programs. In a large-scale study for the Navy, Carey et al. (2010) found self-paced courses reduced times to train by 22%, which translated to a savings of about 3.5 million dollars per year. While reducing costs, self-paced online learning offers the potential to reach more learners (Thiessen, 2016).

Although self-paced online courses may seem to save money initially, researchers rarely examine a course over its life-cycle. Liberman (2018) suggests that online courses mature and to maintain this maturity can be very costly. The notion that once launched the work is done is false. Design is iterative; it consists of a dynamic and cyclical iterative process of analysis, synthesis, and evaluation (Lawson, 2005). Within each process is another iterative cycle. For example, within the evaluation phase of the design process, the designer moves through an iterative cycle of modeling, testing, and modifying (Cross, 2006). Once the online course has been tested and released, the designer should use feedback and data collected from learners to make improvements to the course. "By analyzing student work, teachers can determine how best to change instruction for a student who is not making sufficient progress" (Foegen et al., 2016, p.

112). Content should be improved or at least kept current. Technologies update and change, links break, learners have technical issues, all of which require attention. Maintaining OPD requires more resources and therefore is likely to increase costs. In addition, there can be unanticipated costs associated with developing self-paced online training. In one example, to make their self-paced online training more engaging, specifically more like a live audience, Dhaliwal et al. (2018) reported hiring module voice actors, which added to the cost of developing the training. Next, I will examine online professional development (OPD).

Online Professional Development (OPD)

OPD Definition

OPD is PD in an online learning context. Fishman (2016) defined PD as "learning activities related to the profession of teaching" (p. 14). There are many variations PD; it could include a large or small size number of participants, be a quick session or holistic program, and vary in length, design, and delivery method (Elliott, 2017). Fishman (2016) defines OPD as any PD delivered through the Internet. Delivery of OPD can be broadly described as asynchronous or synchronous. Although self-paced online learning is described by some researchers as a type of asynchronous online learning (Bates et al., 2016), others view self-paced online learning as a separate form of online learning (Russell, Carey, et al., 2009; Vu et al., 2014).

Asynchronous. Asynchronous online learning environments are described as "in their own time, at their own pace, and from their own place" (Naidu, 2008, p. 259). For participants of asynchronous environments, learning occurs at different times. Examples of asynchronous online learning include: self-paced online courses, MOOCs, discussion boards, social networks, and resource-sharing websites (Bates et al., 2016).

Synchronous. Synchronous online learning environments that are "at the same time and at the same pace.…but from different places" (Naidu, 2008, p. 260). Synchronous online learning is a real-time event. In these environments the virtual learning experience attempts to provide something similar to an in-person experience. Generally, in these environments, technology is not used to transform the learning experience, but is used to mimic a classroom experience (Bates et al., 2016). Examples of synchronous online learning include: webinars, distance education courses with virtually meetings, and virtual coaching.

Benefits and Limitations of OPD

Delivery method has much to do with the success of faculty PD programs (Elliott et al, 2015), but much of online faculty PD is still instructor-led (Fishman et al., 2013). Nevertheless, there are many benefits of online faculty development. OPD creates opportunities for professional growth to faculty who may not otherwise be able to participate because of constraints, most notably time and location. Treacy et al. (2002) list the benefits of OPD: 1) the convenience of anytime, anyplace learning, 2) access to PD that meets the learners' needs and goals that might not be available nearby, 3) experience using technology, which could increase their comfort level and inspire them to introduce it in their courses, 4) new opportunities for collaboration and follow-up activities. Other benefits include: additional time for deeper self-reflection or self-assessment (McKimm & Swanwick, 2010), scalability, (Dede et al., 2009), increased flexibility, and an emphasis on learner autonomy (Kyalo & Hopkins, 2013).

Dailey-Hebert et al. (2014) indicated that flexible activities that allow faculty to work at their own pace and on their own schedule are the most successful. Self-paced online faculty development courses provide the flexibility faculty desire (Rizzuto, 2017). However, Lowenthal et al. (2012), examining full and part-time faculty's motivation to participate in faculty development, found full-time faculty did not value online activities or short workshops despite the effort of faculty developers to provide more flexible options. Moreover, there has only been limited research conducted to determine if online faculty development initiatives, such as self-paced online courses, are enticing faculty, or improving teaching (Lowenthal et al., 2012; Rhode, 2009; Samuel, 2016). Next, I will consider the motivational factors contributing to faculty participation in OPD.

Motivation to Participate in OPD in HE

Participation rates for PD are low (Lian, 2014) and online courses have low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). "With institutions facing increasingly limited resources, there is a need to prioritize faculty development initiatives that will encourage faculty participation" (Elliott et al., 2015, p. 160). Two key factors motivating faculty to seek PD are professional growth and personal development (Dailey-Hebert et al., 2014; Lian, 2014; Wood, 2015). Lian (2014) found that younger participants that held positions as lecturers, assistant professors, and non-tenure track faculty were more likely to be motivated to participate in faculty professional development (FPD), suggesting they may perceive participation as a means to advance their careers. This group also placed more value on FPD activities and thought them more useful than other faculty. Overall, findings showed that the more time faculty spent on FPD, the more useful they perceived it (Lian, 2014).

Flexibility

Faculty acceptance of self-paced online learning environments for PD training may be dependent on their motivational interests. In a study exploring faculty motivation to participate in OPD, Miller (2015) found the main motivators were flexibility, accessibility, and intrinsic motivation. However, Lowenthal et al. (2012), examining full and part-time faculty's motivation to participate in PD, found full-time faculty did not value online activities or short workshops despite the effort of faculty developers to provide these flexible options. Furthermore, Miller (2015) argues that increased faculty participation in OPD is contingent on an increase in value for the activity.

Collaboration

Motivation to participate in PD is tied to the desire to network with colleagues (Lian, 2014). In a study gathering the perspectives of off-site online faculty, Stewart et al. (2010) noted that faculty found effective communication with peers, staff, and administrators difficult citing a desire for but lack of immediacy and face-to-face interaction. From a distance, faculty missed the collegiality of peers, finding it more of a challenge to establish new academic relationships and the missed opportunities of shared knowledge and the new ideas it can bring. Miller (2015) suggested that communication and opportunities for collaboration are an integral motivating factor for participation in OPD activities. Although a central motivating factor for OPD, communication can be challenging in online learning environments and even more challenging in self-paced online learning environments where opportunities for interaction are limited and often delayed. The nature of self-paced learning restricts learners from collaborating (Anderson et al., 2005).

Organizational Support

Another factor motivating faculty to participate in PD is feedback from organizational leadership and their modeling the commitment to PD. After interviewing faculty, Wood (2015) found that the majority of study participants credited an institutional message about the importance of PD as well as observing leaders participating in PD as significantly affecting their motivation to participate in PD. More specifically, faculty reported leadership encouragement and follow-up support as contributing to their motivation to participate in PD (Lian, 2014).

Compensation

Faculty are less likely to pursue PD opportunities without extrinsic motivational offerings (Lowenthal et al., 2012), or unless they are advised to do so by their department chairs (Lucas, 2002), or it is mandatory. When asked about motivations, an emphasis on rewards was a frequent theme identified, specifically monetary compensation for time investment in PD activities (Dailey-Hebert et al., 2014; Madigan, 2008; Miller, 2015) or release time (Lian, 2014, Lowenthal et al., 2012). Certificates, remunerations (monetary support), or time releases (teaching fewer classes), are a few examples of the types of incentives offered by faculty development programs. Research suggests that to motivate faculty, it has become a common practice of faculty development programs to award certificates upon completion of an online course or a series of courses. In one example, teachers were given the option to print a certificate for their portfolio at the end of the online module (McKimm & Swanwick 2010). In another example, faculty participating in a self-paced online course were awarded professional development certificates (Rizzuto, 2017), extrinsically motivating faculty to complete the course. In contrast, Crumpacker (2003) suggests faculty motivation to seek PD is not driven by convenience or incentive but is instead tied to their desire to be innovative in meeting student needs.

According to Henning (2012), it is developers of PD that need to find out what is preventing faculty from participating in PD. Henning (2012) indicated that faculty developers need to take the initiative to remove the barriers preventing faculty from seeking PD opportunities. Correspondingly, Lowenthal et al. (2012) suggested that faculty developers begin to think differently about the types of faculty development and the frequency with which they are offered. This suggests that faculty development programs are not doing enough to understand faculty needs and preferences in order to provide supports faculty will use. Moreover, Miller (2015) suggested that increased funding is needed for developers to create innovative solutions as well as more funding to encourage faculty participation in OPD. Next, I will consider the obstacles preventing faculty participation in OPD activities.

Barriers to Participation OPD in HE

Researchers report a number of obstacles preventing faculty from participating in faculty development initiatives. Barriers mentioned include a lack of time, time conflicts, and time constraints (Dailey-Hebert et al, 2014; Elliott et al., 2015; Lowenthal, 2008; McMartin et al., 2008; Nellis et al., 2002; Sener & Hawkins, 2007; Thomas et al., 2012), faculty isolation (Miller, 2015), dissatisfaction with program deliver methods (Dailey-Hebert et al., 2014) as well as being unaware of available programming, and a lack of interest in the programming (Dailey-Hebert et al., 2014; Elliott et al., 2015; Lian, 2014). In the following paragraphs, I will examine these issued in more detail.

Time Constraints

The most cited barrier to OPD was time to participate either because of a lack of time, time conflicts, or time constraints due to workplace responsibilities. Consistent with previous research findings and observational analysis of online faculty development courses, Sener and Hawkins (2007) identified several factors affecting course completion: time conflicts with work commitments, level of organizational support, and learner's previous experience with online delivery methods. McMartin et al. (2008) also identified time as well as the availability of useful resources as obstacles to faculty development. In more recent research, Dailey-Hebert et al. (2014) considered the increase in part-time faculty and their professional growth opportunities in a study investigating online adjunct faculty and their motivations, preferences, and barriers to faculty development. Study participants reported their greatest obstacles were lack of time, program scheduling, and interest. Likewise, while investigating faculty attendance in PD initiatives, Elliott et al., (2015) identified two primary issues that drive faculty attendance in elective PD activities: interest in the topic and scheduling availability. Even if interested in the topic, time and scheduling constraints impede faculty from participating (Thomas et al., 2012). In short, faculty needs with regard to faculty development initiatives include the time to participate in PD activities that are of interest and offered at a time that fit into their schedules.

Faculty Isolation

In training used to deliver an OPD course, Nellis et al. (2002) noted that one of the scenarios dealt with the new faculty experience and the issues they commonly faced. One of the issues addressed was the sense of isolation and dislocation experienced by new online faculty. Brookfield (2006) suggested that isolation can leave faculty feeling insecure about their ability to teach. According to Miller (2015), isolation and a lack of interaction obstruct faculty from participating in online faculty development. She suggested that for faculty to value OPD activities, it is necessary for them to communicate and collaborate. Although self-paced online learning environments offer an option for faculty experiencing time constraints or conflicts, it appears that this flexibility comes at a price: the feeling of being isolated or disconnected.

Delivery Methods

Faculty developers may place too much importance on the delivery methods of OPD. Dailey-Hebert et al. (2014) found that almost one quarter of study participants did not indicate a preference for or against the mode of programming delivery. Furthermore, looking at factors affecting completion rates of asynchronously delivered OPD courses, Sener and Hawkins (2007) found that a faculty's proficiency and comfort level with course delivery methods did not affect course completion.

McLawhon and Cutright (2012) emphasized the importance of video tutorials for faculty development touting that among their benefits they are inexpensive to produce and offer faculty a flexible option to PD. Yet, video tutorials are commonly used in online in self-paced learning environments, which typically have low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Although online delivery methods have increased opportunities for educators and do not seem to be as important a barrier to participation in PD, faculty developers still need to figure out how to overcome faculty barriers such as our next topic: uninteresting and irrelevant content.

Lack of Interest

In an analysis of the barriers preventing participation in PD, Dailey-Hebert et al. (2014) found that the second biggest challenge for faculty was a lack of interest in PD topics. Faculty need to perceive PD as relevant to their needs and goals. Lian (2014) found that faculty thought content was static, uninteresting, redundant, not relevant, inconsistent, and overall not helpful to be used in practice. Faculty also felt that activities were not about faculty interests but instead met administrative agendas (Lian, 2014), suggesting a gap either in understanding faculty needs or poor communication by administrators in expressing the institutional policy and initiatives.

Salmon and Jones (2004) suggested the need for an organizational analysis of the intersection between institutional agendas, technological priorities, and faculty responses to new learning technologies. I question the practicality of this type of analysis given the length of time necessary to complete it and the rapidly evolving nature of technology. Given, the current pandemic and the emphasis on remote teaching, new technologies are surfacing at a rapid rate and increased demands are being placed on faculty and staff to adapt. In this environment, there is not sufficient time to perform an organizational analysis. In addition, I would argue that, in this environment, faculty development becomes all the more reactive. Self-paced online learning has a place within this environment and is being used with increased frequency as a result of remote working conditions and the high demands placed on a relatively stable number of faculty developers. Next, I will define self-paced learning before examining online self-paced learning and the advantages and challenges of self-paced OPD.

Self-paced Learning

Self-paced instruction is an instructional method "in which students set their own schedule for learning and monitor their own progress" (Good, 1973). A more recent definition of self-paced instruction states it "is a kind of instruction that proceeds based on the learners' ability and responses to instructional and pedagogical interventions" (Bautista, 2015). Learners access activities, materials, and other content, selecting when, where, and how to study as they advance at their own pace through the course (Butler, 2002). For example, in a self-paced online course, learners may begin their courses at various times during the year and complete them at their own pace. In this type of flexible environment, learners are more independent and therefore self-direct and self-regulate their own pace and task toward learning (Garrison, 2000).

Before they can effectively engage in learning activities in flexible learning environments with open time, pace, and choice of content, students need to be autonomous learners and possess self-regulated learning skills. Learners choose what, when, how, and how long to study; they self-regulate their learning, which has important implications for the success of their learning efforts. In a study of the effectiveness of self-paced learning, Tullis and Benjamin (2011) determined that self-paced learning is effective but only for learners who use self-regulated learning strategies. However, self-paced learning is not effective for learners who lack motivation to monitor and control their learning or do not have an understanding of self-regulated learning techniques. Therefore, a learner's success in self-paced online learning environments depends on their ability to self-regulate (Bergamin et al., 2012; Barnard et al., 2009; Kauffman, 2004; Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021; Tullis & Benjamin, 2011).

Self-paced instruction has been used in classrooms in various forms since the 1850s (Kulik, 1982). Although the approach is relatively unchanged, the instructional materials and technologies have changed considerably over the years. The first significant change came in the 1960s with the advent of programmed instructional materials focusing on self-paced instruction. Instructional videotapes, auditory media, and other media became available and were used with existing print study guides, self-instructional texts, and other materials (Stowers & Tessmer, 1986).

Advantages/Disadvantages of Self-Paced Learning

In an article written over 30 years ago, Stowers and Tessmer (1986) outlined student advantages to self-paced learning. Their description of self-paced learning is practically unchanged today; however, the technology used to deliver what is commonly referred to as self-paced learning has changed. Although self-paced learning occurs predominantly online nowadays, self-paced instruction is still organized in much the same way providing learners with similar advantages.

> Frequently, self-paced instruction takes the form of a series of small units (modules), each of which is a complete lesson in itself (Kemp, 1985; Keller, 1968). These self-contained modules allow students to skip over lessons that they already know and select what they want to study next–an attractive feature to students. In addition, self-paced instruction allows flexibility for scheduling learning time, which is useful to students who have heavy workloads or family obligations. Moreover, the location for learning can be quite flexible, allowing students to study at home or in convenient off-campus locations. (Stowers & Tessmer, 1986)

In general, researchers have found increased learner achievement in self-paced courses versus traditional courses (Kulik et al., 1990). In a quasi-experimental study, Bautista (2015) used self-paced learning to elicit learner engagement toward science learning (in a chemistry class). He found that learners, introduced to self-paced learning, performed better and were more motivated than students exposed to traditional teaching methods especially in the areas of self-efficacy, achievement and performance goals, science learning value, and learning environment stimulation among high ability learners.

Learner-centered online environments allow for individualized instruction. It is this personalization that is crucial to creating effective online learning environments (Swan, 2005). Self-pacing allows learners to move through course material at their own pace, which allows them sufficient time to meet learning outcomes. This type of learning creates flexibility and encourages independence (Anderson et al., 2005). However, this freedom leads to procrastination for some learners (Eyre, 2007) and low completion rates overall (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Instructors have to adjust to being facilitators and not teachers in the traditional sense. Their role in self-paced instruction is to clarify material and motivate learners and not impart knowledge (Keller, 1974). Finally, decreased human interaction (i.e., learner to learner, learner to instructor) is a drawback of self-paced learning environments (Thiessen, 2016) and contributes to dissatisfaction and high attrition rates (Anderson et al., 2005). Next, I will explore self-paced online asynchronous learning and how I will define it for this study.

Definition of Self-Paced Online (SPO) Learning

The term self-paced online learning or self-paced e-learning does not currently have a pellucid or widely accepted definition (Ritzhaupt, 2019). To define a self-paced online asynchronous learning environment, it is helpful to examine what it is not. It is not instructor-led. Instructor-led training refers to teaching and learning led by an instructor in real time. In contrast, instructor-paced training does not have to be in real time.

> Many edX courses are instructor-paced. These courses follow a fixed schedule. The course team sets specific due dates for assignments and exams, and you complete the course within a defined time period, such as 8 to 12 weeks. In instructor-paced courses, course materials become available at specific times as the course progresses. In most instructor-paced courses, certificates are generated for learners who have passed the course shortly after the end of the course. (Miguel, 2024)

According to Bonk et al. (2015), self-paced learning excludes instructor-led online learning, blended, webinars, and MOOCs. Educational Technology (n.d.) describes MOOCs as "asynchronous, open-access, Web-based courses geared toward enrolling hundreds or thousands of students at a time. MOOCs deliver content via recorded lectures, online readings, and online assessments as well as various degrees of student-student and student-instructor interaction" (para. 2). A MOOC is essentially a very large open-access online course; some are self-paced, and some are instructor-led. Since the self-paced variety of MOOCs share many similarities with what are commonly referred to as self-paced online courses or training, some of the research on MOOCs may be relevant to a study of self-paced online courses. A MOOC is typically free, but a cost is often added for MOOCs offering a credential upon completion.

It is not synchronous online learning. Synchronous online learning occurs "at the same time and at the same pace….but from different places" (Naidu, 2008, p. 260). On the other hand, self-paced online learning environments could be and often are asynchronous. Asynchronous online learning environments are described as “in their own time, at their own pace, and from their own place” (Naidu, 2008, p. 259). According to Welsh et al. (2003), asynchronous e-learning environments differ in their degree of sophistication. An asynchronous learning environment could be anything from a PowerPoint presentation posted on a website to sophisticated interactive learning environments that include graphics, video, audio, and animations. Asynchronous courses may also include participant interaction through a discussion board or a social media activity.

Self-paced online learning environments are not instructor-paced; they have no beginning and end date and are at the learner’s pace. Learners direct their own learning and finish the course at their own pace. Self-paced learning provides opportunities for increased independence and self-direction (Paranto & Neumann, 2006; Ross, 2001, Thiessen, 2016). EdX defines self-paced as follows: “Self-paced courses do not set a fixed schedule for assignments. All of the course materials are available as soon as the course starts” (Miguel, 2024). “You can work at your own pace until the final end date of the course” (File, 2024). According to Galitsky (2005), self-paced training is “training taken at a time and pace determined by the user” (p. 726). Used historically for text or audio/video self-study courses, the term is used by some organizations now to include computer-based, Web-based, and multimedia training” (p. 726). Naidu (2008) distinguishes between self-paced learning offline and online. “Self-paced learning offline is a mode of learning that enables individuals to study with the help of portable technologies in their own time, at their own pace, and in their own place” (p. 259). The self-paced design implies the learner is in control of and responsible for their learning; they determine the rate at which they advance through and complete a course (Naidu, 2008).

Human to human interaction (i.e., learner to learner, learner to instructor) does not play a large part in self-paced online learning; human-computer interaction (i.e., learner to content) dominates in this environment. It is well known that social interaction is important to successful online learning, but self-paced online learning experiences often have neither a start nor an end date or there is a long duration between start and end date. In these self-paced environments, discussions are typically the only available means of creating human to human interaction. However, learners access these environments at different times (ranging from every day, to once a week, or even once a month) making it difficult to create any meaningful connection with other learners. In other words, learner-learner interaction is difficult to integrate into self-paced online learning environments (Thiessen, 2016). Milligan and Littlejohn (2014) found that, in these environments, participants seldom exchanged ideas or drew from the experience of other participants. Yan (2020) and Yan, Lin, et al. (2021) agreed describing self-paced online learning as an online environment that emphasizes asynchronous individualized study, but one that lacks social interaction.

Ritzhaupt (2019) defines self-paced e-learning as "the use of information and communication (ICT) to deliver instruction in a self-paced format to a learner population of interest" (p. 281). How the terms e-learning, online learning, and distance learning are used is inconsistent throughout literature; they are often used interchangeably (Moore et al., 2011). In past years, some researchers described e-learning as learning that uses tools that are either web-based, web-capable, or web-distributed (Nichols, 2003), while others believe that it includes delivery methods such as CD-ROM, the Internet or Intranet (Benson et al., 2002; Clark, 2002) but also audio and videotape, interactive TV, and satellite broadcast (Ellis, 2004). The content delivered with these methods is intended to build skills that meet organizational or individual goals (Clark, 2002). Years later, the terms e-learning, online learning, distance learning and even web-based learning still have no clear consistent definition in literature and are used synonymously (Moore et al., 2011). Moore et al. (2011) surveyed 43 participants at an educational technology conference presenting them with four scenarios and asking them to choose the term that best described the scenario. The results of their study did not clarify the terminology. Although, the fourth scenario asked participants to describe a learning experience delivered through a LMS via the Internet where participants did not interact with an instructor or other learners. Slightly more participants chose online learning over e-learning to describe this environment; self-paced online learning was not one of the options.

Self-paced online learning is not instructor-led; it is not synchronous; it is not instructor-paced and typically does not have a beginning and end date; human to human interaction does not play a large role in self-paced online learning environments, and it does not occur in-person but online and typically through an online content management system. Consequently, for the purposes of this study, I will define self-paced online learning as instructional content delivered through a Course Management System (CMS) or a Learning Management System (LMS) via the Internet in a self-paced online asynchronous (accessed at a time, pace, and place determined by the learner and not faculty led or mediated) format. Next, I will examine the advantages and challenges of self-paced OPD.

Self-Paced OPD

A significant benefit to self-paced OPD is that it provides a flexible option for faculty who want to improve their skills by participating in PD but experience time constraints, making scheduled opportunities for development out of their reach. Nevertheless, self-paced online learning environments can be isolating for some participants (Bates et al., 2016). With limited social interaction, participants in these environments may either focus on getting a certificate or lose interest all together. In the following paragraphs, I will discuss the advantages and challenges of self-paced online learning environments.

Advantages of Self-Paced OPD

Rhode and Krishnamurthi (2016) offer a comprehensive list of benefits for self-paced online training for faculty development. They list a variety of reasons for supporting self-paced online faculty development initiatives: flexibility and easier access. A time and place that is flexible may be more amenable to faculty who do not live near campus and who cannot attend workshops at the time they are offered. Self-paced online learning offers significant flexibility for adult learners with work commitments (Yan, Lin, et al., 2021). Easier access would make training available to more faculty and adjunct faculty in particular. Finally, self-paced online courses are typically offered through an LMS that is specific to the university and, therefore, not open to the public like faculty resources provided through a website. This not only adds a layer of privacy, but it also allows for self-paced online developers to offer a badge or certification to faculty upon completion of the training. Other literature revealed the following benefits: a preference for self-paced due to increased learner control, self-paced online training did not reduce learner performance (Paranto & Neumann, 2006; Ross, 2001), it accommodates different learning strategies (del Valle & Duffy, 2009), and when properly implemented, ensured quality learning (Anderson et al., 2015). Next, I will consider some of the benefits that occurred more often in the literature.

Flexibility and Performance

Confining courses to start and end dates imposes a pace for learning that may be too fast for some, and too slow for others. Self-paced online learning allows students to learn at their own pace; learners can work rapidly work through familiar material but slow down when they need to focus on new material (Paranto & Neumann, 2006). In a study comparing learner performance in self-paced and collaborative group learning environments, Ross (2001) discovered more learners selected the self-paced option (71%) than the collaborative group option (29%); although, she found there was no significant difference in performance between the two groups. Congruently, Thurmond et al. (2002) found that participating in collaborative tasks can diminish students' sense of satisfaction with the course. In a more recent study, Carey et al. (2008) compared a self-paced OPD course whose participants only interaction was through email to an online asynchronous course that encourage participants to interact regularly in a discussion board. They confirmed earlier research, finding no noteworthy differences between the two learning environments; learners had similar performances. Correspondingly, in a study comparing a traditional course—all students maintaining the same schedule and pace—with a self-paced course, Paranto and Neumann (2006), found learners preferred the flexibility of self-paced learning, but also showed no significant difference in attitude or performance between the two courses. Although, they noted there were a few learners who admitted procrastinating in a self-paced environment and, therefore, preferred the traditional method, stating it kept them on track. Despite this, self-paced online environments give most of the control to faculty, combating the most noted barriers to participation in PD: time and scheduling (Dailey-Hebert et al., 2014). The flexibility of self-paced online learning is a very powerful motivator to faculty participation (Brown & Neal, 2013).

Access

Campus-based education imposes time and place constraints on learning, excluding learners with employment and familial commitments, those who live at a distance from IHE, and those who lack funding, are too poor, or do not possess qualifications to gain entry to these institutions (Naidu, 2008). Self-paced learning environments provide an accessible and more private option for students who feel insecure or unwelcome in traditional on-campus or synchronous online environments. According to Knightly (2007), adult learners find online learning environments less intimidating than traditional face-to-face environments. Furthermore, disabled learners may enjoy the anonymity, lack of judgement, and autonomy of self-paced online learning environments.

Self-Paced Learning Accommodates Differing Learning Strategies

Paranto and Neumann (2006) suggest that self-paced learning can alleviate the boredom experienced by advanced students as well as the frustration of less knowledgeable students. Naidu (2008) suggests that independent learners prefer self-paced learning but acknowledges that it suits learners for a variety of different reasons. According to del Valle and Duffy (2009), there is the potential for high quality self-paced learning environments to accommodate different learning strategies. Something they admit is difficult to do in group-paced courses. For example, McLawhon and Cutright (2012) suggest that the video tutorials that are common in self-paced learning environments offer faculty not only flexible, asynchronous PD opportunities but also satisfy aural learners as well. To prepare their engineering students for real-world activities, Slamnik-Kriještorac et al. (2021) offered OPD using an online adaptive on-demand framework. They found that learners considered they made great strides toward improving their real-world skills. Next, I will consider the challenges faced by self-paced OPD.

Challenges of Self-paced OPD

Despite its benefits, self-paced online learning does have some limitations, particularly with regard to loneliness and boredom due to a lack of or limited social presence. However, self-paced learning environments are also plagued by low completion rates and an emphasis on obtaining a credential. In the following paragraphs, I will discuss the challenges confronting self-paced online learning environments.

Limited Social Interaction

One significant disadvantage of self-paced online learning is limited social interaction (Naidu, 2008; Thiessen, 2016), specifically the difficulty incorporating learner-learner (Anderson et al, 2005), and instructor-learner interactions (Yan, Lin, et al., 2021). Self-paced learning environments, where human-computer interaction dominates, confront the challenge of incorporating intentional learner-learner interaction (Thiessen, 2016). Viewed as a positive component of online learning, social interaction can increase student engagement, reduce feelings of isolation and foster a sense of community (Fayer, 2014; Thurmond & Wambach, 2004). However, social interaction may diminish learners' control over their learning environment (Thurmond & Wambach, 2004), resulting in a theoretical divide between interaction and independence (Annand, 2007). Salas (2022) found that in remote learning environments during COVID learners reported increased anxiety as a result of reduced social interaction. Moreover, Yan (2020), Yan, Ives, et al. (2021), and Yan, Lin, et al. (2021) indicated that limited social interaction is not the only drawback of self-paced online learning but that these environments also lack academic support, including no formative feedback, thus, reducing instructor-learner interaction.

Rhode and Krishnamurthi (2016) suggest participants' meaningful interaction is what sets a self-paced online experience from a mere assortment of tutorials. They highlight the importance of planning points of interaction throughout the course to help participants feel engaged and supported. In search of a self-paced online learning environment that created opportunities for social interaction, Anderson et al. (2015) developed a social media intervention for an self-paced online university course, which allowed learners to share archived content. Their results indicated that most students had positive views of the social media intervention, believing it added value to the course. Examining student preference for delivery mode, Phan et al. (2016) found that learners prefer a synchronous delivery mode citing its socializing and networking opportunities. Those who selected the asynchronous delivery mode confessed their decision was motivated by personal and professional demands on time. Yan, Ives, et al. (2021) describe the barriers in self-paced online learning environments as teacher guidance, feedback, and support. They posit that self-paced online learning environments place high demands on students to be skilled self-directed learners managing their own time, being self-aware, and help-seeking.

Anderson et al. (2015) reported high levels of interaction are possible between the learner and the content in a self-paced online course. Asking learners to interact with content like a video and reflect on their learning, can make self-paced online courses more engaging than passively reading materials (Rizzuto, 2017). In the self-paced online course she developed, Rizzuto (2017) indicated that she increased learner-content interaction by providing course materials such as, sample rubrics and relevant articles through the LMS. Prince (2004) suggested activities need to be designed to reflect learning outcomes to effectively promote thoughtful student engagement. “Simply introducing activity into the classroom fails to capture an important element of active learning” (Prince, 2004, p. 226). According to Carroll and Kop (2016), learners, attracted to objects in their environments, are more likely to engage and interact with those objects, forming new experiences. However, Thiessen (2016) suggests more research is needed to explore how learners engage online, especially in self-paced learning environments.

Although social interaction online may increase engagement and learner satisfaction (Fayer, 2014; Thurmond & Wambach, 2004), increasing instructor presence in online self-paced training could increase the need for more instructors and man-hours. This could add to the cost of developing and delivering the self-paced online courses making them less cost-effective. Next, I will discuss other drawbacks to self-paced online learning environments.

Low Completion Rates

Another limitation of self-paced online learning environments is low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Researchers suggest that high dropout and low completion rates may be due to a lack of social interaction

(Kim et al., 2014; Koçdar et al., 2018; Littlejohn et al., 2016). Delayed instructor feedback is an additional challenge that may also contribute to lower online course completion rates (Kim et al., 2014). The low completion rates of MOOCs, of which some are very large self-paced online courses, have been well-document (Kizilcec et al., 2017; Koçdar et al., 2018). However, in two online professional development self-paced MOOCs at an institute of higher education, Gumbo and Twinomurinzi (2023) employed a mechanism to raise learners' self-efficacy to reach a 76% completion rate. Perceived self-efficacy is central to one's sense of agency and gives one the ability to act (Zimmerman & Schunk, 2003). Bandura (1977) indicates a direct correlation between a person's perceived self-efficacy and behavioral change. Students who keep a regular pace and learning habit throughout the self-paced online course were more successful and completed the course (Goda et al., 2015; Gumbo & Twinomuruinzi, 2023; Lim, 2016), suggesting that learners using SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) may have improved perceived success and completion.

Focus on the Completion Certificate

To illustrate the limitations of self-paced online learning environments for improving PD, Milligan and Littlejohn (2014) found that participants were more focused on gaining the certificate at the end of the course than they were on the knowledge gained from completing specific work tasks. Similarly, Baud and Hager (2012) point out the failings of a PD approach that focuses on the fulfillment of an obligation or credential. Instead, they call for professional learning that focuses on the needs of the learner but is also closely integrated with work practice.

Complex Learner Satisfaction

Several researchers report that SRL does not have a significant effect on satisfaction (Eom & Ashill, 2016; Joo et al., 2014) and does not predict satisfaction in online learning environments (Kuo et al, 2014). Others found that SRL had a positive influence on satisfaction (Cho & Heron, 2015; Li, 2019; Mshayisa & Ivala, 2022; Priyatma, 2023). In one study, Cho & Heron (2015) found that the role of SRL, specifically motivation and emotion, positively impacted learner satisfaction in a self-paced online mathematics course. Li (2019) found that SRL strategies, goal setting and environment structuring usage, significantly predicted satisfaction. In another study examining factors influencing online learner satisfaction, Priyatma (2023) discovered that learners' behavior and their cognitive and emotional engagement positively affected learner satisfaction in online environments. Moreover, Mshayisa and Ivala (2022) reported a high level of learner satisfaction when investigating learners' satisfaction with self-paced online orientation. Next, I will discuss self-regulation and how it relates to Social Cognitive Theory.

Self-Regulation (SR) and Social Cognitive Theory (SCT)

An important expansion of SCT, SR refers to a learner's ability to act metacognitively, motivationally, and behaviorally as active agents of their own learning processes (Zimmerman, 2000), through the self-generated thoughts, feelings, and actions that they use to attain goals (Zimmerman & Schunk, 2003). Self-regulated learners set goals, use task-related strategies, monitor their behavior through self-reflection, self-evaluate, assessing their self-efficacy for continued learning, and adapt their methods to apply in the future (Schunk, 2012a). This process increases self-satisfaction and motivation to continue to improve with every iteration of the cycle. According to Zimmerman (2000), SRL leads to more successful and optimistic students equipped with lifelong learning skills. The cognitive, metacognitive, motivational, behavioral, and emotional aspects of learning are all under the umbrella of SRL, making it a holistic approach to study learning (Panadero, 2017). Zimmerman's model of SRL will be the lens through which this topic would be examined, specifically Zimmerman and Moylan's (2009) current model of SRL, the Cyclical Phases of SRL, which is organized into three phases: forethought, performance/volitional control, and self-reflection, mirroring the cyclical nature of SRL: planning, practice, and evaluation.

Social Cognitive Theory (SCT) formed the foundation from which SRL was cultivated. To be a successful learner in self-paced online learning environments, SRL skills are essential (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). Self-instruction occurs when learners cognitively organize, plan, carry out, control, reinforce, and evaluate their own learning (Manning, 1991). By definition self-paced online learners study online and in their own time, at their own pace, and from their own place (Naidu, 2008). This flexible learning environment requires that learners are self-directed and have self-regulated learning skills (Bergamin, et al., 2012).

Definition of Social Cognitive Theory (SCT)

SCT is a broad learning theory encompassing various theories centered on learning in a social environment and grounded by assumptions about human learning (Schunk, 2012a). The components of SCT are observational learning, triadic reciprocal causality, motivational influences, and self-efficacy.

Observational Learning

People learn by watching and imitating others (assumption). Observers do not need to perform actions at the time of learning (assumption) (Schunk, 2012a). People set goals for themselves and direct their behavior accordingly, motivated to accomplish goals (assumption) (Schunk, 2012a). People eventually begin to regulate their own behavior (assumption). Reinforcement has an indirect effect on learning and is not necessary for learning to occur (assumption) (Schunk, 2012a). Instead models provide an example of appropriate behaviors and consequences for modeled behavior. Individuals model behavior guided by self-efficacy and the expected outcome of their behavior (Schunk, 2012b). According to Bandura (1986), the processes of observational learning include attention, retention, production, and motivation.

Triadic Reciprocal Causality

A central principle of SCT is the reciprocal interactions between personal/cognitive, behavior, and the environment (behavior ←→ environment) (environment ←→ personal/cognitive) (personal/cognitive ← → behavior) (Figure 2.1). For example, at times the environment dictates the behavior and other times the behavior influences the environment. "When environmental influences are weak, personal factors predominate" (Schunk, 2012a, p. 120).

Motivational Influences

Motivation is a stimulation to act. The level of motivation is reflected in the choice of courses of action, and in the intensity and persistence of effort (Schunk, 2012a). Motivational properties such as goals, outcome expectations, values, and self-efficacy

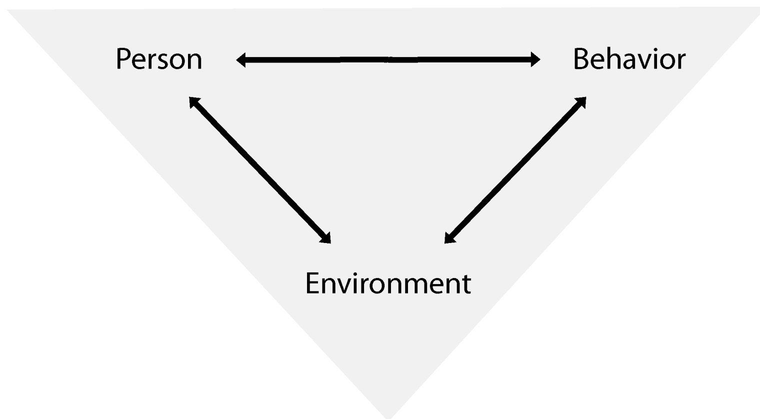

Figure 2.1. Triadic Reciprocal Causality (Schunk, 2012a)

influence enactive and vicarious learning (Schunk, 2012b). Motivational theories emphasize the importance of perceived control (Schunk, 2012a).

Role of Self-Efficacy

Self-efficacy is one's belief in their ability to succeed (Bandura, 1977, 1986). In other words, self-efficacy is people's beliefs about their capabilities to produce effects. Self-efficacy comes from four sources: performance accomplishments, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). Bandura (1977) indicates a direct correlation between a person's perceived self-efficacy and behavioral change. Perceived self-efficacy is central to one's sense of agency and gives one the ability to act (Zimmerman & Schunk, 2003).

Assumptions about How People Learn

Zimmerman and Schunk (2003) indicate SCT is based on four assumptions of how people learn: Reciprocal interactions, enactive and vicarious learning, distinction between learning and performance, and self-regulation. Reciprocal interactions occur between behavior (e.g., actions and decisions), personal factors (e.g., internal competencies, cognitive, emotional, and physical), and environmental variables (e.g., external spaces, laws, objects) (Bandura, 1986, 2001). Behavior, person, and environment are constantly being affected by and affecting each other.

From a cognitive perspective, learning is an information processing activity. Data regarding behavior and environment serve as guides for action. Enactive learning is learning that occurs by doing or learning through the consequences of one's actions (Schunk, 2012b). In SCT behavioral consequences inform and motivate. "Peoples cognitions, rather than consequences, affect learning" (Schunk, 2012a, p. 121). Vicarious learning occurs by observing models either live or in person, symbolic or caricatures, or through electronic media such as television, video, computer, or in print via books and magazines. Through vicarious learning people can avoid experiencing negative consequences.

Learning occurs by observing and performing. According to Schunk (2012b), people observe models explaining and demonstrating skills and then they practice what they observed. Models, mentors or teachers, for example, have the opportunity to provide feedback during practice. Schunk (2012a) posits that learning and performance are distinct processes. People learn by observing; then, perform what they learn depending on motivation, interest, incentive, perceived need, physical state, social pressures, and type of competing activities (Schunk, 2012a). Reinforcement affects performance instead of learning.

Self-Regulation from a social cognitive perspective refers to self-generated thoughts, feelings, and actions that students use to attain goals (Zimmerman & Schunk, 2003). While working on tasks, learners self-regulate personal elements by setting goals, monitoring and evaluating their progress, assessing their self-efficacy for continued learning, and creating a positive emotional climate for themselves (Schunk, 2012a). The main processes of self-regulation are outcome expectations, values, goal setting, self-evaluation of goal progress, cognitive modeling, and self-instruction (Schunk, 2012b). The results of learners' personal, behavioral, and social/environmental self-regulation will affect their self-efficacy, goals, strategy use, and other self-regulatory behaviors (Pintrich & Zusho, 2002), as well as motivation (Zimmerman & Risemberg, 1997).

The Emergence of Self-Regulated Learning (SRL)

Bandura's (1986, 1997a, 1997b, 2001) studies of self-regulatory processes in learning and performance actions not only led to SCT, but also provided the springboard from which Zimmerman's (1989a, 1989b) SRL emerged. According to Bandura (1986), people possess vicarious, symbolic, and self-regulatory capabilities. Learning vicariously, individuals can adopt beliefs, skills, strategies, and behaviors by observing others. Symbolic capabilities consist of communication and problem-solving processes that allow individuals to adapt to and change their environments. Self-regulatory capabilities allow individuals to regulate their behaviors to meet goals.

One vicarious process is observational learning. Observational learning occurs through observation and performance; people observe models explaining and demonstrating skills and then practice what they observed (Schunk 2012b). Learning occurs by observing models either in person, symbolic, or through electronic media such as television, video, computer, or in print via books and magazines (Schunk, 2012a). Pintrich and Schunk (2002) found that students can learn complex skills through observing modeled performances.

According to Schunk (2012b), there are four subprocesses of observational learning: attention, retention, production, and motivation. Attention is affected when the learner is stimulated by task features (color, size, interactive materials) or by instructors' announcements. Retention involves information processing (organizing, coding, transforming) for storage in the long-term memory. During the production process, modeled actions are transformed into behaviors, which are refined through practice. In the final subprocess, motivation, a key process, learners are more likely to pay attention, retain information, and produce desired behaviors if they feel that doing so is important.

Self-Regulated Learning (SRL)

Defining SRL

Self-Regulation is defined by Panadero and Alonso-Tapia (2014) as “the control that students have over their cognition, behaviour, emotions and motivation through the use of personal strategies to achieve the goals they have established” (p. 450). Dissecting this definition, first is cognition control, the cognitive component of self-regulation, which is referred to as metacognition. Metacognition is the knowledge a person has about their own cognitive processes (Flavell, 1979); it is an important component of self-regulation (Zimmerman & Moylan, 2009). Second, behavior control is the discipline exerted by the learner to direct their actions toward achieving their goals. Third is emotion control. While completing tasks, learners experience both positive and negative emotions and regulating these emotions is imperative; not managing emotions could impact the learner’s performance. Finally, motivation control refers to a learner’s ability to not only be aware of their levels of motivation but also to generate motivation to maintain attention and interest while completing a task.

A central principle of SCT is that human behavior operates within a framework of reciprocal interactions among three sets of influences: Personal (cognitions, beliefs, and skills), Behavioral, and Social/Environmental factors. How people interpret the outcomes of their actions informs and changes their environments and their personal factors, which in turn informs and alters future behaviors. In other words, people influence and are influenced by their actions and environments.

Agency is one's ability to act in an environment and affects intentional acts, and cognitive and affective processes. Self-Regulation produces a greater sense of personal agency (Schunk, 2012a). Personal agency, the perceived control over events in one's life, can influence self-efficacy. Self-efficacy is an individual's belief in their ability to succeed (Bandura, 1986, 1997a). According to Schunk (2012b), people attempt to control aspects of their lives for which they believe will provide a sense of self-efficacy for success. Deci and Ryan's (1985) Self-Determination Theory stresses autonomy and the need for control in one's life. Rotter's (1966) Locus of Control Theory suggests that the extent to which people feel in control of their lives determines how successful they believe they will be. For example, choosing to stay at home to study provides a better sense that one can complete the assignment.

People perform what they learn depending on motivation, interest, incentive, perceived need, physical state, social pressures, and the type of competing activities (Schunk, 2012a). In a study of observational learning, Mbati (2013) found that an online discussion board was significant as a means of facilitating attention, retention, and motivation. It was also found that social media applications were particularly beneficial motivational activators for students. Learning performance is influenced by factors such as learners' self-efficacy, their perceived ability to accomplish specific tasks and achieve certain goals, learners' motivation to explore, their ability to self-regulate, and the desire for or interest in gaining knowledge (Bandura, 1997a). Observing peers complete a task successfully may convey a sense of self-efficacy resulting in improved performance. A study of computer skill training indicated that behavioral modeling impacted students' efficacy beliefs and computer performance (Compeau & Higgins, 1995).

“Self-regulation is not a mental ability or an academic performance skill; rather, it is the self-directive process by which learners transform their mental abilities into academic skills” (Zimmerman, 2002, p. 65). Self-regulated learners set goals, use task-related strategies, monitor their behavior through self-reflection, use time efficiently, self-evaluate, and adapt their methods to apply in the future (Schunk, 2012a). This process increases self-satisfaction and motivation to continue to improve with every iteration of the cycle. An adaptive learning strategy, SRL leads to more successful and optimistic students with lifelong learning skills (Zimmerman, 2000).

The cognitive, metacognitive, motivational, behavioral, and emotional aspects of learning are all under the umbrella of SRL, making it a holistic approach to study learning. Panadero (2017) identifies six models of SRL: Zimmerman’s model, Boekaert’s model, Winne and Hadwin’s model, Pintrich’s model, Efklides model, and Hadwin, Järvelä, and Miller’s model. According to Zimmerman and Labuhn (2012), there are three main models of SRL: Zimmerman’s model, Boekaets’ model, and Winne’s model. The following discussion of self-regulation will be guided by Zimmerman’s model of SRL, the most widely researched and accepted model (Panadero, 2017).

Zimmerman’s Model of SRL

Zimmerman’s model of SRL sprang from a Social Cognitive Theory (SCT). Zimmerman has gone through three iterations of the SRL models: The Triadic Analysis of SLR model (Zimmerman, 1989a) (Figure 2.2); The Cyclical Phases model (Zimmerman. 2000) (Figure 2.3), which includes the current Cyclical Phases model (Zimmerman & Moylan, 2009) (Figure 2.4). Next, I will provide a brief overview of these three models.

The Triadic Analysis of SLR model emerged from Bandura's triadic model of social cognition (Bandura, 1986, 1997a, 2001). Social Cognitive Theory relies on the premise of triadic reciprocal causation, which explicates the influence that cognitive or personal factors, behavioral factors, and environmental factors have on each other (Bandura, 1982, 1986, 2001). Reciprocal interactions occur between personal factors (cognitions, emotions, efficacy, and biological events), behaviors, and environmental variables (Figure 2.2). For example, personal factors can include self-efficacy, which can influence achievement behaviors like effort, tasks, persistence, expenditure, and skill attainment within various environments (Schunk & Pajares, 2005).

The first version of Zimmerman's (2000) Cyclical Phases SRL model is organized into three phases: forethought, performance/volitional control and self-reflection (Figure 2.3). During the forethought phase, the learner prepares themselves by setting goals and evaluating self-efficacy for learning (e.g., establishing interest, value, goal orientations, outcome expectations, and self-efficacy). During the performance/volition control phase, the learner takes action, using strategies to focus on and complete tasks (e.g., self-monitoring and attention focusing). After each task has been completed, the learner enters the self-reflection phase. During this phase, the learner assesses their progress as well as the effectiveness of their learning strategies (e.g., self-evaluation of goal progress). The subprocesses belonging to each phase were not embedded into the illustration until 2003 (Zimmerman & Campillo, 2003), forming the current Cyclical Phases model.

Triadic Analysis of SLR model

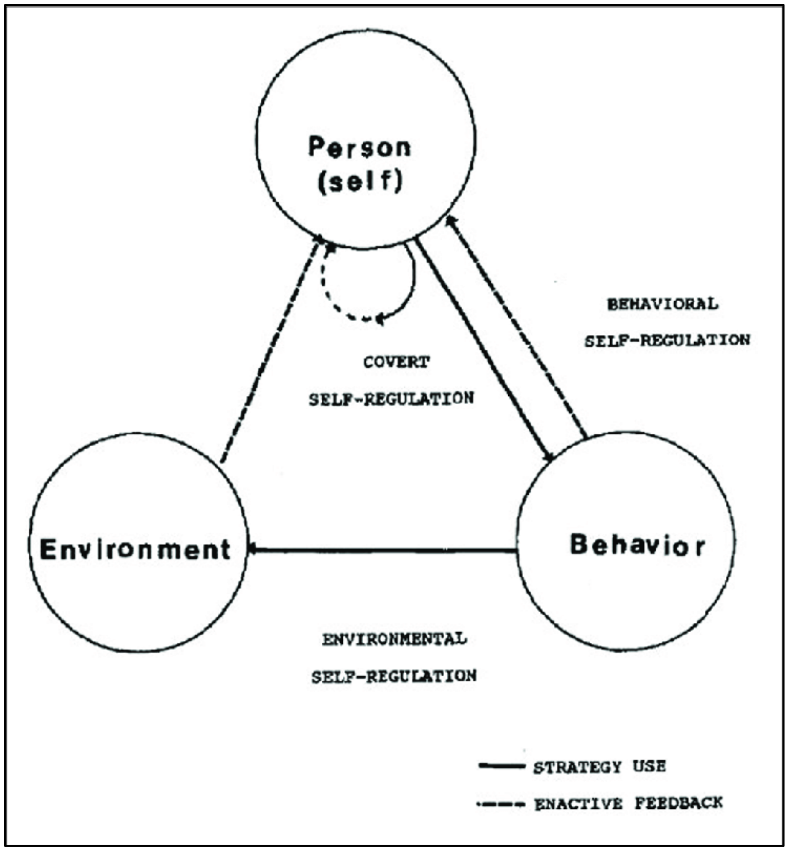

Figure 2.2. Triadic model of SRL (Zimmerman, 1989a)

Cyclical Phases of SRL models

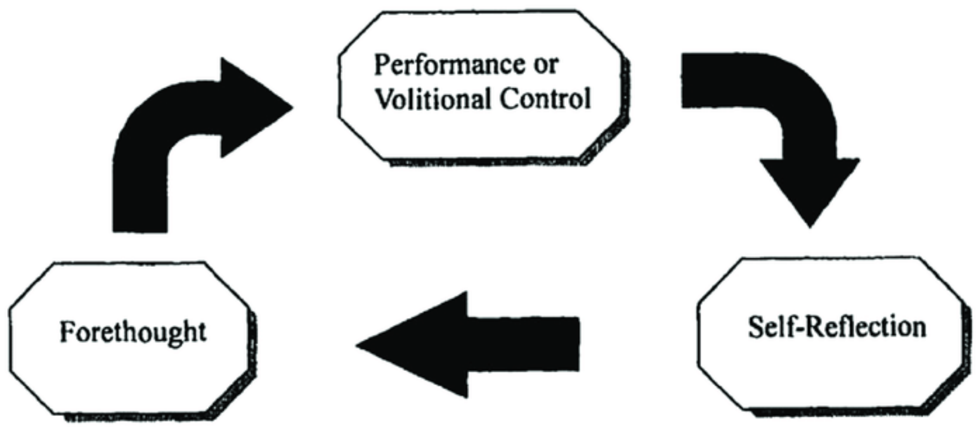

TABLE 1 Phase Structure and Subprocesses of Self-Regulation

Cyclical self-regulatory phases		
Forethought	Performance/volitional control	Self-reflection
Task analysis	Self-control	Self-judgment
Goal setting	Self-instruction	Self-evaluation
Strategic planning	Imagery	Causal attribution
Self-motivation beliefs	Attention focusing	Self-reaction
Self-efficacy	Task strategies	Self-satisfaction/affect
Outcome expectations	Self-observation	Adaptive-defensive
Intrinsic interest/value	Self-recording	
Goal orientation	Self-experimentation	

Figure 2.3. Cyclical Phases model (1st version) (Zimmerman, 2000)

Zimmerman's current Cyclical Phases of SRL model builds on his first version, adding new metacognitive and volitional strategies (Figure 2.4). Next, I will share my rationale for choosing Zimmerman's model of SRL.

Rationale for Choosing Zimmerman's Model of SRL for this Study

Currently, there is no widely accepted model of SRL specifically developed for online learning environments. As a student studying online teaching and learning, Zimmerman's model of SRL is one I have come across often over the past several years. Zimmerman's model is grounded in Social Cognitive Theory (SCT). It provides a holistic view of SRL that is an easier to understand and apply in practice (Dignath et al., 2008; Moos & Ringdal, 2012; Panadero, 2017). Zimmerman's model includes different types of and specific subprocesses such as the motivational and emotional aspects critical to learning online. Zimmerman describes SRL as a goal-driven activity, emphasizing the importance of goals (Zimmerman, 2000). Two aspects emphasized in the forethought phase of Zimmerman's model are goal-setting and self-motivation beliefs (Figure 2.3 & Figure 2.4), both of which are crucial to success in self-paced online learning environments. In these learner-paced, self-directed environments that have no beginning or end date, learners need to be self-motivated and goal-oriented for learning to occur. During the final self-reflection phase of his model, Zimmerman (2000) emphasizes affective reactions that occur as learners self-evaluate before moving back into the forethought phase, where learners assess their self-efficacy for continued learning (Figure 2.4). Self-efficacy refers to one's belief in their ability attain a goal. Self-efficacy and motivation are challenging in online learning environments. Zimmerman's model emphasizes both.

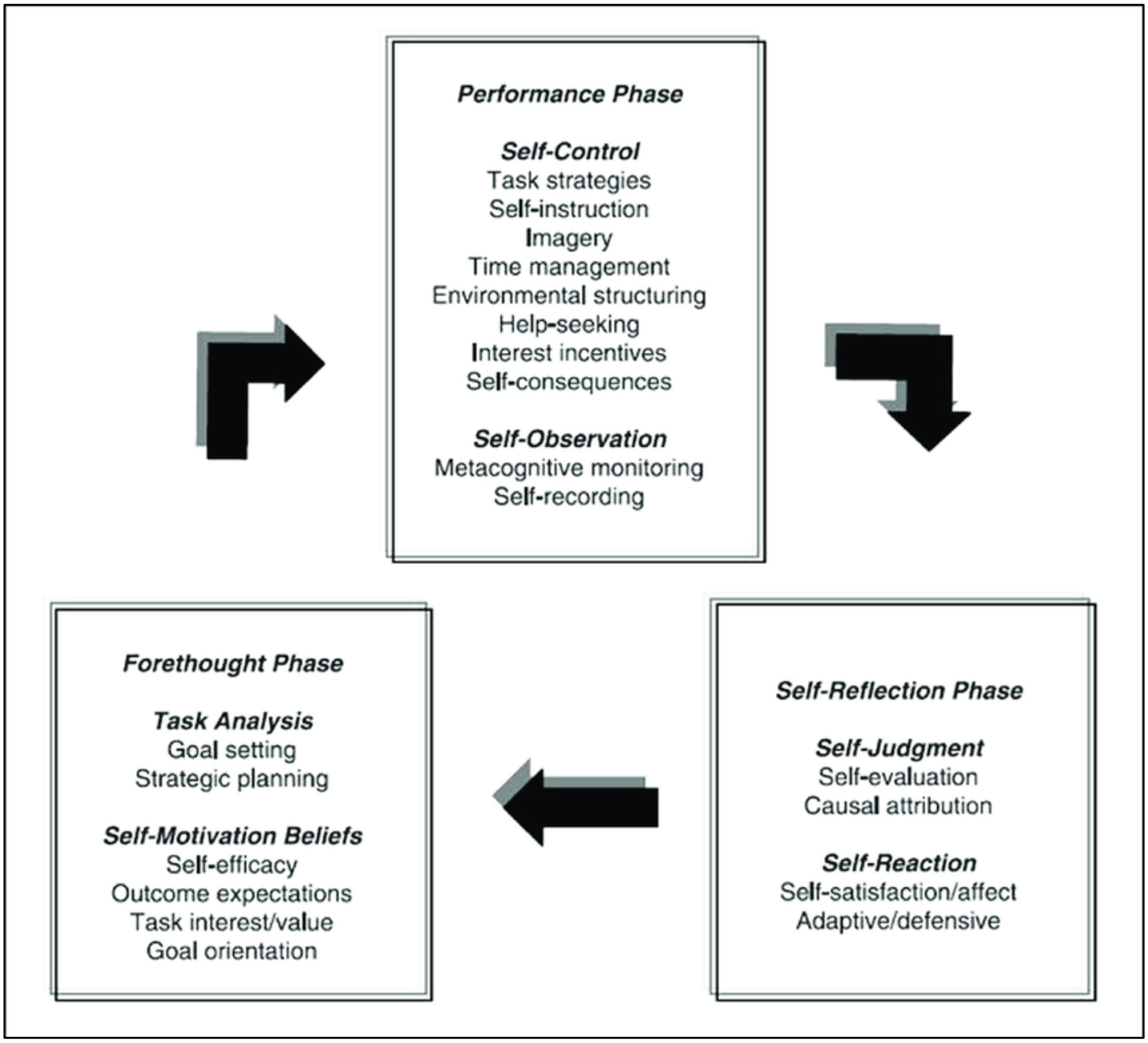

Figure 2.4. Cyclical Phases model (current) (Zimmerman & Moylan, 2009)

making it an appropriate model to guide a study of self-paced online learning environments. Next, I will identify some assumptions of SRL

SRL Assumptions

SRL assumes several things about learning and the learner:

1. Learners can adopt new behaviors; they learn by observing someone who is modeling or demonstrating that behavior (Bandura, 1986, 2001).
2. Learning is an internal process; learners processing a new behavior may or may not adopt that behavior. In other words, cognitive processes influence behaviors and learning (Schunk, 2012a).
3. Learners perceive themselves as agents. They make choices. Self-regulation requires choice, but learners do not always take advantage of their available choices (Schunk, 2012a).
4. Learners and their environments influence each other (Bandura, 1986, 2001).
5. Learners set goals for themselves that they are motivated to accomplish; goals direct behavior. (Schunk, 2012a, 2012b).
6. Learners over time begin to self-regulate their own behavior and learning (Schunk, 2012a, 2012b).

Next, I will discuss SRL its significance in online learning environments.

SRL and the Online Learner

To self-regulate, learners need to have choices, which can produce a sense of personal agency (Schunk, 2012a) and a feeling of independence. Autonomous learners have the capacity and willingness to take control and manage their own learning (Martin, 2004). They have the freedom and flexibility to choose. They make choices about what, when, and how they learn. They take responsibility for their own learning. Learner autonomy is critical for success in an online learning environment (Lynch & Dembo, 2004). In their study, Antonietti et al. (2015) addressed the potential presence of SRL strategies students applied to a multimedia presentation measured by their choices to access images, their eye movements, and their psychophysiological reactions. They found that when undergraduate students were learning from multimedia presentations, they were demonstrating SRL skills by strategically managing their behavior when making decisions about which pictures would be most helpful to their understanding of difficult concepts.

Learning is a complex activity that involves more than just an individual's mental processes; it involves behavioral, emotional, and motivational processes. In Goggins and Xing's (2016) study of an online discussion, social ability and collective efficacy were perceived as cognitive factors; behavioral factors comprised the students' actions posting, reading, and responding to their peers; and environmental factors included the online learning environment or more specifically system functionality, given the collaborative nature of an online discussion forum. Behavior in an online discussion board is largely self-regulated. Students essentially self-regulate their own learning (what they learn) in an online discussion forum. Goggins and Xing's (2016) study showed that posting delay time and reading time could influence students' learning. Although they showed less time between postings promoted student learning, they also indicated that students who spent more time reading posts achieved higher learning performance. In fact, other than the number of posts students made, they suggested that additional factors, such as the number of posts a student reads, reading time, and time delay were better predictors of student learning achievement. Goggins and Xing's (2016) study demonstrated that learning is a complex activity by showing how the triad of reciprocal interactions (personal, behavioral, and environmental) can impact learner performance. Additionally, they indicated the importance of self-regulation in an online learning environment.

Cho and Kim (2013) investigated students' self-regulation for interaction with peers, instructors, and content in online learning environments. They indicated that, in online learning environments, interaction with peers and instructors was significant in determining the success of students' learning experiences. Cho and Kim (2013) revealed that online students were more likely to self-regulate for interaction with others. Additionally, they found students' mastery goal orientation appeared to be significant in all interactions between the student and the content, their peers, and their instructors. Regarding SRL, Wang and Lin (2007) found that online learners with high levels of motivation applied better learning strategies and responded better to environmental influences, such as feedback to improve their performance in online learning environments. Additionally, they posit that online learning environments provided students with more opportunities to practice SRL skills. However, Sharma and Chintalapati (2022) found that using SRL strategies in an online environment, learners still experience problems with goal-setting and task strategies. Using a social cognitive model of SRL, Wang and Lin (2007) identified significant personal, behavioral, and environmental factors and applied them to a web-based learning system, which allowed them to capture and analyze interactions between personal, behavioral, and environmental influences. Their research suggested self-efficacy and collective efficacy had a positive influence on online learners' behaviors such as quality feedback and learning strategies (personal → behavioral). Receiving higher quality feedback had a positive influence on self-efficacy (environmental → personal). Online learners had improved academic performance, which was the result of group interaction and discussion, and learning strategies (behavioral → environmental) (Wang & Lin, 2007). These studies demonstrate that learner choice and goal-oriented self-regulation can influence self-efficacy and motivation, which can impact learning performance which then feeds self-efficacy and in turn motivation, ultimately creating a positive learning environment. Next, I will discuss SRL strategies and their importance in self-paced online learning environments.

SRL in Self-paced Online Learning Environments

Learners' personal, behavioral, and social/environmental self-regulation affect their self-efficacy, goals, strategy use, and other self-regulatory behaviors (Pintrich & Zusho, 2002), as well as motivation (Zimmerman & Risemberg, 1997). Moreover, learner emotions influence their SRL and motivation, which in turn affects their academic achievement (Mega et al., 2014), and satisfaction (Cho & Heron, 2015). Learners who experience negative emotions resulting from a lack of motivation and low self-efficacy, have difficulty learning in online learning environments (Kim & Hodges, 2012). Pekrun et al. (2010) found learner boredom to be negatively associated with motivation, learning strategies, and academic performance.

Self-regulated learning strategies are critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021), given the limitations of these environments: social interaction (Anderson et al., 2005; Thiessen, 2016), a lack of teacher guidance (Wang, 2003), complex satisfaction results (Cho &

Heron, 2015; Eom & Ashill, 2016; Joo et al., 2014; Kuo et al, 2014), and low completion rates (Kizilcec et al., 2017; Koçdar et al., 2018). "Failure frequently occurs during self-paced open and distance learning as the learners study at their own pace" (Koçdar et al., 2018, p. 26). Learners who lack the self-regulatory skills to effectively engage with self-paced learning environments are less motivated to take advantage of these environments (DeVore et al., 2017). Similarly, Cho and Heron (2015) showed that motivation and emotion significantly influenced learner experiences, including satisfaction of and achievement in a self-paced online course. With regard to social interaction, Cho and Kim (2013) indicated that self-regulation for interaction is crucial in determining students' successful learning experiences in an online environment.

The more students' value a task, the higher their self-efficacy for learning, and the higher their satisfaction for an online self-paced course (Artino, 2008; Artino & Jones, 2012; Cho & Heron, 2015). However, intrinsically motivated students have high levels of dissatisfaction with the online self-paced course (Cho & Heron, 2015; Kim et al., 2014). Moreover, an online learning environment that limits learner control may contribute to intrinsically oriented students' dissatisfaction with the course (Scheiter & Gerjets, 2007). The aforementioned research suggests a reciprocal relationship exists between learner emotions, self-regulation skills, and motivation and their connection to learner satisfaction in online learning environments including self-paced online environments. Overall, studies examining self-paced online learning environments framed with SRL were limited.

SRL Strategies

Learners self-regulate by setting goals, monitoring and evaluating their progress, assessing their confidence to continue learning, creating a positive emotional climate for themselves (Schunk, 2012a), planning and managing time, and seeking help when needed (Dabbagh & Kitsantas, 2005; Zimmerman & Risemberg, 1997). The key processes of self-regulation are outcome expectations, values, goal setting, self-evaluation of goal progress, self-monitoring, cognitive modeling, and self-instruction (Schunk, 2012b). Goal setting refers to what a student intends to accomplish and their ability to break up broad goals into smaller, obtainable subgoals. Self-monitoring occurs when the learner first focuses their attention on how they are completing a learning task and then assesses the outcomes of their efforts, modifying their behavior, if necessary. To achieve goals, learners self-evaluate by comparing their performance with the desired outcome or goal. Time planning and management refers to a learner's ability to accomplish goals by choosing suitable strategies to effectively manage their time. Finally, help-seeking is an SRL strategy that refers to the learners ability to seek assistance from an outside source whether that source is another human or a non-human source (e.g., a book or the internet). The results of learners' personal, behavioral, and social/environmental self-regulation will affect a learner's self-efficacy, goals, strategy use, and other self-regulatory behaviors (Pintrich & Zusho, 2002), as well as motivation (Zimmerman & Risemberg, 1997).

SRL Strategies in Self-paced OPD

The use of SRL strategies is important in online learning environments (Cho & Kim, 2013) and critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). With little to no social interaction, self-paced online environments can be isolating (Naidu, 2008; Yan, 2020; Thiessen, 2016). Feelings of isolation can generate negative emotions, and negative emotions can affect learners' self-regulatory behaviors, which in turn can negatively impact their motivation (Kim & Hodges, 2012; Wolters, 2003), and satisfaction with self-paced online learning environments (Cho & Heron, 2015). However, learners who use SRL strategies have higher self-efficacy and are more likely to complete self-paced online courses even with little to no social interaction (Koçdar et al., 2018; Littlejohn et al., 2016). Most learners who complete MOOCs, Massive Open Online Courses, already have a college degree and some have a graduate degree (DeVore et al., 2017), suggesting college graduates have the necessary SRL skills and motivation to complete online self-paced courses. However, they represent only a small percentage of individuals taking MOOCs, which overall have very low completion rates (Kizilcec et al., 2017; Koçdar et al., 2018). MOOCs are very large open-access online courses; some are self-paced, and some are instructor-led, but most are asynchronous with varying degrees of learner-student and learner-instructor interaction. In a self-paced online environment, the use of SRL strategies could decrease the likelihood of similarly low completion rates and positively impact learner satisfaction. As college graduates, educators should have the needed SRL skills to be successful in self-paced online learning environments.

Conceptual Framework

In this conceptual framework, I will present my perspective about the scope and structure of the problem that evolved from my literature review and will provide a framework from which this study is organized and interpreted. I will share questions that I pondered;

questions that helped me generate research questions, determine survey questions, and identify the variables used in this study. Since some of the variables in this study were derived from theory, I will include a theoretical framework to guide and inform its development, analysis, interpretation, and results. Finally, I will define the pertinent variables and map how they might relate to each other (Figure 2.6).

My experience both taking and designing/developing self-paced OPD courses is what sparked my interest in this topic. Research surrounding online learning shows multifaceted satisfaction results and low completion rates. Similar results and rates are expected for self-paced asynchronous OPD courses. Learners' complex satisfaction results and low completion rates make these courses appear to be less successful, yet they are still commonly produced to satisfy professional training for educator of higher education. From my experience even the self-paced OPD courses for which many people sign up; few complete the course. During my time assisting educators with learning technologies in a virtual help room, some clients requested help for issues that were addressed in self-paced modules available to them. My help consisted of walking them through the existing self-paced OPD module. During the session, some admitted to even being enrolled in the self-paced OPD course. As a result of these experiences, I began to question the decisions that led to the development of OPD and especially self-paced OPD.

Although some research suggests that developing self-paced online courses is cost-effective because it serves more learners (Gatta, 2003; Keengwe & Kyei-Blankson, 2012; Carey et al., 2010; Rhode & Krishnamurthi, 2016; Thiessen, 2016), other researchers suggest the cost is higher because self-paced online courses need to be maintained (Cross, 2006; Lawson, 2005; Liberman, 2018). While developing OPD courses, I noticed that vital steps in well-known and accepted ID processes were rarely used and often skipped altogether, specifically, the needs and learner analyses. In learner-centered design, the needs and learner analyses are conducted at the start of a course design project and provide the ID with an understanding of the need for the course and the audience (learners) that will take the course (Larson & Lockee, 2020). Without an understanding of both, an ID could develop training that is not needed or does not serve the intended audience. Skipping necessary ID processes and not maintaining OPD courses may lower cost, but may also lower quality.

The classic triple constraint theory in project management posits that every project will be constrained by three factors: scope, cost (budget), and time (McCoy, 1987) (Figure 2.5). Scope refers to the size of the project or the tasks required to meet project goals. Cost is the budget constraints of the project. Finally, time refers to how long it will take to reach project completion. A change in one factor will affect the other two and impact the quality of the project. At the intersection of cost (budget), and time is lower quality. For example, a small project will cost less and can be done quickly but it will lower quality. At the intersection of scope and time; a larger project takes more time to complete which can create higher quality but it will increase the budget. Lower quality OPD courses may contribute to lower satisfaction and completion rates. Why spend time and money producing self-paced OPD courses if very few learners are satisfied with them and very few learners are completing them? What would change this? Research suggests that SR behaviors are vital for success in online and online self-paced learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Xu et al., 2022). Does using

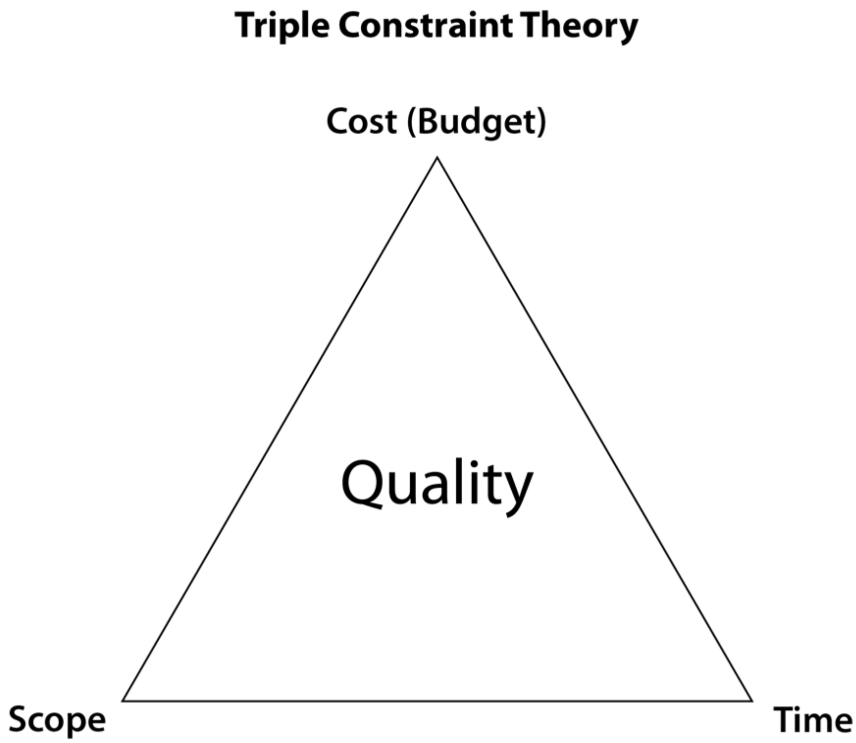

Figure 2.5. Classic Triple Constraint Theory in Project Management

SRL strategies in self-paced online courses result in a higher rate of satisfaction and completion? Could it be a combination of quality online experiences and the use of SRL strategies? Who possesses SRL strategies? Do all learners possess self-regulatory behaviors? Research suggests that most successful students, students that reach higher education, possess the self-regulatory strategies necessary to succeed (DeVore et al., 2017). If true, then why do they not seem successful in self-paced online learning environments (low completion and high dropout rates)? According to Zimmerman (1986), students are self-regulated when they are “metacognitively, motivationally, and behaviorally, active participants in their own learning process” (p. 308). Why do learners not self-regulate during all learning experiences or in all learning environments? Can we design and develop courses that increase the use of SRL strategies?

Theoretical Framework

The origins of SRL lie in Social Learning Theory (SLT). We learn how to self-regulate learning through modeled behaviors. Schunk and Zimmerman (1997) claim that there are four levels to develop into self-regulated learner: observation, emulation, self-control, and self-regulation. SCT suggests that by observing the behavior of others, the first level, individuals can learn something new. From these observations, individuals begin to emulate, the second level, by imitating the modeled behavior. In the third level, the learner internalizes the observed and imitated behavior but is still reliant on the modeled behavior. Finally, during the fourth and final level, the learner adapts the behavior no longer needing the modeled behavior as a guide.

Learners demonstrate SRL skills when making decisions by strategically managing their behavior. They self-regulate by setting goals, monitoring and evaluating their progress, assessing their confidence to continue learning, creating a positive emotional climate for themselves (Schunk, 2012a), planning and managing time, strategically organizing, rehearsing, and coding information, and creating a productive work environment, and seeking help when needed (Dabbagh & Kitsantas, 2005; Schunk & Zimmerman, 1997; Zimmerman & Risemberg, 1997). The key processes of self-regulation are outcome expectations, values, goal-setting, self-evaluation of goal progress, self-monitoring, cognitive modeling, and self-instruction (Schunk, 2012b).

Learning to self-regulate is essential to succeed in online environments. However, if we do not already know how to self-regulate before taking an online course, then taking an online course where there is no one to model behaviors would prove difficult and a self-paced online course even more difficult. What if a learner was not good at managing time or setting short term goals? What if they did not know how to create a productive work environment, organize and code information, or know how or where to seek help? To be successful, a learner would have to already have self-regulated learning skills before beginning a course or supports that guide a learner would have to be built into the course. Learners with degrees in higher education are more likely to possess the self-regulated learning skills needed to be successful in online and self-paced online courses.

This study examines the use of SRL strategies in self-paced online learning environments and how these strategies impact satisfaction and completion for learners in self-paced OPD courses. Therefore, I have identified the variables: SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation), satisfaction, and completion of self-paced OPD. These variables and SRL

Theory will frame and inform this study, its methods, and its strategies for analysis (Figure 2.6).

Definitions of Variables

SRL Strategies. SRL strategies are defined by Pintrich (1999) as "the strategies that students use to regulate their cognition as well as the use of resource management strategies that students use to control their learning" (p. 459). According to Schunk (2012b), the key processes of self-regulation are outcome expectations, values, goal-setting, self-evaluation of goal progress, self-monitoring, cognitive modeling, and self-instruction. Zimmerman and Martinez-Pons (1986) identified SRL strategies such as self-evaluating, organizing and transforming, goal-setting and planning, and rehearsing. Dabbagh and Kisantas (2005) and Zimmerman and Risemberg (1997) refined SRL skills as goal-setting, coding and repeating, monitoring performance, requesting help, and self-confidence in ability. Referring to other scales constructed for use in face-to-face classrooms such as the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991), the Self-Regulation Questionnaire (SRQ) (Brown et al., 1999), the Learning and Studies Strategies Inventory (Weinstein et al., 2016) and online environments such as the Online Self-Regulated Learning Questionnaire (OSLQ) (Bernard et al., 2009). Koçdar et al. (2018) constructed a scale specifically for measuring SRL skills in a self-paced online environment. Scale items specific to learners in self-paced online environments, identified through factor analyses, include the SRL strategies goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation.

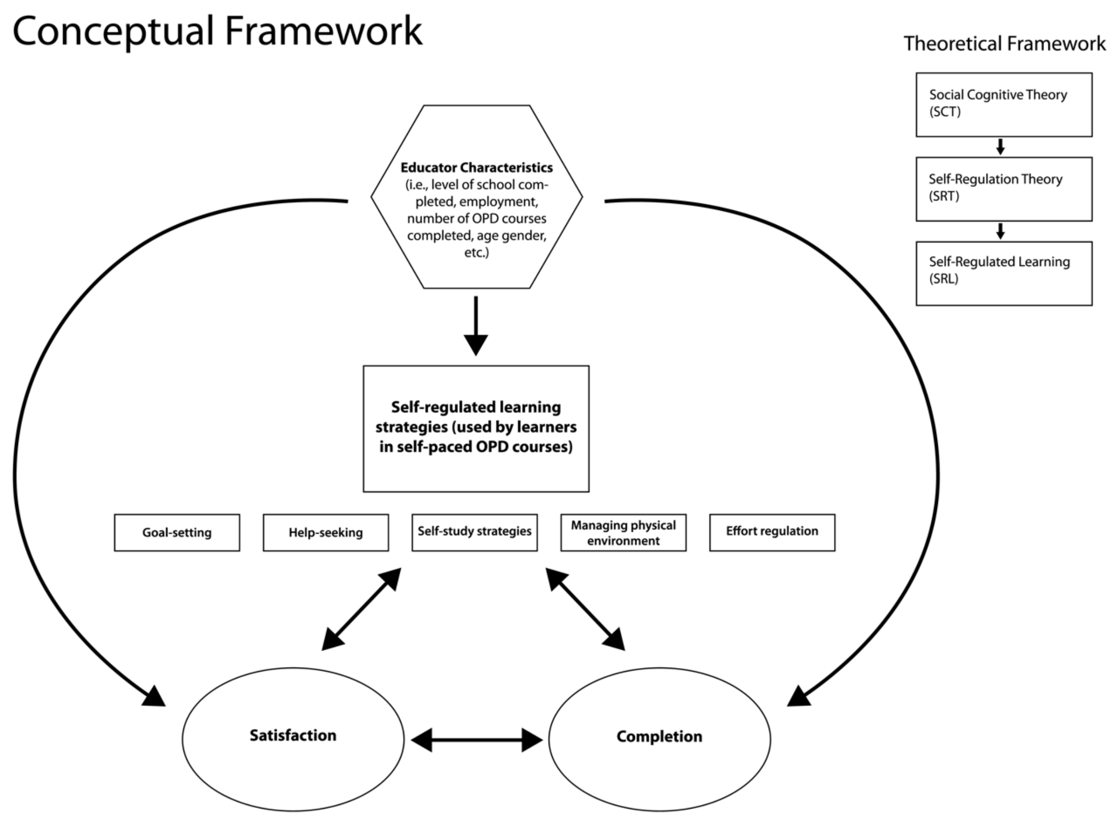

Figure 2.6. Conceptual Framework

Goal-setting. Self-study goal-setting that target results.

Help-seeking. Seeking help from subject experts (i.e., teachers, facilitators), friends, the Internet, and social media.

Self-study Strategies. Methods used by learners who self-study.

Managing Physical Environment. The organization of the learners' physical study environment.

Effort Regulation. Self-control efforts made by learners when finding it difficult to study.

Satisfaction of Self-Paced OPD. Ritzhaupt (2019) questions how to measure satisfaction within an environment where there is no teacher guidance such as a self-paced online learning environment. In his study, he adopts Shee and Wang's (2008) definition of satisfaction in a self-paced online environment as "the pleasure and contentment that one person feels when she/he does something or gets something that she/he wanted or needed to do or get" (p. 895). Chau (2017) describes satisfaction as the "degree of enjoyment and gratification that a learner experience[s] through participation in workplace self-paced e-learning" (p. 343). Satisfaction is complex and difficult to measure. For this study, we will use satisfaction in a broad sense to understand learners' perceptions of whether they found the self-paced OPD course meaningful and worthwhile in terms of professional and personal growth.

Completion of Self-Paced OPD. Completion is the process of finishing an online course including all content (e.g., materials, activities, quizzes, etc.). To reach a state of completion, conclusion, or reaching the end of an online course.

Study Purpose

The purpose of this study is to explore the relationships among the variables learner demographics, SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation), learner satisfaction (hard to learn--easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying), and learner completion in self-paced OPD environments offered in a higher education context for educators (i.e., faculty, instructors, and instructional designers). In the next chapter, I present the methodology for this study.

CHAPTER THREE

METHODOLOGY

Chapter three details the methodology of this study. It includes the research questions and research design followed by a description of the study setting, participants, and procedures for data collection and analysis. Validity and reliability are discussed where applicable.

Research Questions

1) Who are educators (what are their characteristics) pursuing self-paced OPD and to what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?
2) How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how do they relate to educator characteristics?
3) How does the use of SRL strategies affect completion in a self-paced OPD course? Which SRL strategies predict learner satisfaction?
4) How does learner satisfaction impact completion and how does completion impact satisfaction in a self-paced OPD course?

Research Design

This study engaged a nonexperimental, descriptive correlational research design using quantitative methods to explore the relationships among SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation), learner satisfaction, and completion in a self-paced OPD course. Consequently, the goal of this research was to determine relationships between variables, not to determine cause-effect relationships. Educators enrolled in self-paced ODP courses through Coursera, edX, and Canvas.net were asked to complete a survey combining the Koçdar et al. (2018) Scale for Measuring Self-Regulation in Self-Paced Open and Distance Learning Environments, Ritzhaupt's (2019) Electronic Learner Satisfaction Scale (eLSS), completion and demographic questions. The unit of analysis for this descriptive research design was educators seeking OPD designed for a higher education audience. Data collection methods included a survey and follow-up interviews. Follow-up questions were analyzed using qualitative techniques. I applied for and obtained IRB approval from The University of Tennessee Institutional Review Board (IRB) for this study.

Background and Rationale of Research Design

Descriptive research is a well-suited approach when the goal of the research is to shed light on a specific phenomenon, concept, or experience, and little research has been conducted in the area of interest (Sousa et al., 2007). "Descriptive designs describe what actually exists, determine the frequency with which it occurs, and categorizes the information" (Sousa et al., 2007, p. 3); it answers the who, what, when, where, how many, and how much but not the why. Descriptive research designs are flexible (Sandelowski, 2000, 2010). Descriptive research summarizes specific experiences of individuals in everyday terms (Sandelowski, 2000), exploring the characteristics of an area of interest in an attempt to discover something new (Kramer, 1985), and as such adds to or fills a gap in the literature. Correlational research is used to examine the extent to which a relationship exists between variables or if one variable predicts another variable. It is not used to determine a causal relationship between variables. Descriptive correlational research designs describe the variables and the relationships between variables.

Participants

In this study, I examined educators participating in self-paced OPD courses designed for a higher education audience. By educators, I mean faculty, trainers, instructional designers, graduate teaching assistants, instructors, teachers, etc., working in higher education, non-profit, corporate environments, etc. Educators accessed self-paced OPD courses through the Coursera, edX, and Canvas.net platforms. These courses covered professional development topics of interest to educators, such as teaching, remote teaching, policy, DEI, and learning/teaching tools. Participants consisted of 95 cases.

Sample

A non-probability, non-random, self-selection sampling was used in this study. Non-probability sampling is a viable sampling choice for quantitative, qualitative, and mixed-method research designs (Asiamah et al., 2022). Since the survey was administered during a self-paced online course delivered via an LMS on the Internet, allowing only those who have computers and access to the Internet to participate in the study, it is a non-random sample. This may be a limitation. However, this study seeks to understand how educators self-regulate in a self-paced OPD course, an online learning environment. Therefore, findings were generalized to a population using the Internet for professional development. In other words, the sample was representative of the population.

An advantage of using self-selection sampling is that participants are more likely to be committed to taking part in the study and, therefore, may be willing to provide more insight, for example, by filling out open-ended questions. Another advantage is that self-selection sampling allows researchers to find participants who meet selection criteria. In this study, all participants were self-selected volunteers. Volunteerism, however, can affect the internal and external validity of a research design (Bordens & Abbott, 2014) and may be a limitation of this study. According to Huck (2012), using volunteers can limit "the valid range of generalization" (p. 7). Using volunteers can also lead to self-selection bias; a participant's decision to participate could reveal an inherent bias toward, for example, self-regulation, PD, online courses, or self-directed learning.

Participant Recruitment

Participants enrolled in self-paced OPD courses, accessed a survey link that instructors agreed to add to their courses, and elected to participate in the study by selecting the link, consenting to participate, and completing the survey. Follow-up questions were presented to participants who self-identified by including their email addresses at the end of the survey.

METHODS AND DATA SOURCES

Data Collection Procedures

Participants included in this study enrolled in self-paced OPD courses offered through learning networks such as Coursera, edX, and Canvas.net. Self-paced OPD courses were higher education focused and geared toward educators (e.g. faculty, instructional designers, graduate teaching assistants, instructors, trainers, teachers etc.). Courses were offered through these networks both in the United States and internationally. Self-paced OPD was sought out by participants and not mandatory for participants to complete.

Through learning networks, I searched for self-paced courses using the following search terms: education, higher education, teacher education, education and teacher training, instructional design, and instructional technology. Courses identified were self-paced. Although some included a discussion board, they were not a requirement and all had little to no instructor presence or interaction with instructors or peers. Identified courses included topics of interest to educators, instructional designers, and instructors in a higher education setting. An email was sent to instructors of identified courses requesting them to add the survey to their course. Sixteen courses agreed to participate. Of the participating courses, topics included: Teaching, leadership, policy, DEI, teaching and learning tools (i.e., PowerPoint, Canvas), and remote work. Data collected engaged a survey and subsequent follow-up interviews.

Survey

The survey was offered online. It was a self-report survey—a survey asking for participant attitudes toward self-paced OPD training. The online survey included questions about how participants self-regulate in a self-paced OPD course, their satisfaction with a self-paced online course, as well as various demographic questions (Appendix A, Appendix B, & Appendix C). It should have taken approximately 5-10 minutes to complete. According to Posavac (2016), "the reliability of surveys that focus on current specific behaviors is likely to be very high" (p. 83). This study intends to measure the specific attitudes of educators toward self-paced OPD training. However, there is the possibility for a researcher's data to be reliable without the survey instrument measuring what it claims to measure but, in order for the data to be valid, it must be reliable (Huck, 2012). Even if data is reliable and valid, a study can still fail because incorrect statistical procedures were used to analyze data, the design of the study is faulty, or conclusions were exaggerated beyond what the data actually revealed.

Follow-up questions

Follow-up questions were presented to 11 participants who self-identified by including their email addresses at the end of the survey (Appendix F). The purpose of the follow-up questions was to gain a more in-depth understanding of how learners self-regulated in and were satisfied with self-paced OPD. When possible, follow-up questions were asked during interviews via Zoom. Interviews were recorded and transcribed. Since there were more participants who were outside of the United States of America, some participants were not available for an interview. In those cases, follow-up questions were sent via email.

Instruments

The Scale for Measuring Self-Regulation in Self-Paced Open and Distance Learning Environments (Koçdar et al., 2018) was added to the Electronic Learner Satisfaction Scale (eLSS) (Ritzhaupt, 2019), completion and demographic questions, and presented as one survey disseminated in the self-paced OPD courses.

Demographic Questions. To collect demographic data, participants were asked eleven questions related to age, gender, ethnicity, education level, profession, and use of online learning environments (Appendix A).

SRL Strategies. To measure self-regulation, the Koçdar et al. (2018) scale for measuring self-regulation in self-paced open and distance learning environments was used (Appendix B). This instrument contains 30-items and uses a Likert scale (5-Strongly agree, 4-Agree, 3-Slightly agree, 2-Disagree, 1-Strongly disagree). The five factors measured are goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation.

The Online Self-Regulated Learning Questionnaire (OSLQ), developed by Barnard et al. (2009), is another popular tool for measuring self-regulated learning in online environments. However, Koçdar et al. (2018) suggest that the OSLQ is "not an appropriate tool for the learner-paced open and distance learning experience and is used mostly for cohort-based online settings" (p. 28). To develop the scale for measuring self-regulation in self-paced open and distance learning environments, Koçdar et al. (2018) drafted a 62-item instrument using a Likert scale (5-Strongly agree, 4-Agree, 3-Slightly agree, 2-Disagree, 1-Strongly disagree). To ensure content validity, the scale was presented to seven experts, researchers with PhDs chosen for their work in open and distance learning. The scale was then reduced to 55 items based on expert feedback. After testing the draft scale, an item analysis was conducted followed by an Exploratory Factor Analysis and Confirmatory Analysis eliminating more items. Finally, to test for internal consistency and reliability, the Cronbach's alpha coefficient and the item-total test score correlation were calculated. Cronbach's alpha was .937. Item-total correlations below .30 were excluded. Five factors (goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation) and 30 items remained and became the final version.

Although information regarding reliability and validity is known about the instruments—Scale for Measuring Self-Regulation in Self-Paced Open and Distance Learning Environments (Koçdar et al., 2018) and the Electronic Learner Satisfaction Scale (eLSS) (Ritzhaupt, 2019)—as of the time of the writing of this study, they had not been tested in many self-paced online environments (e.g., mobile, simulation, educational gaming, and other virtual learning environments). More research with other audiences in other courses accessed via other technologies will be needed to gain a better understanding of the capabilities of these instruments.

Satisfaction. To measure learner satisfaction in self-paced online environments, Ritzhaupt's (2019) Electronic Learner Satisfaction Scale (eLSS) was used (Appendix C). The eLSS is specifically designed "to measure a learner's satisfaction with a self-paced e-learning environment without teacher guidance and support" (p. 287). The eLSS is based on a semantic differential scale and includes nine items: Hard to learn - Easy to learn, Negative—Positive, Unnatural—Natural, Ineffective—Effective, Unclear—Clear, Unsupportive—Supportive, Annoying—Pleasing, Difficult—Easy, and Frustrating—Gratifying.

To ensure face validity, the eLSS was reviewed by two researchers from educational measurement and research methods and two researchers specializing in educational technology. Feedback resulted in changes to survey instructions but no items were altered or removed. Content validity was established through a conceptual framework including positively correlating word pairs for each construct of learning satisfaction. Moreover, a think aloud protocol scale was used to test scale items. To provide evidence of the scale's construct validity, an Exploratory Factor Analysis was conducted. Bartlett's test of sphericity had a chi-square of 3681.03 ($p < .001$) suggesting adequate common variance. The Kaiser-Meyer-Olkin measure of sample adequacy was above the recommended limit at .94. Finally, the participant-to-item ratio was 70:1, which was above the recommended ratio for maintaining factor stability. Correlational analyses were performed to establish internal validity. All correlation coefficients were statistically significant and the Cronbach alpha was .93 establishing internal validity. To establish external validity, Ritzhaupt (2019) conducted four studies using the eLSS to measure learner satisfaction.

Completion. To measure their completion process, participants were asked to self-report their completion status in the survey.

Survey dissemination

I contacted instructors/facilitators of higher education focused OPD courses through the learning networks Coursera, edX, and Canvas.net and requested that they include the survey (consent form included) in their courses. An email was used to contact OPD instructors/facilitators (Appendix D). A link to the survey was provided in the email. Due to very low completion rates in both online and self-paced online courses (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar, et al., 2018), I suggested that course instructors/facilitators offer the survey midway through their course. Offering it at the end of the course could significantly decreased participation. Moreover, Rizzuto (2017) found that faculty who completed self-paced online courses were more satisfied. Therefore, only measuring the satisfaction of participants who complete the course could skew the results of the study. Taking this into consideration, it was important to distribute the survey before participants completed the course. Offering the survey midway would allow participants to finish enough of the course to answer survey questions, but catch them right before or after half-way, a transition that could be a potential exit point for participants. However, the design of the course could restrict where an instructor included the survey. Ultimately, some instructors of the participating courses added the survey to a general area where instructions for the course were provided, with other course evaluations, discussion boards, course communities, and announcements; all of them added the survey somewhere before the end of the course.

Since I do not have access to the LMS/CMS used for the OPD courses, participants were asked to self-report their completion status: Complete or intent to complete (Yes/No). The instruments—demographic survey, the Scale for measuring self-regulation in self-paced open and distance learning environments (Koçdar et al., 2018), and the Electronic Learner Satisfaction Scale (eLSS) (Ritzhaupt, 2019)—were distributed as one single survey.

Participant Informed Consent

Participants were asked to provide their informed consent before participating in this study. After clicking the survey link provided in their respective courses, participants were provided with the informed consent. They were not allowed access the survey unless they agreed and consented to be in the study (Appendix E). Participants who elected not to provide consent and complete exited closing their browser window. No incentives were provided to gain compliance from participants.

Data Cleaning Procedures

Before analyzing the quantitative data, preliminary steps were taken to clean the data, removing invalid data points—either obviously disconnected or erroneous—from the data set. Electing not to clean data could damage a statistical analysis increasing error, reducing statistical power, violating assumptions, and increasing the probability of making Type I and Type II errors (Osborne & Overbay, 2004).

To check and clean the data, I used Morrow and Skolits (2017) 12-step data cleaning process and Tabachnick and Fidell’s (2018) guidelines. For the first step, I created a detailed codebook. The data set contained eight demographic variables, five professional development questions, thirty SRL strategy variables, nine satisfaction variables, and one completion variables (Appendix A). The demographic questions included age, gender, race, school level, employment status, place of employment, job title, and place of residence within or outside of the United States of America. The self-paced online professional development questions included number of professional development started, number of professional development completed, type of professional development, self-paced professional development course, and participant definition of self-paced learning. The thirty SRL strategy statements asked participants about their goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation in self-paced online professional development environments. The responses were placed on a 5-point Likert scale (1 = "Strongly Agree", 2 = "Agree", 3 = 'Slightly Agree", 4 = "Disagree", 5 = "Strongly Disagree") (Appendix B). Nine learner satisfaction scale items asked participants to rate their satisfaction on a 5-point scale (5=Hard to learn—1=Easy to learn, 5 = Negative—1=Positive, 5=Unnatural—1=Natural, 5=Ineffective—1=Effective, 5=Unclear—1=Clear, 5=Unsupportive—1=Supportive, 5=Annoying—1=Pleasing, 5=Difficult—1=Easy, and 5=Frustrating—1=Gratifying). Finally, the data set included two questions that asked participants if they completed or intended to complete the self-paced online professional development course. To satisfy the second step, I developed an data analysis plan (Appendix G).

For steps three, four, and five, I performed initial frequencies, checked the data for coding mistakes, and modified and created new variables. The initial inspection revealed that the data set included 190 cases but had 82 missing cases (participants consented but did not respond to any questions), five cases where participants only answered one or two questions leaving the remaining questions blank, and eight participants that did not consent and were exited out of the system. These 95 missing cases were deleted leaving 95 cases for this analysis.

I asked 63 course instructors to include the survey in their courses, of which 16 agreed. When making the requests, I sent an email with a link to the survey. It is possible that many of the missing cases were the result of instructors opening the survey to inspect it and decide whether they wanted to include it in their courses but not completing the survey.

Variables were named to match the codebook. Separate variables were created for Other [Empty field to be filled in by participant] for four demographic variables. For gender, no one added descriptors for “Other”, therefore I deleted the “Other” gender variable. The “Other” race variable contained answers that were the same as the response values. For example, one individual indicated “white” in the “Other” field, which is “Caucasian,” one of the response values for race. The coding errors were corrected and race and “Other” race were combined into a single race variable.

To satisfy step six, I repeated the third step and ran frequencies again to double check if I missed anything. Then, I checked descriptives and Z-scores for continuous variables to check for outliers and satisfy step seven. “An outlier is a case (or very few cases) that seems to be unattached to the rest of the distribution” (Tabachnick & Fidell, 2018, p. 108). Univariate outliers among continuous variables are cases with very large Z-scores on one or more variables that are disconnected from the other Z-scores. “Cases with standardized scores in excess of 3.29 ($p < .001$, two tailed test) are potential outliers" (Tabachnick & Fidell, 2018, p. 107). Therefore, it was determined that outliers for variables are cases with Z-scores more than 3.29 standard deviations greater than the mean. However, extremeness of scores is dependent on sample size; a large sample is expected to have a few Z-scores in excess of 3.29 (Tabachnick & Fidell, 2018). An examination of Z-scores showed that there were a few SRL strategy variables with standardized scores in excess of 3.29, which could be a potential outlier: zGSMYF (62-3.907591), zGSPLN (34-3.657115), zGSARG (62-3.606535), zSSDRF (62-3.325228), zSSRPC (62-3.877845), zSSREV (62-3.861813), zSSRL (62-3.380633), zSSEVP (62-3.836778), zPECMF (47-4.044124). None of the Satisfaction variables had Z-scores in excess of 3.29; therefore no outliers were considered. I dealt with outliers in the SRL variables by winzoring. Then, I performed a factor analysis on the SRL variables with the winzorized outliers. Conducting a factor analysis was important because there were 30 interconnected SRL variables and I planned regression analyses. Therefore, I was interested in reducing the number of variables in the regression model.

For step eight, I assessed the data for normality. A look at the univariate normality (histograms) showed most data are skewed, which is typical for Likert scale data and means a higher likelihood of outliers. The SRL strategy variables were skewed to the right (positive). Satisfaction variables were skewed to the left (negative). Multivariate normality of the data was examined using the Mardia test. Data are considered to have multivariate normality when both p-values of skew and kurtosis are greater than .05. The Mardia test showed p-values for skew and kurtosis that were more than .05, indicating data were multivariate normal. The quantiles in the Q-Q plot also show a near normal distribution. If the sample size is large, the variable with statistically significant skewness is not far enough from normal to impact the analysis substantively. This is also true of kurtosis. (Tabachnick & Fidell, 2018).

Step nine, I checked for and dealt with missing data. I examined missing values. One variable, "Effort regulation: I make an effort to understand the subjects in my distance education lessons" had 6.3% missing values. Missing values greater than five percent can cause problems in a moderately sized data set (Tabachnick & Fidell, 2018). Evaluating missing data patterns gives us an idea of the location of missing values so we can better understand the underlying reasons for the missing values and discover any relationships that exist between variables with missing data (Heymans & Eekhout, 2019). When missing values are unrelated to the variables in a dataset, it is referred to as Missing Completely at Random (MCAR); the distribution of missing data is unpredictable. I ran Little's MCAR test to check if the data were MCAR. The MCAR test was not statistically significant $p > .05$, which indicated that the data were MCAR. A large p-value ($p > .05$) indicates weak evidence against the null hypothesis; therefore, we fail to reject the null hypothesis. In this case, the null hypothesis is that the data are MCAR. Therefore, MCAR indicates the probability that the pattern of missing diverges from randomness is greater than .05, so that MCAR may be inferred and no patterns exist in the missing data; data is missing completely at random (Tabachnick & Fidell, 2018). I also examined a Missing Data Values Map. An examination of the estimated missing data patterns showed that the missing data pattern is multivariate and non-monotone or general with a high degree of connectedness. Finally, I dealt with the Effort regulation variable that had 6.3% missing values by substituting the mean value for the variable for the missing values.

In step ten, I examined the cell sample size. Some demographic variables had an uneven distribution of values. This could indicate a lack of diversity in the sample. Therefore, for variables of interest, I decided to collapse categories to create a better distribution of values. For example, only one individual responded “Prefer not to say” for the gender question and only one individual responded “Gender non-conforming”. All others responded “Female” or “Male”. Therefore, the response values were collapsed (recoded) to include just “Female” and “Male” (Table 3.1). For other variables of interest, it was determined that cell sample size was adequate. For step eleven, I ran the frequencies and descriptives for the final time (Table 4.1, 4.2, & 4.3). In the final step, before I began testing I performed assumption testing and examined any assumptions. These are included with each individual test.

Analysis Plan

Survey data were examined using quantitative techniques. Descriptive statistics were used to address quantitative questions, examining the frequency distribution of key variables. Means and standard deviations were computed for continuous variables and percentages for categorical variables. These data were used to describe the study participants (characteristics), address descriptive research questions, and inform the statistical analysis.

After data-cleaning procedures, I prepared to analyze the data. Using R, I added an ID variable and set demographic variables, professional development variables, and the completion variable to factor and SRL strategy variables and satisfaction variables to

Table 3.1. Demographic Variables After Data Cleaning Procedures

Variable	Original Value Labels	Labels After Collapse
Gender	1=Female 2=Male 3=Gender non-conforming 4=Prefer not to say 5=Other	1=Female 2=Male

numeric. Then, I ran descriptive statistics (mean, standard deviation, minimum and maximum values, range, skew, and kurtosis, etc.) and frequencies on all variables (Table 4.1, 4.2, & 4.3).

The demographic variables included: the age (AGE) and gender (GENDER) of each participant, the level of school finished (SCHOOL), whether they resided in or outside of the United States of America (RESIDE), the race of participants (RACE), employment status (EMPLS), place of employment (EMPLP), and their position (JOBTT). The professional development variables included: the number of professional development courses, workshops and/or trainings participants started (PDSTR), how many they completed (PDCOP), and how they would describe the professional development courses, workshops, and/or trainings. PRDEV (Table 4.1). SRL strategy variables included: Goal-setting: I set my study goals daily (GSSGD), I set goals for myself while studying (GSMYF), I study my lessons in a planned manner (GSPLN), I set goals for myself to arrange my study hours for distance (GSARG), I do not compromise on the quality of what I do for my lessons (GSQLT), Help-seeking: I contact someone to discuss my understanding (HSSMN), I participate in social media group discussions regarding study subjects (HSSMG), When I do not understand the distance education course material, I ask another student for help (HSSTD), I contact other students, who I think are successful, on social media (HSSSM), I determine what I will ask before receiving help (HSBFR), I find someone who has information about the course content to consult when I need help (HSCCN), I share my questions about the lessons with other distance education students on the Internet (HSSHR), I try to talk face-to-face with my classmates in distance education if necessary (HSSFTF), I insist on receiving help from someone who has information about the course content on the Internet (HSINT), Self-study strategies: I think of questions on the subject while reading the material (SSQRM), I draw up a draft of reading material to be able to organize my thoughts (SSDRF), I practice by repeating the contents of the material (SSRPC), I review my reading materials and notes and try to find the most important opinions (SSREV), I create simple schemes, diagrams, or tables to organize my study materials (SSCSD), While studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects (SSRLS), I summarize the subjects to understand what I have learned from the lessons (SSSML), I evaluate what I understand by pausing at regular intervals while studying (SSEVP), Manage physical environment: I prefer studying in places where I can concentrate (PECON), I choose a comfortable place to study (PECMF), I have places where I can study efficiently for my distance education lessons (PEPLS), I choose places where nothing distracts me from studying my distance education lessons (PENDS), I study my lessons in places where I can focus (PEFOC), I have a regular place to study (PERGP), Effort regulation: I study the course subjects until finishing them even though I find the course materials boring (ERFIN), and I make an effort to understand the subjects in my distance education lessons (ERUND) (Table 4.2). Satisfaction variables included: Satisfaction: Hard to Learn ←→ Easy to Learn (SNHTE), Negative ←→ Positive (SNNTP), Unnatural ←→ Natural (SNUTN), Ineffective ←→ Effective (SNITE), Unclear ←→ Clear (SNUTC), Unsupportive ←→ Supportive (SNUTS), Annoying ←→ Pleasing (SNATP), Difficult ←→ Easy (SNDTE), and Frustrating ←→ Gratifying (SNFTG) (Table 4.3). The completion variable was Completion of the OPD course (CMPCO) (Table 4.1). Finally, qualitative variables that asked participants to fill in a text field that asked participants, to define online self-paced learning (SPCRS), and from which course they accessed the survey (SPCRS). Other qualitative variables included the Other field that asked participants to type in a response if none of the options provided described them. These Other variables asked participants to describe their place of employment (EOTHER) and their position at their place of employment (JOTHER).

The data analysis plan (Appendix G) included descriptive statistics and correlational analyses to explore relationships between self-regulatory strategies (goal setting, help-seeking, self-study strategies, managing physical environments, and effort regulation), satisfaction, and completion. Statistical analyses included: Frequencies, Percentages, Correlational analyses (e.g., Pearson's *r*, Spearman's rho, Rank-biserial, Phi Coefficient), Chi-Square test, Logistic Regression and Multiple Regression. R was used to perform the statistical analysis.

Research Question One

To address the first research question, "Who are educators (what are their characteristics) pursuing self-paced OPD?", I used survey data and descriptive statistical analysis techniques (e.g., percentage and frequency) to report results. Then, I examined relationships between demographic variables and other nominal variables using Spearman's rho correlation, Phi Coefficient correlation, Rank-biserial correlation, and Chi-square of independence tests.

To address the second part of the first question, "To what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?", I examined measures of central tendency, standard deviation, variance, percentages, and frequencies using percentages to describe how participants used SRL strategies in a self-paced OPD course.

Research Question Two

To address the second question, “How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how do they relate to educator characteristics?”, I described the percentage of educators reporting their degree of satisfaction with self-paced online faculty development training (Hard to learn—5,4,3,2,1—Easy to learn, Negative—5,4,3,2,1-—Positive, Ineffective—5,4,3,2,1—Effective, Frustrating—5,4,3,2,1—Gratifying, etc.). Then, I used Pearson’s product moment correlations (*r*) to shed light on how SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) related to each other and related to satisfaction and completion. Finally, logistic regression was conducted to investigate any relationship between gender and SRL strategies.

Research Question Three

To address the first part of the third question, “How does the use of SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) (DV) affect completion (No/Yes) (IV) in a self-paced OPD course?”, I investigated the relationship between completion and SRL strategies using a One-way Multivariate Analysis of Variance (MANOVA).

To address the second part of the third question, “Which SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) (independent/predictor variables) predict learner satisfaction (hard to learn—easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—

clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying) (dependent/criterion variables)?" I ran Bivariate correlations to assess the relationships between all variables. Then, I conducted a Standard Multiple Regression to investigate if SRL strategies predicted satisfaction or what was the probability that SRL strategies would predict satisfaction (independent/predictor factors) (frustrating, unsupportive, difficult).

Research Question Four

To address the first part of the fourth question, "How does learner satisfaction (IV) impact completion (DV) in a self-paced OPD course?", I conducted point biserial correlations to better understand how variables relate to each other and to assess if they were suitable for a logistic regression. Then, a logistic regression was planned to understand if satisfaction factors predicted completion.

Finally, to address the second part of the fourth question, "How does completion (IV) impact satisfaction (DV) in a self-paced asynchronous OPD course?", I conducted a One-way Multivariate Analysis of Variance (MANOVA) to examine the mean differences and statistical significance of one independent grouping variable, in this case, completion (No, Yes) (IV), and multiple continuous dependent variables, in this case, satisfaction factors (frustrating, unsupportive, and difficult) (DVs). Next, in chapter four, I will present the study results.

CHAPTER FOUR

RESULTS

Research Question One

The following chapter presents the results of the data analyses by research question. To address the first part of the first research question, “Who are educators (what are their characteristics) pursuing self-paced OPD to what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?” I used survey data and descriptive statistical analysis techniques (e.g., percentage and frequency) to report results (Table 4.1). Rank-biserial correlation was used to assess the relationship between completion and OPD courses started and completed. Then, I used Rank biserial examine relationships that included gender, age, race, and the number of OPD courses. Cramer’s V was used to assess the association between gender and employment status. Following this,, I used a Spearman’s rho correlation to analyze relationships between ordinal demographic and OPD course variables. Then, Chi-square tests were used to see if a relationship existed between gender and completion and the number of OPD courses completed and completion. Finally, I conducted a logistic regression to understand if Gender and Number of OPD courses completed predict course Completion.

Rank-biserial correlation was used to assess if there is a relationship between Completion (No, Yes) and the Number of OPD courses started (1-2, 3-4, 5-6, 7-8, 9-10, 10+). Rank biserial correlation is used to test the relationship between a dichotomous variable and an ordinal variable. The Rank-biserial coefficient was .107, which is not significant. There is a very weak positive relationship between completion and the Number of OPD courses started.

Rank-biserial correlation was conducted to assess if there is a relationship between Completion (No, Yes) and the Number of OPD courses completed (1-2, 3-4, 5-6, 7-8, 9-10, 10+). The Rank-biserial coefficient was .202; it was not significant. There was a very weak positive relationship between completion and the Number of OPD courses completed.

A Rank-biserial was conducted to investigate if a relationship existed between Age and Race. The Rank-biserial coefficient was .360, which was significant. There was a positive relationship between Age and Race.

Rank-biserial was used to examine the relationship between Age and Reside. The Rank-biserial coefficient was .265, which is significant at the .05 level; however, it is a weak positive correlation. This result indicates that Age is only weakly associated with Reside.

To assess the relationship between Gender and Employment status, a Cramer's V was conducted. Cramer's V is used to examine the relationship between two nominal categorical variables with two or more levels. The resulting value was .391, $p < .01$, indicating there was a positive relationship between Gender and Employment status.

Spearman's rho correlation was used to test two ordinal variables School (1-Doctorate degree, 2-Professional degree, 3-Master's degree, 4-Bachelor's degree, 5-Associate's degree, 6-Some college, no degree, 7-Technical/Vocational training 8-High School graduate, 9-Some high school) and the amount of OPD courses started (1-2, 3-4, 5-6, 7-8, 9-10, 10+). The Spearman's rho correlation coefficient was -.174, which is not

Table 4.1. Frequencies and percentages of demographic and completion variables.

Variable	Value Label	Frequency ($N=95$)	Percent
AGE	1=18-24	18	18.9
	2=25-34	27	28.4
	3=35-44	17	17.9
	4=45-54	24	25.2
	5=55-64	5	5.3
	6=65-74	2	2.1
	7=75+	1	1.1
	NA	1	1.1
GENDER	1=Female	66	69.5
	2=Male	27	28.4
	NA	2	2.1
SCHOOL	1=Doctorate Degree	4	4.2
	2=Professional Degree	4	4.2
	3=Master's degree	23	24.2
	4=Bachelor's degree	44	46.3
	5=Associates degree or 2-year degree	5	5.3
	6=Some college, no degree	5	5.3
	7=Trade/technical/vocational training	0	0
	8=High school graduate, diploma, or equivalent	7	7.3
	9=Some high school, no diploma	2	2.1
	NA	1	1.1
RESIDE	1=Outside of the United States of America	73	76.8
	2=Within the United States of America	19	20.0
	NA	3	3.2
RACE	1=Asian	33	34.7
	2=Black/African	20	21.0
	3=Caucasian	22	23.2
	4=Hispanic/Latinx	4	4.2
	5=Native American	0	0
	6=Pacific Islander	2	2.1
	7=Other	6	6.3
	8=Prefer not to answer	7	7.4
	NA	1	1.1
EMPLS (Employment Status)	1=Employed	57	60.0
	2=Self-employed	17	17.9
	3=Out of work for less than one year	8	8.4
	4=Out of work for more than one year	11	11.6
	NA	2	2.1

Table 4.1. Continued

Variable	Value Label	Frequency (*N=95*)	Percent
EMPLP (Place of Employment)	1=4-year institution of higher education	26	27.4
	2=Community college	3	3.2
	3=Corporate Environment	8	8.4
	4=Non-profit	10	10.5
	5=Other	43	45.3
	NA	5	5.2
JOBTT (Position/Job Title)	1=Tenured	4	4.2
	2=Tenure-track	0	0
	3=Adjunct/Lecturer	8	8.4
	4=Clinical faculty	3	3.2
	5=Staff instructor	9	9.5
	6=Graduate Teaching Assistant / Associate	15	15.8
	7=Corporate trainer	5	5.2
	8=Other	47	49.5
	NA	4	4.2
PDSTR (OPD Started)	1=1-2	37	38.9
	2=3-4	24	25.2
	3=5-6	10	10.5
	4=7-8	3	3.2
	5=9-10	1	1.1
	6=10+	19	20.0
	NA	1	1.1
PDCOP (OPD Completed)	1=1-2	39	41.0
	2=3-4	20	21.0
	3=5-6	11	11.6
	4=7-8	1	1.1
	5=9-10	1	1.1
	6=10+	21	22.1
	NA	2	2.1
PRDEV (OPD Description)	1=Online asynchronous	23	24.2
	2=Online synchronous	20	21.0
	3=Online self-paced	39	41.1
	4=Face-to-face	9	9.5
	NA	4	4.2
CMPCO (Completion: Did you complete the course?)	1=No	82	86.3
	2=Yes	13	13.7

significant. It is a weak negative correlation. Level of School and the amount of OPD course started do not have a significant relationship.

Spearman's correlation was used to test two ordinal variables School (1-Doctorate degree, 2-Professional degree, 3-Master's degree, 4-Bachelor's degree, 5-Associate's degree, 6-Some college, no degree, 7-Technical/Vocational training 8-High School graduate, 9-Some high school) and the amount of OPD courses completed (1-2, 3-4, 5-6, 7-8, 9-10, 10+). The Spearman's rho correlation coefficient was -.131, which is not significant. It is a weak negative correlation. Level of school and the amount of OPD course completed are not significantly related.

Then, I conducted a Chi-square of independence test to investigate Gender (Female, Male) and Completion (No, Yes). A Chi-square tests two independent nominal variables to understand if the values of one variable is related to or dependent on the values of the other variable. The Chi-square test compares observed values in the data with expected values to see if the null hypothesis is true. The null hypothesis is there is no relationship between Gender and Completion: H_0: $\chi^2 = 0$. The participant's Gender is independent from their Completion. The results showed that Gender and Completion were significantly related, $\chi^2(1) = 4.516$, $p = .034$ (Table 4.6). The null hypothesis was rejected and Gender is related to Completion.

Finally, A Chi-square of independence test was used to investigate the Number of OPD Completed (1=1-2, 2=3-4, 3=5-6, 4=7-8, 5=9-10, 6=10+) and Completion (No, Yes). The null hypothesis is there is no relationship between OPD Completed and Completion: H_0: $\chi^2 = 0$. The Number of OPD Completed is independent from Completion. The results showed that OPD Completed and Completion were significantly related, $\chi^2(5) = 12.425$, $p = .029$ (Table 4.7). The null hypothesis was rejected and Number of OPD Completed is related to Completion.

To address the second part of question one, “To what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?”, I examined measures of central tendency, standard deviation, variation, percentage, and frequency to describe how participants used self-regulatory strategies in a self-paced OPD course. Then, using a correlational analysis, I investigated how the strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) related to each other.

The five SRL strategy Goal-setting variables: I set my study goals daily (GSSGD), I set goals for myself while studying (GSMYF), I study my lessons in a planned manner (GSPLN), I set goals for myself to arrange my study hours for distance (GSARG), and I do not compromise on the quality of what I do for my lessons (GSQLT) all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): GSSGD (92.6%), GSMYF (92.6%), GSPLN (94.7%), GSARG (92.6%), and GSQLT (88.4%) (Table 4.2).

The nine SRL strategy Help-seeking variables: I contact someone to discuss my understanding (HSSMN); I participate in social media group discussions regarding study subjects (HSSMG); when I do not understand the distance education course material, I ask another student for help (HSSTD); I contact other students, who I think are successful, on social media (HSSSM); I determine what I will ask before receiving help (HSBFR); I find someone who has information about the course content to consult when

I need help (HSCCN); I share my questions about the lessons with other distance education students on the Internet (HSSHR); I try to talk face-to-face with my classmates in distance education if necessary (HSFTF); and, I insist on receiving help from someone who has information about the course content on the Internet (HSINT) all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): HSSMN (89.4%), HSSMG (70.5%), HSSTD (72.6%), HSSSM (62.1%), HSBFR (91.5%), HSCCN (85.2%), HSSHR (72.6%), HSFTF (60.0%), and HSINT (72.6%) (Table 4.2).

The eight SRL strategy Self-study strategies variables: I think of questions on the subject while reading the material (SSQRM); I draw up a draft of reading material to be able to organize my thoughts (SSDRF); I practice by repeating the contents of the material (SSRPC); I review my reading materials and notes and try to find the most important opinions (SSREV); I create simple schemes, diagrams, or tables to organize my study materials (SSCSD); while studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects (SSRLS); I summarize the subjects to understand what I have learned from the lessons (SSSML); and, I evaluate what I understand by pausing at regular intervals while studying (SSEVP) all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): SSQRM (100%), SSDRF (91.6%), SSRPC (96.7%), SSREV (93.6%), SSCSD (93.7%), SSRLS (89.4%), SSSML (92.6%), and SSEVP (94.7%) (Table 4.2).

The six SRL strategy Manage physical environment variables: I prefer studying in places where I can concentrate (PECON), I choose a comfortable place to study (PECMF), I have places where I can study efficiently for my distance education lessons (PEPLS), I choose places where nothing distracts me from studying my distance education lessons (PENDS), I study my lessons in places where I can focus (PEFOC), and I have a regular place to study (PERGP) all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): PECON (100%), PECMF (94.7%), PEPLS (92.6%), PENDS (92.6%), PEFOC (94.7%), and PERGP (87.3%) (Table 4.2).

The two SRL strategy Effort regulation variables: I study the course subjects until finishing them even though I find the course materials boring (ERFIN) and I make an effort to understand the subjects in my distance education lessons (ERUND) all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): ERFIN (94.8%) and ERUND (93.7%) (Table 4.2).

Research Question Two

"How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how to they relate to educator characteristics?" During data cleaning and factor analysis, I set demographic variables to factor and Likert scale data to numeric to perform an exploratory correlational analyses. I looked at measures of central tendency. Then, I examined frequencies and percentages (Table 4.1, 4.2, & 4.3). Using a correlational analysis, I investigated how the strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) related to each other and how they related to satisfaction variables. Then, I conducted a correlational analysis to examine how satisfaction variables related to other satisfaction variables. Following this, I conducted a logistic regression to examine gender and SRL strategy factors (goal-setting, help-seeking, self-study strategies, managing physical environment). Finally, Chi-square tests were used to see if a relationship existed between gender and completion and the number of OPD courses completed and completion. Finally, I conducted a logistic regression to understand if Gender and Number of OPD courses completed predict course Completion.

Referred to as Pearson's *r*, Pearson's product moment correlation (*r*) is a correlation statistic that measures the degree of linear relationship between two continuous variables. The Pearson correlation coefficient *r* is a value between -1 and 1. Pearson's product moment correlations (*r*) were calculated to assess the relationship between the dependent SRL strategies variables (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation).

Pearson's product moment correlation (*r*) shed light on how SRL strategies relate to other SRL strategies. There were some SRL strategies that correlated with other SRL strategies: HSSSM and HSSTD, HSSSM and HSSHR, HSSSM and HSFTF, SSRPC and SSREV, SSSML and SSREV, SSSML and SSRLS, and PECMF and PENDS. Variables are considered highly correlated when their magnitude is between 0.7 and 0.9 (Hinkle et al., 2003).

Pearson's *r* correlation coefficient was 0.78 for HSSSM (I contact other students, who I think are successful on social media) and HSSTD (When I do not understand the distance education course material, I ask another student for help). This indicates a high positive correlation. The coefficient of determination (r2) was 0.61, which means that 61% of the variance in HSSTD is associated with the variance in HSSSM; thus, indicating a high correlation. The coefficient is positive when one variable increases as another increases. This implies that a high rate of participants who contact other students, who are thought to be successful on social media is associated with a high rate of participants who ask another student for help when they do not understand the distance education course material.

Pearson's *r* correlation coefficient was 0.77 for HSSSM (I contact other students, who I think are successful, on social media) and HSSHR (I share my questions about the lessons with other distance education students on the Internet). This indicates a high positive correlation. The coefficient of determination (r2) was 0.59, which means that 59% of the variance in HSSHR is associated with the variance in HSSSM; thus, indicating a high correlation. This suggests that a high rate of participants who contact other students, who they think are successful on social media is associated with a high rate of participants who share their questions about the lessons with other distance education students on the Internet.

Pearson's *r* correlation coefficient was 0.73 for HSSSM (I contact other students, who I think are successful, on social media) and HSFTF (I try to talk face-to-face with my classmates in distance education if necessary). This indicates a high positive correlation. The coefficient of determination (r2) was 0.53, which means that 53% of the variance in HSFTF is associated with the variance in HSSSM; thus, indicating a high correlation. This suggests that a high rate of participants who contact other students, who they think are successful on social media is associated with a high rate of participants who try to talk face-to-face with their classmates in distance education if necessary.

Pearson's *r* correlation coefficient was 0.70 for SSRPC (I practice by repeating the contents of the material) and SSREV (I review my reading materials and notes and try to find the most important opinions). This indicates a high positive correlation.

Table 4.2. Frequencies and percentages of SRL strategy variables.

Variable	Value Label	Frequency (N=95)	Percent
GSSGD (Goal-setting: I set my study goals daily.)	1=Strongly Agree	24	25.3
	2=Agree	46	48.4
	3=Slightly Agree	18	18.9
	4=Disagree	4	4.2
	5=Strongly Disagree	2	2.1
	NA	1	1.1
GSMYF (Goal-setting: I set goals for myself while studying.)	1=Strongly Agree	28	29.5
	2=Agree	48	50.5
	3=Slightly Agree	12	12.6
	4=Disagree	2	2.1
	5=Strongly Disagree	1	1.1
	NA	4	4.2
GSPLN (Goal-setting: I study my lessons in a planned manner.)	1=Strongly Agree	26	27.3
	2=Agree	49	51.6
	3=Slightly Agree	15	15.8
	4=Disagree	3	3.1
	5=Strongly Disagree	1	1.1
	NA	1	1.1
GSARG (Goal-setting: I set goals for myself to arrange my study hours for distance.)	1=Strongly Agree	30	31.6
	2=Agree	41	43.1
	3=Slightly Agree	17	17.9
	4=Disagree	2	2.1
	5=Strongly Disagree	1	1.1
	NA	4	4.2
GSQLT (Goal-setting: I do not compromise on the quality of what I do for my lessons.)	1=Strongly Agree	29	30.5
	2=Agree	38	40.0
	3=Slightly Agree	17	17.9
	4=Disagree	7	7.4
	5=Strongly Disagree	2	2.1
	NA	2	2.1
HSSMN (Help-seeking: I contact someone to discuss my understanding.)	1=Strongly Agree	18	18.9
	2=Agree	34	35.8
	3=Slightly Agree	33	34.7
	4=Disagree	9	9.5
	5=Strongly Disagree	1	1.1

Table 4.2. Continued.

Variable	Value Label	Frequency (*N=95*)	Percent
HSSMG (Help-seeking: I participate in social media group discussions regarding study.)	1=Strongly Agree	11	11.6
	2=Agree	33	34.7
	3=Slightly Agree	23	24.2
	4=Disagree	21	22.1
	5=Strongly Disagree	4	4.2
	NA	3	3.2
HSSTD (Help-seeking: When I do not understand the distance education course material, I ask another student for help.)	1=Strongly Agree	17	17.9
	2=Agree	38	40.0
	3=Slightly Agree	14	14.7
	4=Disagree	19	20.0
	5=Strongly Disagree	7	7.4
HSSSM (Help-seeking: I contact other students, who I think are successful, on social media.)	1=Strongly Agree	11	11.6
	2=Agree	29	30.5
	3=Slightly Agree	19	20.0
	4=Disagree	27	28.4
	5=Strongly Disagree	8	8.4
	NA	1	1.1
HSBFR (Help-seeking: I determine what I will ask before receiving help.)	1=Strongly Agree	33	34.7
	2=Agree	38	40.0
	3=Slightly Agree	16	16.8
	4=Disagree	5	5.3
	5=Strongly Disagree	2	2.1
	NA	1	1.1
HSCCN (Help-seeking: I find someone who has information about the course content to consult when I need help.)	1=Strongly Agree	25	26.3
	2=Agree	38	40.0
	3=Slightly Agree	18	18.9
	4=Disagree	10	10.5
	5=Strongly Disagree	3	3.2
	NA	1	1.1
HSSHR (Help-seeking: I share my questions about the lessons with other distance education students on the Internet.)	1=Strongly Agree	12	12.6
	2=Agree	30	31.6
	3=Slightly Agree	27	28.4
	4=Disagree	21	22.1
	5=Strongly Disagree	4	4.2
	NA	1	1.1

Table 4.2. Continued.

Variable	Value Label	Frequency (*N=95*)	Percent
HSFTF (Help-seeking: I try to talk face-to-face with my classmates in distance education if necessary.)	1=Strongly Agree	10	10.5
	2=Agree	26	27.4
	3=Slightly Agree	21	22.1
	4=Disagree	22	23.2
	5=Strongly Disagree	14	14.7
	NA	2	2.1
HSINT (Help-seeking: I insist on receiving help from someone who has information about the course content on the Internet.)	1=Strongly Agree	15	15.8
	2=Agree	36	37.9
	3=Slightly Agree	18	18.9
	4=Disagree	16	16.8
	5=Strongly Disagree	9	9.5
	NA	1	1.1
SSQRM (Self-study strategies: I think of questions on the subject while reading the material.)	1=Strongly Agree	31	32.6
	2=Agree	47	49.5
	3=Slightly Agree	17	17.9
	4=Disagree	0	0
	5=Strongly Disagree	0	0
SSDRF (Self-study strategies: I draw up a draft of reading material to be able to organize my thoughts.)	1=Strongly Agree	27	28.4
	2=Agree	44	46.4
	3=Slightly Agree	16	16.8
	4=Disagree	4	4.2
	5=Strongly Disagree	2	2.1
	NA	2	2.1
SSRPC (Self-study strategies: I practice by repeating the contents of the material.)	1=Strongly Agree	29	30.5
	2=Agree	47	49.4
	3=Slightly Agree	16	16.8
	4=Disagree	1	1.1
	5=Strongly Disagree	1	1.1
	NA	1	1.1
SSREV (Self-study strategies: I review my reading materials and notes and try to find the most important opinions.)	1=Strongly Agree	42	44.2
	2=Agree	32	33.7
	3=Slightly Agree	15	15.7
	4=Disagree	1	1.1
	5=Strongly Disagree	1	1.1
	NA	4	4.2

Table 4.2. Continued.

Variable	Value Label	Frequency (*N=95*)	Percent
SSCSD (Self-study strategies: I create simple schemes, diagrams, or tables to organize my study materials.)	1=Strongly Agree	26	27.4
	2=Agree	40	42.1
	3=Slightly Agree	23	24.2
	4=Disagree	5	5.2
	5=Strongly Disagree	1	1.1
SSRLS (Self-study strategies: While studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects.)	1=Strongly Agree	28	29.4
	2=Agree	46	48.4
	3=Slightly Agree	11	11.6
	4=Disagree	6	6.3
	5=Strongly Disagree	1	1.1
	NA	3	3.2
SSSML (Self-study strategies: I summarize the subjects to understand what I have learned from the lessons.)	1=Strongly Agree	35	36.8
	2=Agree	37	39.0
	3=Slightly Agree	16	16.8
	4=Disagree	6	6.3
	5=Strongly Disagree	1	1.1
SSEVP (Self-study strategies: I evaluate what I understand by pausing at regular intervals while studying.)	1=Strongly Agree	40	42.1
	2=Agree	38	40.0
	3=Slightly Agree	12	12.6
	4=Disagree	2	2.1
	5=Strongly Disagree	1	1.1
	NA	2	2.1
PECON (Manage physical environment: I prefer studying in places where I can concentrate.)	1=Strongly Agree	66	69.5
	2=Agree	25	26.3
	3=Slightly Agree	4	4.2
	4=Disagree	0	0
	5=Strongly Disagree	0	0
PECMF (Manage physical environment: I choose a comfortable place to study.)	1=Strongly Agree	53	55.8
	2=Agree	33	34.7
	3=Slightly Agree	4	4.2
	4=Disagree	1	1.1
	5=Strongly Disagree	0	0
	NA	4	4.2
PEPLS (Manage physical environment: I have places where I can study efficiently for my distance education lessons.)	1=Strongly Agree	45	47.4
	2=Agree	33	34.7
	3=Slightly Agree	10	10.5
	4=Disagree	5	5.3
	5=Strongly Disagree	0	0
	NA	2	2.1

Table 4.2. Continued.

Variable	Value Label	Frequency (*N*=95)	Percent
PENDS (Manage physical environment: I choose places where nothing distracts me from studying my distance education lessons.)	1=Strongly Agree	48	50.5
	2=Agree	25	26.3
	3=Slightly Agree	15	15.8
	4=Disagree	4	4.2
	5=Strongly Disagree	0	0
	NA	3	3.2
PEFOC (Manage physical environment: I study my lessons in places where I can focus.)	1=Strongly Agree	49	51.6
	2=Agree	36	37.9
	3=Slightly Agree	5	5.2
	4=Disagree	3	3.2
	5=Strongly Disagree	0	0
	NA	2	2.1
PERGP (Manage physical environment: I have a regular place to study.)	1=Strongly Agree	42	44.2
	2=Agree	25	26.3
	3=Slightly Agree	16	16.8
	4=Disagree	7	7.4
	5=Strongly Disagree	2	2.1
	NA	3	3.2
ERFIN (Effort regulation: I study the course subjects until finishing them even though I find the course materials boring.)	1=Strongly Agree	26	27.4
	2=Agree	40	42.1
	3=Slightly Agree	24	25.3
	4=Disagree	5	5.2
	5=Strongly Disagree	0	0
ERUND (Effort regulation: I make an effort to understand the subjects in my distance education lessons.)	1=Strongly Agree	48	50.5
	2=Agree	31	32.7
	3=Slightly Agree	10	10.5
	4=Disagree	0	0
	5=Strongly Disagree	0	0
	NA	6	6.3

The coefficient of determination (r2) was 0.49, which means that 49% of the variance in SSREV is associated with the variance in SSRPC; thus, indicating a high correlation. This implies that a high rate of participants that practice by repeating the contents of the material is associated with a high rate of participants who review their reading materials and notes and try to find the most important opinions.

Pearson's *r* correlation coefficient was 0.71 for SSSML (I summarize the subjects to understand what I have learned from the lessons) and SSREV (I review my reading materials and notes and try to find the most important opinions). This indicates a high positive correlation. The coefficient of determination (r2) was 0.50, which means that 50% of the variance in SSREV is associated with the variance in SSSML; thus, indicating a high correlation. This suggests that a high rate of participants that summarize the subjects to understand what they have learned from the lessons is associated with a high rate of participants who review their reading materials and notes and try to find the most important opinions.

Pearson's *r* correlation coefficient was 0.75 for SSSML (I summarize the subjects to understand what I have learned from the lessons) and SSRLS (While studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects). This indicates a high positive correlation. The coefficient of determination (r2) was 0.56, which means that 56% of the variance in SSRLS is associated with the variance in SSSML; thus, indicating a high correlation. This implies that a high rate of participants who summarize the subjects to understand what they have learned from the lessons is associated with a high rate of participants who while studying their distance education lessons, review their lesson notes and draw up a draft of the important subjects.

Pearson's *r* correlation coefficient was 0.74 for PECMF (I choose a comfortable place to study) and PENDS (I choose places where nothing distracts me from studying my distance education lessons). This indicates a high positive correlation. The coefficient of determination (r2) was 0.55, which means that 55% of the variance in PENDS is associated with the variance in PECMF; thus, indicating a high correlation. This suggests that a high rate of participants who choose a comfortable place to study is associated with a high rate of participants who choose places where nothing distracts them from studying their distance education lessons.

To examine the relationship between satisfaction variables with other satisfaction variables, Pearson's product moment correlation (*r*) was used. The Pearson r correlation was 0.89 for SNFTG (Satisfaction: Frustrating ←→ Gratifying) and SNATP (Satisfaction: Annoying ←→ Pleasing). This indicates a high positive correlation. The coefficient of determination (r2) was 0.79, which means that 79% of the variance in SNFTG is associated with the variance in SNATP; thus, indicating a high correlation. This implies that a high rate of participants who reported being frustrated are associated with a high rate of participants who reported being annoyed by self-paced OPD.

Pearson's product moment correlation (*r*) was used to examine the relationship between satisfaction variables with other satisfaction variables. The Pearson r correlation was 0.79 for SNITE (Satisfaction: Ineffective ←→ Effective) and SNNTP (Satisfaction: Negative ←→ Positive). This indicates a high positive correlation. The coefficient of determination (r2) was 0.62, which means that 62% of the variance in SNITE is associated with the variance in SNNTP; thus, indicating a high correlation. This suggests that a high rate of participants who reported that self-paced OPD is ineffective are associated with a high rate of participants who reported feeling negative about self-paced OPD.

To examine the relationship between satisfaction variables and other satisfaction variables, Pearson's product moment correlation (*r*) was used. The Pearson r correlation was 0.71 for SNATP (Satisfaction: Annoying ←→ Pleasing) and SNUTN (Satisfaction: Unnatural ←→ Natural). This indicates a high positive correlation. The coefficient of determination (r2) was 0.50, which means that 50% of the variance in SNATP is associated with the variance in SNUTN; thus, indicating a high correlation. This suggests that a high rate of participants who reported being annoyed are associated with a high rate of participants who reported feeling that self-paced OPD is unnatural.

Pearson's product moment correlation (*r*) was used to examine the relationship between satisfaction variables with other satisfaction variables. The Pearson r correlation was 0.71 for SNATP (Satisfaction: Annoying ←→ Pleasing) and SNITE (Satisfaction: Ineffective ←→ Effective). This indicates a high positive correlation. The coefficient of determination (r2) was 0.50, which means that 50% of the variance in SNATP is associated with the variance in SNITE; thus, indicating a high correlation. This implies that a high rate of participants who reported being annoyed are associated with a high rate of participants who reported feeling that self-paced OPD is ineffective.

Pearson's product moment correlation (*r*) was also used to investigate how SRL strategies and satisfaction relate. All satisfaction variables negatively correlated with SRL strategies, however, none of these correlations were significant. SRL strategy variables weakly correlated with satisfaction variables.

Table 4.3. Frequencies and percentages of satisfaction variables.

Variable	Value Label	Frequency (*N*=*95*)	Percent
SNHTE (Satisfaction: Hard to Learn ←→ Easy to Learn)	1=Easy to learn	4	4.2
	2	28	29.5
	3	22	23.2
	4	23	24.2
	5=Hard to learn	18	18.9
SNNTP (Satisfaction: Negative ←→ Positive)	1=Positive	4	4.2
	2	14	14.7
	3	20	21.1
	4	27	28.4
	5=Negative	30	31.6
SNUTN (Satisfaction: Unnatural ←→ Natural)	1=Natural	5	5.3
	2	20	21.1
	3	19	20.0
	4	25	26.3
	5=Unnatural	23	24.2
	NA	3	3.2
SNITE (Satisfaction: Ineffective ←→ Effective)	1=Effective	5	5.4
	2	16	16.8
	3	16	16.8
	4	29	30.5
	5=Ineffective	29	30.5
SNUTC (Satisfaction: Unclear ←→ Clear)	1=Clear	2	2.1
	2	17	17.9
	3	25	26.3
	4	25	26.3
	5=Unclear	26	27.4
SNUTS (Satisfaction: Unsupportive ←→ Supportive)	1=Supportive	9	9.5
	2	17	17.9
	3	20	21.0
	4	22	23.2
	5=Unsupportive	27	28.4
SNATP (Satisfaction: Annoying ←→ Pleasing)	1=Pleasing	2	2.1
	2	14	14.7
	3	27	28.4
	4	21	22.1
	5=Annoying	30	31.6
	NA	1	1.1

Table 4.3. Continued.

Variable	Value Label	Frequency (N=95)	Percent
	1=Easy	6	6.3
	2	21	22.1
SNDTE	3	32	33.7
(Satisfaction: Difficult ←→ Easy)	4	18	18.9
	5=Difficult	17	17.9
	NA	1	1.1
	1=Gratifying	2	2.1
	2	24	25.3
SNFTG	3	18	18.9
(Satisfaction: Frustrating ←→ Gratifying)	4	24	25.3
	5=Frustrating	26	27.3
	NA	1	1.1

To understand how gender relates to SRL strategies, a logistic regression was conducted to examine gender (Female, Male) and the SRL strategy factors (help-seeking and goal-setting). After data cleaning, I conducted factor analyses for both the SRL strategy data and satisfaction data to reduce the number of variables for the regression analysis. Since some of the variables were correlated with each other, an oblique factor analysis using minres (minimum residual) as the extraction method was used for both the SRL strategy data and satisfaction data. Minres acts similarly to Maximum Likelihood (ML), but ML requires multivariate normality and the SRL strategy variables and satisfaction variables were not multivariate normal. For both data, the Mardia test was significant $p < .05$, indicating data were not multivariate normal. Although the Q-Q Plots did show near normal multivariate normality. In their respective factor analyses, thirty SRL strategy variables were reduced to four factors: help-seeking, manage environment, self-study, and goal-seeking and nine satisfaction variables were reduced to three factors frustrating, unsupportive, and difficult using the same method.

The purpose of Logistic Regression is to discover which variable or group of variables contributes to the probability or predicts the outcome of another variable. For example, does goal-setting predict completion, or help-seeking predict completion, etc. Logistic regression is similar to other types of regressions, but instead of a continuous dependent variable or criterion variable, the dependent or outcome variable is categorical and often dichotomous. The independent or predictor variables can be continuous or categorical. Researchers use this statistical technique to predict a discrete outcome, such as group membership, from a set of independent continuous, discrete, or dichotomous variables such as SRL strategies factors (independent/predictor variables) and completion (dependent variable).

To satisfy the assumptions for a logistic regression, the dependent variable completion (No, Yes) is measured on a dichotomous scale. The independent variables (SRL strategies), which can either be continuous or categorical, were continuous. The sample observations were independent from each other satisfying the independence of observations assumption. A linear relationship between the independent variables and the logit transformation of the dependent variables needs to exist. To satisfy this assumption, I used the Box-Tidwell procedure to evaluate the linearity of the logit assumption. The interaction term was not statistically significant satisfying the linearity assumption. However, if it was significant, this test is robust to this type of violation if the sample size is large and other assumptions have been met. The multicollinearity assumption is satisfied when independent variables are not be too highly correlated. I examined a correlation matrix for multicollinearity among the satisfaction factors. They were moderately correlated between |.6| and |.7|. No independent variables correlated greater than |.9|. Then, I examined a correlation matrix for multicollinearity among the SRL strategy factors. They were moderately correlated between |.3| and |.6|. No independent variables correlated greater than |.9|.

Before conducting a logistic regressions, correlational analyses were performed to examine the relationship between Gender (dependent variable) and Satisfaction (independent/predictor variables) and Gender and SRL strategies. First, I conducted correlations using Point-biserial to examine the relationship between Gender and Satisfaction factors. None of the Satisfaction factors correlated at |.3| or higher with

Gender. It was determined that the Satisfaction factors had too weak a relationship with Gender for a logistic regression; therefore, a logistic regression was not performed. Next, I conducted correlations using Point-biserial to examine the relationship between Gender and SRL strategy factors (help-seeking, manage environment, self-study, and goal-seeking). Two SRL strategy factors (help-seeking and goal-setting) correlated with Gender at |.3|. The other two factors (manage environment and self-study) correlated less than |.3|. I determined that manage environment and self-study were too weakly correlated with Gender and they were removed from the regression model.

A logistic regression examined Gender (Female, Male) and the SRL strategy factors (help-seeking and goal-setting). The set of predictors were statistically significantly related to Gender, χ^2 (2) = 16.09, $p < .001$ with two predictors, help-seeking and goal-setting, in the model. Gender was related to the predictor SRL strategy help-seeking, $p < .01$, but not related to goal-setting (Table 4.4). Self-paced online OPD learners seeking help are .511 times more likely to be Female (Exp(B) = .511) than Male (Table 4.5).

To understand how Gender and the Number of OPD Completed relates to Completion, a logistic regression was conducted. The purpose of Logistic Regression is to discover which variable or group of variables contributes to the probability or predicts the outcome of another variable. Logistic regression is similar to other types of regressions, but instead of a continuous dependent variable or criterion variable, the dependent or outcome variable is categorical and often dichotomous. The independent or predictor variables can be continuous or categorical. Researchers use this statistical technique to predict a discrete outcome, such as group membership, from a set of

Table 4.4. Logistic regression variables in the equation.

Variable	*df*	Sig.	Exp(B)
Help-Seeking	1	.004*	.511
Goal-Setting	1	.071	.506

* $p < .01$

Table 4.5. Logistic regression classification table.

	GENDER		
Observed	Female	Male	Percentage Correct
Female	54	11	83.1
Male	15	12	44.4
Overall Percentage			71.1

independent continuous, discrete, or dichotomous variables such as Gender and the Number of OPD Completed (independent/predictor variables) and Completion (dependent variable).

To satisfy the assumptions for a logistic regression, the dependent variable completion (No, Yes) was measured on a dichotomous scale. The independent variables (Gender and the Number of OPD Completed), which can either be continuous or categorical, were categorical. The sample observations were independent from each other satisfying the independence of observations assumption. A linear relationship between the independent variables and the logit transformation of the dependent variables needs to exist. To satisfy this assumption, I used the Box-Tidwell procedure to evaluate the linearity of the logit assumption. The interaction term was statistically significant violating the linearity assumption. However, this test is robust to this type of violation if the sample size is large and other assumptions have been met. The multicollinearity assumption is satisfied when independent variables are not too highly correlated. I examined correlations multicollinearity among the Gender and Number of OPD Completed. They were weakly correlated less than |.3|. No independent variables correlated greater than |.9|.

Before conducting a logistic regressions, I conducted Chi-square analyses in Question One. The results indicated that Completion was related to Gender and the Number of OPD Completed. Completion and Gender were significantly related, $\chi^2(1) = 4.516$, $p = .034$ (Table 4.6). Completion and the Number of OPD Completed were significantly related, $\chi^2(5) = 12.425$, $p = .029$ (Table 4.7).

Table 4.6. Chi-square gender and completion.

Source	Completion (No)	Completion (Yes)	Total
Gender			
Female	60 (64.5%)	6 (6.5%)	66 (71.0%)
Male	20 (21.5%)	7 (7.5%)	27 (29.0%)
Total	80 (86.0%)	13 (14.0%)	93 (100.0%)

$\chi^2 = 4.516$, $df = 1$, $p = .034$

Table 4.7. Chi-square OPD completed and completion.

Source	Completion (No)	Completion (Yes)	Total
Number of Online Professional Development Completed			
1-2	37 (39.8%)	2 (2.1%)	39 (41.9%)
2-3	0 (0%)	0 (0%)	0 (0%)
3-4	18 (19.4%)	2 (2.1%)	20 (21.5%)
5-6	8 (8.6%)	3 (3.2%)	11 (11.8%)
7-8	0 (0%)	1 (1.1%)	1 (1.1%)
9-10	1 (1.1%)	0 (0%)	1 (1.1%)
10+	16 (17.2%)	5 (5.4%)	21 (22.6%)
Total	80 (86.0%)	13 (14.0%)	93 (100.0%)

$\chi^2(5) = 12.425$, $df = 5$, $p = .029$

A logistic regression examined if Gender (Female, Male) and the Number of OPD Completed (1=1-2, 2=3-4, 3=5-6, 4=7-8, 5=9-10, 6=10+) were predictors of Completion (No, Yes). The set of predictors were statistically significantly related to Completion, $\chi^2(6) = 14.871$, $p = .021$. with two predictors, Gender and Number of OPD Completed, in the model. Completion was related to the predictor Gender, $p < .05$, and to the level 5-6 Number of OPD Completed, but not to the other levels of Number of OPD Completed (Table 4.8). Males are 3.98 times more likely to Complete the self-paced OPD course (Exp(B) = 3.98) than Females. Participants who have completed 5-6 OPD courses are 9.43 times more likely to Complete the self-paced OPD course (Exp(B) = 9.43) (Table 4.9).

Research Question Three

How does the use of SRL strategies (independent variable) affect completion (dependent variable) and learner satisfaction (dependent variable) in a self-paced OPD course? Specifically, which SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) (independent/predictor variables) predict learner satisfaction (hard to learn—easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying) (dependent/criterion variables)?

To address the first part of the third question, "How does the use of SRL strategies (dependent variables) affect completion (independent variable) in a self-paced OPD course?" I investigated the relationship between completion (No, Yes) and SRL strategies using a One-way Multivariate Analysis of Variance (MANOVA). An extension of the ANOVA, a One-way MANOVA examines the mean differences and statistical

Table 4.8. Logistic regression variables in the equation.

Variable	*df*	Sig.	Exp(B)
Gender	1	.048*	3.98
Number of OPD Completed	1	.031*	9.43

* $p < .05$.

Table 4.9. Logistic regression classification table.

	Completion		
Observed	No	Yes	Percentage Correct
No	77	1	98.7
Yes	11	2	15.4
Overall Percentage			86.8

strategies using a One-way Multivariate Analysis of Variance (MANOVA). An extension of the ANOVA, a One-way MANOVA examines the mean differences and statistical significance of one independent grouping variable, in this case, completion (No, Yes) (IV), and multiple continuous dependent variables, in this case, SRL strategy factors (DVs).

Examining the statistical assumptions of a MANOVA, the data were an independent random sample; there were no patterns in the data. The dependent variables (SRL strategy factors: help-seeking, manage environment, self-study, and goal-seeking) were on an interval scale and the independent variable identifies two or more different conditions (completion - No, Yes) satisfying the appropriate measurement of variables assumption. To fulfill the multivariate normality assumption. I performed a Mardia test on SRL strategy variables. The Mardia test showed p-values for skew and kurtosis that were more than .05, indicating that data were bivariate normal. The QQ-Plot also showed near normal distribution. *Z*-scores were examined and there were a few above 3.29; therefore, there was a likelihood of outliers for SRL strategy variables. These were winzorized during data cleaning. To use this statistical test, the multiple dependent variables should be conceptually related to each other. I examined a correlation matrix of the SRL strategy factors. Most dependent variables were weakly and moderately correlated. A few correlated between |.7| and |.8|. None correlated at |.9|. Very highly correlated variables (above 0.9) could indicate multicollinearity. Tabachnick and Fidell (2018) suggest no correlation should be above r =. 90.

Box's Test of equality of covariance was examined and found not significant *Box's M* (10, 1974.54) = 5.49, $p = .904$, satisfying the covariance assumption. Therefore, Wilks' Lambda will be used to evaluate test significance. Like ANOVAs, MANOVAs are robust and therefore stand up to assumptions if, for example, the sample is large or if a more stringent alpha value like .01 is used (Tabachnick & Fidell, 2018).

A One-way MANOVA was conducted to see if there was a significant mean difference between completion and the four SRL strategy factors (help-seeking, manage environment, self-study, and goal-seeking). Results were not statistically significant $F(4, 85) = .49$, $p = .743$; there was no significant mean difference between those who completed the OPD course and the use of SRL strategies in the course on the combination of four factors (help-seeking, manage environment, self-study, and goal-seeking). Participants who completed or did not complete a self-paced OPD course did not differ in their use of SRL strategies in the course.

To address the second part of the third question, "Which SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) (independent/predictor variables) predict learner satisfaction (hard to learn—easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying) (dependent/criterion variables)? I used Standard Multiple Regression. Multiple Regression examines the relationship between many independent or predictor variables and more than one dependent or criterion variable measured on an interval scale (continuous) or dummy coded if discrete or dichotomous; it is commonly used when we want to predict the value of a variable based on the value of two or more other variables. In this case, the SRL strategy variables (independent/predictor variables) and the satisfaction variables (dependent/criterion variables).

After data cleaning, I conducted factor analyses for both the SRL strategy data and satisfaction data to reduce the number of variables for the regression analysis. Since some of the variables were correlated with each other, an oblique factor analysis using minres (minimum residual) as the extraction method was used for both the SRL strategy data and satisfaction data. Minres acts similarly to Maximum Likelihood (ML), but ML requires multivariate normality and the SRL strategy variables and satisfaction variables were not multivariate normal. For both data, the Mardia test was significant $p < .05$, indicating data were not multivariate normal. Although the Q-Q Plots did show near normal multivariate normality. In their respective factor analyses, thirty SRL strategy variables were reduced to four factors: help-seeking, manage environment, self-study, and goal-seeking and nine satisfaction variables were reduced to three factors frustrating, unsupportive, and difficult using the same method.

Then, I tested the assumptions of Multiple Linear Regressions. First, the dependent and independent variables are measured on a continuous level. The data used for the dependent and independent variables were Likert scale data and transformed to a continuous scale. The data should also have independence of observations. The data were carefully collected and as it was survey data the cases have no order satisfying the independence of observations assumption. To satisfy normality assumption, I examined a normal Q-Q plot. The data followed the normality line; therefore, we assume normality. I looked for outliers. Outliers can effect regression analysis by reducing the fit of the regression equation affecting the predictive accuracy of the result. There were no significant outliers. To satisfy the homoscedastic city assumption, I looked at scatterplot to see if residuals were equally distributed or if some values gathered together at the same values and were dispersed at other values. The data had no obvious patterns and there were points equally distributed to the right and left of zero on the Y axis and above and below the X axis. They were randomly distributed or homoscedastic satisfying that assumption. Next, I looked at linearity. To satisfy linearity, predictor variables should have a straight line relationship with outcome variables. I examined scatterplots and determined a linear relationship existed between SRL strategy factors and the satisfaction factor fulfilling this assumption. However, if residuals are homoscedastic, then the linearity assumption has been satisfied. Multicollinearity happens when predictor variables are highly correlated with each other. If predictor variables are too highly correlated, the regression model will not be able to infer variance in the outcome variable with the right predictor variable. To satisfy this assumption, I examined a correlation matrix of the SRL strategy factors and they were moderately correlated less than |.6|. No independent variables correlated greater than |.9|. I also checked Variance Inflation Factor (VIF) values. VIF values higher than 10 indicate significant multicollinearity. All VIF values were between 1.00 and 2.00 indicating that the assumption was met.

Standard Multiple Regression and correlational analysis were conducted to examine the relationship between satisfaction and SRL strategies. The satisfaction factor frustrating was identified as the dependent or criterion variable. SRL strategy factors (help-seeking, manage environment, self-study, and goal-seeking) were identified as the independent or predictor variables. SRL factors were negatively correlated with satisfaction variables. Two of the SRL strategy factors help-seeking and self-study correlated at |.3| with the dependent factor frustrating (Table 4.10). The other two SRL strategy factors, manage environment and goal-setting, correlated with the dependent factor, frustrating, less than |.3| and therefore were removed from the model. The multiple regression model with two predictors (help-seeking and self-study) produced a statistically significantly result. The set of predictors (help-seeking and self-study) was statistically significantly related to the satisfaction factor frustrating, $F(2, 89) = 10.16$, $p < .001$, R = .43, Adjusted $R^2 = .17$. The model was a significant predictor of the outcome variable. While help-seeking contributed significantly to the model (β = -.33, p = .001), self-study did not (β = -.18, p = .07) (Table 4.11). The final predictive regression model was: Satisfaction (Frustrating) = 16.881 + (-.334 *Help-Seeking) + (-.184*Self-Study). For every one unit of change in help-seeking, the total frustration score decreases by -.30. They have a negative relationship and change in opposite directions. As one goes up the other goes down. A reduction in help-seeking predicted an increased level of frustration or as there is an increase in help-seeking there is a decrease in frustration. As one goes down, the other goes up. Those who seek help are .33 times less likely to be frustrated. This however is a weak model predicting only 17% of the variation of Y not explained by the mean. Multiple regressions with the other satisfaction factors (unsupportive and difficult) (dependent/criterion variable) were not conducted because satisfaction factors weakly correlated with SRL strategy factors at less than |.3|.

Research Question Four

"How does learner satisfaction (independent- predictor variables) impact completion (dependent-criterion variable) and how does completion (independent variable) impact satisfaction (dependent variable) in a self-paced asynchronous OPD course?"

Table 4.10. Summary statistics, correlations, and regression analysis results.

SRL Strategy Factors	Correlation with Satisfaction (Frustrating)	M	SD
Help-Seeking	-.395**	2.93	1.19
Self-Study	-.293**	1.78	.836

** Correlations significant at the .01 level.

Table 4.11. The effect of the SRL strategy factor help-seeking on satisfaction.

SRL Strategy Factor	B	β	sr_i^2
Help-Seeking	-.280	-.334	.11

Note. $R = .43$ and Adj. $R^2 = .17$ ($N = 92$, $p < .01$).

For the first part of the question, “Does learner satisfaction (independent-predictor variables) predict completion (dependent-criterion variable) in a self-paced asynchronous OPD course?”, I conducted point biserial correlations to better understand how variables relate to each other and to assess if they were suitable for a logistic regression. A logistic regression would be conducted to understand what variables predict completion or what is the probability that satisfaction (independent/predictor factors) (frustrating, unsupportive, difficult) will predict completion (dependent/criterion variable).

Point-biserial correlations examined the relationship between completion of self-paced OPD courses (No, Yes) and the three satisfaction factors (frustrating, unsupportive, difficult). The point-biserial is a special case of the Pearson product-moment correlation applied to dichotomous and continuous variables. In this case, the dichotomous variable was completion (no, yes) and the continuous variables were the satisfaction factors (frustrating, unsupportive, difficult). The point-biserial correlations for completion and the three satisfaction factors (frustrating, unsupportive, difficult) were: completion and frustrating -.035, completion and unsupportive .009, completion and difficult -.093. It was determined that the correlations were too weak for a logistic regression to produce useful results. Variables for regressions need to be moderately correlated but not too highly correlated: more than |.3| and less than |.9|. Correlations greater than |.9| could mean issues with multicollinearity (Tabachnick & Fidell, 2018).

To address the second part of this question, “How does completion (independent variable) impact satisfaction (dependent variables) in a self-paced asynchronous OPD course?”, I conducted a One-way Multivariate Analysis of Variance (MANOVA). An extension of the ANOVA, a One-way MANOVA examines the mean differences and statistical significance of one independent grouping variable, in this case, completion (No, Yes) (IV), and multiple continuous dependent variables, in this case, satisfaction factors (frustrating, unsupportive, and difficult) (DVs).

Examining the statistical assumptions of a MANOVA, the data were an independent random sample; there were no patterns in the data. The data were carefully collected and as it was survey data the cases have no order satisfying the independence of observations assumption The dependent variables (satisfaction factors: frustrating, unsupportive, difficult) were on an interval scale and the independent variable identifies two or more different conditions (completion - No, Yes) satisfying the appropriate measurement of variables assumption. To fulfill the multivariate normality assumption, I performed a Mardia test on satisfaction variables. The Mardia test showed p-values for skew and kurtosis that were less than .05, indicating that data were not bivariate normal. However, the QQ-Plot showed near normal distribution. Z-scores were examined and were not above 3.29; therefore, there was not a likelihood of outliers for satisfaction variables. To use this statistical test, the multiple dependent variables should be conceptually related to each other. I examined a correlation matrix of the dependent satisfaction factors. All factors were moderately positively correlated (.60 - .77). Very highly correlated variables (above 0.9) could indicate multicollinearity. Tabachnick and Fidell (2018) suggest no correlation should be above r =. 90.

Box's Test of equality of covariance was examined and found not significant *Box's M* (6, 2527.28) = .997, $p = .990$, satisfying the covariance assumption. Therefore, Wilks' Lambda will be used to evaluate test significance. Like ANOVAs, MANOVAs are robust and therefore stand up to assumptions if, for example, the sample is large or if a more stringent alpha value like .01 is used (Tabachnick & Fidell, 2018).

A One-way MANOVA was conducted to see if there was a significant mean difference between completion and three satisfaction factors (frustrating, unsupportive, difficult). Results were not statistically significant $F(3, 90) = .478$, $p = .698$; there was no significant mean difference between those who completed the OPD course and satisfaction with the course on the combination of three factors (frustrating, unsupportive, difficult). Participants who completed or did not complete a self-paced OPD course did not differ in their satisfaction with the course.

Qualitative Data

Qualitative data included open-ended survey questions and follow-up questions. There were two open-ended questions in the survey: "From which self-paced course did you access this survey?" and "How do you define self-paced learning?". Follow-up questions were presented to eleven participants (*N=11*) who self-identified by including their email addresses at the end of the survey (Appendix F). The purpose of the follow-up questions was to gain a more in-depth understanding of how learners self-regulated in and were satisfied with self-paced OPD. Collecting responses to follow-up questions added another data collection method to this study and contextualizing the study within the existing literature related to online self-paced learning, self-regulation, satisfaction, and OPD to improve reliability and validity through data triangulation (Denzin, 1989; Patton, 1999).

Open-Ended Survey Questions

The first open-ended survey question was: "From which self-paced course did you access this survey?" Seventy-eight out of ninety-five participants responded to this question.

Fifty-five reported that they accessed the survey through a course in Coursera. Nine responded accessing it through Canvas.net. Three reported accessing the survey through edX. Finally, twelve reported finding the survey through another location. Of those, answers included a college or university, a website, through online research or were in a language other than English.

The second open-ended survey question was: “How do you define self-paced learning?”. Ninety-one participants responded out of ninety-five with a definition of self-paced learning. I coded the definitions looking for themes (Appendix H). I identified five themes: No time constraints; Paced by learner; In charge of own learning goals; In charge of finding help for oneself; and, Learn where you choose. These codes represent the five themes I found in the definitions of self-paced learning. There were 41 references to No time constraints, 37 references to Paced by learner, 34 references to In charge of own learning goals, 4 references to In charge of finding help for oneself, and 5 references to Learn where you choose. Next, I will link these themes with the salient parts of the definitions.

No time constraints

Several respondents defined self-paced learning in terms of time. With 41 references to “when” I have time to learn. Some of the remarks were: “managing your own time,” “choosing when,” “complete in a reasonable time,” “learn with discipline without being pushed,” “completes on their own schedule,” “when you want,” “learn according to your limited problems of time,” “you can choose the time, the day, the moment you want to learn,” “study when you have time,” “without being restricted by a fixed schedule or timeline.”

Paced by learner

For some respondents pace was how they defined self-paced learning. There were 37 references to pace. Remarks included: “study at an acceptable pace,” “set own learning pace,” “learning at my own speed,” “at my own learning pace,” “study at your own pace,” “education done at one’s convenience and pace,” “learning that allows you to learn at your own convenience,” “individuals progress through the material at their own speed,” “can finish earlier,” and “complete as soon as possible.”

In charge of own learning goals

Respondents also defined self-paced learning in terms of being in control of the learning process. Definitions contained statements such as: “design their own learning,” “work according to a goal oriented schedule,” “taking initiative and setting responsibilities for yourself,” “complete goals that I set towards the completion of the required modules,” “I have full control of the course,” “helpful for students who need more processing skills to learn materials,” “learning what you want,” “acquire knowledge and skills and attitude towards your own learning arena,” “with your own interests,” “different type of learning where you are the main protagonist,” “self-directed,” “learning what you need,” “information that can be accessed and completed at your own discretion,” “go through properly with focus,” and “opportunity to self-regulate and to get empowered.”

In charge of finding help for oneself

There were a few respondents who defined self-paced learning by emphasizing the need to find help for themselves. Within their definitions, they mentioned: “find help for myself,” “provides little support,” “with minimal or no instructor contact,” and “there is little to no teacher contact.”

Learn where you choose

Finally, respondent's definitions referred to learning in a location they choose, the "where" learning happens. In their definitions, participants described a learning location that is: "comfortable for you," "in own location," "comfortable," "learn anywhere," and "in own space."

Follow-up Questions

To analyze the follow-up questions, I enlisted the help of two other researchers. We independently coded the responses to questions looking for themes and identified seven themes: Satisfied, Unsatisfied, Learned, Self-regulate, Self-regulated learning strategies, Completion, Motivation to complete (Appendix H). Then, we linked these themes with the salient parts of the question responses. Next, I will present these themes and connect them with the salient responses that highlight how learners self-regulate, their satisfaction with, and if they complete self-paced OPD courses.

Satisfied

Respondents described the reasons for their satisfaction with the OPD course: "Video clips in the course describe better and help my understanding," "What contributed to my satisfaction are the chunked lessons and activities," "course organization," "The learning designs are thought of carefully," "organization of the course," and "Actually it is very satisfying to complete. So it's, it's, it's fun."

Unsatisfied

Participants expressed reasons they were unsatisfied with the OPD course: "I think the information could be provided more succinctly," "I am unsatisfied with OPD courses where the instructional designers put in a lot of information in one go, and quizzes test only knowledge," "I think for me I would enjoy it more if it were more of a game," "Auto translation on the script for minimum misunderstanding," "It's just that, with ill-conceived courses, there is so much 'wastage' of good information that are not retained by the student," "If they would only take time to plan online OPD courses, learning will be optimized," "I just do that because all I'm doing when I do them is clicking through as fast as possible and then I just take the test until I pass it," and "Instructors/teaches love to give a lot of information. Universities should leave the course design to instructional designer and not the teachers (SMEs)."

Learned

All of the participants responded, "Yes," they learned from the course. Responses included: "Yes, to me, it was about learning something new, something that changed my mindset," "Yes, I have managed to learn from both sloppy and well-planned courses," "At the end of the day, the learning depends on the student," "Absolutely. It changed my mindset," and "I probably learned more from the online self-paced course than I would have if I had to have gone to a physical class because then I just would have tuned out and not paid attention."

Self-Regulate

Participants reported they self-regulate in the following ways: "Set a time and place and I sat down and worked through the material one section at a time," "I say, okay, well I'm gonna do this section like on these 3 days and then break it down like that," "So you do have to have like a study strategy. So I was like, I'll do this much in 2 weeks. Like I'll do this for 2 days. This for 2 days. Then, I'll take the test on that day," "I have taken many self-paced courses both in college and in business. I find they take more discipline than classroom courses. It requires setting aside a regular time just like being in a classroom. It also requires space to prevent distractions. Not everyone has that discipline; hence some coaching may be required. In the business environment, that time was set aside on a regular basis by management. One had to successfully finish the courses or fail being promoted," "Discipline myself for course interest and timeline," "Self-regulation is fun and easy with well-planned courses because you can set a mental timeline and you can really see your progress. The students can predict or plan what they can do next. In short, they take control of their learning at their own pace," "And I do a little bit every day, even if I have to force myself to take 10 min just to do it," "I'm gonna do specific school work things in this amount of time I've allotted," "Yeah, I would say schedule and just time," "Time management and probably interest too," "Just get through it as fast as possible," "But it's like information then test is easy because that's how they are set up, read the content and you take a test, read more content, then you take a test."

SRL Strategies

Self-regulated learning strategies participants reported using consist of: "Help-seeking," "Goal-setting," "Self-study strategies," "Effort-regulation," "Goal-setting," "self-study strategies for sure," "Self-study strategies, manage physical environment," "And I would like take my time and do some goal-setting, help-seeking," "You can reach out and get help, but it's generally a self-directed learner directed type of course so self-study and then having a good moment to do the self-study is probably absolutely the top," "And self-study is I mean, just sitting down and doing it. Like, for something like that, I don't have any issue sitting down and just doing the work," "I set up an environment or go somewhere or I know mentally it's quiet," "Note-taking. Generally by topic, a lot of times the course will organize it in a way that breaks up into topics and then I'll break it up even further," "It works best as a holistic process. I normally am a goal-oriented person who seeks help when necessary," "I'll do like a series of writing and drawing," "While reading the material, I draw up a draft of reading material," "I go somewhere else, which is also kind of how I may like manage time by going somewhere else," "I'm gonna go somewhere. I usually have a general rule in my head of like how long I'll spend there," and "I'd say like what I do is, if, say it's like a video, I will take a lot of notes and sometimes drawings are related but sometimes it's just a doodle just I think for my like brain connection, to help me concentrate. Other times, I will try to watch something a few times and just take notes on it and then try and think back without the video and kind of sum it up."

Completion

Seven participants responded, "Yes," they completed the OPD course. Four said, "No," with responses that included: "No, but I will," and "No, I completed about ¾ of it." Some reasons provided for not completing involved: "insufficient time," "I felt I had learned enough and that further units would only reinforce what was already stated and supported." Other comments by participants who reported completing the course: "I was just thinking when you just don't like it and it's really awful then it's harder to finish," "Cause I sometimes have to force myself to finish," "I would think if I didn't have deadlines or reasons to finish something then I probably wouldn't," "When I'm more satisfied with the way that the course is going, then I'm more likely to finish."

Motivation to Complete

Respondents explained their motivation to complete the self-paced OPD: “There were elements built into the course that moved you along,” “there were videos and outlines and things that reinforced the other elements within the section, so it was easy to follow and it moves you forward,” “mostly it's because it is mandatory and also essential to my job. It is also interesting too because I'm a huge nerd,” “the way that the course flows is it's very visual,” “Text and dialogue and the way it flows from one screen to the next who are designed is really smart,” “It's a very well done course,” “the way it flows,” “Learning is what motivated me most, although I didn’t complete the course,” “Visuals are best. Key words are on slide presentation,” “the way it's visually presented and flows,” “Self-study strategies,” “Course structure and self-regulation,” “Timelines and goal setting. Also, I usually get scholarships for OPD courses. So, to honor the persons/institution that granted me access to learning, I complete the courses,” “I think just the fact that knowing I have to finish it,” “Probably wouldn't take it if I wasn't interested,” “Well, to be better at my job, I would do it gladly. I will say for me in my profession no other thing that I know of exists,” “Required,” “ I’m thankful that as I continue to learn it’s at a flexible time.”

CHAPTER FIVE

SUMMARY AND DISCUSSION

The purpose of this descriptive correlational research study was to explore the relationships among SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, and effort regulation), satisfaction (hard to learn--easy to learn, negative—positive, unnatural—natural, ineffective—effective, unclear—clear, unsupportive—supportive, annoying—pleasing, difficult—easy, frustrating—gratifying), and completion in self-paced OPD environments offered in a higher education context for educators (i.e., faculty, instructors, trainers, teachers, and instructional designers). This chapter summarizes the data collected and analyzed. Data collected consisted of survey data (quantitative) and open-ended survey questions and follow-up questions (qualitative). The findings presented in this chapter address the following research questions:

1) Who are educators (what are their characteristics) pursuing self-paced OPD and to what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced OPD course?
2) How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how do they relate to educator characteristics?
3) How does the use of SRL strategies affect completion in a self-paced OPD course? Which SRL strategies predict learner satisfaction?
4) How does learner satisfaction impact completion and how does completion impact satisfaction in a self-paced OPD course?

Research Question One

Characteristics of educators pursuing self-paced OPD

Participants consisted of mostly of females (69.5%) between the ages of 18 and 54 (90.4%) with a bachelor's or master's degree (70.5%). The majority of identified themselves as Asian (34.7%), Caucasian (23.2%), or Black/African (21.0%) and lived outside the United States of America (76.8%). Over half were Employed (60%). It was less clear with 45.3% selecting Other for their place of employment while 27.4% reported working at a four-year institution of higher education. In addition, their organizational positions were less well-defined with 49.5% selecting Other. Finally, more than half of respondents reported starting between one and four OPD courses (64.1%) and completing between one and four OPD courses (62.0%). More described their OPD courses as online self-paced (41.1%), while others described their OPD courses as online asynchronous (24.2%), and online synchronous (21.0%) (Table 4.1). However, Coursera and edX describe their courses as online self-paced courses, which may contribute to more respondent's describing their OPD courses as online self-paced.

Correlational analyses between demographic variables revealed some weak relationships. There is a statistically significant positive relationship between gender and employment status (.391). More females report being employed. A positive statistically significant relationship existed between age and race (.360). Participants who identified themselves as Asian, Black/African, or Caucasian also report they are between the ages of 18-54. A weak positive statistically significant relationship also existed between age and where participants lived, inside or outside the US (.265). Other correlations analyses looked at completion and the number of OPD courses started and completed and the relationship between the number of OPD courses started and completed and level of school. There were no statistically significant relationships. Chi-square analyses investigated the relationships between gender and completion and number of OPD courses completed and completion. Results showed completion was statistically significantly related to both gender and number of OPD courses completed. We discuss whether gender or number of OPD courses completed are predictors of completion in Question Two. Next, I will examine how participants report using SRL strategies.

Extent SRL strategies are used by learners

Survey respondents markedly reported using SRL strategies in self-paced OPD courses. With regard to the five Goal-setting variables participants all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): I set my study goals daily (92.6%), I set goals for myself while studying (92.6%), I study my lessons in a planned manner (94.7%), I set goals for myself to arrange my study hours for distance (92.6%), and I do not compromise on the quality of what I do for my lessons (88.4%) (Table 4.2). This indicates participants are using Goal-setting SRL strategies in their self-paced OPD courses.

For the nine Help-seeking variables, participants all had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): I contact someone to discuss my understanding (89.4%); I participate in social media group discussions regarding study subjects (70.5%); when I do not understand the distance education course material, I ask another student for help (72.6%); I contact other students, who I think are successful, on social media (62.1%); I determine what I will ask before receiving help (91.5%); I find someone who has information about the course content to consult when I need help

(85.2%); I share my questions about the lessons with other distance education students on the Internet (72.6%); I try to talk face-to-face with my classmates in distance education if necessary (60.0%); and, I insist on receiving help from someone who has information about the course content on the Internet (72.6%) (Table 4.2). There were noticeably fewer respondents who reported using Help-seeking strategies than Goal-setting, Self-study, Managing physical environment, or Effort regulation strategies. Looking the average of participants who reported (Strongly Agree, Agree, Slightly Agree) for each of the SRL strategies (Goal-setting, Help-seeking, Self-study, Manage Physical Environment, and Effort Regulation) demonstrates the decline in the use of Help-seeking strategies.

- Goal-setting (5 variables): 92.2%
- Help-seeking (9 variables): 75.2%
- Self-study (8 variables): 94.0%
- Managing Physical Environments (6 variables): 93.7%
- Effort Regulation (2 variables): 94.3%

Participants all reported a high degree of agreement (Strongly Agree, Agree, Slightly Agree) for all eight of the Self-study strategies variables: I think of questions on the subject while reading the material (100%); I draw up a draft of reading material to be able to organize my thoughts (91.6%); I practice by repeating the contents of the material (96.7%); I review my reading materials and notes and try to find the most important opinions (93.6%); I create simple schemes, diagrams, or tables to organize my study materials (93.7%); while studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects (89.4%); I summarize the subjects to understand what I have learned from the lessons (92.6%); and, I evaluate what I understand by pausing at regular intervals while studying (94.7%) (Table 4.2). This suggests participants are using Self-study SRL strategies in their self-paced OPD courses.

For the six Manage physical environment variables, participants had a high rate of agreement (Strongly Agree, Agree, Slightly Agree): I prefer studying in places where I can concentrate (100%), I choose a comfortable place to study (94.7%), I have places where I can study efficiently for my distance education lessons (92.6%), I choose places where nothing distracts me from studying my distance education lessons (92.6%), I study my lessons in places where I can focus (94.7%), and I have a regular place to study (87.3%) (Table 4.2). This indicates participants are Managing their physical environment while taking self-paced OPD courses.

Participants employing Effort regulation strategies had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): I study the course subjects until finishing them even though I find the course materials boring (94.8%) and I make an effort to understand the subjects in my distance education lessons (93.7%) (Table 4.2). This indicates learners are employing Effort regulation strategies in their self-paced OPD courses.

The use of SRL strategies is important in online learning environments (Cho & Kim, 2013) and critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). However, with little to no social interaction, self-paced online environments can be isolating (Naidu, 2008; Yan, 2020; Thiessen, 2016). Fewer participants had a high rate agreement for Help-seeking strategies, especially I contact other students, who I think are successful, on social media and I try to talk face-to-face with my classmates in distance education if necessary. This may indicate that the lack of social interaction in self-paced OPD may impact Help-seeking strategies.

Research Question Two

Relationships between SRL strategies, satisfaction, completion, and educator characteristics in self-paced OPD

Correlational analyses examined the relationships between SRL strategies and other SRL strategies. There were a few that highly correlated. This was similar to the resulting correlational analysis between satisfaction variables and other satisfaction variables. A few were highly correlated. Correlational analysis was also conducted to investigate the relationship between SRL strategies and satisfaction. SRL strategies only weakly negatively correlated with satisfaction. I examine the relationships between SRL strategies, satisfaction, and completion and satisfaction and completion in Questions Three and Four.

To understand how educator characteristics relate to SRL strategies and Completion, I conducted logistic regressions. The first logistic regression examined Gender (Female, Male) and the SRL strategy factors help-seeking and goal-setting. Gender did not correlate with self-study or manage physical environment factors; therefore, they were removed from the regression. Gender was found to be related to the predictor SRL strategy help-seeking but not to goal-setting (Table 4.4). Self-paced online OPD learners seeking help are .511 times more likely to be Female than Male (Table 4.5).

For the second logistic regression, I conducted Chi-square analyses in Question One. The results indicated that Completion was related to Gender and the Number of

OPD Completed (Tables 4.6 & 4.7). Then, I conducted a logistic regression to examine if Gender and the Number of OPD Completed were predictors of Completion. Completion was related to the predictor Gender and to the level 5-6 Number of OPD Completed, but not to the other levels of Number of OPD Completed (Table 4.8). Males are 3.98 times more likely to Complete the self-paced OPD course than Females. Participants who have completed 5-6 OPD courses are 9.43 times more likely to Complete the self-paced OPD course (Table 4.9).

Correlational analyses revealed that although SRL strategies positively correlate with each other, some highly, and Satisfaction variables also positively correlate with each other, some highly, SRL strategies only weakly negatively correlate with Satisfaction variables. The regression analyses looked at how Gender relates to SRL strategies and Completion revealing that females are slightly more likely to seek help in a self-paced OPD course than males and that males are more likely to complete the self-paced OPD course than females. We also learned that participants completing a total of 5-6 OPD courses are more likely to complete the self-paced course where they accessed the survey.

Research Question Three

SRL strategies and completion

A One-way MANOVA was conducted to see if there was a significant mean difference between completion and the four SRL strategy factors (help-seeking, manage environment, self-study, and goal-seeking). Results were not statistically significant; there was no significant mean difference between those who completed the OPD course and the use of SRL strategies in the course on the combination of four factors (help-seeking, manage environment, self-study, and goal-seeking). Participants who completed or did not complete a self-paced OPD course did not differ in their use of SRL strategies in the course.

This result differed from the findings of other researchers. For example, researchers suggest learners who use SRL strategies have higher self-efficacy and are more likely to complete self-paced online courses even with little to no social interaction (Koçdar et al., 2018; Littlejohn et al., 2016). Others suggest students who keep a regular pace and learning habit throughout the self-paced online course were more successful and completed the course (Goda et al., 2015; Lim, 2016), suggesting that learners using SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) may have improved perceived success and completion.

SRL strategies and satisfaction

A standard multiple regression was conducted to examine the relationship between satisfaction and SRL strategies. The multiple regression model with two predictors (help-seeking and self-study) produced a statistically significantly result. The set of predictors (help-seeking and self-study) was statistically significantly related to the satisfaction factor frustrating. Help-seeking contributed significantly to the model but self-study did not (Table 4.11). Because they are negatively related, a reduction in help-seeking predicted an increased level of frustration or as there is an increase in help-seeking there is a decrease in frustration. Those who seek help are .33 times more likely to be less frustrated (Table 4.11).

Research looking at SRL strategies and satisfaction have produced mixed results. Several researchers report that SRL does not have a significant effect on satisfaction

(Eom & Ashill, 2016; Joo et al., 2014) and does not predict satisfaction in online learning environments (Kuo et al, 2014). Others found that SRL had a positive influence on satisfaction. In one study, Cho & Heron (2015) found that the role of SRL, specifically motivation and emotion, positively impacted learner satisfaction in a self-paced online mathematics course. Li (2019) found that SRL strategies, goal setting and environment structuring usage, significantly predicted satisfaction. In this study help-seeking was the significant predictor of satisfaction, which may be because this study examined SRL strategies in a *self-paced* online environment where there is little to no social interaction. Therefore, some participants in the follow-up questions reported being on their own when finding help (see follow-up questions).

Yet other researchers indicate self-regulated learning strategies are critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021), given the limitations of these environments: social interaction (Anderson et al., 2005; Thiessen, 2016), a lack of teacher guidance (Wang, 2003), complex satisfaction results (Cho & Heron, 2015; Eom & Ashill, 2016; Joo et al., 2014; Kuo et al, 2014), and low completion rates (Kizilcec et al., 2017; Koçdar et al., 2018). "Failure frequently occurs during self-paced open and distance learning as the learners study at their own pace" (Koçdar et al., 2018, p. 26). Learners who lack the self-regulatory skills to effectively engage with self-paced learning environments are less motivated to take advantage of these environments (DeVore et al., 2017). Similarly, Cho and Heron (2015) showed that motivation and emotion significantly influenced learner experiences, including satisfaction of and achievement in a self-paced online course. With regard to social interaction, Cho and Kim (2013) indicated that self-regulation for interaction is crucial in determining students' successful learning experiences in an online environment.

Research Question Four

Learner satisfaction and completion

A logistic regression was planned to uncover if there was a relationship between satisfaction and completion. However, a correlational analysis revealed that correlations between completion of self-paced OPD courses and the three satisfaction factors (frustrating, unsupportive, difficult) were too weak for a logistic regression to produce fruitful results. There was no significant relationship between satisfaction and completion in self-paced OPD courses.

Then, a One-way MANOVA was conducted to see if there was a significant mean difference between completion and three satisfaction factors (frustrating, unsupportive, difficult). Results were not statistically significant; there was no significant mean difference between those who completed the OPD course and satisfaction with the course on the combination of three factors (frustrating, unsupportive, difficult). Participants who completed or did not complete a self-paced OPD course did not differ in their satisfaction with the course.

Survey respondents reported low satisfaction with self-paced OPD courses (Table 4.3):

- More Hard to learn that Easy to Learn: 66.3%
- More Negative than Positive: 81.1%
- More Unnatural than Natural: 70.5%
- More Ineffective than Effective: 77.8%

- More Unclear than Clear: 80.0%
- More Unsupportive than Supportive: 72.6%
- More Annoying than Pleasing: 82.1%
- More Difficult than Easy: 70.5%
- More Frustrating than Gratifying: 71.5%

They also reported low completion with 86.3% responding “No” they did not complete in the survey (Table 4.1). Researchers found online courses typically have low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Self-pacing allows learners to move through course material at their own pace, which allows them sufficient time to meet learning outcomes. This type of learning creates flexibility and encourages independence (Anderson et al., 2005). However, this freedom leads to procrastination for some learners (Eyre, 2007) and low completion rates overall.

Research suggests that to motivate learners, some programs award certificates upon completion of an online course. In one example, teachers were given the option to print a certificate for their portfolio at the end of the online module (McKimm & Swanwick, 2010). In another example, faculty participating in a self-paced online course were awarded professional development certificates (Rizzuto, 2017), extrinsically motivating faculty to complete the course.

Requiring the completion of self-paced online courses can increase completion rates. Some respondents of this study’s follow-up questions reported being required to complete the course (see follow-up questions). However, some reported being satisfied and others dissatisfied.

A limitation of self-paced online learning environments is low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Researchers suggest that high dropout and low completion rates may be due to a lack of social interaction (Kim, et al., 2014; Koçdar et al., 2018; Littlejohn et al., 2016). Delayed instructor feedback is an additional challenge that may also contribute to lower online course completion rates (Kim et al., 2014). Decreased human interaction (i.e., learner to learner, learner to instructor) is a drawback of self-paced learning environments (Thiessen, 2016) and contributes to dissatisfaction and high attrition rates (Anderson et al., 2005).

Qualitative Analysis

The purpose of open-ended survey questions, "From which self-paced course did you access this survey?" and "How do you define self-paced learning?" was to gather more information about how many and from where respondents accessed the survey and how they view self-paced online learning. From where they accessed the survey may tell us more about course or platform usage. Asking participants to define self-paced online learning may provide insights into how they view this learning modality. The purpose of collecting data from follow-up questions was to triangulate the data by comparing and contrasting survey data with data collected through follow-up questions. Methodological rigor was ensured by including multiple researchers, using multiple data sources to triangulate the results, and relating the findings to existing literature related to self-regulation, self-regulated learning strategies, satisfaction, completion, and online professional development (Denzin, 1989; Patton, 1999).

Open-ended Survey Questions

The first open-ended survey question asked, “From which self-paced course did you access this survey?” Seventy-nine out of ninety five participants responded providing from where they accessed the survey. Of those, most were from Coursera (55), followed by Canvas.net (9), edX (3) and Other (12). I sent 63 requests to self-paced instructors asking them to include this study’s survey in their courses. Sixteen course instructors agreed to disseminate the survey in their courses. Six were Coursera courses, five were edX, four were Canvas.net, and one was an online course by a well-known instructional designer. These results indicate that most of the 79 respondents accessed the survey through the six Coursera courses, followed by Other, Canvas.net, and edX, respectively.

Self-paced learning definitions

The second open-ended survey questions asked participants to define self-paced online learning. Ninety-one out of ninety-five participants left their definitions of self-paced learning. Coursera describes their platform as one “that offers anyone, anywhere, access to online degrees” (Coursera, 2023), and edX describes an environment where “You can work at your own pace until the final end date of the course” (File, 2024). Researchers define self-paced online learning as environments where learners direct their own learning and finish the course at their own pace, at a time and place of their choosing (Galitsky, 2005; Naidu, 2008; Paranto & Neumann, 2006; Ross, 2001, Thiessen, 2016). Participant definitions agree with these definitions. Five themes were identified, *No time constraints, Paced by learner, In charge of own learning, In charge of finding help for oneself, and Learn where you choose* (Appendix H). Respondents defined self-paced online learning in terms of *No time constraints* stating they are: “choosing when,” "managing your own time," and choosing "the time, the day, the moment you want to learn," "without being restricted by a fixed schedule or timeline." They report self-paced online learning as *Paced by learner* affirming that they: "set own learning pace," "learning at my own speed," "at my own learning pace," and "study at your own pace." In their definitions, participants describe self-paced online learning in terms of where they learn (*Learn where you choose*):" in own location," "learn anywhere," and "in own space." Participants also agree with the researcher's and platform's definitions of self-paced online learning that it is self-directed (*In charge of own learning goals*): "complete goals that I set towards the completion of the required modules," "design their own learning," "I have full control of the course," and "opportunity to self-regulate and to get empowered."

A few respondents included in their definitions that they were *In charge of finding help for oneself*: "find help for myself," "provides little support," "with minimal or no instructor contact," and "there is little to no teacher contact." This was something not found in definitions put forth by researchers or platforms. In the Definition of Self-Paced Online Learning, I examined what the definition of self-paced online learning was not. It is not instructor-led, which was included in the participant's definitions but in the examination I did not find mention of being responsible for finding help for oneself. Therefore, further examination of the general definition of self-paced online learning as defined in this study may need to consider adding that one is not only *In charge of own learning goals* but also *In charge of finding help for oneself*.

Follow-up Questions

The purpose of collecting data from follow-up questions was to triangulate the data by comparing and contrasting survey data with data collected through follow-up questions.

Satisfied / Unsatisfied

Out of the eleven participants, nine said they were satisfied and only two said they were unsatisfied. The data collected from the survey showed that most respondents were less satisfied. More participants found self-paced online learning to be Hard to learn (66.3%), Negative (81.1%), Unnatural (70.5%), Ineffective (77.8%), Unclear (80.0%), Unsupportive (72.6%), Annoying (82.1%), Difficult (70.5%), and Frustrating (71.5%). The reasons respondents described for their satisfaction with the OPD course was in terms of course design. They liked videos, course organization, and chunked content: "Video clips in the course describe better and help my understanding," "What contributed to my satisfaction are the chunked lessons and activities," "course organization," "The learning designs are thought of carefully," "organization of the course." Yet, they also stated being unsatisfied for reasons related to course design. "I think the information could be provided more succinctly," "I am unsatisfied with OPD courses where the instructional designers put in a lot of information in one go, and quizzes test only knowledge," "I think for me I would enjoy it more if it were more of a game," "Auto translation on the script for minimum misunderstanding," "It's just that, with ill-conceived courses, there is so much 'wastage' of good information that are not retained by the student," "If they would only take time to plan online OPD courses, learning will be optimized," "I just do that because all I'm doing when I do them is clicking through as fast as possible and then I just take the test until I pass it," and "Instructors/teachers love to give a lot of information. Universities should leave the course design to instructional designers and not the teachers (SMEs)."

Poorly designed training could limit users just as well-designed training may attract users and potentially return users. If poorly designed, the self-paced online training could affect whether it is used and whether it continues to be used (user persistence). Professional development opportunities should meet the needs of faculty. Not conducting a needs analysis or learner analysis as part of the course design process may result in a course that does not meet learner needs. In addition, studies show that if a design is visually appealing and easy to use, people are motivated to use it (Bezerra-Barbosa & Pino-Juste, 2011; Carroll & Kop, 2016; Pinicotti & Verba, 2013), which may increase user persistence and, in turn, satisfaction and completion.

Completion / Motivation to Complete

Seven participants responded, "Yes," they completed the OPD course. Four said, "No," with responses that included: "No, but I will," and "No, I completed about ¾ of it." This does not align with survey responses. The majority of participants responded to: "Did you complete the course?" in the negative: No (86.3%), Yes (13.7%). Some reasons provided for not completing involved: "insufficient time," "I felt I had learned enough and that further units would only reinforce what was already stated and supported." Other comments by participants who reported completing the course: "I was just thinking when you just don't like it and it's really awful then it's harder to finish," "Cause I sometimes have to force myself to finish," "I would think if I didn't have deadlines or reasons to finish something then I probably wouldn't," and "When I'm more satisfied with the way that the course is going, then I'm more likely to finish."

Respondents explained their motivation to complete the self-paced OPD, again, in terms of course design: “There were elements built into the course that moved you along,” “there were videos and outlines and things that reinforced the other elements within the section, so it was easy to follow and it moves you forward,” “the way that the course flows is it's very visual,” “Text and dialogue and the way it flows from one screen to the next who are designed is really smart,” “It's a very well done course,” “the way it flows,” “Visuals are best. Key words are on slide presentation,” “the way it's visually presented and flows,” and “Course structure and self-regulation.”

A couple of respondents referred to their motivation to complete in terms of SRL strategies: “Timelines and goal setting,” “Self-study strategies.” Others were motivated to complete because it was required: “Mostly it's because it is mandatory and also essential to my job,” “Required,” “I think just the fact that knowing I have to finish it” or they feel it is an obligation: “I usually get scholarships for OPD courses. So, to honor the persons/institution that granted me access to learning, I complete the courses.” Finally, participants said they were motivated because of interest, being better at their job, and learning: “Probably wouldn't take it if I wasn't interested,” “Well, to be better at my job, I would do it gladly. I will say for me in my profession no other thing that I know of exists,” and “Learning is what motivated me most, although I didn’t complete the course.”

Learned

All of the participants responded, “Yes,” they learned from the course. Responses included: “Yes, to me, it was about learning something new, something that changed my mindset,” “Yes, I have managed to learn from both sloppy and well-planned courses,” "At the end of the day, the learning depends on the student," "Absolutely. It changed my mindset," and "I probably learned more from the online self-paced course than I would have if I had to have gone to a physical class because then I just would have tuned out and not paid attention." In the survey, the SRL Strategy, self-study, asked participants about how they learn: I think of questions on the subject while reading the material (SSQRM); I draw up a draft of reading material to be able to organize my thoughts (SSDRF); I practice by repeating the contents of the material (SSRPC); I review my reading materials and notes and try to find the most important opinions (SSREV); I create simple schemes, diagrams, or tables to organize my study materials (SSCSD); while studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects (SSRLS); I summarize the subjects to understand what I have learned from the lessons (SSSML); and, I evaluate what I understand by pausing at regular intervals while studying (SSEVP). All had a high degree of agreement (Strongly Agree, Agree, Slightly Agree): SSQRM (100%), SSDRF (91.6%), SSRPC (96.7%), SSREV (93.6%), SSCSD (93.7%), SSRLS (89.4%), SSSML (92.6%), and SSEVP (94.7%) (Table 4.2). The interview data aligns with the survey data suggesting that participants are using self-study strategies to learn as they progress through content in online self-paced OPD courses.

Self-Regulate

Self-regulation is defined by Panadero and Alonso-Tapia (2014) as "the control that students have over their cognition, behaviour, emotions and motivation through the use of personal strategies to achieve the goals they have established" (p. 450). Participants reported they self-regulate in the following ways: "Set a time and place and I sat down and worked through the material one section at a time," "I say, okay, well I'm gonna do this section like on these 3 days and then break it down like that," "So you do have to have like a study strategy. So I was like, I'll do this much in 2 weeks. Like I'll do this for 2 days. This for 2 days. Then, I'll take the test on that day," "I have taken many self-paced courses both in college and in business. I find they take more discipline than classroom courses. It requires setting aside a regular time just like being in a classroom. It also requires space to prevent distractions. Not everyone has that discipline; hence some coaching may be required," "Discipline myself for course interest and timeline," "Self-regulation is fun and easy with well-planned courses because you can set a mental timeline and you can really see your progress. The students can predict or plan what they can do next. In short, they take control of their learning at their own pace," "And I do a little bit every day, even if I have to force myself to take 10 min just to do it," "I'm gonna do specific school work things in this amount of time I've allotted," "Yeah, I would say schedule and just time," "Time management and probably interest too," "Just get through it as fast as possible," "But it's like information then test is easy because that's how they are set up, read the content and you take a test, read more content, then you take a test.".

Self-regulated learners set goals, use task-related strategies, monitor their behavior through self-reflection, self-evaluate, assessing their self-efficacy for continued learning, and adapt their methods to apply in the future (Schunk, 2012a). This process increases self-satisfaction and motivation to continue to improve with every iteration of the cycle. Survey participants overwhelmingly reported using SRL strategies. In the follow-up questions they reaffirm their desire to self-regulate. However, in the survey data, they report that they are not satisfied and not completing the course. The follow-up questions tie the motivation to complete to course design. There were only a couple of respondents that referred to their motivation to complete in terms of self-regulation by using SRL strategies: “Timelines and goal setting,” “Self-study strategies.”

SRL Strategies

Participants reported using self-regulated learning strategies: “Help-seeking,” “Goal-setting,” “Self-study strategies,” “Effort-regulation,” “Goal-setting,” “self-study strategies for sure,” “Self-study strategies, manage physical environment,” “And I would like take my time and do some goal-setting, help-seeking,” “You can reach out and get help, but it's generally a self-directed learner directed type of course so self-study and then having a good moment to do the self-study is probably absolutely the top,” “And self-study is I mean, just sitting down and doing it. Like, for something like that, I don't have any issue sitting down and just doing the work,” “I set up an environment or go somewhere or I know mentally it's quiet,” “Note-taking. Generally by topic, a lot of times the course will organize it in a way that breaks up into topics and then I'll break it up even further,” “It works best as a holistic process. I normally am a goal-oriented person who seeks help when necessary,” “I'll do like a series of writing and drawing,” “While reading the material, I draw up a draft of reading material,” “I go somewhere else, which is also kind of how I may like manage time by going somewhere else,” “I'm gonna go somewhere. I usually have a general rule in my head of like how long I'll spend there,” and “I'd say like what I do is, if, say it's like a video, I will take a lot of notes and sometimes drawings are related but sometimes it's just a doodle just I think for my like brain connection, to help me concentrate. Other times, I will try to watch something a few times and just take notes on it and then try and think back without the video and kind of sum it up." Follow-up question respondents reported using SRL strategies. This aligns with the survey data. Survey respondents reported overwhelmingly using SRL strategies in self-paced OPD courses (see Table 4.2).

Limitations Related to Findings

There are limitations associated with the findings of this study. These limitations relate to the participants and the design of the self-paced online course.

Participants

Since this study uses survey instruments that ask participants to report their perceptions, it is limited by self-report bias, which can cause reliability and validity problems. With self-report methods, participants may report what they believe paints them in a positive light, convey what they believe is expected by the researcher, or exaggerate their feelings, knowledge, or beliefs. However, this study employed an Internet survey and using this type of survey can produce comparable results to those of traditional surveys, if it is not asking participants to report on sensitive issues and consideration is given to sampling, reliability, and validity (Bordens & Abbott, 2014).

Follow-up question participants

Respondents of follow-up questions volunteered to answer follow-up questions. Their willingness to answer follow-up questions may indicate an increase in their dedication to learning. Therefore, their use of SRL strategies and their satisfaction with and completion of self-paced OPD may be inflated.

Self-paced online course design

This study may be limited by the design of the self-paced online training taken by educators. Their perceptions of an online course that is not engaging may affect satisfaction and completion rates. Poorly designed training could limit users just as well-designed training may attract users and potentially return users. If poorly designed, the self-paced online training could affect whether it is used and whether it continues to be used (user persistence). Professional development opportunities should meet the needs of faculty. Not conducting a needs analysis or learner analysis as part of the course design process may result in a course that does not meet learner needs. In addition, studies show that if a design is visually appealing and easy to use, people are motivated to use it (Bezerra-Barbosa & Pino-Juste, 2011; Carroll & Kop, 2016; Pinicotti & Verba, 2013), which may increase user persistence and, in turn, satisfaction and completion. If all educators surveyed took the same self-paced online course and that course was poorly designed, it could influence the study. However, this study's survey was disseminated in several self-paced online OPD courses. Next, in chapter six, I will discuss theoretical, conceptual, and practical implications, provide recommendations for future research, and convey final thoughts.

CHAPTER SIX

IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

The primary purpose of this descriptive correlational study was to examine if a relationship exists between SRL strategies, satisfaction, and completion of self-paced OPD. In support of theories of self-regulation and self-regulated learning in online learning environments, learners reported feeling in control of their own learning and using SRL strategies to regulate their learning in self-paced OPD. In a broad sense, the results of this study align with what previous research described: those taking online self-paced courses acknowledge using SRL strategies but are not satisfied with online learning and complete at lower rates. An examination of how each of these factors affect the other shows a disconnect between the use of SRL strategies, satisfaction, and motivation to complete. In this section, I will link back to the theoretical and conceptual frameworks that informed this study.

Theoretical Implications

The SRL variables in this study were derived from SR and SCT theory. Therefore, a theoretical framework guided this study (Figure 2.6). Learning to self-regulate is essential to succeed in online environments. However, if we do not already know how to self-regulate before taking an online course, then taking an online course where there is no one to model behaviors would prove difficult and a self-paced online course even more difficult. Learners with degrees in higher education are more likely to possess the SRL skills needed to be successful in online and self-paced online courses (DeVore et al., 2017). This was true of the participants in this study who reported using SRL strategies and who also reported having a college degree or some college (89.5%). Furthermore, learners in this study felt autonomous as they applied SRL strategies in self-paced OPD environments. However, the results of this study identified the SRL strategy Help-seeking as a source of learner frustration.

Autonomy

Learner autonomy is critical for success in an online learning environment (Lynch & Dembo, 2004). Deci and Ryan's (1985) Self-Determination Theory stresses autonomy and the need for control in one's life. Rotter's (1966) Locus of Control Theory suggests that the extent to which people feel in control of their lives determines how successful they believe they will be. Autonomy is at the heart of self-regulation and the current Cyclical Phases model (Figure 2.4). An online learning environment that limits learner control may contribute to intrinsically oriented students' dissatisfaction with the course (Scheiter & Gerjets, 2007). In their responses to an open-ended survey question, learners in this study reported feeling in charge of their own learning. There were 41 references to No time constraints, 37 references to Paced by learner, 34 references to In charge of own learning goals, 4 references to In charge of finding help for oneself, and 5 references to Learn where you choose. However, one of the potential downsides of autonomy in self-paced online learning environments is having to find one's own help. In a typical online environment there may be more avenues of finding help, but in a self-paced online environment these help-seeking avenues may not seem so obvious. This frustration can produce negative emotions which can impede learning in self-paced online learning environments.

Help-seeking

Help-seeking is defined as seeking help from subject experts (i.e., teachers, facilitators), friends, the Internet, and social media. Help-seeking is an SRL strategy that refers to the learners ability to seek assistance from an outside source whether that source is another human or a non-human source (e.g., a book or the internet). Help-seeking is part of Self-Control in the Performance Phase of the current Cyclical Phases of SRL model (Figure 2.4). Learners self-regulate by setting goals, monitoring and evaluating their progress, assessing their confidence to continue learning, creating a positive emotional climate for themselves (Schunk, 2012a), planning and managing time, and seeking help when needed (Dabbagh & Kitsantas, 2005; Zimmerman & Risemberg, 1997). The results of this study showed participants had a higher rate of disagreement for Help-seeking strategies, especially *I contact other students, who I think are successful, on social media (36.8%)* and *I try to talk face-to-face with my classmates in distance education if necessary (39.7%)*. This suggests that the lack of social interaction in self-paced OPD may impact Help-seeking strategies. The use of SRL strategies is important in online learning environments (Cho & Kim, 2013) and critical for success in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). However, with little to no social interaction, self-paced online environments can be isolating (Naidu, 2008; Yan, 2021; Thiessen, 2016). This implies that the isolation of self-paced online environments may hinder a learner's ability to seek help.

Conceptual Implications

For the most part, this study's findings align with previous research. Learners taking online self-paced courses acknowledge using SRL strategies but reported they were not satisfied with self-paced OPD courses and completed at lower rates. However, an examination of how each of these factors affect the other shows a disconnect between the use of SRL strategies, satisfaction, and motivation to complete.

Disconnect between SRL strategies, satisfaction, and completion

Correlational analysis was conducted to investigate the relationship between SRL strategies and satisfaction. SRL strategies only weakly negatively correlated with satisfaction. Participants reported using SRL strategies but also reported not being satisfied with self-paced OPD courses. With little to no opportunities for social interaction, self-paced online environments can be isolating. Feelings of isolation can generate negative emotions, and negative emotions can affect learners' self-regulatory behaviors, which in turn can negatively impact their motivation (Kim & Hodges, 2012; Wolters, 2003), and satisfaction with self-paced online learning environments (Cho & Heron, 2015). However, learners who use self-regulatory strategies have higher self-efficacy and are more likely to complete self-paced online courses even with little to no social interaction (Koçdar et al., 2018; Littlejohn et al., 2016). In this way, the findings from this study do not seem to agree with previous research. There exists a complex relationship between SRL strategies, satisfaction, and completion.

Complex relationship between SRL strategies and satisfaction. Several researchers report that SRL does not have a significant effect on satisfaction (Eom & Ashill, 2016; Joo et al., 2014) and does not predict satisfaction in online learning environments (Kuo et al, 2014). Others found that SRL had a positive influence on satisfaction (Cho & Heron, 2015; Li, 2019; Mshayisa & Ivala, 2022; Priyatma, 2023). In one study, Cho and Heron (2015) found that the role of SRL, specifically motivation and emotion, positively impacted learner satisfaction in a self-paced online mathematics course. In another study examining factors influencing online learner satisfaction, Priyatma (2023) discovered that learners' behavior and their cognitive and emotional engagement positively affected learner satisfaction in online environments. Moreover, Mshayisa and Ivala (2022) reported a high level of learner satisfaction when investigating learners' satisfaction with self-paced online orientation. Li (2019) found that SRL strategies, goal setting and environment structuring usage, significantly predicted satisfaction. The results of this study, however, indicate that the SRL strategy Help-seeking was the only predictor of the satisfaction factor “frustrating,” demonstrating a relationship between SRL strategies and satisfaction that remains complicated and difficult to grasp.

SRL strategies and completion. Self-paced online learning environments have low completion rates overall (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). However, students who keep a regular pace and learning habit throughout the self-paced online course were more successful and completed the course (Goda et al., 2015; Lim, 2016), suggesting that learners using SRL strategies (goal-setting, help-seeking, self-study strategies, managing physical environment, effort regulation) may have improved perceived success and completion. In a self-paced online environment, the use of SRL strategies could decrease the likelihood of similarly low completion rates and positively impact learner satisfaction. However, eighty-six percent of participants in this study reported not completing the self-paced OPD course. This number may be inflated because as stated in this study’s assumptions: professional development is sought out by individuals and not assigned or required by an organization. However, follow-up questions identified participants who stated that the it was required: “Mostly it's because it is mandatory and also essential to my job,” “Required,” “I think just the fact that knowing I have to finish it.” Since participants also agreed that they used SRL strategies, the findings from this study did not show a connection between SRL strategies and completion. This study did show that Gender was a significant predictor of completion. Males were more likely to complete the self-paced OPD course than females. Implications from this study's findings support the existence of a complex relationship between SRL strategies, satisfaction, and completion; one that remains elusive. Next, I will consider the practical implications of self-paced OPD.

Practical Implications

Professional development is defined as "learning activities related to the profession of teaching" (Fishman, 2016, p. 14). OPD is any PD delivered online, over the internet (Fishman, 2016). Whether focusing on new technologies or good pedagogy, the goal of faculty development is professional growth by increasing knowledge or learning a new skill and applying it to practice. The practical implications of this study will focus on this study's findings and how they impact self-paced OPD and self-paced online learning.

Self-paced OPD

Researchers indicate OPD which includes self-paced OPD can be cost-effective (Gatta, 2003; Keengwe & Kyei-Blankson, 2012; Rhode & Krishnamurthi, 2016), but other researchers argue that it seems so because the entire life cycle including maintaining the course is not included in cost estimates (Lawson, 2005; Liberman, 2018). Online professional development and especially self-paced OPD are not well attended (Lian, 2014), which may be the result of their limitations: little to no social interaction (Russell, Kleiman, et al., 2009; Yan, 2020; Thiessen, 2016); they are self-directed and often not instructor-led, which reduces the opportunity to interact with an instructor, facilitator, or learning designer (Russell, Kleiman, et al., 2009). In self-paced environments, learners access the course at different times, ranging from every day, to once a week, or even once a month, making it difficult to create any meaningful connection with other learners. Barriers to participation include a lack of time, time conflicts, and time constraints (Dailey-Hebert et al, 2014; Elliott et al., 2015; Lowenthal, 2008; McMartin et al., 2008; Nellis et al., 2002; Sener & Hawkins, 2007; Thomas et al., 2012), faculty isolation (Miller, 2015), dissatisfaction with program deliver methods (Dailey-Hebert et al., 2014) as well as being unaware of available programming, and a lack of interest in the programming (Dailey-Hebert et al., 2014; Elliott et al., 2015; Lian, 2014). As a result, of self-paced online courses are plagued by low completion rates (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Educators reported feeling dissatisfied with OPD initiatives, preferring traditional face-to-face offerings (Balayan, 2016).

Implications to self-paced OPD. Aligning with research related to online learning, this study's findings show multifaceted satisfaction results and low completion rates. Learners' complex satisfaction results and low completion rates make self-paced OPD courses appear to be less successful, yet they are still commonly produced to satisfy professional training for educators of higher education. From my experience even the self-paced OPD courses for which many people sign up; few complete. During my time assisting educators with learning technologies in a virtual help room, some clients requested help for issues that were addressed in self-paced modules available to them. My help consisted of walking them through the existing self-paced OPD module. During the session, some admitted to even being enrolled in the self-paced OPD course. As a result of these experiences, I began to question the decisions that led to the development of self-paced OPD.

If the goal of faculty development is professional growth by increasing knowledge or learning a new skill and applying it to practice, then why spend resources producing self-paced OPD courses if very few learners are satisfied with them and very few learners are completing them. Lowenthal et al. (2012) suggested that faculty developers begin to think differently about the types of faculty development and the frequency with which they are offered. Miller (2015) suggested that increased funding is needed for developers to create innovative solutions as well as more funding to encourage faculty participation in OPD. This implies that faculty development programs are not doing enough to understand faculty needs and preferences in order to provide supports faculty will use. Considering the results of this study, which reported that self-paced online OPD learnings are using of SRL strategies but have low satisfaction and low completion rates, creators of self-paced OPD should consider carefully the learner, the need, and most importantly the design of OPD before exhausting resources for supports that will not be used by learners.

Self-paced online learning

Self-paced online learning contain small chunks of content (modules) that make up a lesson. These modules allow learners to skip over familiar content providing them flexibility for how they access content. Learners can move through course material at their own pace, which allows them sufficient time to meet learning outcomes. This type of learning creates flexibility and encourages independence (Anderson et al., 2005). However, this freedom leads to procrastination for some learners (Eyre, 2007) and low completion rates overall (Anderson et al., 2005; Kizilcec et al., 2017; Koçdar et al., 2018). Decreased human interaction (i.e., learner to learner, learner to instructor) is a drawback of self-paced learning environments (Thiessen, 2016; Yan, 2020; Yan, Ives, et al., 2021; Yan, Lin, et al., 2021) and contributes to dissatisfaction and high attrition rates (Anderson et al., 2005).

Implications to self-paced online course design. Survey respondents reported overwhelmingly using SRL strategies in self-paced OPD courses (see Table 4.2). In the follow-up questions they reaffirm their desire to self-regulate. However, the survey data, confirms they are not completing the course and are not satisfied. The follow-up questions tie the motivation to complete to course design: “There were elements built into the course that moved you along,” “there were videos and outlines and things that reinforced the other elements within the section, so it was easy to follow and it moves you forward,” “the way that the course flows is it's very visual,” “Text and dialogue and the way it flows from one screen to the next who are designed is really smart,” “the way it flows,” “Visuals are best. Key words are on slide presentation,” “the way it's visually presented and flows,” and “Course structure.” In the follow-up questions, participants also stated being unsatisfied for reasons related to course design. “I think the information could be provided more succinctly,” “I am unsatisfied with OPD courses where the instructional designers put in a lot of information in one go, and quizzes test only knowledge,” “I think for me I would enjoy it more if it were more of a game,” “Auto translation on the script for minimum misunderstanding,” “It's just that, with ill-conceived courses, there is so much ‘wastage’ of good information that are not retained by the student,” “If they would only take time to plan online OPD courses, learning will be optimized,” “I just do that because all I'm doing when I do them is clicking through as fast as possible and then I just take the test until I pass it,” and “Instructors/teachers love to give a lot of information. Universities should leave the course design to instructional designers and not the teachers (SMEs)." The implications from this study's findings seem to point to course design as determinant of satisfaction and motivation to complete.

Implications of Help-seeking within self-paced online course design. Although this study had some mixed results, the SRL strategy Help-seeking stood out. Help-seeking is defined as seeking help from subject experts (i.e., teachers, facilitators), friends, the Internet, and social media. In this study's findings, participants had a higher rate of disagreement for Help-seeking strategies, especially *I contact other students, who I think are successful, on social media (36.8%)* and *I try to talk face-to-face with my classmates in distance education if necessary (39.7%)*.

Other help-seeking SRL strategies had a much lower rate of disagreement: *I contact someone to discuss my understanding (10.6%)*; *I participate in social media group discussions regarding study subjects (26.3%)*; *When I do not understand the distance education course material, I ask another student for help (27.4%)*; *I determine what I will ask before receiving help (7.4%)*; *I find someone who has information about the course content to consult when I need help (13.7%)*; *I share my questions about the lessons with other distance education students on the Internet (26.3%)*, and *I insist on receiving help from someone who has information about the course content on the Internet (26.3%)*. Examining the lowest rates of disagreement: *I contact someone to discuss my understanding (10.6%)*; *I determine what I will ask before receiving help (7.4%)*; *I find someone who has information about the course content to consult when I need help (13.7%)* may suggest that learners seeking help determine what they want to ask and want to discuss their understanding but also want someone who has information when help-seeking. This was supported by the qualitative data from learner definitions of self-paced learning in which they described feeling *In charge of finding help for oneself*: “find help for myself,” “provides little support,” “with minimal or no instructor contact,” and “there is little to no teacher contact.” From a practical perspective, these results imply that learners are more interested in help from subject matter experts (e.g., teachers and facilitators) and not from social media groups, other students, or the Internet. This is especially true for students with low motivation profiles (Cho et al., 2021). Given the limitations of self-paced online environments, reduced social interaction (Anderson et al., 2005; Thiessen, 2016), a lack of teacher guidance (Wang, 2003), absence of academic support, no formative feedback (Yan, 2020; Yan, Ives et al., 2021) and reduced instructor-learner interaction (Yan, Lin, et al., 2021), it also implies that the isolation of self-paced online environments may hinder a learner’s ability to seek help and may suggest a need to add more avenues for learners to seek help to the online self-paced course.

Implications to definition of self-paced online learning. The term self-paced online learning or self-paced e-learning does not currently have a pellucid or widely accepted definition (Ritzhaupt, 2019). In the literature review, I analyzed various definitions of self-paced online learning and for the purposes of this study, I defined self-paced online learning as instructional content delivered through a Course Management System (CMS) or a Learning Management System (LMS) via the Internet in a self-paced asynchronous (accessed at a time, pace, and place determined by the learner and not faculty led or mediated) format.

Researchers agree that SRL strategies play a critical role in self-paced online learning environments (Kizilcec et al., 2017; Koçdar et al., 2018; Lee et al., 2021). The results of this study showed Help-seeking to be the only SRL strategy to predict the satisfaction factor frustrating. When learners defined self-paced learning, they included positive feelings of being in control of their own learning. However, they also felt *In charge of finding help for oneself*: “find help for myself,” “provides little support,” “with minimal or no instructor contact,” and “there is little to no teacher contact.” When it came to Help-seeking, the feelings were negative. This implies that learners liked being in control of their own learning but not finding their own help. This study’s results imply there may be a need to clarify the general definition of self-paced online learning as defined in this study to elucidate the need to find one’s own help from subject matter experts, especially since SRL strategies are an integral part of learning in online self-paced learning environments. Next, I will provide recommendations for future research and future practice.

Recommendations

Recommendations for future research

Help-seeking. A standard multiple regression in this study indicated those who seek help are less likely to be frustrated. In an examination of Gender and SRL strategies, help-seeking was the only predictor of Gender. Learners seeking help were more likely to be Female. Future research into why Females are more likely to seek help may provide a better understanding of how to support learner’s efforts to seek help, which may inform future practice.

Effort Regulation. The SRL strategy Effort regulation did not load onto any factor during factor analysis, and the Effort regulation: *I make an effort to understand the subjects in my distance education lessons* had the most missing cases. The lack of data may be interesting in this case, but more research into Effort regulation may shed light on how learners self-regulate their effort. In addition, the Scale for Measuring Self-Regulation in Self-paced Open and Distance Learning Environments (Koçdar et al., 2018) only included two variables that measure effort: *I make an effort to understand the subjects in my distance education lessons* and *I study course subjects until finishing them even though I find course materials boring*. Other SRL strategies, Goal-setting, Help-seeking, Self-study, and Manage physical environment have five, nine, eight, and six variables respectively. Future research into effort regulation could provide a more detailed examination of how learners regulate effort in online self-paced learning environments.

Self-paced online course design. More research is needed to study the impact of course design on satisfaction and completion in self-paced online environments. To that end, it might be interesting to repeat this research in similarly designed courses where the design features are the same and where completion is automatically recorded instead of self-reported**.**

Completion. In this study, a regression analysis revealed that males are more likely to complete the self-paced OPD course than females. Future research could look into why males report completing at a higher rate than females. This may shed light on why some learners complete and others do not. From a practical perspective, an better understanding could improve completion rates.

Self-reporting. We need a better way to measure how people are using SRL strategies that does not involve self-reporting. With self-report methods, participants may report what they believe paints them in a positive light, convey what they believe is expected by the researcher, or exaggerate their feelings, knowledge, or beliefs. These results may be distorting our understanding of how SRL strategies relate to satisfaction and completion in self-paced online learning environments. More research into other methods of collecting this data may be warranted. It may be interesting to find a way to measure SRL strategy use from a course design perspective. That is to say, purposefully adding SRL strategy supports into an online self-paced course design and finding a way to measure their use. Then, comparing the results with automatically collected completion rates. Finally, asking learners to self-report their satisfaction.

Recommendations for future practice

Help-seeking and self-paced course design. Implications from this study indicate that the isolation of self-paced online environments may hinder a learner's ability to seek help and that learners may be more interested in help from subject matter experts (e.g., teachers and facilitators) and not from social media groups, other students, or the Internet. These findings may suggest that instructors, facilitators, and/or course designers may need to clarify existing help resources or create more intentional means for learners to find the type of help desired in self-paced online courses.

Addition to self-paced online learning definition. Self-paced online learning definitions examined in this study described this type of learning as not instructor-led, not instructor-paced, and little to no interaction. What I did not find in an examinations of the definitions was being responsible for finding help for oneself. Therefore, it may be practical to consider adding to the general definition of self-paced online learning that it is not only self-directed (In charge of own learning goals) but also self-help directed (In charge of finding help for oneself).

Concluding Remarks

The primary purpose of this descriptive correlational study was to examine if a relationship exists between SRL strategies, satisfaction, and completion of self-paced OPD. Through mixed results this study reinforced the elusive nature and complicated relationship between SRL strategies, satisfaction, and completion of self-paced OPD. We know that the ability to self-regulate by using SRL strategies are vitally important in online self-paced environments. The results of this study showed that learners in self-paced OPD are using them but are still unsatisfied and not completing courses. The following paragraphs will present some key take-aways from this study.

Professional development in a higher education context, whether focusing on new technologies or good pedagogy, provides opportunities for educators to increase their knowledge, learn a new skill, and apply it to practice. Self-paced OPD offers a solution for busy educators because its flexibility allows educators to work at their own pace and on their own schedule (Yan, Lin, et al., 2021). Learners in higher education have college degrees and therefore are more likely to possess SRL skills needed to be successful in online and self-paced online courses (DeVore et al., 2017). From my experience working in a virtual help room, educators are not seeking out or taking self-paced OPD. This is also true of this study. Platforms report a large number of registered users in their courses. However, this study’s low participation rate suggests that fewer learners are taking or completing OPD.

Survey respondents reported using SRL strategies in self-paced OPD courses. Self-regulated learners set goals, use task-related strategies, monitor their behavior through self-reflection, self-evaluate, assessing their self-efficacy for continued learning, and adapt their methods to apply in the future (Schunk, 2012a). Participants also reported being unsatisfied and not completing their course. Although more needs to be understood about the disconnect between SRL strategies, satisfaction, and completion of self-paced OPD, this study's results may help shed some light on the connection. For instance, the SRL strategy Help-seeking indicated a connection between SRL strategies and satisfaction.

For participants of self-paced OPD, Help-seeking seems to be a source of frustration. Fewer participants had a high percentage of agreement for Help-seeking strategies. In fact, of all the SRL strategies, Help-seeking had the lowest percentage. Regression analysis showed the SRL strategy Help-seeking to be a predictor of satisfaction. Qualitative data revealed that participants felt there was little support, no instructor contact, and that they were in charge of finding their own help indicating help was either not available, was not the kind of help they needed, or help was not obvious to them. A regression analysis looked at how Gender related to SRL strategies and found self-paced online OPD learners seeking help are more likely to be female than male. An understanding of why females are more likely to seek help may elucidate the connection between SRL strategies and satisfaction and inspire changes in course design to create thoughtful ways for learners in self-paced online environments to seek help from knowledgeable subject matter experts.

Most survey participants reported they did not complete the self-paced OPD course. However, follow-up question participants reported they did complete. The participants that did not complete responded that they did not but they will. Analyses examining Completion did not show a relationship with SRL strategies or Satisfaction. However, Gender related to Completion. Males were more likely to complete the self-paced OPD course than females. An understand of why males report completing at a higher rate than females could help better understand why some learners complete and others do not.

In the follow-up questions, participants stated being unsatisfied for reasons related to course design. Respondents also explained their motivation to complete the self-paced OPD in terms of course design. Responses to follow-up questions suggest course design may influence satisfaction and motivation to complete. These findings seem to point to course design as determinant of satisfaction and motivation to complete. Given the barriers for educators seeking OPD, the lack of social interaction, and isolation of self-paced OPD, creators should consider carefully the learner, the need, and most importantly the design of self-paced OPD before exhausting resources for supports that will not be used by learners.

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APPENDICES

APPENDIX A

SURVEY QUESTIONS

Demographic Questions

1. What age range best describes you?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65-74
    g. 75+
2. I identify my gender as:
    a. Female
    b. Male
    c. Gender non-conforming
    d. Prefer not to say
    e. Other [Empty form field that can be filled in by participant]
3. What is the highest level of school achieved?
    a. Doctorate degree
    b. Professional degree (e.g., M.D., J.D.)
    c. Master's degree
    d. Bachelor's degree

e. Associate degree or 2-year degree
f. Some college, no degree
g. Trade/technical/vocational training
h. High School graduate, diploma or the equivalent
i. Some high school, no diploma

4. Where do you reside?
    a. Within the United States of America
    b. Outside of the United States of America
5. I identify my ethnicity as (select all that apply):
    a. Asian
    b. Black/African
    c. Caucasian
    d. Hispanic/Latinx
    e. Native American
    f. Pacific Islander
    g. Other [Empty form field that can be filled in by participant]
    h. Prefer not to answer
6. How would you describe your employment status?
    a. Employed
    b. Self-employed
    c. Out of work for less than one year
    d. Out of work for more than one year
7. How would you describe your place of employment?

a. 4-year institution of higher education

b. Community college

c. Corporate environment

d. Non-profit

e. Other [Empty form field that can be filled in by participant]

8. How would you describe yourself?

   a. Tenured

   b. Tenure-Track

   c. Adjunct / Lecturer

   d. Clinical Faculty

   e. Staff Instructor

   f. Graduate Teaching Assistant / Associate

   g. Corporate Trainer

   h. Other [Empty form field that can be filled in by participant]

Online Self-paced Professional Development Questions

1. From which self-paced course did you access this survey? _____________

2. How do you define self-paced learning? ________________

3. How many online professional development courses/workshops/trainings have you started?

   a. 1-2

   b. 3-4

   c. 5-6

   d. 7-8

e. 9-10
f. 10+

4. How many online professional development courses/workshops/trainings have you completed?
    a. 1-2
    b. 3-4
    c. 5-6
    d. 7-8
    e. 9-10
    f. 10+
5. How would you best describe the professional development courses/workshops/trainings you have started and/or completed?
    a. Online asynchronous (instructor guided with learner-learner and learner-instructor interaction using asynchronous tools – e.g., discussions boards, chat, email)
    b. Online synchronous (instructor guided with online interactions with learner-learner and learner-instructor interaction using synchronous tools – e.g., videoconferencing software such as Zoom, Skype or Blackboard Collaborate)
    c. Online self-paced (autonomous, self-directed, self-guided with no or low learner-learner and learner-instructor asynchronous interaction)
    d. Face-to-face (traditional)

Completion Question

1. Did you complete the course? (Yes / No)

Follow-up Question

1. May we contact you about your responses? (Yes, please provide your email address

   _______________ / No)

APPENDIX B

SCALE ITEMS FOR MEASURING SELF-REGULATION IN SELF-PACED OPEN AND DISTANCE LEARNING ENVIRONMENTS (KOÇDAR ET AL., 2018)

[5-Strongly agree 4-Agree 3-Slightly agree 2-Disagree 1-Strongly disagree]

Goal-setting

- I set my study goals daily.
- I set goals for myself while studying.
- I study my lessons in a planned manner.
- I set goals for myself to arrange my study hours for distance education lessons.
- I do not compromise on the quality of what I do for my lessons.

Help-seeking

- I contact someone to discuss my understanding.
- I participate in social media group discussions regarding study subjects.
- When I do not understand the distance education course material, I ask another student for help.
- I contact other students, who I think are successful, on social media.
- I determine what I will ask before receiving help.
- I find someone who has information about the course content to consult when I need help.
- I share my questions about the lessons with other distance education students on the Internet.

- I try to talk face-to-face with my classmates in distance education if necessary.
- I insist on receiving help from someone who has information about the course content on the Internet.

Self-study strategies

- I think of questions on the subject while reading the material.
- I draw up a draft of reading material to be able to organize my thoughts.
- I practice by repeating the contents of the material.
- I review my reading materials and notes and try to find the most important opinions.
- I create simple schemes, diagrams, or tables to organize my study materials.
- While studying my distance education lessons, I review my lesson notes and draw up a draft of the important subjects.
- I summarize the subjects to understand what I have learned from the lessons.
- I evaluate what I understand by pausing at regular intervals while studying.

Managing physical environment

- I prefer studying in places where I can concentrate.
- I choose a comfortable place to study.
- I have places where I can study efficiently for my distance education lessons.
- I choose places where nothing distracts me from studying my distance education lessons.
- I study my lessons in places where I can focus.
- I have a regular place to study.

Effort regulation

- I study the course subjects until finishing them even though I find the course materials boring.
- I make an effort to understand the subjects in my distance education lessons.

APPENDIX C

ELECTRONIC LEARNER SATISFACTION SCALE (RITZHAUPT, 2019)

	5	4	3	2	1	
1. Hard to learn	◎	◎	◎	◎	◎	Easy to learn
2. Negative	◎	◎	◎	◎	◎	Positive
3. Unnatural	◎	◎	◎	◎	◎	Natural
4. Ineffective	◎	◎	◎	◎	◎	Effective
5. Unclear	◎	◎	◎	◎	◎	Clear
6. Unsupportive	◎	◎	◎	◎	◎	Supportive
7. Annoying	◎	◎	◎	◎	◎	Pleasing
8. Difficult	◎	◎	◎	◎	◎	Easy
9. Frustrating	◎	◎	◎	◎	◎	Gratifying

APPENDIX D

EMAIL REQUESTING SRL SURVEY TO BE ADDED TO SELF-PACED COURSES

Subject: Invitation to Assist with Self-Regulation and Self-Paced Learning Dissertation Research

Hello. My name is Erin Garty and I am a PhD candidate concentrating in Learning Environments and Educational Studies (LEEDS) at the University of Tennessee, Knoxville. LEEDS is a concentration linking instructional technology, cultural studies, and human learning. Currently, I am working on a dissertation examining self-regulation and satisfaction in self-paced online learning environments. I am writing to you to request your help. As an instructor of a self-paced course, I was hopeful that you would be willing to include a link to a survey that would ask participants in your course about how they self-regulate in and their satisfaction with self-paced learning environments.

In return for your cooperation, I would be willing to provide you with a report summarizing my findings or a report specifically pertaining to your course from which you may gain valuable insights that could help you improve your course.

How to access the survey

The survey is brief and will take approximately 5-10 minutes to complete. If you agree to assist me, please include the link to the following web survey somewhere in the second half of your course. The link should be shared in your course with the statement, “If you are interested in participating in a study, here is a link to a survey that will ask questions about your self-regulation and satisfaction of self-paced online environments."

Survey link: (LINK TO SURVEY HERE)

Please let me know if you have any questions or would like more information about me or my research. Feel free to contact me, Erin Garty, at egarty@vols.utk.edu

Thank you for your consideration,

Erin Garty

PhD Candidate, LEEDS
The University of Tennessee, Knoxville
Knoxville, TN 37996
egarty@vols.utk.edu

APPENDIX E

CONSENT FOR RESEARCH PARTICIPATION

Research Study Title: Examining Self-Regulation and Satisfaction in a Self-paced Online Professional Development Course for Educators in Higher Education

Researcher: Erin Garty, University of Tennessee

I am asking you to be in this research study because you are interested in taking professional development course in a self-paced online learning environment. You must be age 18 or older to participate in the study. The information in this consent form is to help you decide if you want to be in this research study. Please take your time reading this form and contact the researcher to ask questions if there is anything you do not understand.

Why is the research being done?

The purpose of the research study is to explore the relationship between self-regulation, satisfaction, and completion of a self-paced online professional development course for educators in a higher education context.

What will I do in this study?

If you agree to be in the study, you will complete an online survey. The survey includes questions about how you self-regulate in a self-paced online professional development course, your satisfaction with a self-paced online course, as well as various demographic questions; it should take you about 5-10 minutes to complete. You can skip questions that you do not want to answer.

Can I say no?

Being in this study is up to you. You can stop up until you submit the survey. After you submit the survey, we cannot remove your responses because we will not know which responses came from you.

Are there any risks to me?

We don't not know of any risks to you from being in the study.

Are there any benefits to me?

We do not expect you to benefit from being in this study. Your participation may help us to learn more about how educators self-regulate in a self-paced online professional development course. We hope the knowledge gained from this study will benefit others in the future.

What will happen with the information collected for this study?

The survey is anonymous, and no one will be able to link your responses back to you. Your responses to the survey will not be linked to your computer, email address, or other electronic identifiers.

Information collected for this study will be published and possibly presented at scientific meetings.

Who can answer my questions about this research study?

If you have questions or concerns about this study, or have experienced a research related problem or injury, contact the researcher, Erin Garty, egarty@vols.utk.edu, 865-974-7536, or Lisa Yamagata-Lynch, PhD, lisayl@utk.edu, 865-974-6273.

For questions or concerns about your rights or to speak with someone other than the research team about the study, please contact:

Institutional Review Board
The University of Tennessee, Knoxville
1534 White Avenue
Blount Hall, Room 408
Knoxville, TN 37996-1529
Phone: 865-974-7697
Email: utkirb@utk.edu

Statement of Consent

I have read this form, been given the chance to ask questions and have my questions answered. If I have more questions, I have been told who to contact. By clicking the "I Agree" button below, I am agreeing to be in this study. I can print or save a copy of this consent information for future reference. If I do not want to be in this study, I can close my internet browser.

APPENDIX F

FOLLOW-UP QUESTIONS

Who will be contacted

I will determine which participants will be contacted for follow-up questions by the answer they provide to the final survey question:

The final question on the survey is "May we contact you about your responses? (Yes, please provide your email address _______________ / No)". I will contact only those participants who provide their email addresses.

Follow-up questions

1) Were you satisfied/unsatisfied with the online professional development (OPD) course?
2) If you were satisfied, what elements of the self-paced (OPD) experience do you think contributed to your satisfaction?
3) If you were unsatisfied, please describe what made the self-paced OPD experience unsatisfactory?
4) If you were unsatisfied, what do you think would make the experience more satisfactory?
5) Do you feel you learned from the online self-paced course?
6) How did you self-regulate your learning?
7) Which self-regulated learning strategies did you find most useful?
8) Did you complete the self-paced OPD course?
9) If you completed the OPD course, how were you motivated?
10) What were those elements that helped to motivate you to complete the self-paced course?
11) If you did not complete the self-paced OPD course, why did you not complete it?

APPENDIX G

ANALYSIS PLAN

Question 1a	Who are educators (what are their characteristics) pursuing self-paced OPD course?
Variables	Demographic variables
Analyses	• Descriptive statistics (n, mean, SD, min, max, skewness, kurtosis, frequencies, and percentages) for all demographic variables • Correlational analysis: Pearson's product moment (*r*), Point-Biserial, Spearman's rho, Rank-biserial, Phi Coefficient • Chi-Square tests
Graphics	Tables

Question 1b	To what extent are SRL strategies (goal seeking, help-seeking, self-study strategies, managing physical environments, and effort regulation) used by learners when participating in a self-paced asynchronous OPD course?
Variables	SRL strategy variables
Analyses	• Descriptive statistics (n, mean, SD, min, max, skewness, kurtosis, frequencies, percentages) and frequencies for SRL strategy variables
Graphics	Tables

Question 2	How do SRL strategies, satisfaction, and completion of a self-paced OPD course relate and how to they relate to educator characteristics?
Variables	Demographic variables SRL strategy variables Satisfaction variables Completion variable
Analyses	• Descriptive statistics (n, mean, SD, min, max, skewness, kurtosis, frequencies, percentages) for all variables • Correlation analysis: Pearson's product moment correlation (r) shed light on how SRL strategies and satisfaction relate • Logistic regression
Graphics	Tables

Question 3a	How does the use of SRL strategies affect completion in a self-paced OPD course?
Variables	DV: SRL Strategies IV: Completion (dichotomous No/Yes)
Analyses	• One-way Multivariate Analysis of Variance (MANOVA)
Graphics	Tables

Question 3b	Which SRL strategies predict learner satisfaction?
Variables	DV: Satisfaction (multiple continuous) IV: SRL Strategies
Analyses	• Bivariate correlations • Standard Multiple regression
Graphics	Table

Question 4a	How does learner satisfaction (independent-predictor variables) impact completion (dependent-criterion variable) in a self-paced OPD course?
Variables	DV: Completion (dichotomous No/Yes) IV: Satisfaction (multiple continuous)
Analyses	• Bivariate correlations • Logistic Regression
Graphics	Table

Question 4b	How does completion impact satisfaction in a self-paced OPD course?
Variables	DV: Satisfaction (continuous) IV: Completion (dichotomous No/Yes)
Analyses	• One-way Multivariate Analysis of Variance (MANOVA)
Graphics	Table

APPENDIX H

Codes and Definitions

Open-Ended Survey Question: How do you define self-paced learning?

Code Name	**Description**
No Time Constraints	Managing own time.
Paced by Learner	Leaning that is regulated by learner.
In Charge of Own Learning	Feeling responsible for and in control of learning process. Setting own goals.
In Charge of Finding Help for Oneself	Minimal or not instructor contact. Finding help for oneself.
Learn Where You Choose	Learning in a comfortable location chosen by learner.

Follow-up Questions

Code Name	**Description**
Satisfied	Feeling content with experience.
Unsatisfied	Feeling that something is not good enough.
Learned	Acquiring new knowledge, skills, and behaviors.
Self-regulate	Understanding how to manage thoughts and behaviors and the way a person reacts to those thoughts and behaviors.

Code Name	**Description**
Self-regulated Learning Strategies	Strategies developed by learners to help them manage their learning habits and skills to reach their goals.
Completion	Completing or not completing an online self-paced OPD course.
Motivation to Complete	Willingness to behave in a certain way to complete a self-paced OPD course.

VITA

Erin R. Garty was born in Ann Arbor, Michigan. She is the youngest of two children born to Paul and Cynthia Garty. She has an older sister, Lara. They spent much of their childhood in a Chicago suburb before returning to Michigan, where Erin attended college. In Michigan, Erin earned her first degree, a Bachelor of Arts in Spanish with a minor in business administration. She spent a year in study abroad programs in Cuernavaca, Mexico and Sevilla, Spain.

A few years later, Erin returned to college to pursue her passion for art and design, earning a Bachelor of Arts in Art History and a Bachelor of Fine Arts in Photography from the Honors College at Eastern Michigan University. She exhibited her work in a solo art exhibition in the Ford Gallery at EMU and in juried exhibitions that included the Women's Art Exhibition in Bloomfield Hills, MI; Battle Creek Arts Center, Battle Creek, MI; the National Student Art Exhibition, Knoxville, TN; and, the Eastern Michigan University Art Competition where she won the award for Best of Photography. She wrote an honors thesis and presented it at the Eastern Michigan University Symposium sponsored by Dr. Richard Rubenfeld.

Then, Erin moved to Tennessee, where she earned an Associate of Applied Science degree in Web Design and Development from Pellissippi State Community College. In an attempt to combine all of her interests, degrees, and love of learning, she then completed a Master of Science degree in Instructional Design and Technology and an Online Teaching Certificate. While still taking classes in the master's program, she was encouraged to apply to the doctorate program in Learning Environments and Educational Studies (LEEDS). While pursuing her degree, she worked as a graduate teaching assistant for the Office of Information Technology (OIT) and a graduate research assistant for Teaching and Learning Innovation (TLI) and Dr. Lisa Yamagata-Lynch. Erin also participated in Dr. Lisa Yamagata-Lynch's qualitative research team, contributing to published peer-reviewed articles. She will graduate with her Doctor of Philosophy degree in LEEDS and an Evaluation, Statistics, and Measurement graduate certificate in May 2024.