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High School Teachers' Perspectives on Implementing Self-Regulated Instruction in eLearning Environments

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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2024

Abstract

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by

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EdS, Kennesaw State University, 2017

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Research shows that successful high school students must self-regulate their learning, yet teachers face barriers in using technology to support self-regulated learning (SRL) in eLearning environments. The purpose and research questions for this basic qualitative study were focused on exploring teachers' perceptions of the barriers to implementing SRL and the technology and training needs required for overcoming barriers to incorporating SRL within the high school eLearning environment. Grounded in Bandura's social learning theory and Zimmerman's SRL model, the research included semistructured interviews with 10 public high school teachers from the southeastern United States with at least one year of experience in teaching eLearning. Data analysis included a combination of a priori, descriptive, and interpretive coding to develop the study's final themes. Findings suggest that educators recognize extrinsic SRL support systems, guided practice, collaborative networks, and skills in digital literacy as critical for fostering student success in eLearning environments. Teachers also identified barriers, including gaps in technology literacy, over-reliance on external support, misaligned stakeholder expectations, inadequate training in SRL pedagogy, and restrictive learning networks. To address these issues, teachers highlighted a need for better integration of technological resources, improved communication infrastructures, effective monitoring systems, and the development of specialized digital pedagogy focused on SRL. The study's findings could lead to positive social change by equipping educators with the necessary tools and strategies to enhance SRL in eLearning environments, ultimately fostering greater student success and bridging gaps in educational support.

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Dedication

I dedicate this dissertation project to my parents, Mike and Glenda Stewart, whose desire for knowledge and passion for excellence motivated me to reach for the stars. I also dedicate this dissertation to my younger siblings, Bekah, Hannah, and Zach Stewart, whose encouragement motivated me to stay dedicated to my goals.

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Chapter 1: Introduction to the Study

In March 2020, COVID-19-related school closures facilitated the need for alternative approaches to learning that allowed teachers to assign digital learning content from a distance; therefore, many schools promoted eLearning (Spitzer et al., 2021). While many schools have since returned to a traditional face-to-face setting, the increased use of online learning and the practice of incorporating digital content has persisted as an enhancement to traditional learning approaches (Amarneh, 2021). Research has indicated that students participating in eLearning need self-regulation strategies to be successful in high school (Carter et al., 2020) and beyond (Baldan Babayigit & Guven, 2020; Jansen et al., 2019). However, while there have been numerous studies on self-regulation in a traditional school setting, more research is needed when considering how self-regulation is taught and sustained within an eLearning environment. Therefore, this qualitative study focused on teachers' perspectives on the barriers and technology training needs required to teach self-regulation in high school students participating in an eLearning environment. This study's development and analysis could promote positive education changes by supporting teachers' abilities to facilitate self-regulated learning (SRL) instruction within an eLearning environment. The results could support policymakers in developing valuable professional development opportunities and supporting students' subsequent learning and future postsecondary success.

Chapter 1 includes background on the research study by including a summary of the literature related to the topic, describes the problem concerning the research, and establishes the purpose of the study by providing a connection between the problem and

the focus of the study. In addition, this chapter includes the research questions (RQs), the conceptual framework that grounds the study, and the nature of the study that provides a rationale for selecting the basic qualitative methodology. The chapter concludes by providing a list of helpful definitions for critical concepts, clarifying assumptions, describing scope and delimitations, limitations, identifying potential significance, and summarizing the chapter's main points before transitioning to Chapter 2.

Background

Self-regulation is how students monitor and control their cognition, motivation, and behavior to achieve specific goals (Huang, 2021). Students with effective self-regulation skills can transform the detailed knowledge of a skill into the self-awareness, self-motivation, and behavioral skills needed to implement the knowledge effectively (McCoy, 2019). Prior research has indicated that the use of self-regulation within a traditional classroom contributes to students' ability to set goals, choose effective learning strategies, monitor progress, and make changes accordingly that impacts academic performance across multiple levels positively (Garcia et al., 2022; Robson et al., 2020; Savina, 2020).

While the literature detailing the effects of self-regulation on academic progress within a traditional classroom is plentiful, there needs to be more addressing how it transfers to an eLearning environment. Research has also examined teachers' perspectives on utilizing SRL in a traditional classroom (Lawson et al., 2019; Vosniadou et al., 2020); however, it has not examined how teachers feel about teaching SRL in an eLearning environment. In this study, I addressed the gap in practice by procuring

teachers' perspectives on the barriers and technology training needs they believe could support self-regulated instruction within an eLearning environment.

Problem Statement

The problem is that teachers face challenges when implementing technology to support self-regulated instruction in high school students within an eLearning environment (Lawson et al., 2019; Vosniadou et al., 2020). With the onset of the COVID-19 pandemic, many schools closed to conduct classes within a strictly virtual environment (Spitzer et al., 2021). While many schools have resumed face-to-face instruction within the past few years, there is a renewed focus on creating eLearning environments that enhance and transform the quality of teaching and learning (Al-Abdullatif, 2020), resulting in the need for K-12 teachers to integrate various technological approaches and tools (Mirke et al., 2019; Situmorang, 2019). While eLearning tools have been shown to enhance student achievement (Viburg et al., 2020), students need to take an active role and responsibility for their learning (Mirke et al., 2019; So et al., 2019). SRL is a proactive process in which students self-direct their learning using multiple learning strategies to assist with self, environmental, and cognitive monitoring (Canter, 2019). The promotion of SRL strategies among students is an essential contributor to the development of independent learners, as it ensures success in the learning process (Landrum, 2020). However, while SRL supports have been widely investigated in traditional classroom settings, there is a lack of empirical research investigating the relationship between eLearning academic success and students' SRL in K–12 education (Araka, 2020; Canter, 2019). Therefore, this study examined teachers'

perceived barriers and suggestions for technology training needs to successfully implement SRL instruction within the eLearning environment. Professional development efforts may be enhanced by the knowledge gained from teachers' perspectives on effective and ineffective practices currently used to support self-regulation. The additional information gained from this study could help close the gap in practice by adding to the body of literature.

Purpose of the Study

The purpose of this basic qualitative study was to explore high school teachers' perspectives on the barriers to successful SRL implementation within the eLearning environment and the technology training needs necessary to overcome barriers. An increased understanding is essential because previous studies have shown that learners struggle in eLearning environments due to a lack of critical SRL strategies (Lai & Hwang, 2021). Additionally, SRL has been shown to be essential for goal setting, self-monitoring, self-assessment, and self-reinforcement, which are necessary for success in an eLearning environment (Landrum, 2020). This use of SRL is supported by the significant positive relationship between students' use of self-regulated strategies and online academic success found in previous research like Lai and Hwang's (2021) meta-analysis. So et al. (2019) and Al-Abdullatif (2020) also found that SRL relates to learners' engagement and achievement of personal learning goals. Therefore, providing SRL support to learners is likely to lead to online academic success. To address the research problem, I used a basic qualitative study to explore high school teachers' perspectives to answer the RQs.

Research Questions

The following RQs were used to guide the study:

RQ 1: How do high school teachers perceive the importance of SRL instruction for students in an eLearning environment?

RQ 2: What do teachers describe as barriers to implementing SRL instruction in eLearning environments?

RQ 3: What do teachers perceive as technology training needs for overcoming barriers and incorporating SRL in eLearning environments?

Conceptual Framework

The conceptual framework for this qualitative project study is based on the social cognitive theory of self-regulation (Bandura, 1986, 1989, 1993) and Zimmerman's (1986) model of SRL.

Bandura's Social Cognitive Theory of SRL

In social cognitive theory, human behavior is extensively motivated and regulated by self-influence and operates under three assumptions: the self-monitoring of one's behavior, determinants, and effects; judgment of behavior based on personal standards and environmental circumstances; and affective self-reaction (Bandura, 1989, 1991). This theory provided the context for the study by assessing teachers' perceptions of students' use of metacognitive, cognitive, and resource management strategies related to self-regulation within eLearning environments. According to Bandura (1994), the regulation of behavior is based on outcome expectations meaning that the learner engages in behaviors to produce positive outcomes and avoid unrewarding or punishing outcomes.

Based on this definition, teachers need to be aware of how the outcomes of eLearning are perceived by virtual students and understand how these outcomes can be effectively used to impact student behavior towards achievement and motivation within the eLearning environment.

Zimmerman's Circular Model of SRL

Zimmerman's (1986) circular model of SRL is another framework supporting this study. Utilizing Bandura's (1986) social-cognitive perspective of learning, Zimmerman (1991) concluded that students needed to be involved in their learning by proactively using metacognitive, cognitive, and resource management strategies related to self-regulation. Studies determined that self-regulation involves setting specific goals, utilizing task strategies, displaying high levels of self-efficacy and intrinsic interest, and self-monitoring and reflecting on performance outcomes (Zimmerman, 2002). Learners with low self-regulation skills have low academic outcome expectations and show little interest in academic learning tasks. This makes it increasingly more important for teachers to explicitly teach self-regulation skills (Zimmerman & Kitsantas, 2005).

Research has indicated there is a link between self-regulation and students' academic success (Garcia et al., 2022; Robson et al., 2020; Savina, 2020); therefore, teachers should be providing appropriate self-regulatory instruction that makes it increasingly more important to consider teacher perspectives of self-regulatory learning within eLearning environments. The frameworks relate to the study approach and provide a lens for evaluating effective strategies and practices supporting self-regulation in high school students as determined by teachers' perspectives. I used interview questions to

explore high school teachers' perspectives on effective strategies and practices used to support self-regulation in eLearning. The interview protocol was structured to include relevant constructs derived from Bandura's (1986) social cognitive theory of SRL and Zimmerman's (1986) model of SRL frameworks. Data analysis was grounded in the conceptual framework that employed both descriptive coding to summarize and organize the qualitative data and a priori coding to apply the established frameworks, enabling a comprehensive analysis that captures both emergent themes and pre-existing concepts. I will explain the connections between eLearning through employing self-regulatory processes more thoroughly in Chapter 2.

Nature of the Study

The study used a basic qualitative approach by using a series of semistructured interviews. I interviewed 10 ninth–12th grade high school teachers from a variety of content areas with at least 1 year of eLearning teaching experience regarding their perspectives on the barriers to successful SRL implementation within the eLearning environment and their perceived technology training needs for effective SRL implementation. The semistructured interview was chosen due to the exploratory nature of the RQs and to gain insight into the participants' unique perspectives. The interviews were designed for me to gain rapport with participants by immersing them in the environment while simultaneously maintaining the validity of the study (Ravitch & Carl, 2016).

After conducting the interviews, data were coded based on the conceptual framework of Bandura's (1986) social cognitive theory of SRL and Zimmerman's (1986)

model of SRL. These theories were used as the lens by which the participants' perspectives on effective practices for supporting self-regulation in a high school eLearning environment was interpreted and understood. According to Saldaña (2021), researchers use recurrent and repeated words or phrases from interviews to determine emerging themes; therefore, I used semistructured interviews to develop the themes. I started by using open coding to analyze the data. Follow-up analyses using a priori coding were used when analyzing the data to capture the language of the high school eLearning teachers. Utilizing the participants' specific language and phrasing can help a researcher develop and understand the more emotional perspectives of the interview (Saldaña, 2021). I then moved to axial coding to create categories of themes. When finished, the transcripts were reviewed to ensure all information was accounted for, and the code was triangulated to identify categories (Saldaña, 2021).

Definitions

eLearning: Also known as electronic learning or online learning, is a structured course or learning experience delivered electronically (Rodrigues et al., 2019).

Self-regulation: Self-regulation is a set of skills used to self-direct learning, including self-evaluation, organizing information, setting goals, selecting appropriate learning strategies, maintaining motivation, seeking assistance, and monitoring progress (Zimmerman, 1990).

Self-regulation skills: A set of skills used to self-direct learning, including self-evaluation, organizing information, setting goals, selecting appropriate learning strategies, maintaining motivation, seeking assistance, and monitoring progress

(Zimmerman, 1990).

Assumptions

There are several assumptions I had before conducting the research. The first assumption is that all participants would answer the questions honestly. With candid answers, the fidelity of the research could be protected. The participant inclusion criteria were developed to ensure all participants had experienced the same or a similar phenomenon based on the developed RQs and the purpose of the study. Additional assumptions included the sincerity of those choosing to participate. It was essential to ensure all participants chose to participate based on a personal desire to do so and not for other ulterior motives such as impressing school leadership. Because the gap in practice consists of best strategies and practices for supporting self-regulation in a high school eLearning environment, the information provided by participating teachers needed to be based on real-world experience and genuine interest. If participation was based on ulterior methods, it could influence the critical findings of the study.

As the research progressed, I assumed that all participants would be available throughout the research process. This availability would ensure that I was able to complete the interview process in its entirety and that I would receive complete answers to all asked RQs. Similarly, the assumption was made that all participants would be cooperative and accommodating by providing sufficient information and answers to assist with the analysis portion of the research process. Gaining enough information assisted with the ability to analyze data in a more in-depth manner. Also, it was assumed that all participants matched the prior set criteria of at least 1 year of high school eLearning

experience. If that criterion was not met, the teachers might not have the experience to fully explain how self-regulation impacts high school students at the beginning, middle, and end of the year.

Scope and Delimitations

The scope of this research study was determined by the RQs and the focus on eliciting the perspectives of a combined total of ten high school eLearning teachers. Researchers have yet to provide a definitive number of required participants for each type of qualitative study design; however, the consensus is that qualitative studies typically reach data saturation with fewer participants (Busetto et al., 2020). The research aimed to interview an even number of teachers from Grades 9–12 to understand the full scope of the high school experience and to look for differences in specific needs or concerns between grade levels. The sample population of this basic qualitative study was chosen from large suburban areas of the southeastern United States. Therefore, some or all of the experiences may be distinctive to this specific population; thus, findings may not be transferable to a more generalized population.

Other grade levels and teaching experiences were not included as they did not meet the purpose of the research to determine high school teachers' perspectives on effective strategies and practices for supporting self-regulation in eLearning environments. While research on academic success at the college level has shown that academic achievement requires some preexisting capabilities, these abilities do not always differentiate high-achieving students from low-achieving students (Galla et al., 2019; Garcia-Ros et al., 2022); however, there is an extensive body of evidence regarding

academic performance in college suggesting that differences in low-achieving students and high-achieving students are closely linked to an individual's level of self-regulation (Al-Abdullatif, 2020). Therefore, self-regulation at the high school level is the foundation for college readiness because ensuring a student's ability to self-regulate equips them for the heightened demands of college (Galla et al., 2019; Garcia-Ros et al., 2022).

Additionally, research has shown that students entering college post-COVID-19 are more likely to need the tools and skills necessary to participate in eLearning environments (Al-Abdullatif, 2020), resulting in the need for K-12 teachers to integrate various technological approaches and tools to adequately prepare students for college success (Mirke et al., 2019; Situmorang, 2019). Therefore, high school teachers need to be able to help students develop self-regulatory skills in eLearning environments that will help them succeed in their later years of schooling (Mirke et al., 2019; So et al., 2019; Viburg et al., 2020).

To assist with transferability, I used thick descriptions to relay the findings of this study by providing adequate details on the site, participants, and methods used to collect data throughout the study. Using thick descriptions allowed readers to understand the contextual setting, thereby permitting them to gain a shared experience with the participants (Busetto et al., 2020). Providing clear and concise details of the setting and the teachers' perceptions in context allowed readers to evaluate whether results are applicable to other situations that could inform future research designs (Ravitch & Carl, 2016).

Limitations

The findings from the study were based on the perspectives provided by the 10 high school teachers who agreed to complete the interview. As all teachers answered questions based on their experience working with students in Grades 9–12, it could be difficult to generalize the answers beyond the sample group studied. Similarly, the small number of teachers interviewed could pose a limitation as it restricts the ability to generalize the results to a larger group. Additionally, all the teachers involved in the study work in large suburban settings; therefore, the context of the research study could be affected by factors such as the location, the small number of participants, and their unique cultural experiences and biases. To address these limitations, I provided a rich and detailed description of the results to represent the findings realistically. Providing readers with a realistic description could help with transferability by offering enough contextual knowledge for the reader to determine how the information could be applied to future research.

The selected basic qualitative research design may also be a limitation as I exclusively used a single set of interview questions to collect data; therefore, data triangulation was accomplished through crosschecking multiple data sources including field notes and interviews. To ensure validity, I practiced ethical recruiting by ensuring all members of the study were participants in the group being studied. I also practiced respondent validation at the end of the research to help improve the accuracy, credibility, validity, and transferability of information. Finally, personal biases from the participants and the researcher could affect the interview process. To help eliminate potential

researcher biases during the interview process, I took journal notes to reflect upon any potentially biased thinking during the interview or interview process, and I was also mindful of the specific language used during the interview process, leaving room for participants to ask for clarification if any questions were not understood.

A notable limitation of this study was the lack of a formal codebook during the data analysis process. This may have introduced the risk of inconsistency in coding, as interpretation can evolve over time. To address this limitation, an audit trail was maintained through a reflexive journal, where the researcher documented key decisions, coding choices, and reflections throughout the analysis. This journal captured insights into the rationale behind the coding process, as well as any adjustments made to the codes as new themes emerged. The reflexive journal helped ensure transparency and consistency in the analysis by providing a clear record of the researcher's thought process and self-reflection, thereby enhancing the credibility and trustworthiness of the findings despite the absence of a formal codebook.

Significance

The gap in research was addressed through the explicit focus on teachers' perspectives on the barriers to implementing SRL and the technology training required to effectively apply SRL strategies to the high school eLearning environment. This study is unique because it addresses specific strategies and practices currently used by high school teachers and their transferability to the eLearning environment. The results of this study could provide additional insight into the types of support teachers need to implement SRL within eLearning at the high school level. It could also affect social change by

providing secondary education policymakers the information necessary to provide valuable professional development opportunities to teachers teaching in the high school eLearning environment. This professional development could positively impact student learning and academic achievement at the high school level (Carter et al., 2020) and beyond (Baldan Babayigit & Guven, 2020; Jansen et al., 2019).

Summary

The purpose and guiding RQs for this basic qualitative study were designed to explore how high school teachers describe the barriers to implementing SRL and the technology training needed to overcome barriers to incorporating SRL within an eLearning environment. The conceptual framework for this study followed Bandura's social learning theory of self-regulation and Zimmerman's model of SRL, which describes how human behavior is motivated and regulated by self-influence. This study could positively impact education by supporting high school teachers' abilities to facilitate effective SRL within an eLearning environment that may improve students' subsequent learning and future postsecondary success.

Chapter 1 included the study's background, problem statement, and purpose. The research question and traditional framework emphasized and guided the lens for the research. The assumptions, scope, delimitations, and limitations have been included to guide understanding and generalize the research. Throughout the chapter, I highlighted the gap in the literature to justify a need for this study; however, in Chapter 2, the literature review will be examined in more detail to support the RQs thoroughly.

Chapter 2: Literature Review

Despite evidence that supports the need for high school students to acquire self-regulation skills as a prerequisite for college and career readiness (Tentama & Riskiyana, 2020; Yavuzalp & Bahcivan, 2021), organizations have not provided practical guidance for teachers to support self-regulation in the eLearning environment (Windiarti et al., 2019). While there is an abundance of research detailing how self-regulation can be used to support student achievement in a traditional classroom (Lawson et al., 2019), there is a noticeable lack of research about the impact of self-regulation in the eLearning environment (Aheto et al., 2024; García-Ros et al., 2022), specifically at the high school level (Araka et al., 2020; Ceron, 2024). Therefore, the purpose of this basic qualitative study was to explore high school teachers' perspectives on the barriers to successful SRL implementation within the eLearning environment and the technology training needs necessary to overcome barriers.

Within the limited scope of the research, there is a noticeable gap in studies on teachers' perceptions of the barriers to supporting self-regulation and the technology training needed to effectively overcome the perceived barriers (Windiarti et al., 2019). Previous studies have shown that learners struggle in eLearning environments due to a lack of critical SRL strategies (Al-Abdullatif, 2020; Amarneh et al., 2021; Lai & Hwang, 2021; Borella et al., 2022); therefore, teachers need to know and understand how to integrate SRL into the eLearning environment effectively. To address the research problem, I used a basic qualitative study to explore high school teachers' perceptions of SRL within the eLearning environment as they relate to the RQs.

Based on the gaps identified, this research study could create a positive social impact on the teaching and learning process employed by teachers in high school eLearning environments. Additionally, professional development efforts may be enhanced by the knowledge gained from teachers' perspectives on effective and ineffective practices currently used to support self-regulation. The additional information gained from this study could help close the gap in practice by adding to the body of literature.

Chapter 2 includes conceptual literature, current research, and a summary. In this chapter, I review the literature on Bandura's social cognitive theory of self-regulation and Zimmerman's model of self-regulation as the framework for supporting a need for self-regulated instruction within the eLearning environment. Secondly, I include current peer-reviewed and empirical research on the effects of high school teachers' perceptions of SRL and the impact it could have on the eLearning environment. I conclude with a review of the eLearning environment and the relationship between the environment and teachers' perceptions of effective strategies and practices for supporting SRL by summarizing the major themes found in the research and how the current study fills the gaps in the literature.

Literature Search Strategy

For this literature review, I began by utilizing the databases available through Walden University. Specifically, I used the databases related to Academic Source Complete, Education Source, ERIC, PsychINFO, SocIndex, ProQuest Dissertations Theses Global, and Google Scholar. These databases were instrumental in searching for

the following key terms: *self-regulation, self-regulation and eLearning, eLearning, teacher perspectives and self-regulation, self-regulation in high school, self-regulation and secondary education, online learning environments, Bandura's social cognitive theory of SRL,* ans *Zimmerman's model of SRL*. The keywords and phrases relate to the conceptual framework used to ground the study. Although there was little current research regarding teacher perspectives of effective strategies and practices to support regulation in the high school eLearning environment, a general overview of teacher perspectives regarding self-regulation in a traditional classroom across multiple grade levels has been included.

Conceptual Framework

Researchers have extensively examined the factors that impact students' academic success across multiple grade levels in a traditional classroom setting (Baldan et al., 2020; McCoy, 2019; Garcia-Ros et al., 2022). However, due to the increased expectation for teachers to provide digital resources and eLearning opportunities for kindergarten through 12th-grade students in the United States (Spitzer et al., 2021), there is an increased need to determine how traditional academic success is reflected in the online environment. For many students, what and how to learn are largely predetermined by the learning environment within which they are required to learn (Bandura, 1991, 1993); therefore, environmental determinants play a key role in shaping self-regulation in the learning process (Al-Abdullatif, 2020; Artino & Stephens, 2006). As eLearning develops, researchers have focused on the relationship between learning and the environment (Al-Abdullatif, 2020; Chou et al., 2024; So et al., 2019; Spitzer et al., 2021).

Studies have been conducted to identify factors that enhance eLearning success, and among the factors identified, self-regulation has been a critical element of positive learning performance (Liaw & Huang, 2013; Zimmerman & Schunk, 2001). The impact of self-regulation on academic achievement has been well noted in research (Landrum, 2020; Lai & Hwang, 2021), and relevant studies have shown a consistent positive correlation between learners' self-regulation and their success rates in the traditional classroom (Aheto et al., 2024; Robson et al., 2020). Therefore, the conceptual framework for this study is a combination of Zimmerman's (1989) circular framework of SRL, which explains the importance of SRL to academic achievement, and Bandura's social cognitive theory, which emphasizes the environment in which SRL occurs.

Research in educational psychology has done much to attempt to explain the role of the cognitive system in relation to self-regulation of perception, affect, motivation, and behavior (García-Martín & García-Sánchez, 2020; Wolters et al., 1996; Zimmerman et al., 1992). Recently, efforts have turned to understanding how these processes integrate and to understanding the impact of social and environmental influences, such as the eLearning environment, on learning (Al-Abdullatif, 2020; Artino, 2009; Blau et al., 2020; Canter, 2019; Carter et al., 2020; Chou et al., 2024). For instance, Inzlicht et al. (2020) found that the scope of SRL was incredibly large, and the measures were broad and mostly involved general measures of academic behavior. Based on the broad operationalization of SRL in the literature, the researchers concluded it was difficult to accurately gauge the dynamic interplay between person, environment, and behavior that is the hallmark of self-regulation (Inzlicht et al., 2020; Panadero, 2018). Therefore, the

first step in determining the appropriate conceptual framework for the study was reviewing different frameworks for self-regulation and determining which would most adequately meet the requirements for this study.

Process-oriented models focus on within-person processes, while trait-specific models focus on differences between unique individuals and personality characteristics (Inslicht et al., 2020). As the purpose of the research is to determine teachers' perceptions of SRL in the eLearning environment, perceived barriers to SRL instruction, and specific technology training needed to be able to teach SRL within the high school eLearning environment adequately, it was determined that a process-oriented model would most adequately meet the needs of this research study due to the emphasis on the process of teaching and delivery. Five models of process-based SRL frameworks include Zimmerman (1989), Boekaerts (1997), Winne and Hadwin (1998), Pintrich (1990), and Efklides (2011) (Pandadero, 2018). Ultimately, Zimmerman's (1992) cyclical framework for SRL was chosen as this study's conceptual framework.

As one of the first SRL authors, Zimmerman created three frameworks for SRL based on Bandura's social cognitive theory of self-regulation (Bandura, 1986, 1989, 1991; Zimmerman, 1986; Zimmerman & Schunk, 2001). Zimmerman developed his frameworks to explore how individual learners acquire cognitive models and become experts in different tasks (Zimmerman, 1989). The first model is known as the triadic analysis of SRL and represents the connections between three components of SRL: environment, behavior, and personal level (Zimmerman, 1989). This model describes how SRL could be envisioned within Bandura's triadic social cognition model (Bandura,

1985). The second model, also known as Zimmerman's model, is an enhancement to his original model and represents the cyclical phases of SRL (Schunk & Zimmerman, 2022), which explains the link between metacognitive and motivational processes within the educational environment (Cleary & Zimmerman, 2012; Zimmerman, 2002; Zimmerman & Kitsantas, 2005). The third model Zimmerman developed, which recently has been called the multi-level model (Schunk & Zimmerman, 1994; Schunk & Zimmerman, 2022), represents the four stages in which students acquire their self-regulatory competency (Zimmerman, 2000); however, this model incorporates a component of trait-specific emotional regulation which does not fit the purpose of this research study. Based on the purpose of the research study, Zimmerman's cyclical phases of SRL model was chosen as the conceptual framework because it emphasizes the phases of SRL specifically related to the educational setting, which will be discussed in more detail later in this research study.

The second framework considered was Boekaert's (1997) dual processing model. This model of SRL focuses on students' educational goals as knowledge structures and incorporates an emotional aspect, such as whether a student perceives a specific task as threatening (Boekaerts & Cascallar, 2006). According to Boekaerts (2011), students' goal-setting behaviors are based on how they assign meaning to learning tasks and situations. Based on this model, there are three different purposes for self-regulation: (a) expanding knowledge and skills; (b) preventing threats to the self and loss of resources so that one's well-being is kept within reasonable bounds; and (c) protecting one's commitment by using activities that re-route attention from the well-being pathway to the

mastery pathway (Boekaerts, 2011; Boekaerts & Cascallar, 2006). While Boekaert's framework is seen as a strong SRL framework and is often cited in SRL research on eLearning (Ye, 2023), this study focuses on teachers' perceptions of their instructional framework within the high school eLearning classroom, but not the students' perceptions; therefore, Boekaert's dual processing model was not chosen for this research study.

The third research framework considered was Pintrich's (1990) model of SRL, in which he analyzed the importance of motivation and helped to clarify the differences between metacognition and self-regulation in an academic setting. According to Pintrich's (2000) model of SRL, there are four phases: (a) forethought, planning, and activation; (b) monitoring; (c) control; and (d) reaction and reflection. Most of Pintrich's (1993) research was in developing a Motivated Strategies for Learning Questionnaire (MSLQ) for students, parents, and school personnel to measure students' motivational orientations and their use of various learning strategies at both the high school and collegiate level (Pintrich & de Groot, 1990). The MSLQ comprises 15 scales, divided into a motivation section with 31 items and an SRL section with 50 items subdivided into three general scales: cognitive, metacognitive, and resource management (Galal et al., 2023). One of the strengths of the MSLQ is its combination of SRL and motivation, which offers detailed information about students' learning strategy use and which has been developed with the consideration of the differences in college (Pintrich et al., 1993) and high school students (Pintrich & de Groot, 1990). More recently, two reviews have found that the MSLQ is the most used instrument in SRL measurement (Roth et al., 2016) and self-efficacy measurement (Honicke & Broadbent, 2016). While important to

the field of SRL, Pintrich's (1990, 1993) research is still focused on students' perceptions of SRL. The teacher and parent portions of the questionnaire ask questions about how they perceive a specific student's self-regulation. They do not consider the teachers' perceptions of course design in eLearning. For this reason, Pintrich's model for SRL did not meet the specific requirements for this research study.

The fourth framework considered was an SRL framework introduced by Winne and Hadwin (1998), which the information processing theory heavily influenced (Araka et al., 2022) and focused on the conceptualization of SRL as a combination of information processing and information processed (Greene & Azevedo, 2007). Through this lens, Winne and Hadwin defined a self-regulated student as one who could manage their learning using monitoring, metacognitive strategies, and goal setting. According to Winne and Hadwin's model (Winne, 2011), studying is powered by SRL across four connected phases: (a) task definition: the students generate an understanding of the task to be performed; (b) goal setting and planning: the students generate goals and a plan to achieve them; (c) enacting study tactics and strategies: the use of the actions needed to reach those goals; and (d) metacognitively adapting studying: occurs once the main processes are completed and the student decides to make long-term changes in their motivations, beliefs and strategies for the future (Winne & Hadwin, 1998). While this framework is gaining traction as a potential SRL framework to address the eLearning environment due to its origin in information processing theory (Araka et al., 2022), researchers have noted there is a lack of research regarding the longevity of the framework (Cloude et al., 2020; Kesuma et al., 2020). Winne and his team are

researching how his SRL model may work with computers that scaffold students' SRL while measuring it simultaneously (Cloude et al., 2020; Kesuma et al., 2020). Winne has also been exploring the potential of data mining and learning analytics and their application to SRL (Cloude et al., 2020). While Winne and Baker's model has potential for specific use regarding SRL in the eLearning classroom, more research needs to be done before utilizing it as an established framework for this study.

The final considered framework is Efklides's (2011) metacognitive and affective model of self-regulated learning, which is also based on Bandura's (1986) socio-cognitive theory. This model aims to clarify the relationship between metacognition, motivation, and affect. Therefore, it is composed of: (a) cognition, (b) motivation, (c) self-concept, (d) affect, (e) volition, (f) metacognition in the form of metacognitive knowledge, and (g) metacognition in the form of metacognitive skills (Efklides). One key feature of Efklides is the focus on specific traits of individuals through the creation of a person-level component to her framework, so while this framework helps to define and incorporate Zimmerman's (1989) circular model, Winne and Hadwin's SRL Framework (1998), and Pintrich's (1993) MSLQ, the emphasis on the student makes it not appropriate for this research study. The purpose is to analyze teachers' perspectives and impact on the eLearning environment for students, whereas Efklides argued that students have specific behavioral traits that will make them successful despite the organization of the eLearning classroom or specific teacher input (Efklides, 2018; Panadero, 2017).

Bandura's Social Cognitive Theory and Self-Regulation

Bandura's (1986) social cognitive theory (SCT) of self-regulation provides a

framework for understanding human behavior as a distinct connection between behavior and the environment (Aheto et al., 2024; Koutroubas & Galanakis, 2022; Mujahidah & Yusdiana, 2023). SCT is based on the idea that learning occurs in a social context with a dynamic and reciprocal interaction between the person, environment, and behavior (Bandura, 1989). Based on this idea, Bandura (1986, 1989) developed the model of *reciprocal determinism*, which consisted of three factors that influence behavior: how an individual thinks and feels, their environment, and the behavior itself. According to this model, a person's behavior is influenced by cognitive processes and environmental factors such as social stimuli (Bandura, 2001; Glanz et al., 2002; Woodcock & Tournaki, 2022). The environmental component refers to the physical and social context in which specific behaviors occur while focusing on the attitudes, beliefs, and ideas of the people present (Bandura, 1997; Zimmerman, 2002). This model differs from previous behavioral theories because Bandura (1989) emphasized the importance of bidirectional relationships between individuals, their behaviors, and the environment. This theory suggests that while people are affected by their experiences within a certain environment, they also have the power to exert change through their own choices and behaviors (Bandura, 1997).

The concept of SRL is an expansion of the social cognitive theory, which describes the process by which students establish and work toward learning goals (Artino & Stephens, 2006; Zimmerman, 1986). Zimmerman's (2000) social cognitive theory of self-regulation builds upon Bandura's previous research by describing how students activate and sustain behaviors and establish metacognitive markers to achieve learning

goals (Bandura, 1997). Zimmerman (2000) used Bandura's (1986) theory to develop a definition of SRL that included a three-phase self-regulation model illustrating the degree to which individuals are metacognitive, motivationally, and behaviorally active participants in their learning process. Zimmerman's (1989) research indicated that SRL is an active, constructive process where students exercise goal-setting techniques to monitor, regulate, and control their cognition and behaviors within the context of the environment.

Additionally, Pintrich (1990) applied Bandura's SCT research to education by including the importance of the environment and its influence on personal factors throughout learning. According to Pintrich (2000), SRL is an active, constructive process where students utilize goal-setting techniques to monitor, regulate, and control their cognition and behaviors within specific environments. Overall, the social cognitive framework explains how the specific environment in which a student learns can drastically impact their motivation to learn and their subsequent academic success.

From a social cognitive perspective, SRL is not only determined by personal variables such as cognition and emotional aspects but also influenced by behavioral variables such as using instructional strategies and environmental variables such as others' feedback and classroom setting (Zimmerman, 1989; Pintrich, 1990). While these variables have long been researched in the traditional classroom setting, recent study findings also show positive academic progress when incorporating SRL into online learning environments (Al-Abdullatif, 2020; Araka et al., 2020; Canter, 2019; Lai & Hwang, 2021). These findings give instructors and instructional designers insights into

designing online courses to support learners' SRL. However, recent research indicates that only some teachers are adequately trained and aware of the best practice strategies that can be used to promote SRL within eLearning at the high school level (Webb et al., 2021).

Empirical research continues to support Bandura's (1989) SCT by highlighting the importance of the contextual features of the learning environment, whether traditional classroom, eLearning, blended, or another model, and the effect on the other learner-centered aspects of academic self-regulation (Carter et al., 2020; Ceron et al., 2024; Lai & Hwang, 2021; Woodcock & Tournaki, 2022). Artino's (2006) premise was that the environment can change students' thoughts, feelings, and actions over time. Interest in academic self-regulation has increased considerably as investigators and practitioners attempt to understand how students take ownership of their learning processes (Schunk & Zimmerman, 1998). When considering eLearning, scholars have suggested that SRL skills may be particularly important for students participating in online education given the physical lack of teacher and peer presence (Bandura, 1997; Dillon & Greene, 2003; Hartley & Bendixen, 2001; Hill & Hannafin, 1997). Schunk and Zimmerman (1998) reinforced the concept by concluding that effective SRL strategies may be critical in distance learning due to the high degree of student autonomy resulting from the instructor's physical absence.

Overall, researchers have found that the aforementioned social cognitive views, models, and studies are useful in exploring the importance of teachers' perceptions of self-regulation within the eLearning environment (Warokka et al., 2022; Windiarti et al.,

2019). Researchers have investigated important aspects of teachers' perceptions and how they relate to student motivation and academic achievement within the digital classroom (Khalil & Alharbi, 2022; Windiarti et al., 2019). This framework reinforces the importance of investigating current teachers' perceptions of effective SRL strategies within the eLearning environment, which could assist in developing more effective professional development and training opportunities in the future.

Zimmerman's Cyclical Model of Self-Regulation

The theory of SRL developed by Zimmerman (1989) defines the specific psychological processes that occur during academic learning when students attempt to regulate their learning and behavior toward learning. As one of the first models developed related to SRL, Zimmerman's Cyclical Model of Self-Regulation is a well-researched model for supporting SRL and providing interventions for students with low SRL skills (Garcia et al., 2018; Lin et al., 2022). The overall purpose of the Cyclical Model of SRL is to provide a systematic view of students' cognitive and motivational processes during traditional learning (Zimmerman & Kitsantans, 2005; Zimmerman & Schunk, 2001); however, given the nature of the model to explain cognitive processes, it is beginning to be applied to other fields and environments of human learning, such as the eLearning classroom environment (Cloude et al., 2022; Zimmerman & Schunk, 2022). Currently, most of the research on SRL in the eLearning environment is focused on the collegiate level, and there is a noticeable gap in the research at the high school level (Baldan et al., 2020; De la Fuente et al., 2022; Garcia-Martin & Garcia-Sanchez, 2020; Xu et al., 2023).

Several studies have tested different aspects of Zimmerman's models (Jansen et al., 2019; Lai & Hwang, 2021; Zimmerman, 2013; Zimmerman & Kitsantas, 2005), especially the Cyclical phase model of SRL. Recent studies have reviewed the effects of the Cyclical Phase Model on various types of academic performance (Xu et al., 2023). Metanalyses conducted on the traditional face-to-face learning environments (Araka et al., 2020; Dent & Koenka, 2016; Honicke & Broadbent, 2016; Jansen et al., 2019; Kesuma et al., 2020) and digital learning environments, both eLearning and hybrid learning (Araka et al., 2020; Gonzalez-Perez & Ramirez-Montoya; 2022; Jansen et al., 2019; Lai & Hwang, 2021), found support for Zimmerman's (2000) model resulting in a statistically significant correlation between students engaged in the SRL model and academic success.

More recent research by Hadwin et al. (2022) examined the individual processes of the circular model of SRL on the academic challenges and academic outcomes for 469 undergraduate students. Researchers found that (a) levels of metacognitive and motivational challenges fully mediated the impact of COVID distress on students' self-reported grade point averages, (b) SRL adapting practices moderated the impact of metacognitive challenges on GPA, and (c) semester-long SRL intervention buffered the impact of COVID distress on academic challenges and resulted in lower levels of social-emotional, cognitive, and metacognitive challenges for first-year undergraduate students.

Additional research by Chou and Zou (2020) on eLearning classrooms that incorporated SRL-specific apps during each process of the circular model found that overall, students have poor internal SRL processes and poor internal feedback, including

poor self-assessment, inappropriate target goals, a failure to conduct follow-up learning, and a failure to achieve their goals that require explicit teacher mediated support. The results also revealed that the SRL tools and external feedback assisted most students in SRL, including monitoring their learning performance, goal setting, strategy implementation and monitoring, and strategy outcome monitoring. Finally, they indicated that some students still required further support for SRL and explicit guidance.

According to Schunk and Zimmerman (2013), students who practice self-regulated behaviors engage in a cyclical process involving goal-setting and consistent self-feedback. An important characteristic of SRL subprocesses is their relation to each other (Dent & Koenka, 2016; DiBenedetto & Zimmerman, 2010). Evidence suggests that students' use of each self-regulatory process is correlated with achievement and general measures of academic ability (Dent & Koenka, 2016; Jansen et al., 2019). In addition, the three phases operate in a cycle such that the completion of each phase increases the overall prediction of the model (Al-Abdullatif, 2020; Zimmerman & Bandura, 1994). Evidence supports the cyclical model in the traditional classroom (Cleary & Zimmerman, 2001; Kitsantas & Zimmerman, 2002) and the eLearning environment (Al-Abdullatif, 2020; Xu et al., 2023). Zimmerman's (1989) Cyclical Phases Model of SRL is organized into three phases: forethought, performance, and self-reflection.

Forethought

In the forethought phase, students analyze the task, set goals, and develop a strategic analysis of how to reach them (Zimmerman, 2000). According to Schunk and Zimmerman (2013), two distinct categories occur during the forethought phase: task

analysis and motivational beliefs. During the task analysis process, students practice goal setting and strategic planning (Matitaputty & Kurniawati, 2018). They consider their workload holistically and determine success and how they will complete the task (Zimmerman, 2000; 2003). This phase also consists of students' self-motivational beliefs, including self-efficacy, outcome expectations, intrinsic interest or value, and goal orientation.

Students with difficulties during the forethought phase often need to work on planning for tasks or work completion. They also need to be more organized. A study on the forethought phase of self-regulation by Cosnefroy et al. (2018) investigated the effects of procrastination and disorganization as separate constructs and their relationship to academic achievement. The researchers found that disorganization negatively impacted academic achievement, while procrastination had no effect. They also found that disorganized students reported they needed help understanding the teacher's expectations. Therefore, researchers reported that it is important that teachers ensure they give enough time to thoroughly go over directions and expectations for assignments and check for frequent understanding.

Logan et al. (2021) created an online course for undergraduate nursing students utilizing Zimmerman's theories of self-regulation with an emphasis on goal setting during the forethought phase. Researchers found that students who actively engaged in the self-regulatory goal-setting processes of the class were more academically successful than their peers and generally felt more fulfilled with their academic experience based on qualitative feedback. Therefore, the researchers suggested teachers provide specifically

planned goal-setting experiences in the forethought phase to help students develop self-regulatory behaviors in the eLearning environment.

A meta-analysis by Lai and Hwang (2021) also investigated the correlation between each SRL strategy and students' learning performances in the eLearning classroom. They found that in 58% of the studies investigated, the strategies for individual SRL stages were generally ignored. By referring to those SRL studies reporting the use of the strategies in each stage, it was found that goal setting and planning, which are highly related to students' learning achievement, were the most frequently discussed; however, how it related to environmental structuring such as the eLearning environment was generally ignored, and 40% of the studies offered no practical applications. Therefore, while the forethought stage of Zimmerman's (2000) SRL framework has been researched within the context of the eLearning environment, there is still a gap in the research about teachers' perceptions and the actual process of applying SRL to the eLearning environment at the high school setting.

Performance Phase

In the performance phase, students execute a task while monitoring their progress and use several self-control strategies to keep themselves cognitively engaged and motivated to finish the task. According to Zimmerman (2000), the performance phase is the second phase of SRL and includes two main components: self-control and self-observation. Students with self-control can use self-instruction, imagery, attention focusing, and other task-related strategies such as rereading, underlining, note-taking, rehearsing, and self-quizzing. The self-observation processes involve self-recording and

metacognitive monitoring. In this phase, students consider their goals outlined in the forethought phase and perform aligned tasks while continually monitoring progress toward goal attainment. Effective use of strategies can positively influence students' learning and performance (Callan & Cleary, 2019). There is evidence to suggest that students' strategy use becomes self-regulated when they monitor their use of learning strategies metacognitively (Theobald, 2021).

Berger et al. (2021) conducted a longitudinal study analyzing how students performed during distance learning, and they found that while self-regulated students are performing, they monitor metacognitively and adjust their strategies while working to achieve goals. They also determined that students who struggle with the performance phase of SRL may exhibit low academic achievement, low self-esteem, and low self-efficacy. The researchers suggested that for students to be successful during the performance phase of self-regulation, it is important for teachers to scaffold students' forethought, performance, and reflection as part of the lesson delivery model. Additionally, a study by Callan and Cleary (2019) on the correlation between phases for eighth-grade math students found a significant correlation between students who created a strategic plan during the forethought phase and their strategy use during the performance phase.

Self-Reflection Phase

Finally, in the self-reflection phase, students assess their performance on a specific task and form judgments about their successes or failures (Lai & Hwang, 2023). According to Zimmerman (2000), there are two distinct categories related to self-

reflection: self-judgment and self-reaction. Within the self-judgment category, students systematically monitor their performance and keep records of their successes and areas for improvement. This phase could also compare performance against a goal developed during the forethought phase. This phase could include re-examining answers, checking procedures, rating answers about the answer sheet, or evaluating their performance against a peer (Logan et al., 2021). The self-reaction subprocesses involve systematically engaging in personal processes such as goal-setting and metacognitive planning.

Self-satisfaction is an important subprocess in Zimmerman's three-phase model, and there is evidence that students' perceptions of self-satisfaction can sustain efforts to learn, specifically in the eLearning environment (Landrum, 2020). A study conducted by Landrum (2020) on students choosing to take online classes at the college level and those successfully finishing the courses found that students' confidence to learn online was one of the strongest predictors of their successful course completion. This phase indicates that part of the SRL process should include giving students a purpose and reason for taking a class beyond just giving them skill sets and learning strategies. Zimmerman (2011) found that students who are satisfied with their performance are more likely to reflect on previous strategies used and adapt them to reach their future goals better. Conversely, students who attribute failure to factors other than strategy use and effort, such as ability, luck, task difficulty, and mood (Lai & Hwang, 2023; Landrum, 2020), are less satisfied and motivated to learn.

Literature Review

The eLearning Environment and SRL

Self-regulation theories focus on how individuals select, pursue, and modify goal pursuits based on personal and environmental opportunities and constraints (Bandura, 1989; Zimmerman, 1990; Zimmerman, 2002). When developing his circular model of SRL, Zimmerman largely relied on Bandura's (1989) social cognitive theory that posits that student learning can be directly tied to the environment; therefore, it is necessary to consider the impact of the introduction of the eLearning environment to Zimmerman's original SRL framework and how it correlates to the purpose of this research study. The current research study focuses on the eLearning environment, so it is important to consider the transition of teachers to online learning platforms and the need for innovative change in learning content delivery. Therefore, a review of the eLearning environment further linked the transition process to teachers' perceptions of the importance of SRL in eLearning, how teachers describe barriers to implementation, and what teachers see as technology training barriers to implementing SRL into the eLearning environment.

Traditionally, eLearning has been viewed as an alternative pathway to the traditional classroom environment; however, the emergence of the COVID-19 pandemic required many school districts to rely exclusively on eLearning (Omang & Angioha, 2021). Though forced and hurried for many, the shift to eLearning required teachers across all levels of education to create learning experiences that were feasible and effective in a digital format (Amarneh et al., 2021). The experience allowed teachers to

reconsider strategies that best facilitate learning within the online context. Upon return to traditional learning, many school districts and teachers continued to utilize and enhance the eLearning strategies previously implemented during the COVID-19 lockdown, resulting in an increased demand for districts to provide multiple formats in the delivery of courses (Doligham & Owen, 2021; Omang & Angioha, 2021). Accessing courses online or in a blended format is an attractive and flexible option for many students. This is evident in the significant growth in the number of students enrolled in online courses at the high school level (Walters et al., 2021). However, there is still a gap in the research regarding the inclusion of SRL into the eLearning environment at the high school level and even less research regarding teachers' perspectives on the barriers to including SRL in the digital environment.

Research by Chou and Zou (2020) on eLearning classrooms that incorporated SRL-specific apps in undergraduate courses found that overall, students have poor internal SRL processes, including poor internal feedback, poor self-assessment, inappropriate target goals, a failure to conduct follow-up learning, and a failure to achieve their goals that could benefit from explicit teacher mediated support. The results also revealed that the SRL tools researched in the study, in combination with external feedback, assisted most students in accessing effective SRL strategies, including monitoring their learning performance, goal setting, strategy implementation, and self-reflection. Finally, they indicated that some students still required further support for SRL and could benefit from explicit teacher guidance; however, more research is needed.

In a meta-analysis, Lai and Hwang (2021) analyzed the prevalence of research

mentioning SRL in eLearning across seven journals focusing on the digital learning environment published between 2010–2020. For studies mentioning SRL and eLearning, they focused on the correlation between each SRL strategy and students' learning performance. It was found that strategies for individual SRL stages of Zimmerman's circular framework (1989) were ignored in 58% of the studies. In addition, 40% of the studies did not clearly state how SRL could be applied to practical applications within the digital environment, only that it had been incorporated in some way. Referring to those SRL studies reporting the use of the strategies in each stage, it was found that goal setting and planning was the most researched topic. Nevertheless, some strategies that highly correlated to students' cognitive performances, such as the importance of the eLearning environment to learning (Bandura, 1986) and how to structure the learning effectively within the environment, were often ignored.

Logan et al. (2021) researched the addition of a self-directed, self-paced e-learning module in a hybrid nursing course at the undergraduate level. They found that a team including a librarian, instructional designer, faculty content expert, and a faculty content consultant could implement an effective eLearning module based on Zimmerman's circular model of SRL (1989). The module was designed as an asynchronous, stand-alone, self-paced course, a precursor to a hybrid, face-to-face instruction, and virtual labs model. They found that including a virtual course on SRL created by a team of experts resulted in students who were better engaged with the content and more actively involved in their learning.

The research on the shift to SRL in online learning has resulted in a need for

teachers to review their pedagogical approaches and strategies so that curricular designs accommodate learner diversity and learner needs in the online environment (Hart et al., 2019; Lai & Hwang, 2021; Lawson et al., 2019; Logan et al., 2021). The transition to online learning platforms depends on instructors' abilities to adjust their teaching and learning norms for instructional delivery and time management skills (Doligham & Owen, 2021; Lai & Hwang, 2021). Students require instructors to be content experts and experts in the structural features of online learning platforms and the unique characteristics required to promote metacognitive, motivational, and behavioral strategies that help promote SRL strategies (Kim et al., 2020; Pressley & Ha, 2021). Kim et al. (2020) studied student and teacher usage patterns in an undergraduate online learning platform and found the need for teacher expertise. Results showed a direct correlation between a teacher's expertise in digital curriculum development and a student's likelihood of finishing a course once starting (Kim et al., 2020). Therefore, the need for research on teachers' perceptions and technology training requirements is well documented (Blau et al., 2020; Dignath & Veenman, 2021; Kim et al., 2020).

Current Research

Self-Regulation of Learning

Historically, researchers have been interested in studying factors related to academic achievement, and the concept of SRL has been heavily researched and documented as a statistically significant influencing factor (Dent & Koenka, 2016; Honicke & Broadbent, 2018; Jansen et al., 2018; Kesuma et al., 2020; Lai & Hwang, 2021). Due to the prevalence of SRL research studies showing a correlation between

students' high SRL abilities and academic achievement, research into specific strategies used to support SRL is plentiful (Al-Abdullatif, 2020; Dent et al., 2018; Xu et al., 2023). Studies have shown that higher education students who utilize SRL techniques actively participate in their learning process (Landrum, 2020). Additional studies have shown that teachers who promote specific interventions to support students' knowledge and engagement in SRL activities are rewarded with higher student engagement and academic achievement (Blau et al., 2020; Logan et al., 2021).

Because SRL activity has consistently been found to be related to student achievement, research into ways to support SRL in a traditional face-to-face classroom is plentiful (Araka et al., 2022; Hadwin et al., 2022; Jansen et al., 2019; Lai & Hwang; 2021; Theobald, 2021). Research by Jansen et al. (2019) argued that SRL interventions are effective in improving achievement because of their overall effect on students' engagement in SRL activities: the SRL intervention improves students' use of SRL activities, and this improvement leads to better performance. While research on the positive effects of SRL is prevalent in literature, research on how teachers structure and promote SRL in a high school eLearning environment is still lacking.

SRL is central to students' learning process, as students who engage in SRL take control of their learning process through self-generated thoughts, feelings, and actions for attaining academic goals (Cosnefroy et al., 2018). As discussed previously in Chapter 3, multiple models and frameworks for SRL instruction exist (Boekaerts, 1997; Efklides, 2011; Pintrich, 2000; Winne & Hadwin, 1998; Zimmerman, 1990, 2002), but the main components of the models are similar (Panadero, 2018). Historically, students who self-

regulate their learning process in a traditional face-to-face environment are metacognitively, behaviorally, and motivationally active in their learning as they work through the three phases of Zimmerman's (1989) circular model of SRL: a forethought phase, a performance phase, and a self-reflection phase.

As a key feature of learning, studies have continually discovered that students who practice SRL techniques choose the most effective cognitive learning activities specific to their presented learning tasks and broader contexts (Robson et al., 2020). Therefore, the research has frequently indicated that students' SRL abilities directly influence their cognitive activities and subsequent academic successes (Taranto & Buchanan, 2020; Theobald, 2021). Additionally, students who actively self-regulated, whether intrinsically (Steenbergen-Hu et al., 2020) or through extrinsic strategy development (Yavuzalp & Baheivan, 2021), engaged in more effective cognitive strategies that resulted in students progressing through their learning at a higher rate than their peers. Subsequently, students who progressed through their learning could use the progress to enhance further self-regulation strategy development through the modeling and reflective stages theorized in Zimmerman's (1989) circular framework of SRL (Cosnefroy et al., 2018). Therefore, research has shown that the influence of SRL techniques and the subsequent use of cognitive learning strategies could explain why promoting and using SRL techniques could lead to higher student achievement (Araka et al., 2020; Garcia-Ros et al., 2022; Hadwin et al., 2022).

Due to the importance of SRL on student achievement, numerous studies have been conducted on how academic achievement is affected by specific strategies aimed at

supporting students' SRL (Jansen et al., 2019; Kesuma et al., 2020; Matitaputty & Kurniawati, 2020; Robson et al., 2020; Situmorang et al., 2019). While the specific interventions and strategies analyzed differed, all the research aimed at supporting students' engagement in SRL activities by analyzing the quantity and quality of the strategies, or both while focusing on improvements in academic achievement. However, most studies still focused on how the interventions and strategies impacted the undergraduate learning experience in a traditional face-to-face classroom. Therefore, while there are numerous studies on the positive impacts of SRL techniques, there is still a gap in the literature when considering how these techniques can be translated to the eLearning environment at the high school level. The lack of studies aimed at eLearning in the high school classroom is concerning because SRL is an important component of student achievement, and students participating in the eLearning environment are provided greater autonomy with limited external regulation of their learning process (Al-Abdullatif, 2020).

Due to the importance of SRL for student achievement, numerous interventions have been developed and studied to support students' SRL activity; however, there are currently few guidelines that have been developed to support the development of SRL interventions in a high school eLearning environment (Araka et al., 2020). Therefore, a study of high school teachers' perceptions surrounding the importance of SRL instruction, barriers to SRL instruction, and technology training is necessary to overcome barriers and utilize SRL techniques in a high school eLearning environment. Analyzing the existing knowledge on SRL interventions could indicate characteristics for teachers to

include in eLearning. For example, not all SRL interventions have been found to be equally effective in supporting students' achievement.

A review of metacognition and SRL by Muijs and Bokhove (2020) found a difference between studies focusing on SRL-exclusive interventions and those focusing on SRL in conjunction with cognitive strategies. The researchers discovered that students must possess the ability to use cognitive strategies to successfully self-regulate. Without both, students cannot be successful in the forethought and performance phases of SRL, as they do not have a sufficient repertoire of strategies from which to choose. They also noted that it is likely that the need for cognitive-specific instruction decreases as students reach a higher level of education because, by then, they have intrinsically developed more cognitive strategies than when they were first starting their educational journey. Therefore, Jansen et al. (2020) hypothesized that students in higher education may benefit from more interventions aiming at supporting SRL more than cognitive strategies.

A research study on the format of the intervention strategies by Jansen et al. (2020) found that students need to know about SRL and SRL activities to engage in the learning process successfully. Dignath and Veenman (2021) conducted a study on the role of direct strategy instruction versus indirect instruction by observing various traditional face-to-face classrooms. They found that SRL interventions at the elementary school level were most effective when they contained SRL as a concept and on possible SRL activities in which students could engage. However, at the middle and high school level, interventions with metacognitive instruction were less effective for improving students' achievement compared with interventions with opportunities for metacognitive

reflection. Therefore, high school students would benefit more from opportunities to reflect on their learning and to engage in metacognitive strategies they already knew rather than receiving direct instruction in performing metacognitive activities because high school students should already possess more knowledge of SRL activities than elementary school students. This would imply that SRL interventions for successfully improving students' achievement in the high school eLearning environment could focus on stimulating students to reflect on their cognitive strategy use and activate students' existing knowledge of SRL.

Additional studies on the timing of interventions by Araka et al. (2022) found that incorporating SRL supports before the learning task in a traditional face-to-face environment allows students to benefit from the support of the SRL strategies for the entirety of the task. Additional evaluations by Kesuma et al. (2020) found that teachers who used SRL strategies tended to introduce them at the beginning of the lessons. This could lead to higher levels of academic success as students can work through all the stages of the SRL model. However, additional research by Lai and Hwang (2021) on incorporating SRL into an eLearning environment for undergraduate students found that incorporating SRL strategies later could allow students to get accustomed to the learning environment and avoid feeling overwhelmed.

An additional study on the learning context in which SRL is used as an intervention found that the effectiveness of SRL activities is only partly dependent on context (Theobald, 2021; Xu et al., 2022). A review of the literature by Xu et al. (2022) indicated that interventions should be used to help students determine which SRL

strategies are most effective in specific contexts. In this way, students benefit from the interaction between domain learning, cognitive strategy instruction, and SRL activities (Theobald, 2021). Therefore, researchers concluded that asking students to reflect on their learning generally was less effective than domain-specific prompts in which students were asked about specific concepts (Xu et al., 2022).

Finally, studies on the specific types of SRL activities used as interventions found huge differences in the types of interventions and their effect. Some interventions are more closely correlated with academic achievement than others. For example, Theobald (2021) found that persistence in learning as an SRL strategy was more effective than learning how to seek help. A meta-analysis by Xu et al. (2022) indicated that the differences between specific SRL interventions and achievement may explain why interventions aimed at some SRL activities are more beneficial for academic achievement in the eLearning environment than others. Therefore, it is important to consider teachers' perceptions of the importance of SRL instruction and specific interventions when planning for curriculum and instruction for eLearning for high school students.

Teachers' Role in Promoting SRL of Students

Researchers such as Zimmerman (2002) and Boekarts (1997) have historically argued that SRL is a teachable skill and can be taught using different instructional strategies and approaches, such as direct instruction, modeling, reciprocal teaching, and project-based learning. However, there is a noticeable lack of research regarding teachers' perceptions of teaching these skills in a primarily eLearning environment and how the specific teaching competencies and required training for promoting SRL

instruction differ from a traditional setting, specifically at the high school level. According to Carter et al. (2020), SRL instruction can occur in three different ways: (a) indirectly through experience, (b) directly through instruction, or (c) through elicited practice either directly or indirectly. Some students can learn SRL skills naturally through authentic and repeated experiences, such as observing those around them, such as teachers, peers, or parents (Blau et al., 2020; Carter et al., 2020). Others require direct, explicit instruction through teacher support. Teachers can provide this support by showing students examples and non-examples of SRL and providing immediate feedback to raise students' awareness (Araka et al., 2020; Blau et al., 2020). SRL can also be taught by incorporating it as a task component, such as using time management, goal setting, and monitoring as part of a collaborative group project (Araka et al., 2020).

A meta-analysis conducted by Theobald (2021) tested the effects of extended SRL training programs on academic performance, learning performance, and motivation. Forty-nine studies were examined, and the results indicated a medium significant correlation between students participating in the training programs and academic success. The largest effect sizes were obtained for metacognitive strategies, resource management strategies, motivational outcomes, and cognitive strategies. Training effects varied for specific SRL strategies and ranged between rehearsal with a small effect and attention with a clinically significant effect size. Additional considerations analyzed the characteristics of the overall course design and found that educator feedback predicted larger training effects for metacognitive and resource management strategies and motivation. Cooperative learning arrangements predicted larger training effects for

cognitive and metacognitive strategies. The provision of learning protocols predicted larger training effects for resource management strategies. The overall research indicated that the structure of the SRL programs is just as significant as the availability of the program. Therefore, Theobald (2021) acknowledged the importance of teachers as facilitators of SRL and suggested further research into how teachers are trained to deliver SRL programs within alternative learning environments such as eLearning.

While researchers are beginning to investigate the need for explicit SRL instruction as a component of online instruction, overall research on teachers' perceptions of the barriers and impact on student learning outcomes in a high school eLearning environment is minimal. One study conducted by Hart et al. (2019) at the secondary level found that students participating in an eLearning classroom tended to receive higher grades than their peers participating in traditional learning environments; however, they had less positive longer-term effects and were less likely to persist in school through their twelfth-grade year. They were also less likely to pass the next same-subject course in the high school sequence. While more research is needed, Hart et al. (2019) questioned easier grading standards in the online environment as a possible reason for the higher grades but poorer long-term outcomes. They suggested the need for research regarding teachers' technology training levels and the facilitation of an academically challenging environment in an online setting. They also concluded that SRL instruction was a critical component of the eLearning environment and recommended that teachers train on specific strategies for teaching SRL in the eLearning environment.

A study completed by Sulaiman and Ismail (2020) on the relationship between

teacher competence and 21st-century skills found that teacher pedagogy and preparedness significantly contribute to students' development of 21st-century skills. Similarly, a recent systematic review by González-Pérez and Ramírez-Montoya (2022) of 21st-century competencies related to Education 4.0 analyzed which components of Education 4.0 have been considered in 21st-century skills frameworks and identified which teaching strategies are proving most effective. Education 4.0 is a term coined in 2020 that refers to education that integrates technology and education to transform the future of learning, such as the eLearning environment. Researchers found that a teacher's computer literacy skills indicated how academically successful students were in an eLearning environment (González-Pérez & Ramírez-Montoya, 2022; Sulaimaan & Ismail, 2020). The study also found that teachers focusing on active learning strategies linking 21st-century skills that involved real-world situations that promoted self-regulation through communication and reflection were more successful (González-Pérez & Ramírez-Montoya, 2022).

Kim et al. (2020) also researched student and teacher usage patterns in online secondary learning platforms. They found that teachers who were regularly engaged with their students in the online forum and required frequent student engagement with video lectures, SRL-aligned self-assessment, social tools, and additional video resources significantly predicted student duration and likelihood of completing the program. Both research studies reinforced the need for teachers in an eLearning environment to promote SRL as a critical component of students acquiring 21st-century skills.

Self-Regulation of Learning in Online Environments

While many schools and researchers have developed variations of online learning

platforms, many require students to work independently and autonomously to complete learning tasks delivered by the online system (Lin et al., 2022). However, some students do not have the high autonomy or SRL capabilities to succeed within this type of learning framework; therefore, many withdraw halfway through the course, negatively affecting their overall learning outcomes and academic progress (Chugh et al., 2023). Previous research in K-12 and higher education comparing students in eLearning courses with those participating in traditional in-person classes found that the online setting is less effective. Hart et al. (2019) found that high school students in an eLearning environment tended to learn less than their peers in the traditional setting.

Researchers are considering effective ways of incorporating SRL into the eLearning environment. However, the lack of studies currently aimed toward high school teachers' perceptions of SRL and specific SRL strategies used in an eLearning environment is important because studies have repeatedly shown that SRL is of great importance to student achievement in a traditional face-to-face environment (Al-Abdullatif, 2020). High school students participating in the eLearning environment are often provided greater autonomy than their peers in a traditional classroom setting, as there is little external regulation of their learning processes in the form of a readily accessible teacher or professor (Amarneh et al., 2021). For example, students taking classes in an eLearning environment study mostly outside the classroom at their own pace, and specific attendance protocols are not often required (Berger et al., 2021). This increased level of independence in the learning process has resulted in an increased need for students to take control of their learning processes, making SRL even more

imperative (Chugh et al., 2023).

Despite their increased use over the past few years, online courses have one of the highest dropout rates (Borella et al., 2022). Researchers have continually worked to determine what is causing the discrepancy between eLearning success and traditional classroom success to make the digital learning environment more accessible (Chi et al., 2022). Studies have noted that the dropout rate for online courses was more than 20% higher than that for traditional face-to-face courses (Borella et al., 2022). Students cite frustration with access to the curriculum and a lower confidence level in their learning and progress (Chi et al., 2022).

Studies focusing on students' decisions to drop out or persist in an eLearning environment indicated that learner characteristics, external factors such as scheduling conflicts, family issues, and financial problems, and internal factors such as social integration, academic integration, technological issues, and lack of motivation were potential factors for students deciding to drop out of eLearning classes (Chi et al., 2022; Chugh et al., 2023). Additional factors include the unique characteristics of the online learning environment, such as accessibility, flexibility, and personalized learning experience with less instructor oversight that can be addressed through a student's SRL ability. In an eLearning environment, students with high SRL abilities can regulate their time and effort not to have scheduling conflicts, regulate their motivation by setting up goals and rewards, or seek appropriate help to solve technology issues or learn the material (Carter et al., 2020).

The importance of student SRL in an online environment has been emphasized

due to the autonomous nature of online learning and the lack of ongoing and interactive support that instructors in a traditional face-to-face learning environment more readily provide (Carter et al., 2020). A study by Yu et al. (2022) of 441 high school students participating in eLearning explored the relevance of online learning effectiveness predicted by SRL across the three cyclical phases suggested by Zimmerman (2000). Yu et al. (2022) found that all three phases of SRL were positively related to advanced learning outcomes in an eLearning environment. Another recent study examined the differences between students who chose to persist in an eLearning environment and those who chose to drop out. Researchers found that persistent students had higher levels of SRL skills than the students who chose to drop out (Chi et al., 2022; Chugh et al., 2023). Also, according to a meta-analysis by Araka et al. (2020) and Lai and Hwang (2021), SRL strategies were proven to be correlated with students' academic achievement in online higher education settings.

Additional studies on students' use of goal setting SRL techniques in an undergraduate online course found a positive correlation between students' SRL, goal attainment, and academic success (Chi et al., 2022). Most researchers agree that the format of the eLearning environment requires students to practice more SRL strategies and skills to be more academically successful because the nature of the eLearning environment encourages learners to utilize more exploration, elaboration, and activation of prior knowledge due to its inherent nonlinear design (Chi, et al., 2022; Chugh et al., 2023; Lai & Hwang, 2021; Rodrigues et al., 2019). However, learners in eLearning environments often struggle to manage and regulate their learning (Landrum, 2020;

Lawson et al., 2019; Logan et al., 2021).

As seen previously, the influence of SRL on course outcomes and academic achievement has been studied extensively. Multiple studies have shown that the relationship between SRL and academic achievement and course outcomes is significant and positive because when students engage in more SRL, their achievement is enhanced (Robson et al., 2020; Rodrigues et al., 2019; Theobald, 2021; Viburg et al., 2020; Xu et al., 2023). However, SRL becomes more important in the eLearning environment when the learning is less externally regulated because students must manage their learning to a greater extent (Yavuzalp & Kortecamp, 2020). A study by Blau et al. (2020) of undergraduate eLearning pedagogical design found that many of the courses offered to students are high on student-to-content interactions but low on teacher-to-student and student-to-student interactions, therefore verifying that many of the eLearning courses rely primarily on self-study. Any time students engage in self-learning, there is an increased need for SRL techniques to be successful (Canter, 2019).

Using Trace Data to Track Self-Regulation in Online Environments

The increased research regarding the necessity for students to engage in SRL in the eLearning environment has made understanding how teachers organize SRL opportunities more valuable (Dignath & Veenman, 2021). Historical research on SRL in hybrid and eLearning models used questionnaires that showed positive correlations between self-reported SRL activity and course completion (Lai & Hwang, 2021). More recent studies, however, have begun monitoring students' SRL usage via trace data consisting of information automatically stored as students engage with online course

materials (Araka et al., 2020; Ye, 2023). As more researchers are beginning to use educational data mining, trace data has been used to identify specific variables related to student success without relying on the subjective nature of self-reported questionnaires used previously in research (Araka, et al., 2022; Kim et al., 2020).

Researchers such as Ye and Pennisi (2022) have specifically looked at the importance of incorporating digital trace data into SRL research by comparing the results from students' digital trace data to their self-reported questionnaires. The researchers found that digital trace data could predict students' performance more accurately than self-reported SRL data. They also found that students scoring higher on SRL scales showed more activities such as revisiting an assessment, strategic planning, and help-seeking. Unfortunately, the teachers' role in the students' use of SRL was missing from the research. Additional research by Ye (2023) using trace data tracked common patterns of activity from the beginning of a learning session to the end using trace data. The results were then categorized by matching the learning activities with SRL strategies. While the labeling could be considered subjective, the results showed that it was possible to interpret SRL use in a digital environment using this tracking technique.

The importance of SRL for successful eLearning has spurred research into measuring SRL with trace data; researchers have also started exploring the effectiveness of SRL interventions in this context. Araka et al. (2020) conducted research on intervention tools for SRL in eLearning. The researchers gave students a survey to complete about any specific plans they had for learning and completing coursework. They then linked the interventions mentioned during the pre-course survey to the course

content that prompted students to engage in SRL. In this way, students using the SRL strategies were more likely to finish the course. They were academically more successful, proving the importance of the SRL strategy incorporation into the eLearning curriculum development.

Conclusion

Self-regulation theories focus on how individuals select, pursue, and modify goal pursuits based on personal and environmental opportunities and constraints (Bandura, 1989; Zimmerman, 1990; Zimmerman, 2002); however, much of the current research is based on traditional face-to-face instruction. Based on Bandura's (1989) social cognitive theory that posits that student learning can be directly tied to the environment, it is necessary to consider how the transition to the high school eLearning classroom environment impacts the delivery of SRL instruction. Given the autonomous nature of the eLearning curriculum, it is also necessary to consider which strategies are effective in promoting academic success and which are not so teachers can offer the best instructional delivery methods to students. The current research study focuses on the eLearning environment, so it is important to consider the transition of teachers to online learning platforms and the need for innovative change in learning content delivery. Therefore, a review of the eLearning environment links the transition process to teachers' perceptions of the importance of SRL in eLearning, how teachers describe barriers to implementation, and what teachers see as technology training barriers to implementing SRL into the eLearning environment.

Traditionally, eLearning has been viewed as an alternative pathway to the

traditional classroom environment; however, the emergence of the COVID-19 pandemic required many school districts to rely exclusively on eLearning (Omang & Angioha, 2021). This forced teachers across all levels of education to create learning experiences that were feasible and effective in a digital format, whether they were trained in digital implementation or not (Amarneh et al., 2021). The experience allowed teachers to reconsider strategies that best facilitated learning within the online context. Accessing courses online or in a blended format is an attractive and flexible option for many students, evident in the significant growth in the number of students enrolled in online courses at the high school level (Walters et al., 2021). However, there is still a gap in the research regarding the inclusion of SRL into the eLearning environment at the high school level and even less research regarding teachers' perceptions about the barriers to including SRL in the digital environment and the technology training needs to do so. Current research on SRL in the eLearning environment using data mining is reshaping how data is viewed (Araka et al., 2022). While previous research on SRL in the eLearning environment is sparse, the data collection methods were typically done using self-reporting questionnaires; however, current researchers are beginning to use data mining to remove the research's subjectivity. While they are finding some SRL strategies transferable to the digital environment, others seem less effective than researchers previously anticipated using the questionnaires (Quazi et al., 2021). Additionally, research shows that SRL needs to change as students progress through their educational careers (Robson et al., 2020). Therefore, teachers must receive effective SRL training specific to the high school eLearning environment.

The literature review contains potential themes and perceptions from research that were explored. Potential themes for this basic qualitative research study are (a) SRL strategies could be applied to enhance academic performance in the high school eLearning environment; (b) Teachers' perceptions of SRL could be used to enhance current eLearning curriculum development efforts; and (c) addressing SRL technology training needs for teachers could increase student SRL use in the high school eLearning classroom.

Summary and Conclusions

Chapter 2 contained detailed information about the problem and purpose for the research study as well as a synopsis of the literature that establishes the relevance of the problem. There was a detailed description of the literature search strategy used to find the research used to establish the research problem including a list of databases, search terms used, and an overall description of the research process. The conceptual framework used to ground the study was also mentioned with a definition of the phenomenon, primary writings by key researchers, and how the framework has been applied to other research studies. There was also an exhaustive review of current research within the past 5 years with a detailed justification for the current research problem and purpose.

Chapter 3 will describe the current plan for conducting this basic qualitative research study to determine high school teachers' perceptions of the importance of SRL instruction for students in an eLearning environment, what teachers describe as barriers to implementing SRL instruction in eLearning environments, and the technology training needs for overcoming barriers and incorporating SRL in eLearning environments. It will

offer a detailed explanation of the research design and rationale, the role of the researcher, and the choice to use a basic qualitative methodology. The discussion on the qualitative methodology will consist of participant selection, instrumentation, and procedures for recruitment, participation, and data selection. I will also include a plan for analyzing the data and ensuring I meet the qualitative standards for trustworthiness and ethical procedures.

Chapter 3: Research Method

The purpose of this basic qualitative study was to explore high school teachers' perspectives on the barriers to successful SRL implementation within the eLearning environment and the technology training needs necessary to overcome barriers. Chapter 3 will detail the research design and rationale, the role of the researcher, and the chosen methodology. The trustworthiness and ethical procedures will also be discussed regarding the basic qualitative research design chosen for the study. The basic qualitative research method was chosen to identify and analyze high school teachers' perspectives on effective strategies and practices of self-regulation as it relates to the eLearning environment. Qualitative studies allow the researcher to interact with participants in a natural setting while gathering data using various methods such as interviews, observations, and focus groups (Busetto et al., 2020).

Research Design and Rationale

Self-regulation is the process of developing academic success through goal-driven skill development learned through observations and modeling (Robson et al., 2020). Therefore, teachers play a vital role in developing SRL strategies for secondary students enrolled in an eLearning environment through modeling and direct instruction. Consequently, teachers' attitudes, perspectives, and beliefs could influence the quality of SRL instruction provided to students, which means developers of professional development programs may need to target teachers' belief systems to improve focused SRL delivery (Dignath & Veenman, 2021). While numerous studies have indicated the importance of SRL for lifelong learning (Taranto & Buchanan, 2020) and as a

fundamental educational goal (Rabin et al., 2020), there is a noticeable absence in the literature surrounding high school teachers' perceptions of SRL in the eLearning environment. Therefore, the goal of this research was to add to the existing literature on the barriers to successful SRL implementation within the eLearning environment and the technology training needs necessary to overcome barriers. Based on this goal, the following RQs were used to guide the study:

- RQ 1: How do high school teachers perceive the importance of SRL instruction for students in an eLearning environment?
- RQ 2: What do teachers describe as barriers to implementing SRL instruction in eLearning environments?
- RQ 3: What do teachers perceive as technology training needs for overcoming barriers and incorporating SRL in eLearning environments?

Three types of research methods were considered when considering the method most appropriate for the study: qualitative, quantitative, and mixed methods. Quantitative research is best used when numerical data is necessary to test a hypothesis or theory (Agazu et al., 2022; Busetto et al., 2020) therefore, the qualitative design was the best choice for evaluating my RQs as the purpose is to understand high school teachers' perceptions of SRL instruction in the eLearning environment.

When considering a qualitative research design, six qualitative research methods were considered (see Table 1). The first type of study considered was the ethnography method. With this method, researchers attempt to describe the cultural characteristics of a specific group or organization such as their location, religion, tribal systems, shared

experiences, and lifestyles. They do this by living with the target audience and collecting samples through observation (Rubin & Rubin, 2012). The second option to consider was the narrative research method. This method involves collecting data in the form of a cohesive story over a long period of time. It can be used to analyze different life situations and opportunities with the goal of presenting a short story with themes, conflicts, and challenges (Agazu et al., 2022). The third option considered was the phenomenological study, which consists of describing specific experiences, events, or situations from multiple angles or perspectives. The goal is to classify data collected from conducting interviews, observations, surveys, and reading documents to examine experiences beyond human awareness (Busetto et al., 2020). A fourth method was the grounded theory method used to identify social development and ways to deal with it. With this method, interviews, observations, literature reviews, and document analysis are used to test and develop new theories (Viburg et al., 2020). A fifth type of study considered was the action research method. In this qualitative research design, researchers and participants work collaboratively to find and create solutions to social problems with the purpose of driving social change (Busetto et al, 2020). The sixth and last method was the basic research design. Basic qualitative studies are generally based on a social constructivist theory and data can consist of interviews, observations, or archival data (Busettto et al., 2020); Viburg et al., 2020). Based on the purpose of this study and the RQs, the basic qualitative method would be most appropriate.

Table 1

Qualitative Research Designs

Types	Research Purpose	Data Collection Methods	Data Analysis Methods
Ethnographic	To describe the cultural characteristics of a specific group or organization such as their location, religion, tribal systems, shared experiences, and lifestyles	Observation and interview	Description and interpretation of data and theme development
Phenomenological	To describe specific experiences, events, or situations from multiple angles or perspectives.	Interviews, surveys, and observation	Description of experiences, examination of meanings and theme development
Grounded Theory	To develop new theories without using any preconceived ideas or theories	Interviews, observations, literature reviews, and document analysis	Data coding, categorization of themes and description of implications
Action Research	To work collaboratively to find and create solutions to social problems with the purpose of driving social change	Interviews, Observations, Surveys and Questionnaires, Documents and Records, Participant Diaries and Journals	Data coding, categorization of themes
Basic Research	To gather in-depth insights into a problem or generate new ideas for research	interviews, observations, or archival data	Data coding, categorization of themes
Narrative	To analyze different life situations and opportunities with the goal of presenting a short story with themes, conflicts, and challenges	Interviews and documents	Storytelling, content review, and theme development

Choosing a basic qualitative study provided the opportunity to analyze raw data from a contextual standpoint to evaluate teachers' belief systems surrounding SRL instruction (Busetto et al., 2020). Once collected and evaluated, the interview data gave me the information I needed to describe the events and information that directly aligned with the RQs and purpose of the study. Therefore, the basic qualitative study best describes teachers' perceptions of effective strategies and practices for supporting SRL in eLearning environments.

Based on the choice to use a qualitative research design, the chosen data collection instrument was a semistructured interview based on predetermined questions.

The purpose of the questions was to elicit 10 ninth through 12th grade teachers' perspectives surrounding various practices and strategies that effectively support SRL in the eLearning environment and any barriers they might face to strategy implementation. According to Rubin and Rubin (2012), the semistructured research design is best when the research question is exploratory. It utilizes fixed questions and allows the researcher to ask additional questions when needed. By using this method, the expectation was that the information from the interview questions would provide a more detailed description.

Role of the Researcher

During the study, I worked as a ninth-grade teacher in a large suburban school district in the southeastern United States, where I have been employed for 13 years. The district houses 22 separate high schools for students, including online, traditional, and alternative educational options. My role in the study was as the interviewer. My relationship with the participants was as a colleague within the same district but not necessarily at the same school. As an employee of the district with experience educating students in sixth–12th grades, from special education to gifted education, I witnessed a need for self-regulatory strategies used across multiple levels in both traditional and eLearning environments. Therefore, I developed certain biases regarding the use or lack of SRL within the classroom environment; however, my goal was to remain objective throughout the research process by reflecting on my biases throughout the data collection and analysis process. I used a reflective journal to keep track of my thoughts to compare my thinking with the information provided by the participants to identify any discrepancies or opportunities for bias.

Because I chose to interview teachers whom I have not worked with, I aimed to minimize any potential desire to avoid honest analysis that could occur if I worked with teachers I had worked with personally. Additionally, as a fellow teacher, I did not have any supervisory or instructional privileges that could be interpreted as having power over any of the participants. There was no previously developed relationship with any of the participants as they all worked at different schools or within different departments; therefore, I had no prior knowledge of their teaching styles or philosophies of teaching. I carefully maintained the participants' confidentiality and protected their identities to ensure trustworthy and candid interviews. To ensure confidentiality, I only referred to participants using aliases throughout the research process, and I also developed composite profiles as an added layer of confidentiality.

Methodology

The following section will provide a detailed explanation of the participant selection process. It will also detail the type of qualitative data collection instrument chosen and its rationale. The recruitment procedures, participation, and data collection method are also discussed, and a detailed explanation of the chosen data analysis method is mentioned.

Participant Selection

The study participants were selected based on predetermined criteria established by the RQs. Teachers in Grades 9-12 with at least 1 full year of eLearning experience were chosen. The 1-year time frame was chosen because the research aimed to determine teachers' perspectives on effective strategies and practices for supporting self-regulation

in secondary students participating in eLearning. Therefore, the participating teachers should have had enough experience with high school students and eLearning to answer the interview questions effectively. To establish whether a participant met the interview criteria, the initial invitation to participate asked questions about the length of employment and grade levels taught. As I was unable to verify the information from the initial invitation, I assumed that the teachers answered honestly.

The goal was to capture a holistic interpretation of various perspectives surrounding issues of supporting SRL instruction in the secondary eLearning environment by interviewing at least eight-10 teachers from ninth to 12th grades from a variety of content areas. Due to the homogenous study population and narrowly defined objectives in this qualitative study, saturation was expected to be met after interviewing ten teachers (Hennink & Kaiser, 2022). According to Busetto et al. (2020), a researcher's goal should be to collect multiple perspectives and describe the various factors involved with the purpose of the study. By meeting these requirements, the main goal of this study surrounding teachers' perspectives of issues of SRL support in the secondary eLearning environment was met through the interviews conducted at a suburban high school in the southeastern United States. The rationale for choosing 10 teachers was to gain as much insight as possible based on individual perspectives and experiences supporting SRL in the secondary eLearning classroom.

As part of the recruitment process, the initial invitation to participate was emailed to participants matching the sampling criteria. It contained information that outlined the scope of the research study. The potential participants were asked questions regarding the

length of teaching experience, grade level taught, and teaching format to ensure all applicants met the criteria defined by the RQs and could return their answers to my Walden email. If any participants had further questions, they were invited to send a response to the initial email, and I responded accordingly. Additionally, each participant received a consent form outlining any potential benefits or risks to participating in the study and additional background information and procedures. All participants were informed that their participation in the study was strictly voluntary, and as part of the agreement, participants were informed of preestablished privacy procedures. The information for Walden's research participant advocate was also included on the consent form as an additional source for any questions or concerns they had regarding the study.

Instrumentation

The instrument chosen for the study was a semistructured interview using researcher-designed interview questions conducted via in person interviews, Zoom, Microsoft TEAMS, or telephone. Due to alternating schedules and physical school locations, the digital interview or telephone format was the best option for meeting with the required number of participants; however, face-to-face interviews were also an option if the participant was more comfortable and requested it. To ensure the validity and credibility of the research, all interviews were recorded using an audio recording application via an online program. Participants were notified of the recording procedures via a consent form before starting the interview. The semistructured format was chosen to facilitate asking open-ended or follow-up questions based on participant answers. Questions were only asked based on the initial responses of the interviewees; therefore,

while there was an established number of guiding questions, the overall number of questions changed based on a need for probing or follow-up.

The interview protocol followed a semistructured format in which questions directly related to the RQs, conceptual framework, and themes established in the Chapter 2 literature review. Based on past and current research outlined in the literature review, several factors supported the need for SRL in the eLearning environment that helped determine the guiding RQs for the current study. One theme was the teachers' readiness and willingness to provide direct instruction through coregulation. Another theme was the teachers' skillfulness in modeling desired expectations to improve goal development and academic focus in the eLearning environment. Finally, the teachers were willing to provide opportunities for metacognition and monitoring current progress and future goals for students participating in the eLearning environment.

In their study of teachers' perceptions of adopting eLearning during the COVID-19 outbreak; advantages, disadvantages, suggestions, Husain et al. (2020) used a semistructured open-ended questionnaire interview style to ask participants questions about the advantages, disadvantages and suggestions for implementing eLearning across the middle and high school settings. My study also used open-ended questions to reveal opinions, experiences, and specific stories about high school teachers' implementation of SRL within the eLearning environment. The questions were developed so teachers could share their thoughts, including relevance, advantages, and barriers to implementation.

When conducting an interview, Ravitch and Carl (2016) suggested that questions related to experience, opinions, values, and knowledge could result in the potential to

gain a deeper understanding of the topic. Therefore, developed interview questions were focused on teachers' specific experiences with SRL in the high school eLearning classroom, the barriers they faced, and suggestions for specific technology and training needs that would be beneficial for promoting SRL further. By asking teachers for personal experiences, I aimed to understand how high school teachers understand and find meaning in the impact of SRL within eLearning. I also hoped to learn about various strategies that have been the most effective, barriers to implementation, and participants' feelings regarding how SRL technology support can be improved for high school students participating in eLearning environments.

Appendix A contains detailed information on the interview protocol and the types of questions asked during the interview process. The interview protocol contains 10 open-ended questions related to the specific RQs and goals of the study. Interview questions asking how teachers have "seen self-regulatory skills impact student academic success in the eLearning classroom" connect with research question one asking how teachers are incorporating SRL instruction in the eLearning environment.

Procedures for Recruitment, Participation, and Data Collection

Convenience sampling was used to recruit participants from three separate school sites. The sites were chosen because, while the district houses 22 separate high schools, only three utilize eLearning as a consistent feature of the school. Hennink and Kaiser (2022) indicated that a researcher might choose convenience sampling when concerned about population size, timeframe, and accessibility. Therefore, a convenience sample allowed me to choose a specific number of teachers from each grade level with at least

one year of experience teaching high school students in an eLearning environment. This type of sampling brought value to the study by helping to gain useful information based on real-world experiences of the teachers.

Before participating, I received permission from the Walden University Institutional Review Board (IRB) to send a recruitment email to teachers asking for volunteers. After receiving permission, I posted an invitation to a local social media site asking for volunteers to email my Walden University student email account detailing the project criteria and asking for volunteers. I posted on the social media site every two weeks until I had enough participants who met the designated research criteria.

After verifying a participant's interest and that they matched the designated study criteria, I emailed selected participants the consent form to review. A copy of the consent form was included in Appendix C. Participants were given one week to review the consent form and respond to the email with "I Consent" indicating their approval. The interview was expected to take between 20 and 45 minutes to complete, and participants were given time before beginning the interview to indicate any additional questions or a need for clarification. All interviews took place via telephone or in person interview based on the preference of the participant.

Data collection began as soon as approval was received from the Walden University IRB. The day before completing the interview, each participant received a copy of the interview protocol and information about the expected length of the interview, the approximate number of questions, and a reminder of confidentiality and recording. Per Busetto et al. (2020), each interview was digitally recorded, and I also took

handwritten notes as a backup in case the recording failed. Each interview was transcribed both digitally and by hand to ensure accuracy.

The interviews took place over a five-month timeframe, and participants were given the opportunity to select times that were more convenient for them. Each participant was asked to participate in one interview throughout the study; however, they also received a follow-up email or phone call to ensure the accuracy of the transcription. Participants were also allowed to withdraw from the study at any point prior to publication without any further obligations. Participants who chose to withdraw from the study were replaced by other willing participants to ensure the appropriate saturation numbers were reached for accurate analysis. Upon completion, each participant received a thank you note or email as a sign of appreciation for participating in the study.

Data Analysis Plan

Based on the RQs, study design, and purpose of the study, a basic qualitative study using semistructured interviews was chosen. As such, the data analysis plan consisted of a thematic analysis process, usually meant to be applied to a set of texts, such as interviews and transcripts (Busetto et al., 2020). Through a thematic analysis, the researcher closely examines the data to determine common themes through patterns of repeating topics and ideas (Patton, 2020). Throughout the analysis method, I followed the six steps for analysis identified by Busetto et al. (2020). The steps include reviewing, organizing, and coding the data, applying emerging themes, reporting the findings, and ensuring the accuracy of the data through the validation process.

Step 1: Reviewing the Data

The first step of the analysis process is reviewing the data. This step includes reexamining the data to prepare for effective data analysis. As part of this process, I reviewed the data multiple times to ensure all transcripts were correct and confirmed that all responses were represented. Busetto et al. (2020) indicated that multiple reviews might be necessary to process the data effectively, and I included ten.

Step 2: Organizing the Data

The second step of the thematic analysis process was organizing the data efficiently. As I was able to collect a large amount of data, Busetto, et al. (2020) recommended organizing the data into clearly labeled files and keeping duplicate copies of the research in the event something happens to the computer. Nieman (2023) adds that developing a matrix with participants and transcript titles could also be useful; therefore, after each interview, I created a matrix that included the teacher, location, date, and time of the interview. I also transcribed each recording following the interview.

Step 3: Coding the Data

The third step included coding the data through a several step process. According to Busetto, et al. (2020), the first step in coding is to read transcripts thoroughly and make notes in the margins. The second step is to develop underlying meanings by thoroughly examining each document. The third step is to begin the process of coding by configuring text segments by topic, and, fourthly, to synthesize the codes to reduce them to a smaller number. Finally, a researcher should narrow the themes to 5 or 7 specific themes that provide a more detailed, descriptive portrayal of the topic. When analyzing the data, I

followed the same steps. To better identify and codify themes, I reviewed each transcript and manually conducted an open-coding procedure to identify and categorize the information shared by each participant. Saldaña (2021) suggested reading an in-depth review of all data and coding each item individually before moving to the next. In order to enhance the accuracy of the coding, I employed both a manual and digital analysis method.

To analyze and organize the data into themes, I used NVivo 14, a digital software that supports qualitative data analysis. NVivo 14 provides an organized and structured approach to managing data, ensuring that the analysis is systematic and rigorous (Feng & Behar-Horenstein, 2019). The software aids in coding and identifying themes and trends in previously unstructured data by highlighting key words and phrases from the interview transcripts. In the initial stages of analysis, I grouped similar and contrasting ideas, then assigned categories based on the emerging findings. The goal was to move from open coding toward more focused themes (Ravitch & Carl, 2016).

In this study, I first employed open coding to explore the data inductively by identifying new, unanticipated themes and patterns directly from the interview responses. This approach allowed me to break down the data into meaningful segments without being constrained by predefined categories (Ravitch & Carl, 2016). It helped ensure that I captured the full richness and complexity of the teachers' experiences, providing a comprehensive understanding of their perspectives. Following the initial open coding process, I then applied a priori codes derived from existing literature to examine how these predefined themes related to the emerging data. This combination of open and a

priori coding allowed for both the discovery of new insights and a comparison with established conceptual frameworks.

After completing the open and a priori coding, I employed axial coding to link the emergent themes and predefined codes into broader categories. Axial coding helped refine these themes by identifying relationships between them and organizing them into a more structured framework (Saldaña, 2021). This step helped to clarify the connections between various aspects of the teachers' experiences, resulting in more coherent categories.

Once the coding process was complete, I reviewed the transcripts to ensure all relevant data had been captured. I then cross-checked the codes for consistency and triangulated the findings by comparing data across multiple interviews to validate the identified themes. This triangulation process further ensured a comprehensive and accurate analysis (Saldaña, 2021).

Step 4: Applying Emergent Themes

According to Saldaña (2021), the next step in the data analysis process includes organizing the categories into themes based on relevancy to the research question. Once the data were collected and coded, it was necessary to analyze it for relevancy to ensure no outliers were included (Nieman, 2023). It was also necessary to analyze themes emerging from the data iteratively to develop a complete understanding of the research (Ravitch & Carl, 2016). Busetto et al, (2020) recommended reviewing the data when initial themes emerged to make notes and determine if early themes survived. I also included this process using a frequency table with a Venn Diagram to ensure initial

information is consistent with thematic findings.

Step 5: Report the Findings

The study findings were reported based on the themes found during step four. Results were organized based on the RQs. The report reflected themes regarding high school teachers' perspectives on effective strategies and practices for supporting self-regulation in eLearning environments.

Step 6: Validation

Thematic data analysis and data triangulation ensured that the qualitative information gained throughout this study was valid and objective. Data triangulation was accomplished through crosschecking multiple data sources including field notes and interviews. This final step was crucial in showing that the research had validity and ensuring participants' views were reported without researcher bias (Ravitch & Carl, 2016). All trustworthiness guidelines were followed to ensure trustworthiness and avoid researcher bias.

Trustworthiness

Trustworthiness in qualitative literature is used to appraise rigor and includes credibility, transferability, dependability, and confirmability (Adler, 2022). When considering a qualitative research design, there are several ways to achieve trustworthiness, including triangulation, audit trials, peer debriefing, and prolonged engagement (Nieman, 2023). Given the purpose and proposed data collection procedures for the current study, the best way to determine trustworthiness was to use triangulation of multiple sources, including field notes and interviews.

Credibility

Credibility in qualitative research includes prolonged engagement, persistent observation, triangulation, and member checking (Ravitch & Carl, 2016). Compared to internal validity in quantitative research, credibility provides aspects of truth and believability (Adler, 2022). Data were triangulated using field notes and interviews. Additionally, thick descriptions and member checking were used to add further credibility to the study. Member checks involved having the participants review the findings and interpretations of the researcher and allowing them to verify the accuracy of the conclusions (Saldaña, 2021). As part of the described study, member checks allowed participants to determine if their unique thoughts and experiences were accurately expressed through the findings.

Transferability

When considering transferability within a qualitative study, researchers are concerned with questions of generalizability. By focusing on issues of generalizability, a researcher can provide evidence that a study can be applied to other contexts, situations, times, and populations (Ravitch & Carl, 2016). The transferability in this study was intended to support teachers' perspectives of SRL in a high school eLearning environment. I accomplished this by providing rich, thick details when explaining the focus of the study to allow readers to determine the extent to which the results transfer to other settings.

Dependability

Dependability refers to data stability over time and conditions (Saldaña, 2021). To

ensure dependability throughout the study, I strictly adhered to the research protocols from the Walden IRB. To maintain the stability of the data, I asked all interview questions in the same order and only asked follow-up questions if there were clarity issues. Notes and recordings were also kept to share with participants as an added layer of precision checking.

Although the coding process was carried out systematically and aligned with the conceptual framework it is important to note that a formal codebook was not developed. This lack of a codebook may have introduced some variability in the application of codes that could impact the consistency of the coding process. However, efforts were made to ensure consistency through regular entries and reviews and reflections in a reflexive journal.

Confirmability

Confirmability in qualitative research is the act of ensuring that research findings are accurate and reliable. Throughout my study, I established confirmability through my neutrality by analyzing the data collected during participant interviews and not through personal convictions or perspectives. I ensured my neutrality through a reflexive journal in which I noted my personal experiences throughout the study and ensured that I was not allowing my beliefs and experiences to impact the research (Ravitch & Carl, 2016). An audit trail was established by clearly illustrating how the data were collected and analyzed, from developing the interview questions to reporting the findings (Busetto et al., 2020; Creswell & Creswell, 2021). Additionally, records were kept throughout the study to further show consistency and clarify the thinking and processes used.

Ethical Procedures

I first maintained confidentiality and anonymity by establishing and maintaining ethical procedures throughout the study. To alleviate ethical concerns before conducting the research study, I obtained permission from the Walden IRB committee before proceeding with participant recruitment and data collection. Before participating in the study, participants were given an electronic informed consent form and had the opportunity to ask any clarifying questions. To avoid confusion and ethical or legal issues, the informed consent agreement was designed and formatted to ensure clarity, conciseness, and ease of interpretation. Participants were reminded verbally and through the consent form that their information was confidential, and anonymity was maintained using fictitious names or initials when discussing the study results. Additionally, participants had the final say in how their anonymity was handled and reported throughout the study.

After conducting the interviews, participants were given access to a summary report in an easy-to-understand format to ensure they were familiar with the intended use of the data. Digital versions of transcripts were stored in a locked cabinet and on a password-protected computer. Audio versions of the interview were stored on a password-protected cloud-based account that could be accessed through a cell phone, with the option for the cell phone carrier to delete files if the phone is ever lost or stolen. Data collected during the interview process will be stored for five years and then destroyed.

There was no obligation to participate in the study as participation is strictly

voluntary, with participants having the option to withdraw from the study at any point during the process. This information was explained through the informed consent agreement form participants were given before deciding to participate. Additionally, all ethical procedures were outlined in an easy-to-understand method for participants with the option to ask questions for any sections that were not understood. While administrators were made aware of the study, no administrator was given information regarding any specific participants. Additionally, while I knew the names of the participants, I did not have an authoritative relationship with any of them, which could cause biased interpretations in the study.

Summary

To summarize, Chapter 3 is a detailed outline of the reasoning for the chosen basic qualitative study aligned with the research question and conceptual framework. The chapter reviewed the researcher's research design, rationale, and role. It also offered a detailed description of the participant selection, chosen instrument, and procedures for recruitment, participation, and data collection. With approval from Walden's IRB committee, I began the process of soliciting and selecting qualified participants. Chapter 4 will include the results of this study. It will outline a detailed description of the setting, data collection, and data analysis strategies and procedures.

Chapter 4: Results

The purpose of this basic qualitative research study was to explore high school teachers' perspectives on the barriers to successful SRL implementation within the eLearning environment and the technology training necessary to overcome barriers. The following RQs were used to guide the study:

- RQ 1: How do high school teachers perceive the importance of SRL instruction for students in an eLearning environment?
- RQ 2: What do teachers describe as barriers to implementing SRL instruction in eLearning environments?
- RQ 3: What do teachers perceive as technology training needs for overcoming barriers and incorporating SRL in eLearning environments?

To accomplish this, I explored 10 high school teachers' beliefs using a qualitative research design based on semistructured interview questions. An analysis of the interview yielded five themes. In this chapter, I will report the results of this qualitative study. It includes the study's results, including a description of the setting and participant demographics, an evaluation and analysis of the data collection process and results, an examination of the strategies used to address trustworthiness, and a presentation of the results in alignment with the research question with a detailed analysis of the conclusion.

Setting

The research site for this qualitative study was School District X that is in the southeastern United States. The 10 teachers interviewed in this study were full-time employees of District X and taught Grades 9–12 at five different district high school

sites. The district contains 15 different high schools with an enrollment of over 31,000 in Grades 9–12. All schools have eLearning classrooms; however, only one school is considered a fully online school.

Several organizational conditions may have influenced the interpretation of study findings, such as divergent leadership styles across different schools, disparities in staff training and support, and the extent of community engagement and parental involvement. Factors like budget constraints, district-wide initiatives, and the overall climate for innovation and collaboration within the school system could also play significant roles in shaping how the findings are understood and applied. Moreover, administrative turnover, differing school cultures, varying levels of resource allocation, and the dynamic nature of educational policies and initiatives underscore the importance of considering the broader organizational landscape when analyzing and applying the study's conclusions. As a result, participants may have different experiences with self-regulation in the high school eLearning environment.

Demographics

The participants for this study included 10 high school teachers in Grades 9 through 12 from five different school sites in the southeastern United States (see Table 2). All participants were either a Grade 9 through 12 general education or special education teacher. All the teachers taught in the southeastern United States and had at least 1 year of teaching experience in an eLearning environment. The teachers included three math teachers, three English teachers, two history teachers, one science teacher, and one interrelated special education teacher. Nine of the participants were female, and one

was male.

All participants have experience teaching in an eLearning environment for at least 1 year and have used various methods to support self-regulation in a digital learning environment. Participants described a wide range of experiences with eLearning and SRL integration. They also described various abilities to change the prescribed curriculum. All participants worked for public high schools in the southeastern United States; however, the type of eLearning varied. For example, P1, P2, and P6 taught in a structured eLearning environment where students were required to log in at designated times, modeling a standard school day with 4 class periods. Participants P3, P4, P5, P7, P8, P9, and P10 taught in a less structured eLearning environment where students completed courses self-paced. Some participants were more familiar with SRL and SRL strategies than others.

Table 2

Participant Demographics of Experience, Current Position, and Subject(s) Taught

Participant Pseudonym	# of years taught	Current Position	Subject(s) taught
P1	4	Teacher/ Department Chair	Math
P2	10	Teacher/ Department Chair	History
P3	6	Teacher	English
P4	9	Teacher	Science
P5	7	Teacher	English
P6	4	Teacher	Special Education/ Math
P7	1	Teacher	History
P8	10	Teacher	Math
P9	4	Teacher	Math
P10	6	Teacher	English

Data Collection

I received IRB approval on November 28, 2023, for this study (#11-28-23-

1093701) and began data collection soon afterward. For this qualitative study, I collected data from one-on-one interviews with participants. I conducted a total of 10 individual interviews either in person or over the phone based on each participant's preference using the interview protocol described in Chapter 3. I audio-recorded using a password-protected otter.ai account. Interviews ranged between 13–23 minutes. No unusual circumstances occurred during the collection process unless explicitly stated.

Interviews

The interview with P1 occurred on December 9, 2023, and lasted 13 minutes. My next interview was with P2 on December 11, 2023, lasting 14 minutes. My third interview was held with P3 on December 12, 2023, lasting for 23 minutes. I interviewed P4 on December 13, 2023, which lasted for 16 minutes. The P5 interview occurred on December 14, 2023, and lasted 15 minutes; however, the interview was interrupted by a fire alarm five minutes into the interview. The participant was distracted momentarily but chose to continue the interview and was able to finish answering all questions. I interviewed P6 on January 31, 2024, for 19 minutes. The interview with P7 occurred on February 10, 2024, for 15 minutes. The interview with P8 occurred over two days at the participant's request. The first part was on March 19, 2024, and the second was on March 26, 2024. Both interviews lasted a total of 22 minutes. P9 was interviewed on March 26, 2024, and the interview lasted 13 minutes. Finally, P10 was interviewed on April 3, 2024, and the interview lasted for 17 minutes.

Interviews occurred between December 9, 2023, and April 3, 2024, and ranged between 13–23 minutes. All interviews were scheduled and conducted separately, either

in person or over the phone, based on each participant's preference. During Round 1, the interviews were recorded and transcribed using my personal password-protected account on the otter.ai website. The interviews were recorded as they were happening in the otter.ai system, which transcribed the recordings into a synchronized file by matching the text to the speaker. After the otter.ai tool was finished, the transcripts were downloaded to a password-protected computer file on my personal computer, and I reviewed them for correct speaker identification. I also reviewed to correct any digital transcription errors in wording or grammatical structure and to redact identifying speaker characteristics, such as names and places of employment. Additionally, I edited the transcription to enhance readability by removing placeholder verbiage such as "um," "ok," "like," and "you know," as well as repetitive words. Participants were allowed to provide clarification and additional thoughts during Round 2. I kept records of all interview times and dates scheduled for each participant.

Member Checking

After transcribing and summarizing the interviews, a one-two-page collective summary was emailed to each participant separately for member checking. After acknowledging receipt of their summary, each individual member was allowed to provide feedback on the summary provided (Ravitch & Carl, 2016). The collective summary included how that participant's data contributed to the study themes. It also allowed me to ask follow-up questions about specific areas in which I needed clarification. I heard back from all but one participant.

To prepare the transcripts for data analysis, I began by recording and transcribing

the interviews using otter.ai, an online audio recording and transcription service. Once the initial transcriptions were generated, I meticulously cleaned and verified each one by listening to the audio recordings and comparing them to the text. This process involved correcting any discrepancies, removing placeholder language, and eliminating repetitive phrases to ensure accuracy.

Data Analysis

I used a basic three-stage thematic analysis approach that King and Horrocks (2010) recommended for qualitative research. This system includes (a) descriptive coding, (b) interpretive coding, and (c) overarching themes. As stated in Chapter 3, I had intended to use Busetto et al. (2020) six-stage approach to data analysis; however, as I completed data collection and began the analysis, it became apparent that King and Horrocks' three-stage method and subsequent recommendations for template coding by King (2012) were more closely aligned with the process I was using.

King and Horrocks (2010) suggested highlighting key information from transcripts during the descriptive coding stage, making preliminary comments, and defining descriptive codes. In the interpretive stage, descriptive codes are clustered, and then interpreted based on the initial interview questions. Finally, themes are developed by analyzing interpretive codes the framework, which for this study was Bandura's (1989) social cognitive theory and Zimmerman's (1986) model of SRL. King and Horrocks' data analysis method fit well with this basic qualitative study. It provided a method for addressing the purpose and answering the RQs on exploring teachers' perceptions of the barriers to implementing SRL and the technology and training needs required to

overcome barriers to incorporating SRL within an eLearning environment.

Additionally, as stated in Chapter 3, my initial plan was to begin with a priori coding, followed by open and axial coding; however, as I began reviewing the data, I found that I needed to adjust my approach to achieve a more holistic, interpretive understanding of the data. While I started with a priori codes derived from existing literature to guide the initial analysis and incorporated these codes throughout the analysis process, I also expanded the coding approach to include descriptive coding, interpretive coding, and the identification of overarching themes. The a priori coding, based on established theories and literature, provided a structured framework for categorizing the data. However, as I began analyzing the data, I recognized the need to explore it more inductively. According to Saldaña (2021), descriptive coding allows for labeling the data with simple, neutral terms, capturing broad concepts without imposing too much interpretation. Interpretive coding enabled an examination of the context behind participants' responses, while thematic coding helped synthesize these elements into broader themes. This combination of descriptive, interpretive, and thematic coding provided a clearer picture of the teachers' perceptions and experiences. By integrating these methods with the a priori codes, which grounded the analysis in established frameworks, I ensured that the richness of the data was fully explored. This flexible approach, incorporating deductive and inductive strategies, resulted in a more nuanced and interpretive understanding of the findings.

a Priori Coding

In the first stage, I applied a priori coding, drawing on existing theories and

literature, particularly Bandura's social cognitive theory and Zimmerman's model of SRL. The a priori codes were organized in the code tree under the main categories, with subcodes representing specific concepts derived from the literature, such as "goal setting," "motivation," "organization," "feedback," "modeling," and "choice." To facilitate the coding process, I used a color-coded document in Microsoft Word to highlight and assign a distinct color to each code. This allowed for easy identification and tracking of relevant sections within the data as I systematically highlighted passages that aligned with the predefined codes. By color-coding the text, I was able to visually organize the data, making it easier to compare and contrast the different conceptual concepts while ensuring consistency and clarity in the coding process.

After identifying the relevant passages, I mapped them to specific categories in the code tree, where each code was linked to the corresponding categories based on the conceptual concepts. This structured approach in the code tree helped to maintain a clear hierarchy and organization of the data. To verify the accuracy and reliability of the coding, I used NVivo 14 software, which enabled me to cross-check and refine the categories, ensuring that the coding was consistent and aligned with the original conceptual framework.

Descriptive Coding

Once the a priori codes were established and applied to the data, I transitioned to the descriptive coding process. Descriptive coding is an inductive approach that allowed me to label data with simple, neutral terms that directly reflect the content of the participants' responses, without adding deeper interpretation or conceptual constructs at

this stage (see Ravitch & Carl, 2016). To manage the large volume of data, I used NVivo 14 to facilitate the organization and coding of the data electronically. The software allowed me to create nodes for each of the descriptive codes, making it easier to sort and retrieve specific passages across multiple interviews.

I simultaneously worked with printed transcripts, using highlighters to visually mark relevant excerpts on paper. This combination of digital and manual methods helped me stay grounded in the data while also leveraging NVivo's analytical tools to streamline the coding process. This descriptive coding process involved highlighting and tagging key phrases or passages from the interview data that captured broad ideas or key points, such as "organization," "resource integration," "academic integrity," "technology proficiency," "self-starters," "calendars," "communication," "parental expectations," "cultural resistance," "lack of training," "curriculum rigidity," "limited resource knowledge," "lack of resource autonomy," "monitoring tools," "resource integration," "home to school communication gaps," or "student engagement."

Using NVivo 14 qualitative data analysis software, I organized the data into thematic clusters grounded in participants' own words, with the initial descriptive codes serving as a starting point for deeper analysis. Each code represented a distinct segment of data that captured a specific idea or concept expressed by the participants, helping to clarify the content and context of the interviews. Descriptive coding enabled me to group and organize the data in a way that more closely aligned with the teachers' experiences, revealing patterns in their responses.

Throughout the process, I also used a reflexive journal to document every change

and its rationale, creating a transparent audit trail. In this journal, I regularly reflected on my own biases and considered how they might influence the coding process. This reflective practice helped me to identify any potential areas where personal assumptions or preconceived ideas could impact the analysis, ensuring that I remained objective and transparent in my coding decisions. The journal also allowed me to track the evolution of my thinking throughout the research process and provided a space for critical reflection on my analytical choices.

Reliability measures were also implemented to enhance the consistency and trustworthiness of the coding process. I regularly reflected on my thought process and coding decisions in a reflexive journal to track any changes or insights that emerged during the analysis. To further enhance reliability, I also engaged in member checking by sharing a summary of the codes and preliminary findings with participants to ensure the accuracy of the interpretations. This step helped confirm that the codes and categories accurately reflected the participants' experiences and perspectives.

By using this process, I built a comprehensive structure of data groups that reflected the teachers' perspectives without prematurely imposing interpretations. Descriptive coding served as a critical first step in preparing the data for deeper analysis, providing a clear and organized foundation for the later stages of interpretive coding and theme development. Through this method, I ensured that the data were managed systematically, while allowing space for the emergence of new insights and concepts directly from the data itself (Saldaña, 2021).

Interpretive Coding

As I transitioned from descriptive coding to interpretive coding, the goal was to deepen my understanding of teachers' perceptions and experiences related to SRL. While descriptive coding helped further categorize the data into manageable chunks and capture the broad content of participants' responses, interpretive coding allowed for a more nuanced exploration of the underlying categories that emerged from those responses.

According to Saldaña (2021), interpretive coding is a more analytic process that goes beyond simply categorizing data into themes or concepts; it involves interpreting the meaning behind the data and making sense of the connections between various codes. At this stage, I began to analyze the descriptive codes to uncover relationships and deeper insights into teachers' views on SRL and how these perceptions aligned with the conceptual frameworks I had applied earlier, particularly Zimmerman's model of SRL and Bandura's social cognitive theory.

I also continued to reference the descriptive codes within NVivo 14 throughout this process, which allowed me to revisit the original coding structure and maintain a clear connection between the descriptive codes and the emerging interpretive categories. NVivo's functionality made it easier to track these connections and ensure that new insights were aligned with previous coding decisions. Overall, 16 categories were created by grouping together related codes based on these emerging patterns.

As I continued with interpretive coding, I went back to the reflexive journal to ensure that preconceived ideas did not overly influence my interpretations. This journal allowed me to track how my thinking had evolved and whether my interpretations were

consistent with the data. I also revisited the reliability measures I had taken earlier to ensure that my interpretations were valid and reflected the teachers' true experiences without introducing unintended bias.

By moving to interpretive coding, I was able to take the foundational structure of descriptive codes and build upon it with more conceptual analysis and interpretation. The process was iterative and flexible, allowing me to adjust the coding and categories as new insights emerged from the data. To further explore these patterns and uncover the core ideas within the data, I then moved to thematic analysis, which enabled me to identify and refine the overarching themes that captured the key aspects of teachers' beliefs and practices.

Thematic Coding

After completing the interpretive coding phase, where I delved into deeper patterns and categories in the data, I transitioned into thematic coding**,** the final stage of the data analysis process. In thematic coding, I began synthesizing the various interpretive codes and categories into broader themes that could capture the key findings and provide a holistic understanding of the data. This phase required moving from individual codes and categories to drawing conclusions about the overarching patterns and structures that emerged across all interviews.

First, the transition from interpretive to thematic coding involved carefully examining the categories I had developed during the interpretive phase. These categories were groupings of related codes representing common ideas or behaviors observed in the data. I reviewed these categories holistically to identify six key themes supported by a

strong cluster of related data.

The second step was grouping the interpretive codes and categories into coherent themes that captured the central aspects of the teachers' experiences and their understanding of SRL. As I began organizing these categories, I noted how some were more closely related and could be clustered under an umbrella theme. This clustering process was guided by both the conceptual frameworks and the emerging patterns in the data. It allowed me to draw meaningful connections between the categories that highlighted central themes in the data.

The third step involved iterating through the data again, refining the themes based on the frequency and significance of the patterns I observed. This process involved looking at how often certain patterns occurred and how important those patterns were to the overall analysis. By doing so, I ensured that the themes were not only broad enough to cover all relevant aspects of the data but also accurately represented the key insights from the data in a meaningful and appropriate way. According to Ravitch and Carl (2016), the iterative process helps to fine-tune the themes so that they best reflect the actual content and significance of the data. The fourth step involved connecting these themes to the RQs and the literature that guided the study. Each theme was analyzed in relation to the conceptual frameworks and the broader context of existing research on SRL.

The final step involved ensuring that the themes accurately represented the participants' experiences and perceptions, I used several validation strategies. One key measure was member checking, where I shared the emerging themes and key findings

with participants to ensure the accuracy and resonance of the themes with their lived experiences. I also revisited the reflexive journal to ensure the theme creation process was transparent and free from researcher bias.

After the data analysis was complete, I had 35 codes organized into 16 categories and six themes aligned to the RQs. These themes captured the important aspects of teachers' perspectives on SRL. I ensured that the themes were robust, consistent, and meaningful through member checking, iterative refinement, and reliability measures.

Results

In this section, I have organized the results by research question. I included the codes, themes, and participant quotes for each research question. Descriptive codes, interpretive codes, and overarching themes were acquired inductively based on analysis of participants' responses to the research questions.

Research Question 1: SRL Instruction

The first RQ1was about how high school teachers perceive the importance of SRL instruction for students in an eLearning environment. To address this question, teachers were asked to reflect on their observations of students who exhibit strong SRL attributes compared to those who do not within the high school eLearning context. Through data analysis, I identified two predominant themes that address this research question. The subsequent discussion is structured around these emergent themes.

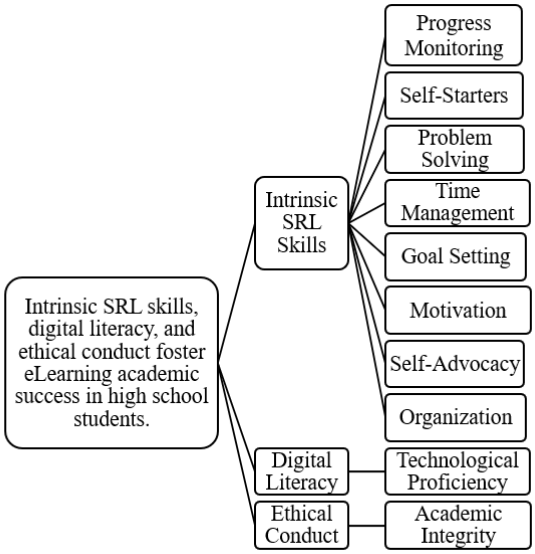
Theme 1: Intrinsic SRL Skills, Digital Literacy, and Ethical Conduct Foster eLearning Academic Success in High School Students

The first theme to answer RQ1 was that high school teachers believe intrinsic

SRL skills, digital literacy, and ethical conduct foster eLearning academic success in high school students. High school teachers increasingly acknowledge SRL's critical role in students' success within eLearning environments. This theme encapsulates high school teachers' perceptions of the intertwined importance of intrinsic self-regulation, digital literacy, and ethical conduct in fostering effective and integrity-driven online learning. Figure 1 shows the categories and codes for this theme. Three categories make up this theme and a total of ten codes.

Figure 1

Code Tree for Theme 1



Intrinsic SRL Skills. The first category for this theme was intrinsic SRL and comprised eight codes. All 10 participants contributed to this category. Teachers emphasized that intrinsic self-regulation was foundational for student success in eLearning. It involves students' ability to set goals, monitor their progress, and adjust

their strategies to achieve academic objectives. Participants believed that without physical classroom structures, students with strong intrinsic SRL skills are better equipped to manage their time, stay engaged, and persevere through challenges unique to the digital learning environment.

Progress Monitoring. Through an analysis of the data, four out of 10 participants (P2, P5, P9, and P10) contributed to the first code, progress monitoring. Participants described progress monitoring as a vital intrinsic SRL skill for online learning as it helps students stay on track with their goals and assignments. P2 reflected on how the most successful students in her course can regularly assess their progress, identify areas where they need improvement, and make necessary adjustments to their study habits as the semester progresses. They indicated that their most successful students were not necessarily those who started the semester with the best grade but those who could adjust as the semester progressed. This proactive approach ensured they remained focused and motivated, leading to better academic outcomes and a more structured learning experience. Similarly, P5 indicated, “Even when I have students who are low performers, if they’re monitoring their work…they have that time to go back and redo. In this way, they often outperform my naturally higher performing students.”

P9 and P10 noted a similar experience with their students and advocated for adding a “progress monitoring” section to their digital classrooms. This section would provide guiding questions to students as they progress through each unit and prompt them with the next steps based on their answers.

Self-Starters. Further data analysis revealed a code I called, self-starters,

identified by seven out of 10 participants (P1, P3, P4, P5, P6, P9, and P10). According to participants P3 and P6, being a self-starter is a crucial intrinsic self-regulation skill for learning, as it empowers students to take initiative and engage proactively with their coursework. P6 emphasized the importance of self-starting for high school students, stating: “Being a self-starter in the classroom is essential for high school students especially; it helps to foster independence and encourages active engagement with whatever I’m teaching.”

Other participants (P1, P4, P5, P9, and P10) highlighted that self-starting is particularly vital in a digital learning environment, where the absence of traditional classroom structure requires students to effectively manage their time, set goals, and stay motivated. This was emphasized by P10 when stating:

> I think being a self-starter is even more important in an eLearning classroom than a regular classroom because students have to independently manage their time, navigate online resources, and stay motivated without the direct oversight and structure typically provided by a teacher standing over them.

Participants perceived this autonomy as enhancing their students’ learning experience and fostering a sense of responsibility and independence crucial for academic success. For instance, P1 underscored the importance of self-starting in a digital learning environment by stressing the need for students to integrate digital literacy with curriculum, understanding that:

> Students need to be self-starters. They need to be independent workers and learners. They need to understand how technology works, so they can schedule

> their work time… If they're being successful in the eLearning environment, they are able to work independently. They're able to problem solve with technology.

Participants consistently indicated that students in a digital learning environment must be self-starters to navigate the curriculum and the digital tools effectively. P3 noted the necessity of self-governance for students working in such settings. P4 and P5 both asserted that students must take ownership of their education by engaging proactively with their coursework and seeking guidance when necessary.

Problem Solving. Another code that was developed was problem solving, with seven out of 10 participants (P1, P3, P4, P5, P6, P9, and P10) contributing to this code. Participants perceived problem-solving as an intrinsic SRL skill of major importance in an eLearning environment. They highlighted that problem-solving empowers students to navigate the complexities of digital platforms and the multifaceted nature of online learning. P1 indicated that successful students in an eLearning environment could "problem solve with technology." Participants noted that without immediate access to in-person support, students must develop robust problem-solving abilities to address challenges that arise in real-time. P3 reflected on a lack of problem-solving skills when reflecting on the following:

> There is a lack of independence and just taking the initiative…I noticed that students as soon as they get to a challenge or something that they're unfamiliar with, then the option is just not to do it, versus trying to figure out how to do it.

P5 also mentions noticing a lack of problem-solving skills in students when mentioning that they need problem-solving skills "because a lot of times students will just come to a

dead stop. They look for an excuse not to do their work."

According to participants, the iterative process of identifying issues, generating potential solutions, and evaluating outcomes is critical in sustaining academic momentum and ensuring continuous engagement with the curriculum, especially in a digital environment. For example, P4 explained the importance of problem-solving for resources when mentioning that students "need to know how to find resources that'll help you get through whatever you need to get done whether it's content or technical skills."

Participants further emphasized that effective digital problem-solving enhances students' ability to adapt to new technologies and learning modalities, cultivating a resilient and resourceful mindset. P6 described problem solving as being solution-focused when mentioning:

> Students who get frustrated with their learning have to go out and search for more. They cannot just give up if it's a difficult situation. That's why research skills are important. Students need to know how to look for and find the answers they need…They have to solve their own problems sometimes, especially if they are working outside of office hours. They don't always have time to wait for a response.

Therefore, according to participants, by internalizing problem-solving strategies, students have the potential to improve their immediate academic performance in an eLearning environment. P10 reflected on this when mentioning, "In a digital learning environment, internalizing problem-solving strategies is essential; without direct teacher support, students must be able to independently navigate technical challenges and find solutions to

keep their learning on track."

Participants shared that this capacity for autonomous problem resolution was integral to students' overall success in eLearning environments, where self-regulation is a key determinant of educational attainment. Consequently, participants advocated for the deliberate integration of problem-solving skill development within eLearning curricula to prepare students for digital education's dynamic and often unpredictable landscape. P9 explained this by stating:

> Incorporating problem-solving strategies into the curriculum is so important in eLearning because students don't have the physical presence of a teacher. I don't know what that would look like exactly, but I know these skills are important because they can empower students to independently tackle any challenges they come across.

Time Management. Another code in the category of intrinsic SRL skills, was time management. Four out of 10 participants (P1, P2, P5, and P7) helped to develop this code. Overall, teachers perceived time management as a critical intrinsic SRL skill in an eLearning environment, underscored by its fundamental role in shaping students' academic success and overall learning experience. For example, P2 reflected on the importance of time management when saying, "I think the primary skill set to be successful for any student online is going to have to be time management." The participants emphasized that effective time management enables students to structure their learning activities efficiently amidst online education's flexibility and potential distractions. For example, P5 expressed concerns with how students manage their time

online by stating,

> Many students struggle with time management in a digital classroom because they lack the structure of a traditional setting. Without proper time management skills, they often fall behind on assignments and find it challenging to keep up with the pace of the course. Developing these skills is essential for their success in a digital learning environment.

Other participants defined time management skills as essential for maintaining focus, meeting deadlines, and maximizing productivity without direct classroom supervision. P1 explained,

> Without the direct supervision and structured schedule of a traditional classroom, many students struggle to stay organized and prioritize their tasks, which ultimately causes them to fail or just not do as well as they could have if they took the class in another environment where a teacher was keeping track of the schedule for them.

Participants highlight that proficient time management fosters students' autonomy and responsibility, encouraging them to prioritize tasks, allocate sufficient study periods, and sustain engagement with course materials independently. Teachers stress that in eLearning settings, where the pace and rhythm of instruction can vary widely, students with strong time management skills are better equipped to adapt to asynchronous learning formats and manage multiple assignments concurrently. For example, P7 mentioned the following:

> Good time management really helps students become more independent and

> responsible. It lets them prioritize specific tasks and classes. The pacing and expectations in an online class can vary a lot depending on the teacher and the class structure. Students with strong time management skills just seem to handle the asynchronous format much better.

Moreover, some participants advocated for the deliberate integration of time management skill development within eLearning curricula to equip students with the tools necessary to successfully navigate the complexities of online education. This is supported by P1 when mentioning,

> The eLearning classroom does provide those students the opportunity to work at their own pace, but even working at their own pace, I see their greatest deficiency still is in time management…I think we could include something in within the platform or the class itself to help better. Some classes already have something, and I think it helps.

The participants emphasized that fostering robust time management skills within the curriculum enhances students' academic outcomes and prepares them for the dynamic and self-directed learning environments characteristic of contemporary eLearning landscapes.

Goal Setting. The code of problem-solving was evident in six out of 10 participants (P1, P2, P5, P6, P8, and P10). Participants perceived goal setting as a fundamental intrinsic SRL skill in an eLearning environment, integral to fostering students' academic success and personal growth. This was supported by P1 when mentioning, "If they're being successful in the eLearning environment, they can work

independently. They're able to … set goals and work towards each one of those goals in a timely manner." Participant interviews revealed that goal setting is important in providing structure and direction to the learning process, particularly due to the self-directed nature of online education. This skill helps students establish clear objectives, prioritize tasks, and maintain focus amidst eLearning's inherent flexibility and potential distractions. P10 supported this when mentioning the following:

> It's really important for students to set clear goals. There are a lot of opportunities for students to lose focus and get sidetracked, especially since they aren't being monitored in the same ways they would be in a traditional classroom, so students who can set goals tend to be able to prioritize assignments and stay focused better than their peers who don't.

Participants emphasized that effective goal setting enhances students' ability to manage their time and resources efficiently. P5 reflected on how goals help students utilize their time more effectively when considering how students approach late work,

> And so, if you wait too long then all of a sudden, you have 20 assignments that are due on the last day, so definitely monitoring and setting goals along the way helps students watch their schedule. That way they don't have to rush at the end of the semester.

Participants also highlighted the motivational benefits of goal setting. According to P2, students who were able to establish clear goals had a sense of purpose and direction that helped to enhance their intrinsic motivation and engagement with the coursework. This was explained by P2 when mentioning,

> We provide enough resources up front in the course shell for them to ascertain the goals. They know what's expected, so they can create their own goals and monitor their own progress. I think in a lot of ways the eLearning classroom makes creating goals and staying motivated easier because they can see everything up front.

Achieving set goals helps to build students' confidence and self-efficacy, reinforcing their belief in their ability to succeed. According to participants, this positive reinforcement cycle is essential for sustaining long-term commitment and perseverance in the eLearning environment. P8 explains this in the following way:

> In an online learning environment, it's so important for students to set goals. I can tell that students that are able to achieve their goals have a boosted confidence and they tend to feel more successful, which in turn helps them stay persistent and committed to their studies. They are willing to take more risks, and it also helps to guide them as they are working, so they know what questions to ask if they do get stuck.

Participants also recognized the importance of adaptive goal setting that allowed students to adjust their objectives in response to changing circumstances and challenges. This flexibility is particularly vital in online education, where students may face varying difficulty levels and unexpected obstacles. For example, P6 describes the ability to adjust goals when explaining,

> It's not just about creating goals. Students really need to know how to adjust their goals when they don't work. They are high school students. A lot of them know

> they need goals, and they might create them naturally, but they don't really have the experience to know what good goals are, so a lot of their goals need to be changed and adjusted when they aren't met.

Overall, participants viewed goal setting as a crucial SRL skill that reinforces successful eLearning experiences and emphasized its role in enhancing time management, motivation, and adaptability.

Motivation. A code titled, motivation, was present in seven out of 10 participants' interviews (P1, P2, P4, P6, P7, P8, and P10). Participants perceived motivation as an essential intrinsic SRL skill in an eLearning environment, crucial for driving student engagement, persistence, and overall academic success. P1 sums it up nicely when summarizing their interview in the following words, "My big thing would be self-motivation. If students are motivated, they will be successful no matter what other skills they may or may not have." Participants consistently underscore the pivotal role of motivation in enabling students to navigate the self-directed nature of online learning. Like P1, P4 explained, "In terms of skills, all they really need is the ability to have self-motivation." Participants agreed that, unlike traditional classroom settings, eLearning environments lack immediate physical oversight, making internal motivation a key determinant of student performance and retention. P6 clarified the importance of internal motivation in the eLearning environment in the following way:

> A lot of times, students end up in my online class because they already failed a traditional class. If they didn't have the motivation to be successful in a traditional classroom where there is more external motivation from the teacher, then they

> usually aren't motivated to be successful online where they have to motivate themselves without the teacher.

Participants noted that motivation in an eLearning context encompasses intrinsic and extrinsic elements, with intrinsic motivation being particularly significant. For example, P10 noted,

> To me, the most successful students are the ones who are self-motivated. Yes, I can offer rewards and stuff to externally motivate them, and I definitely do, but ultimately, I'm not there in front of them the way I am with my regular classroom students. The students either have it or they don't. I can't teach them to be motivated. I can support it, but I can't teach it, so that natural motivation is so important in an online class.

Intrinsic motivation, driven by students' personal interests, goals, and the inherent satisfaction of learning, is vital for sustaining long-term engagement with coursework. Participants emphasized that intrinsically motivated students are more likely to proactively seek out resources, participate in discussions, and persist through challenges, thereby fostering deeper understanding and mastery of the subject matter. P2 explained,

> In eLearning, students really benefit from being self-motivated. They have to want to go searching for extra resources… They have to ask questions and work with their classmates. I have an online discussion section for students to ask their classmates questions, but most don't even use it. They just give up and don't do the work when they don't understand. They can't do that though. They have to be motivated enough to use their resources.

Additionally, participants highlighted that motivation is closely linked to other SRL skills such as time management, problem-solving, and goal setting. P7 succinctly summarized student motivation by saying, “In eLearning, students who are self-motivated really shine. They know how to manage their time, stay on top of things, solve problems without just running to the teacher, and they set goals that help them stay focused on being successful.” Overall, participants perceived intrinsically motivated students as those who are more inclined to effectively manage their time, tackle problems independently, and set achievable academic goals. This interdependence underscores SRL’s holistic nature, where motivation is the driving force behind the successful application of other regulatory skills. P8 reinforces this when they mention, “Motivation is the most important thing. It is what determines a student’s ability to be successful more than anything else.” Overall, the participants viewed motivation as a foundational skill that underpins successful eLearning experiences. They advocated for deliberate pedagogical strategies that cultivate and sustain student motivation, and they recognized its critical role in enabling students to thrive in digital learning contexts.

Self-Advocacy. Self-advocacy, was a code present in three out of 10 participants (P3, P5, and P8). Teachers perceive self-advocacy as an intrinsic SRL skill for ensuring students’ academic success and personal empowerment. For example, P3 emphasized the pivotal role of self-advocacy in enabling students to navigate the self-directed and often isolated nature of online learning when mentioning:

> You have to be able to advocate for yourself. You need the discipline to reach out to your instructors and ask questions.... In an online class, you don’t have the

> teacher standing over you, so you need to know how to reach out appropriately and with enough time to get an answer before the assignment is due.

Without the immediate physical presence of instructors and peers, students must be able to articulate their needs, seek support, and assert their learning preferences to thrive in digital educational settings.

Participants mostly focused on the self-advocacy skills of effective communication with instructors and peers and students recognizing when they need help. They stress that students who advocate for themselves are better equipped to address challenges proactively, whether pertaining to academic content, technical issues, or personal circumstances. P8 was especially concerned with the personal circumstances when they discussed the lack of relationship-building within an eLearning environment.

> I love teaching online, but it's much harder to build relationships with the students. I want them to feel comfortable enough to reach out when they need help with their assignments or when they are having technical issues, but I also want to hear when they are struggling with their mental health or with family issues. Learning online can be very isolating, and I don't know that my students always understand they can talk to me about all their problems, not just academic ones.

This proactive approach from the teachers helps to mitigate potential barriers to learning and enhances students' ability to achieve academic success in an eLearning environment.

Participants also underscore the importance of self-advocacy in fostering a sense of agency and autonomy among students. By taking responsibility for their learning

experiences and actively seeking assistance when needed, students develop a greater sense of control and ownership over their education. P5 emphasized that students needed to "be able to advocate for yourself and have the discipline to reach out to your instructors and ask questions." This empowerment is particularly vital in an eLearning environment, where the absence of immediate oversight necessitates a higher degree of self-reliance and initiative. Overall, all three participants viewed self-advocacy as a fundamental SRL skill in an eLearning environment, crucial for enabling students to navigate challenges, assert their needs, and take ownership of their learning.

Organization. The last code in the category of intrinsic SRL skills was organization, with five out of 10 participants (P4, P5, P7, P9, and P10) contributing to this code. Teachers perceived organization as an important intrinsic SRL skill in an eLearning environment, fundamental to fostering students' academic success and enhancing their overall learning experience. Based on participant interviews, it was revealed that the inherent structure of the high school eLearning environment often lacks the physical and temporal boundaries of traditional classrooms; therefore, they necessitate a higher degree of organization. For example, P7 explained the importance of organization in the following way:

> In a digital classroom, you have to juggle your coursework, stick to deadlines, and balance school with everything else going on in your life. Students who are naturally organized can set up schedules, prioritize what needs to be done, and tackle their responsibilities in an orderly way. That way they don't end up procrastinating or feeling overwhelmed.

According to participants, students who are more intrinsically organized in an eLearning environment find it easier to navigate their coursework, adhere to deadlines, and balance their academic responsibilities with other personal commitments. P9 explained organization was important in avoiding task overload in the following way:

> It's so easy for students to get buried under a pile of tasks if they're not careful. There are deadlines sprinkled throughout the class, but no one is there to make sure they are logging in on a daily basis and actually turning in the work, so a lot of them get behind.

Both P7 and P9 believed that effective organizational skills enable students to create and maintain schedules, prioritize tasks, and systematically approach their studies, thereby mitigating the risks of procrastination and feelings of being overwhelmed.

Other participants mentioned the importance of organization in general. For example, P4 explained:

> Organization is important no matter the type of class. In a regular classroom, you keep notebooks or binders … and you need to keep track of your papers and when things are due. It's the same in a digital classroom. Students still need to be able to organize their files so they can find them when it's time to turn them in. They need to know how to save and label assignments correctly. Some students really struggle with that, but some just do it.

Participants emphasized that effective organizational skills help students systematically arrange their learning materials, prioritize tasks, and maintain a structured approach to learning. This systematic management is particularly crucial in eLearning environments,

where the physical cues and structured timelines of a traditional classroom are absent. P10 further emphasized this when saying,

> In an eLearning setup, there's no teacher constantly looking over your shoulder, so it's easy to put things off. That's why staying organized is crucial. You need to set your own schedule and stick to it, or you'll end up procrastinating and falling behind.

According to participants, by keeping track of deadlines and categorizing resources, students can avoid the confusion and procrastination that often accompany the flexible nature of online learning.

Additionally, participants emphasized that organization is closely linked to other SRL skills such as time management, goal setting, and motivation. Organized students are better able to allocate appropriate time to their tasks and set and achieve realistic goals. Moreover, teachers stress the motivational benefits of maintaining an organized approach to eLearning. P5 emphasized this point when mentioning:

> In an eLearning classroom, staying organized helps you manage your time better and set realistic goals you can actually achieve. Plus, it keeps you motivated because you can see your progress and know you're on track. Without a teacher there all the time, it's up to the students to keep things in order or to reach out when they need help.

According to participants, maintaining an organized learning environment can reduce cognitive load, allowing students to focus more on understanding and engaging with the content rather than managing logistical challenges. This clarity and structure can

significantly enhance students' intrinsic motivation, leading to more consistent and productive study habits. This was further emphasized by P10 when explaining:

> In an eLearning classroom, having an organized learning structure and a good technical platform is super important. But… even if everything is set up perfectly, you still need to stay motivated and keep yourself organized. The best setup won't help if you don't put in the effort to keep on top of things yourself.

Participants recognized that the development of organizational skills, including the ability to manage information, resources, and time effectively, is a critical competency in an increasingly digital world.

Ethical Conduct. Another category related to the theme was ethical conduct, which was made up of one code. Two out of 10 participants (P2 and P4) contributed to the development of this category and code. Overall, participants perceived ethical conduct as essential in a high school eLearning environment for maintaining the integrity of the educational process and fostering a trustworthy and respectful learning community. They emphasized that ethical conduct in eLearning is vital for upholding academic standards and ensuring that assessments accurately reflect students' knowledge and abilities. Participants highlighted that the virtual nature of eLearning environments can sometimes make it easier for students to engage in unethical behaviors, such as plagiarism or cheating. Therefore, they stressed the importance of students developing strong internal ethical frameworks to guide their actions.

Academic Integrity. Based on an analysis of the data, the code related to the category of ethical conduct was academic integrity. Two out of 10 participants (P2 and

P4) contributed to the development of this code. Participants perceived academic integrity as integral to maintaining the credibility and quality of education in an eLearning setting. According to P2, “Online learning does open itself up for a negative skill set to develop toward dishonesty and academic integrity questions.” In the context of eLearning, where the physical separation between students and instructors can lead to increased opportunities for academic dishonesty, the need for internalized integrity becomes even more pronounced. For example, P4 stressed that students must be able to regulate their behavior and uphold academic standards without direct supervision, which is essential for maintaining the validity and reliability of online assessments as stated in the following:

> They have too many resources and I’m not there to see what they are doing, especially on tests. How do I know they are not cheating with their phones or using AI? We have checkers, but they aren’t always accurate. I just have to trust the kids are doing the right thing, but sometimes they aren’t.

Participants also stressed the importance of creating an eLearning environment that supports and reinforces academic integrity. This included implementing robust assessment practices that minimize opportunities for dishonesty, utilizing technology to detect and deter misconduct, and fostering an open dialogue about the ethical implications of academic behavior. P4 stressed:

> I do not know how to actually solve the problem…I think there needs to be a cultural shift where students are directly taught how to use things like AI. I also think we need more tech tools that point out when students are cheating and help

> keep them accountable or just keep them from cheating to begin with. I just don't know what that would be or what it would look like.

Participants emphasized that intrinsic academic honesty is essential for students to achieve success and genuine learning in an eLearning environment. Furthermore, courses must be designed to discourage academic dishonesty and promote authentic learning inherently.

Digital Literacy. The last category for this theme was digital literacy, which was made up of one code. Six out of 10 participants (P1, P3, P4, P5, P6, and P10) perceived technological proficiency as essential for students to navigate digital platforms effectively, access educational resources, and engage meaningfully with course content. Based on interviews, participants consistently highlighted the indispensable role of digital literacy in fostering student autonomy, enhancing engagement, and ensuring academic success in online learning settings.

Technological Proficiency. According to six out of 10 participants (P1, P3, P4, P5, P6, and P10), technological proficiency is crucial for high school students engaged in eLearning courses because it enables them to effectively navigate and utilize the digital platforms and tools integral to their education. For example, P1 indicated students need the skills to be able to navigate basic issues that occur when using technology when saying, "They need to understand how technology works and how to solve some technology and technological issues that might arise with their devices." Mastery of these technologies ensures students can access course materials, participate in virtual classrooms, submit assignments, and communicate with teachers and peers efficiently.

Additionally, P6 described how students need certain basic prerequisite skills when explaining, “You need to have just some basic computer skills like how to type a document and submit it, how to proofread, and upload assignments.” Similarly, P3 explained the problems students face when they do not have the prerequisite skills to navigate the technology adequately:

> I think the major problem is that the students are not able to really engage with the technology … I have students that don’t know how to upload an attachment. When you have an eLearning environment where there are certain basic technical processes that should be understood and they don’t know those processes, they aren’t successful.

Furthermore, P4 indicated they need “the ability to be tech savvy because it’s not just about the basics.” Participating in an eLearning classroom requires the use of advanced features like collaborative tools, multimedia resources, and interactive simulations. Without adequate technological skills, students may face barriers that hinder their ability to keep up with coursework, fully engage in the learning process, and achieve academic success.

Participants also emphasized that technological proficiency extends beyond basic computer literacy to include the ability to use various digital tools, troubleshoot technical issues, and adapt to new technologies as they emerge. For example, P5 explained that students needed to:

> know how to find resources that’ll help you get through whatever you need to get done whether it’s content or technical skills. They might not always know how to

> do something online, but there are directions, and they should be able to use the directions to navigate their technical skills.

This skill set is seen as fundamental for students to manage their learning independently, given the absence of direct in-person support that characterizes traditional classroom settings. Participants noted that students with high levels of technological proficiency are better equipped to utilize learning management systems, participate in virtual discussions, and complete assignments efficiently. For example, P10 explained:

> When students have strong tech skills, they can really make the most out of a virtual education. They don't need help joining virtual discussions, accessing course content, or finishing and submitting their assignments. It makes a huge difference in their overall learning experience.

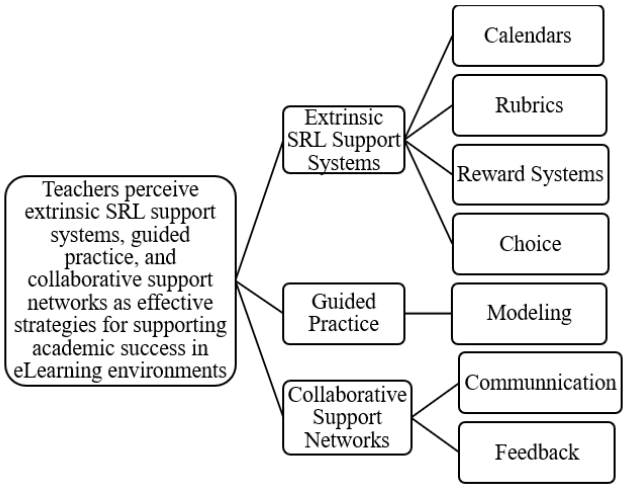
Overall, participants perceived technological proficiency as a fundamental intrinsic SRL skill in an eLearning environment that is essential for student autonomy, engagement, and academic success.

Theme 2: Teachers Perceive Extrinsic SRL Support Systems, Guided Practice, and Collaborative Support Networks as Effective Strategies for Promoting Academic Success in eLearning Environments

The next theme that emerged to answer RQ1 was that teachers perceive extrinsic SRL support systems, guided practice, and collaborative support networks as effective strategies for promoting academic success in a high school eLearning environment. Figure 2 shows the categories and codes for this theme. Three categories made up this theme, and there were seven codes in total.

Figure 2

Code Tree for Theme 2



Extrinsic SRL Support Systems. The first category for this theme was extrinsic SRL support systems and comprised four codes. According to participants, not only are the previously mentioned intrinsic SRL skills important, but extrinsic SRL supports provided by teachers also contribute to success in an eLearning classroom, as they provide guidance and motivation that can be lacking in a virtual environment. This support includes regular check-ins, timely feedback, and clear expectations, which help students stay on track and feel accountable for their learning. Participants mentioned offering structured frameworks and resources that aided students in setting goals, managing their time, and overcoming challenges.

Calendars. Five out of 10 participants (P1, P2, P4, P5, and P9) contributed to this code. Teachers perceive calendars as an essential extrinsic tool for encouraging SRL in an eLearning environment. When asked what strategies are used to promote SRL within

the digital learning environment, P1 mentioned,

> I'm just trying to continue to work with students on the list making, goal setting, and creating calendars… Not all students know how to use calendars to set goals and to monitor their deadlines, but that is something I can teach them that might help them feel more successful and less overwhelmed.

When used correctly, calendars can enable students to plan, organize, and prioritize their tasks effectively. P9 explained:

> Using calendars is a game-changer for students. It helps them plan out their tasks, stay organized, and figure out what needs to be done first. When they have a clear schedule, they can manage their time better and avoid last-minute stress. It's all about giving them the tools to take charge of their own learning.

Participants recognized that the implementation of calendars helps students manage their coursework by setting clear deadlines and milestones, thus fostering a disciplined approach to learning. For example, P4 explained the need for calendar use as an organization tool when mentioning:

> I use our calendar. A lot of the platforms that we use for eLearning have some form of a calendar which I use for the class overall…You can even give a student their own independent calendar. I use this a lot for students who are getting behind and need a more visual way of seeing deadlines.

The visibility of upcoming assignments and assessments allows students to allocate appropriate time and resources to each task, mitigating the risks of procrastination and last-minute cramming. Furthermore, participants believed that the

habitual use of calendars cultivates a sense of accountability and autonomy in students, as they learn to self-monitor their progress and adjust their schedules as needed. P5 explained how calendars can be used to teach and promote SRL skills:

> Calendars aren't just for keeping track of dates. They're really key to helping students plan, prioritize, and manage their workload. It's all about teaching them how to take control of their own learning and stay on top of things, which is extra important when they're working independently online.

Therefore, from the participants' perspectives, calendars are not merely organizational tools but pivotal elements in developing students' self-regulatory capacities and promoting academic success in an eLearning context.

While some participants include calendars within the curriculum, they do not explicitly teach students how to use them. For example, P2 mentioned, "I provide them with a calendar of due dates at the beginning of the class, but it's up to them to maintain their calendars and their schedules." In this way, calendars are provided as an extrinsic tool to promote SRL; however, it is still up to the student to effectively use the tools offered.

Rubrics. Two out of 10 participants (P1 and P10) contributed to code two. Participants perceived rubrics as important to promoting SRL and academic success in the eLearning environment due to their ability to clarify expectations and provide structured guidance. When asked about strategies they use to promote SRL, P1 indicated, "I use a lot of rubrics because they really help students understand what's expected by breaking down the criteria into smaller chunks. When they're used correctly, they tend to

help students stay on track through a checklist format."

According to participants, rubrics delineate specific criteria and performance standards, offering students a transparent framework against which they can measure their progress and quality of work. This clarity reduces ambiguity by breaking down complex tasks into manageable components. Rubrics can help facilitate goal-setting and incremental progress, which is essential for effective self-regulation. P10 reflects on rubrics in the following way:

> They're great for helping students set goals and understand how they meet them. Plus, they help me give feedback. I can point to the exact areas they need help, so they can focus on just that area. I like them too because they help the students become more independent. If they have a rubric, they don't need to ask me as many questions. It's all about helping them to take charge of their own learning.

Therefore, participants also perceived rubrics as tools for formative feedback, allowing students to reflect on their performance and make informed revisions before final submission. This iterative process of self-assessment and improvement aligns with SRL practices, enhancing students' ability to manage their learning autonomously.

Reward Systems. Six out of 10 participants (P2, P5, P6, P7, P8, and P10) mentioned some type of reward system as crucial for promoting SRL in an eLearning environment due to their ability to motivate and reinforce desired behaviors. To many of the participants, the reward system looked different; however, they all had a similar focus on promoting academic success. For example, P2 described rewards as something the student should personally develop to recognize their hard work at accomplishing course

goals. They described it this way: “You should set up some sort of reward system for yourself along the way…That way, you’re not delaying your gratification…but you’re able to self-reward yourself by finishing a certain part of the assignment or the project.”

Other participants, such as P5, have a teacher-implemented reward system, such as allowing students “to exempt the final exam if they turn to work in on time. So, they get that reward.” In both cases, in the absence of immediate physical supervision, reward systems provide an extrinsic motivational framework that encourages students to engage in SRL behaviors. The participants recognized that rewards, whether tangible or intangible, can serve as powerful incentives for students to set goals, maintain focus, and adhere to schedules. P8 described rewards in the following way,

> Rewards are awesome ways for helping students stay focused and stick to a schedule. When they know there’s a reward waiting, they’re more motivated to keep on track and manage their time. It’s a great way to encourage self-discipline and responsibility.

By linking rewards to specific academic achievements or behavioral milestones, participants believed it could help students develop a disciplined approach to their studies, fostering habits of diligence and perseverance.

Participants also noted that reward systems can be designed to promote incremental progress, thus reinforcing the process of SRL. P7 detailed how rewards can be used to promote a growth mindset in the following:

> As teachers, we try to promote that growth mindset. It’s not always about where students end up, but the process and how much they improved to get there.

> Reward systems are fantastic for developing that growth mindset because the kids can get recognition along the way instead of waiting until the end. It can be very motivational for them which makes them more likely keep improving.

When students receive recognition for small, consistent efforts, they are more likely to develop a growth mindset and sustain their engagement over time. They are also likely to develop positive learning habits as mentioned by P10:

> Using rewards can really boost students' intrinsic motivation. At first, the external incentives get them going, but over time, the rewards help students internalize behaviors. It's a great way to help them develop long-lasting academically successful habits.

The participants understood that the judicious use of rewards can enhance intrinsic motivation by initially providing external incentives that eventually lead to the internalization of self-regulatory behaviors.

Additionally, participants indicated that reward systems can serve as a form of feedback, signaling to students they are making adequate progress in the course. P6 reflected on reward systems in the following way: "Reward systems are like a form of feedback. They show students that their efforts are valued and that they're on the right track. It helps them see their progress and keeps them motivated to keep pushing forward."

This feedback loop could help students self-monitor and adjust their strategies, thereby enhancing their ability to manage their learning independently. Overall, participants viewed reward systems as an effective means of supporting self-regulation

by providing structure, motivation, and positive reinforcement in the eLearning environment.

Choice. Four out of ten participants (P1, P2, P4 and P5) contributed to this code. Participants perceived the incorporation of choice as a pivotal strategy for promoting SRL in an eLearning environment, given its profound impact on student autonomy and engagement. When asked how they promote academic engagement through SRL, P5 said, "There's a lot of choice involved. When it comes to projects and assignments, I allow them to pick a topic that they're really passionate about." By offering choices in learning activities, assessment methods, and project topics, participants catered to diverse student interests and learning styles that could enhance motivation and investment in the learning process. According to P4, this autonomy in decision-making fosters a sense of ownership and responsibility, encouraging students to take control of their educational journeys. This was noted during the interview when mentioning, "Giving students choice is an important strategy because it lets students make their own decisions, which makes them feel more responsible and in control. This way, they really take charge of their learning and stay engaged."

Furthermore, participants emphasized the ability to choose empowers students to set personal goals and tailor their learning experiences to align with their strengths and aspirations. P2 explained it in the following way:

> Letting students make choices is great because they can set their own goals and learn in the way they want to learn. They can choose topics related to their strengths and dreams. It really helps them take charge of their learning and stay

motivated to finish.

Participants believed that when students are involved in the decision-making process, they are more likely to engage in self-monitoring, self-assessment, and strategic planning, which are core components of self-regulation. P1 emphasized this when saying:

> Allowing students to choose their own learning path means they not only have the ability to choose what they want to learn, but to also choose how they are going to learn it. This means they have to learn how to create a plan, develop strategies, and make sure they are reaching their goals effectively.

This sense of agency could enhance students' self-regulatory commitment to their tasks, as they are not merely complying with external requirements but actively shaping their learning paths.

Guided Practice. The second category for this theme was guided practice. Three out of 10 participants (P1, P5, and P9) contributed to the development of this category, and it includes one code. Participants perceived guided practice, particularly through modeling, as a crucial component of promoting SRL in an eLearning environment due to its role in providing clear, concrete examples of effective SRL strategies and behaviors. Participants felt this explicit instruction was especially vital in promoting academic success in eLearning, where direct, in-person guidance is limited.

Modeling. The only code for this category was modeling, with three out of 10 participants (P1, P5, and P9) contributing. According to participants, modeling is a critical instructional strategy for promoting SRL and improving academic success in an eLearning environment. Modeling involves demonstrating specific behaviors, strategies,

and cognitive processes that students can emulate. Participants recognized that modeling serves as a scaffold, guiding students in understanding how to plan, monitor, and evaluate their own learning activities. P1 described modeling the scheduling and task creation process by "setting the schedule for students to follow, helping them create those schedules, then also modeling that myself." Additionally, P5 described modeling how to effectively navigate the eLearning coursework and ask for help in the following way:

> I do everything with my students. I do the discussion posts and show examples of all the assignments. I even show them how to reach out when they need help because if I don't show them, some of them won't get it. They have to see it first, then they pick it up themselves.

According to participants, in the context of eLearning, where direct teacher-student interactions are limited, modeling is essential. By explicitly demonstrating how to set realistic goals, break down complex tasks, and manage time effectively teachers could help students internalize the SRL processes necessary to navigate an eLearning classroom. P5 explained it the following way:

> I really believe students need to be shown how to self-regulate in a digital classroom. They've been figuring out a traditional classroom for years, but for a lot of them, eLearning is new. By showing them how to set realistic goals, break down bigger assignments, and manage their time in a digital environment, I'm not just telling them what to do—I'm teaching them how to do it which means they can hopefully be successful in other digital environments.

This facilitated learning could be particularly important in an online setting, where

students may struggle with the autonomy and self-discipline required to navigate their coursework independently.

Similarly, P9 mentioned modeling but within the context of the lack of relationship development that happens in a digital environment. According to P9, it is important for teachers to understand that modeling can extend beyond academic tasks to encompass attitudes and behaviors conducive to self-regulation. For example, they explained the following:

> It's not just about showing students how to manage their time and tasks online, but I think we forget these students have social/ emotional problems too. It's so important to show them how to handle setbacks and stay positive because a lot can go wrong when taking an online course.

Therefore, demonstrating persistence in the face of challenges and maintaining a positive mindset are also aspects that teachers modeled to foster a more comprehensive SRL skill set in students.

Collaborative Support Networks. The third and final category for this theme is collaborative support networks with five out of 10 participants (P2, P4, P5, P6, and P7) contributing to the development of two codes. According to the interviews, participants perceived collaborative support networks, encompassing communication and feedback, as essential for promoting SRL in an eLearning environment. Effective communication channels between teachers, students, and parents could ensure that expectations are clear, progress is monitored, and support is readily available, thereby fostering a structured and accountable learning environment. This collaborative approach could not only mitigate

the122etween122nn often associated with eLearning but also empower students to develop SRL skills through a scaffolded, supportive framework, ultimately leading to improved academic outcomes.

Communication. Five out of 10 participants (P2, P4, P5, P6, P7, and P8) contributed to the development of the first code in this category, communication. Participants perceived communication with students and parents as a fundamental component in promoting SRL in an eLearning environment. According to participants, utilizing effective communication serves as a bridge, connecting the virtual classroom with the home environment and ensuring a cohesive support system for students' self-regulatory development. For example, P4 advocated for the following:

> I communicate often and early with students and parents. Sometimes, the students will ignore me, but involving the parents and creating a partnership where I'm not the only one promoting these necessary skills is so valuable in ensuring the students succeed.

Participants understood that maintaining open lines of communication with both students and parents was crucial for monitoring progress, providing timely feedback, and fostering a collaborative approach to learning.

Some participants chose to focus on communication with students. For example, P2 indicated:

> Students need to communicate with me. How else do I know when they need help or when something is wrong? The problem is, some of them won't message me, so I have to force it through discussion posts or reaching out first.

Participants believed active communication with students helped establish clear expectations and opened a pathway to establish a support network. P7 explained:

> I have so many ways I can be contacted – emails, virtual meetings, and system notifications, phone calls. I'm sure there's more I'm just not thinking about. It's the best way for me to offer personalized support and address individual challenges. I've even noticed students who take advantage are more engaged in the class because they know I'm not a monster giving them bad grades. I really do want to help. A lot of students just don't take advantage of talking to me as a resource.

According to participants, the ongoing student-teacher interaction could not only keep students engaged and accountable but also help them internalize SRL by modeling effective communication and problem-solving skills.

Other participants chose to focus on the communication between teachers and parents. According to them, parents can play a supportive role by reinforcing and supporting the SRL strategies and behaviors encouraged by teachers. For example, P5 explains the importance of parent communication as follows:

> I try to give parents updates on their student's progress weekly, but I also try to share resources and offer suggestions that will help improve their academic skills, like sharing calendar resources, class reminders, and study advice for upcoming tests.

Participants believed with consistent communication, they could create a structured learning environment that extended beyond the virtual classroom. The development of a

partnership between teachers and parents could ensure that students receive a unified message and consistent support about the importance of SRL and are better equipped to manage their learning autonomously.

Similarly, P6 focused on effective communication with parents that could help identify and address potential barriers to self-regulation, such as technical issues, lack of resources, or time management difficulties. They explained,

> The parents are the ones who see them working and who are physically with them. They might not be able to teach or understand the content, but they are our first line of defense for other issues…. Parents are the ones who can verify when there are legitimate issues with the technology or when students are really struggling and not just slacking off.

Teachers and parents could collaborate to develop targeted interventions to support the students and help them overcome any obstacles they might have.

Feedback. Two out of 10 participants (P5 and P8) contributed to the development of the second code in this category, feedback. Participants perceived feedback as a critical mechanism for promoting SRL in an eLearning environment due to its role in guiding student learning and fostering metacognitive awareness. According to participants, accurate and timely feedback provided students with detailed insights into their performance by highlighting strengths and improvement areas. P5 indicated:

> I communicate through my feedback. When students turn in an assignment, they get a detailed rubric back explaining what they did well and where they can do better. If they want to discuss it further, we can, but I expect them to know how to

take that feedback and use it to make corrections moving forward.

Therefore, the process of providing feedback is fundamental for self-regulation, as it enables students to assess their current understanding and adjust their strategies.

P8 chose to focus on the positive aspects of feedback as a way of promoting and supporting students' emotional and motivational needs. They explained:

> I really make sure I am putting a lot of positive in the feedback….I don't want them to be afraid to turn in more assignments or ask for more help in the future, so I use a lot of positive reinforcement and constructive criticism to boost their confidence. I also know a lot of my students are taking the class online because they already failed it in person, so they could really use the boost.

Feedback fosters a growth mindset by acknowledging effort and progress, which is crucial for developing SRL goal-setting skills. This multiplicity of feedback sources reinforces the SRL cycle of planning, monitoring, and evaluating.

Research Question 2: Barriers

The second RQ was: What do teachers describe as barriers to implementing SRL instruction in eLearning environments? As part of the data analysis, two themes emerged to answer this RQ. The discussion that follows is organized by these themes.

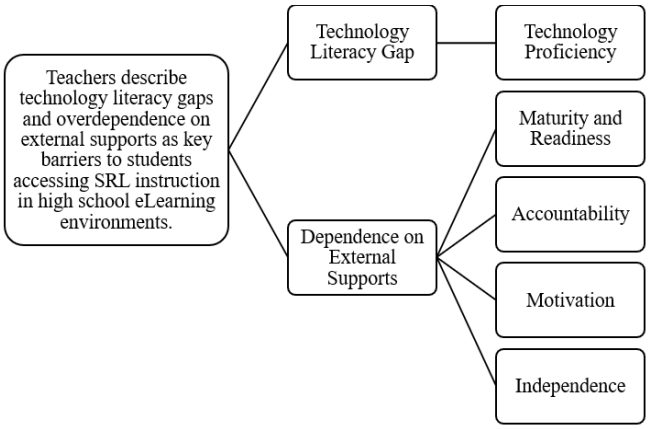
Theme 3: Teachers Describe Technology Literacy Gaps and Overdependence on External Supports as Key Barriers to Students Accessing SRL Instruction in High School eLearning Environments

The next theme that emerged answered RQ2: Teachers describe technology literacy gaps and overdependence on external supports as key barriers to students

accessing SRL instruction in high school eLearning environments. Figure 3 shows the categories and codes for this theme, which consisted of two categories and five codes.

Figure 3

Code Tree for Theme 3



Technology Literacy Gap. The first category for this theme is technology literacy gaps with 8 out of 10 participants (P1, P3, P4, P5, P6, P7, P9, and P10) contributing to the development of one code. According to participants, technology literacy gaps could significantly hinder students' ability to effectively employ SRL in a high school eLearning environment, as these gaps impede their capacity to navigate and utilize digital learning tools essential for self-directed learning. The following is a discussion of the code established for this category.

Technology Proficiency. Six out of 10 participants (P1, P4, P5, P6, P7, and P10) contributed to the development of this code, technology proficiency. According to participants, students who are lacking in technological proficiency face barriers in accessing SRL in an eLearning environment due to the foundational role those digital

skills play in autonomous learning. According to P4:

> If students aren't comfortable using technology, it's like trying to teach them to swim without water. They need to know how to navigate the online platforms, use digital resources, and manage their assignments independently. Without those basic digital skills, they can't really take charge of their own learning, and it becomes a huge struggle for everyone involved.

Based on participant feedback, students lacking technological proficiency struggle with basic tasks such as accessing course materials, submitting assignments, and participating in online discussions, which are fundamental components of SRL. P6 reflected on the technology literacy gap in the following way:

> Honestly, it's tough to watch some of my students struggle with basic tech skills. I mean, they can't even access course materials or submit their assignments without hitting roadblocks. And participating in online discussions? That's a whole other challenge for them. These are really fundamental parts of self-regulation, and when they can't get the hang of the tech, it holds them back, big time.

According to P7, this technological ineptitude not only exacerbates feelings of frustration and disengagement but also diminishes students' ability to set goals, monitor their progress, and reflect on their learning processes autonomously. For example, P7 mentioned:

> You know, this lack of tech skills really amps up their frustration and ability to focus on completing the course and meeting deadlines. It's not just about missing deadlines though; it messes with their ability to set goals and track their progress.

It just makes everything harder for them.

Consequently, the educational divide widens as digitally literate students advance more readily, leaving their less proficient peers behind. P5 explains this in the following way, “It’s really disheartening to see the educational gap widening. The students who are digitally savvy just move ahead so much faster, while their less proficient peers keep falling further behind. It’s a real problem.” Meanwhile, some participants chose to focus on how students’ lack of technological skills affect the teachers. P10 explained:

> As a teacher, it really complicates things because I have to spend extra time helping students bridge these tech gaps they are missing. It often means I can’t focus as much on those higher order skills or even focus on teaching the self-regulation strategies because we are just trying to focus on the basics. It’s a tough balancing act.

P1 also reflected on the impact a lack of technical proficiency has on the teacher in the following way, “As a teacher, it’s getting even more challenging. I have to spend so much extra time helping students catch up on basic tech skills. This means I’m not spending my time helping with other things like content knowledge.” Based on participant interviews, the teacher’s role is further complicated as they must allocate additional time to bridge these gaps, often at the expense of advancing deeper SRL strategies. Hence, technology literacy is not merely a supplementary skill but a critical enabler of effective self-regulation in eLearning environments.

Dependence on External Supports. The second category for this theme is dependence on external supports with five out of 10 participants (P1, P3, P4, P6, and P9)

contributing to developing four codes. Based on participant interviews, teachers perceive a dependence on external supports as a significant barrier to students effectively using SRL in a high school eLearning environment because it undermines the development of essential autonomous learning skills. Consequently, this dependency not only stifles the growth of critical SRL but also places additional strain on teachers, who must continually provide support rather than focus on fostering independence. As a result, the intended benefits of eLearning environments, which include promoting student autonomy and self-direction, are significantly diminished.

Maturity and Readiness. Three out of 10 participants (P3, P6, and P9) contributed to the development of the first code in this category, maturity, and readiness. Teachers perceive a lack of maturity and readiness as a major barrier to students effectively using SRL in a high school eLearning environment because immature students often struggle with time management, setting realistic goals, and maintaining the discipline needed to follow through on their plans without direct supervision. For example, P3 mentioned:

> One big hurdle I see is that many students just aren't mature enough for a high school eLearning setup in general, let alone to self-regulate once they are enrolled. They often struggle with managing their time and turning in assignments without constant oversight. It's a real challenge to get them to handle all that on their own.

This lack of readiness manifests in their inability to prioritize tasks, resist distractions, and sustain motivation over time. Teachers observed that these students frequently miss

deadlines, overlook important instructions, and require frequent reminders and interventions to stay on track. P6 explained it in the following way:

> You can really see the lack of readiness in how students struggle to prioritize tasks, fend off distractions, and keep their motivation up. It's pretty common for them to miss deadlines or overlook and even ignore basic instructions. They need constant nudges just to stay on track. It's a big part of why they find it so tough to be successful.

This immaturity undermines the development of essential self-regulatory skills, as students are unable to independently monitor and adjust their learning strategies. P9 explained:

> Students just can't monitor and tweak their learning on their own, which undermines the whole eLearning process. The independence that's supposed to be a big part of this setup doesn't happen, and I end up spending extra time providing the structure and support they need. It takes away from the goal of helping them become independent, self-regulated learners.

Consequently, the effectiveness of eLearning is compromised, as the autonomy and self-direction critical to this mode of education are not realized. Teachers are then compelled to spend additional time providing the structure and support these students lack, detracting from the goal of fostering independent, self-regulated learners.

Accountability. Three out of 10 participants (P1, P4, and P6) contributed to the development of the second code in this category, accountability. Participants perceived a lack of accountability as a significant barrier to students effectively using self-regulation

in a high school eLearning environment because, without accountability, students are less motivated to adhere to deadlines, complete assignments diligently, or take responsibility for their learning outcomes. For example, P1 explained:

> One major issue I've seen is a lack of accountability. Students just don't seem as motivated to stick to deadlines or finish their assignments properly. They turn things in late and really only half do them. They don't care about the quality of the work, and they rarely take advantage of opportunities to redo assignments. They can't self-regulate if they don't care enough to even pass the class.

Additionally, participants noticed that students who do not feel accountable often exhibit procrastination, incomplete work, and a general lack of engagement with their eLearning tasks. P4 reflected on a lack of immediate consequences and supervision, as well as lenient submission policies as a reason for the decline in accountability. For example, P4 expressed:

> Part of the problem is that without immediate consequences for missing deadlines or the direct supervision you get in a classroom, the students just procrastinate. Out of sight out of mind in a way. And, they can turn stuff in whenever they want. It's a big reason why they struggle to stay on top of things.

Therefore, according to participants, the lack of accountability could stem from the absence of immediate consequences for missed deadlines or the reduced presence of direct supervision in a digital environment. Consequently, students struggle to develop critical self-regulatory skills such as time management, goal setting, and self-assessment. The effectiveness of eLearning is compromised as students fail to internalize the

discipline and self-motivation necessary for autonomous learning. P6 explained:

> The whole idea of being independent just doesn't click for them, and that makes the whole system less effective. It also means I have to actually monitor them in an environment that's supposed to be set up to lessen the amount of time I directly monitor the students.

Participants, therefore, find themselves in the challenging position of trying to instill a sense of accountability in a virtual setting, often through additional monitoring and follow-ups, which detracts from their ability to focus on enhancing SRL skills in their students.

Motivation. Three out of ten participants (P2, P9, and P10 contributed to the development of the third code in this category, motivation. Teachers perceive a lack of motivation as a substantial barrier to students effectively using SRL in a high school eLearning environment because motivation is the driving force behind all SRL activities. P2 reflected on a lack of motivation in the eLearning classroom in the following way:

> It's like trying to push a boulder up a hill—nothing really gets moving and there's no progress. When students aren't motivated, they tend to drift away from completing their assignments. Even when I talk to them, they struggle with setting goals because they don't actually care about the class, and they don't want to set goals. They give up more easily when things get tough.

When students are unmotivated, they are less likely to engage actively with the course material, set meaningful goals, or persist through challenges. Similarly, P2 observed:

> My unmotivated students are a real problem, and I don't know what to do with

> them. They usually don't participate, turn assignments in late if at all, and they really have no initiative. If something is hard, they just stop instead of asking for help. A lot of times, they need constant reminders from me, which really isn't the point of eLearning. They are supposed to be independent.

Participants observed that unmotivated students often exhibit low participation, poor time management, and a lack of initiative in completing assignments. This lack of intrinsic motivation leads to a dependence on external prompts and constant teacher intervention, undermining the development of autonomous learning skills.

Other participants reflected on the nature of eLearning as the reason why students were less motivated. According to P9:

> Motivation is a problem, but it's hard to be motivated when you're learning by yourself online. You are missing your friends and community…After talking to them, I noticed my students often feel lonely or disengaged from the learning community, which just makes it harder for them to stay engaged and ultimately decreases their motivation.

Therefore, according to participants, the virtual nature of eLearning can exacerbate motivational issues, as students might feel isolated or disconnected from the learning community, further diminishing their engagement. Similarly, P10 reflected on student motivation when mentioning:

> I work with naturally motivated students who are often taking my class so they can get ahead in school, but once they start online, they become different. That motivation disappears, and I don't really know why that is, but I think it's because

> they are having to work by themselves. A lot of the assignments are independent, and even when they are given group projects, it's not the same as working with a real person. Even in groups, online is isolating.

As a result, the potential of eLearning to foster self-regulated learners is significantly hindered, compelling teachers to find ways to enhance student motivation, which can detract from the overall teaching and learning experience.

Lack of Independence. Two out of 10 participants (P5 and P9) contributed to the development of the fourth code in this category, independence. Teachers perceived a lack of independence as a critical barrier to students effectively using self-regulation in a high school eLearning environment because, without independence, students struggled to set their own goals, manage their time, and stay on task without constant supervision. Participants observed that dependent students frequently relied on immediate feedback and continuous guidance that impeded the development of essential SRL skills such as self-monitoring, self-evaluation, and strategic planning. For example, P5 mentioned:

> I've noticed my students rely entirely too heavily on my telling them what to do even though the directions are clearly spelled out for them….I shouldn't have to give you feedback and constant guidance on every step for every single assignment. At some point, you have to learn independence. You have to learn to self-regulate.

Students who rely too much on immediate feedback and constant guidance could end up missing out on developing key SRL learning skills like self-monitoring, self-evaluation, and strategic planning. This dependency not only hampers their ability to work

autonomously but also reduces their confidence in tackling academic challenges on their own. In an eLearning environment, where the physical presence of a teacher is limited, the lack of independence becomes even more pronounced. Consequently, the intended benefits of eLearning, such as fostering self-directed and lifelong learning habits, are undermined. P9 reflected on how a student's lack of independence affected the teaching experience in eLearning when mentioning:

> It's so easy to see which students aren't independent. They are either the ones asking too many questions instead of reading the directions and trying. Or, they are the ones who disappear and do nothing, so I have to track them down. Either way, they make my job harder, and they take away from the time I could be spending helping their peers who actually need it for academic reasons.

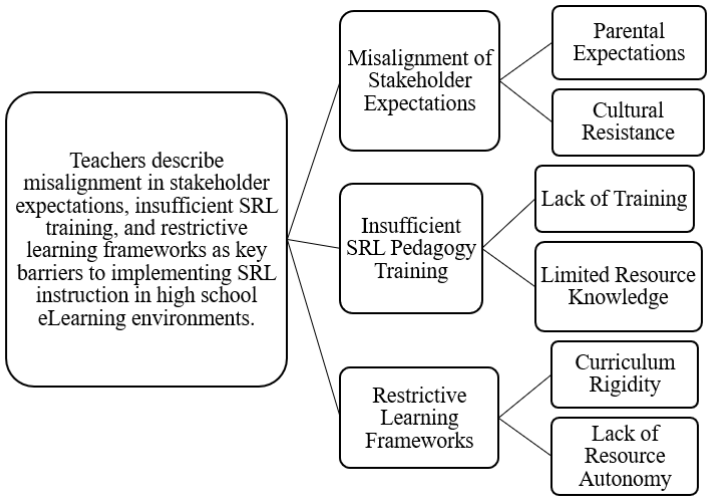
Therefore, a lack of independence requires teachers to invest additional effort in providing scaffolding and support that detracts from their ability to cultivate a more independent and SRL culture among their students.

Theme 4: Teachers Describe a Misalignment in Stakeholder Expectations, Insufficient SRL Training, and Restrictive Learning Frameworks as Key Barriers to Implementing SRL Instruction in High School eLearning Environments

The next theme that emerged answered RQ2: Teachers describe a misalignment in stakeholder expectations, insufficient SRL training, and restrictive learning frameworks as key barriers to implementing SRL instruction in high school eLearning environments. Figure 4 shows the categories and codes for this theme. Three categories made up this theme, and there were a total of six codes.

Figure 4

Code Tree for Theme 4



Misalignment of Stakeholder Expectations. The first category for this theme is the misalignment of stakeholder expectations, with five out of 10 participants (P1, P3, P6, P9, and P10) contributing to developing two codes. Participants perceived a misalignment of stakeholder expectations as a barrier to students effectively using SRL in a high school eLearning environment because divergent views on educational goals and methods can disrupt the learning process. When teachers, students, parents, and administrators have conflicting expectations, it creates confusion and inconsistency in the learning experience. This misalignment can lead to a lack of clarity about what self-regulation entails and inadequate support structures, misallocated resources, or unrealistic demands, further impeding students' ability to engage in SRL.

Parental Expectations. Two out of 10 participants contributed (P1 and P6) to developing the first code in this category, parental expectations. Participants perceived a

misalignment of parental expectations as a barrier to effectively using self-regulation in a high school eLearning environment because differing views on student support and involvement can undermine students' development of autonomous learning skills. P1 explained the discrepancies between parent expectations and the expectations of the eLearning classroom as follows:

> I have some parents who want constant updates on their student's progress and grades. When a student doesn't do well, the parent is emailing to solve the problem instead of letting them read the feedback and try to navigate solutions themselves. It can be frustrating when I'm trying to teach autonomy, and a parent is not letting the students learn.

When parents expect frequent updates and constant teacher intervention, while the eLearning model encourages student independence, it creates a disconnect that can confuse students about their responsibilities. For instance, P6 reflected on parents in the following way:

> I have some parents who think I am supposed to save their child from failing. I can offer support, but ultimately, the student has to do the work. I even have some parents who try to do the work for them, but that isn't teaching them anything. If they are constantly relying on their teacher or parents, they aren't learning how to self-regulate. They're too busy relying on the external support.

According to participants, the misalignment in expectations can make students rely too much on external support and not develop and engage in SRL practices like setting personal goals, managing time, and self-assessing progress. As a result, the focus on

cultivating self-regulation is diluted, and students may struggle to become self-directed learners in an environment where their roles and responsibilities are unclear. This misalignment could impede the effectiveness of eLearning, as students cannot fully embrace and benefit from the principles of SRL.

Cultural Resistance. Four out of 10 participants contributed (P1, P3, P9, and P10) to developing the second code in this category, cultural resistance. Participants perceived cultural resistance as a barrier to students effectively engaging with SRL strategies in a high school eLearning environment because of ingrained attitudes and practices surrounding eLearning education that can hinder the adoption of SRL methods. Cultural resistance may manifest as skepticism towards the efficacy of eLearning or a preference for traditional, teacher-led instruction. For example, P1 indicated:

> Some students don't understand what eLearning is supposed to be. They enroll because they think it is going to be easier because they can work at their own pace. But, in reality, adapting to the independence of the classroom can be a real struggle, especially when they are used to the structure of a traditional classroom.

If a student comes from an environment with a strong emphasis on direct supervision and structured classroom interactions, they could find it challenging to adapt to the more independent nature of eLearning that requires them to manage their learning processes. For example, participants observed that this resistance can lead to reluctance among students to embrace SRL practices, such as setting personal goals, monitoring their progress, and adjusting their strategies independently. P9 explained this phenomenon in the following way:

> Honestly, when students are resistant to eLearning, it often spills over into their ability to self-regulate. They're less likely to take charge of their own learning or manage their time effectively because they're already struggling with the online format. It's like they're carrying this extra layer of reluctance that hampers their ability to fully engage and stay motivated.

Additionally, according to P10, cultural norms may place undue emphasis on external validation and constant feedback, further discouraging students from developing intrinsic motivation and self-discipline. For example, P10 explained the following:

> When it comes to eLearning, students sometimes put too much weight on external supports which need constant feedback. Students get used to that in a traditional classroom and when they don't get as much in an online class, they shut down. This can really mess with a student's self-concept. They start to rely more on others telling them they're doing well rather than developing their sense of self purpose. It's like they need that constant pat on the back.

As a result, participants faced the challenge of reconciling these cultural expectations with the principles of SRL, often needing to invest additional effort in promoting and supporting the transition to more autonomous learning practices. P3 indicated this when mentioning:

> I'm constantly trying to balance preconceived ideas of digital learning with reality. It's a real challenge because I have to put in extra effort to help students transition. So, in reality, I'm not just teaching them about the content, I'm also teaching them how to manage their own learning, which can be tough when

they’re expecting something different.

This resistance can ultimately impede the effectiveness of eLearning by preventing students from fully engaging with and benefiting from SRL strategies.

Insufficient Training in SRL Pedagogy. The second category for this theme is insufficient training in SRL pedagogy, with nine out of 10 participants (P1, P2, P3, P4, P5, P6, P8, P9, and P10) contributing to developing two codes. Participants perceived insufficient training in SRL pedagogy as a significant barrier to students effectively accessing SRL in a high school eLearning environment because they felt inadequately prepared to implement and support SRL strategies. Due to the lack of training, participants felt less equipped to create engaging, interactive, and autonomous learning experiences that promoted SRL. As a result, students could receive insufficient guidance and feedback on developing and applying these crucial skills, ultimately hindering their ability to manage their learning effectively and benefit from the eLearning environment.

Lack of Training. Seven out of 10 participants (P1, P2, P3, P5, P6, P9, and P10) contributed to developing the first code in this category, lack of training. Teachers perceived a lack of training in SRL pedagogy as a significant barrier to students effectively using self-regulation in a high school eLearning environment because it directly impacts their ability to teach and model SRL strategies. Some participants indicated they had never received training in SRL. For example, P1 mentioned, “Now that I think about it, I don’t think anyone has really ever told me how to teach students to self-regulate.” P6 also mentioned, “No one has ever trained me, so I try, but I don’t know if what I’m doing is actually right.” Similarly, P3 mentioned. “One of my biggest

challenges to helping the students is that no one has ever helped me. I know what self-regulation is by definition, but I don't know how it's supposed to look in an online class."

Without adequate training, teachers may not fully understand or implement SRL techniques, crucial for helping students set personal goals, monitor their progress, and engage in self-assessment. P10 mentioned the following:

> They always talk about this teacher toolbox we're supposed to have, but I don't think anyone has ever told me how to put self-regulation in the toolbox. We're supposed to assume the students have these skills, but they don't, and I don't know how to teach it to them.

This deficiency in training can lead to a poorly structured eLearning experience where students receive minimal guidance on how to manage their own learning effectively. P5 compared a lack of training to a maze in the following way:

> Without the right training, the eLearning experience can end up feeling like a free-for-all. Students might get stuck, and I'm not exactly helping them manage their own learning because I don't know how. It's like trying to navigate a maze without a map and without support sometimes.

Some teachers felt they struggled to develop appropriate assignments, provide meaningful feedback, and foster an environment conducive to self-regulation. P9 explained:

> I don't even know what self-regulated teaching looks like. I always thought these were just skills that some students have, and some students don't. I know about the concept, but I am pretty positive I've never actually had any training on it.

P2 also mentioned,

> What would explicit self-regulated teaching look like? I was always told to expect it and encourage it from students. I know to use checklists and organizers and stuff, but sometimes I take for granted that some students don't know how to use those.

Consequently, students may not learn how to take control of their learning processes, resulting in a lack of engagement and autonomy. The absence of well-informed instructional strategies and support systems leaves students without the necessary tools to develop self-regulation skills, thus impeding their overall success in the eLearning environment.

Limited Resource Knowledge. Four out of 10 participants (P1, P2, P4, and P8) contributed to developing the second code in this category, limited resource knowledge. Participants perceived limited resource knowledge as a significant barrier to students effectively using SRL in a high school eLearning environment because it restricts their ability to provide students with the tools and strategies needed to manage their learning. P2 explained the lack of resource knowledge in the following way:

> I don't even know what resources are available. I know there are probably tools out there that can help because there are tools for everything, but I have never really looked into it beyond the basic calendars and timers. I'm sure there's got to be something better though.

When teachers lack comprehensive knowledge of available digital resources and tools that support SRL, they may struggle to effectively integrate these resources into their

teaching practices. P8 recounted the following:

> The LMS we use has the basic tools – calendars, checklists, planners – stuff like that, but I've never really thought about using other resources. I've never really thought about having to teach the kids to use those tools either, but I'm sure there's something better. I just don't have the time to figure it out.

While many participants mentioned resources available through their designated LMS platforms, many indicated they were unaware of other options. This gap in resource knowledge could result in a lack of diverse and engaging materials that help students set goals, track their progress, and reflect on their learning independently. For example, P1 mentioned:

> The stuff we have isn't fun. I have an app where you can take care of a digital pet for doing chores. There has to be something like that for the students. Something that will make keeping track of assignments and staying responsible more fun or at least more rewarding.

Without access to or awareness of effective SRL tools, teachers may not be able to guide students in utilizing these resources to enhance their SRL skills. Consequently, students may face difficulties in developing the necessary competencies for managing their learning autonomously, leading to diminished engagement and effectiveness in the eLearning environment. P4 indicated:

> One of the reasons I like teaching online is because there is so much more opportunity. You are not bound by four walls. You get to think outside of the box. If you can make learning fun, the students are more likely to do it. I think it's got

> to be the same for self-regulating. If it's not fun, they won't do it. If someone hasn't created a resource to teach it like that yet, they definitely should.

The overall potential of eLearning to foster SRL is thus compromised when teachers are not well-informed about the resources that could support these critical skills.

Restrictive Learning Frameworks. The third and final category for this theme is restrictive learning frameworks, with eight out of 10 participants (P1, P2, P3, P4, P5, P6, P7, and P10) contributing to developing two codes. Participants perceived restrictive learning frameworks as a significant barrier to students effectively using SRL in a high school eLearning environment because these frameworks often imposed rigid structures, standardized assessments, and prescriptive content that left little room for students to set their own goals, make decisions about their learning processes, or adapt their strategies to meet their individual needs. As a result, the effectiveness of eLearning is compromised, as students are unable to fully leverage SRL techniques within an environment that does not support or encourage their use.

Curriculum Rigidity. Four out of 10 participants (P2, P3, P7, and P10) contributed to developing the first code in this category, curriculum rigidity. Participants perceived curriculum rigidity as a significant barrier to students effectively using SRL in a high school eLearning environment because it restricted the adaptability and personalization necessary for fostering autonomous learning. In fact, P7 specifically mentioned the desire to make changes to the curriculum when mentioning:

> There has to be a way to do your own thing. I could talk about how much I want to do something for a long time, but the truth is, I just teach what they give me. I

> can work with the students in tutoring, but I can't really make any changes curriculum wise.

According to participants, when the curriculum is overly rigid, with fixed content and inflexible timelines, it limits students' opportunities to set their own learning goals, explore topics of interest, and manage their learning pace according to their individual needs. P2 mentioned:

> I don't really have a lot of control over the curriculum. The class is already set with what the students are supposed to learn and all of the due dates. Sometimes, I want to make changes, like allowing the students choice or allowing them to create their own timelines, but I can't.

Similarly, some participants found it difficult to implement SRL strategies within such a framework, as the prescribed curriculum left little room for incorporating adaptive learning methods or providing personalized feedback. P10 confirmed this by saying:

> In a lot of ways, teaching online can be easier because it's prepackaged. I don't have to do a lot of lesson planning and stuff, but at the same time, a lot of it can be boring, and it becomes outdated quickly. I want to make changes, but I'm not allowed to. If a student wanted to reach out for tutoring though, I have a lot more freedom with that to work on those academic skills like organization and planning.

As a result, students may struggle to engage fully with the eLearning environment because they have lost their ability to take control of their learning and effectively use any SRL techniques that might transfer from a traditional classroom. P3 indicated:

> Sometimes, the kids already have the regulation skills they need. They are advanced and do well in a regular classroom, but online learning becomes so boring and monotonous that they don't use those skills. Or, they don't even realize they have the skills because they don't see how they apply online. I wish there was a way to give them a mini lesson at the beginning of the class, but I can't make any changes.

This rigidity could undermine the potential benefits of eLearning, as students are unable to experience a more flexible and responsive learning environment created by teachers based on the individualized needs of their students.

Lack of Resource Autonomy. Five out of 10 participants (P1, P3, P4, P5, and P6) contributed to developing the second code in this category, a lack of resource autonomy. Participants perceived a lack of resource autonomy as a barrier to students effectively using SRL in a high school eLearning environment because it limited students' ability to utilize tools and materials that best supported their individual learning needs and preferences. P1 indicated:

> There are times when I know I have a better resource than the one the learning software is showing them. I know the students will engage better, but I'm stuck. I can send the students additional help through email, but I can't actually add anything onto the platform, and you know some kids don't check their emails often enough.

When students are restricted in their use of resources, such as specific software, digital tools, or educational content, they cannot tailor their learning experiences to fit their

personal goals and interests. P6 explained:

> This is a real problem with my SWD's [student with disabilities]. They have all these accommodations, and the program is supposed to supply them, but it definitely doesn't. I end up having to email students individually when it would just be easier to add resources to a class container for all the students to use.

According to participants, this lack of autonomy could hinder students' ability to set relevant goals, monitor their progress, and adapt their learning approaches effectively. P3 commented:

> Sometimes, I'll conference with a student about their progress in the course, and they mention they are struggling with things like staying organized, making lists, keeping up with due dates, and just really struggling with the freedom of the online environment. And, it's so frustrating because I have ADHD, so I know stuff that will help, but if it's not system approved, I'm not allowed to talk about it.

Similarly, some participants noticed that students who lacked autonomy in resources struggled to stay engaged and manage their learning independently. For example, P4 mentioned:

> Isn't that what online learning is for? It's supposed to be used as an alternative to traditional education. It's supposed to be this new way of learning, but it just seems old. If we really want it to be a new way of learning, we have to let the students decide how they want to learn, right? If not, they're going to check out the same way they did in a regular class.

Additionally, participants indicated when teachers have limited autonomy in selecting and integrating resources, they find it challenging to provide a diverse range of tools that support SRL. P5 asked:

> How am I supposed to teach it when I can't actually teach it? We know how important it is for the students to have these skills, but we've been using the same resources and strategies for forever. They need to update it, and they need to listen about what updates need to happen, especially to the really old and sometimes useless resources available to us.

As a result, the effectiveness of eLearning could be compromised, as students are unable to fully develop and apply SRL skills in an environment that potentially limits personalized learning approaches.

Research Question 3: Training

The third RQ was: What do teachers perceive as technology training needs for overcoming barriers and incorporating SRL in eLearning environments? As part of the data analysis, two themes emerged to answer this RQ. The discussion that follows is organized by these themes.

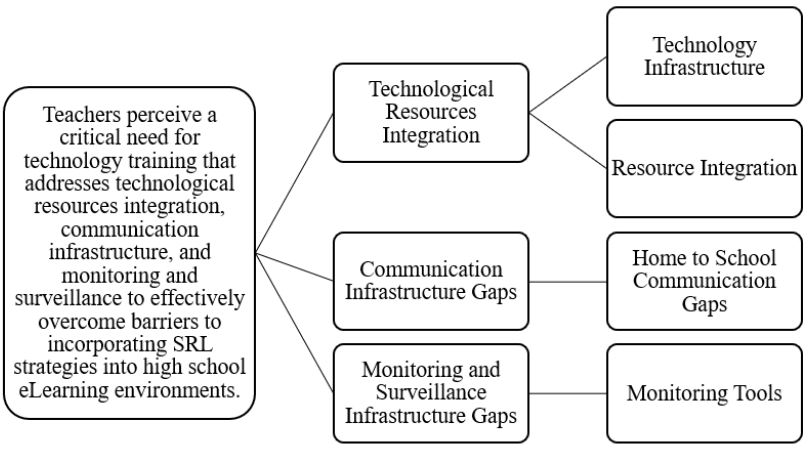
Theme 5: Teachers Perceive a Critical Need for Technology Training that Addresses Technological Resources Integration, Communication Infrastructure, and Monitoring and Surveillance to Effectively Overcome Barriers to Incorporating SRL Strategies into High School eLearning Environments

The next theme that emerged answered RQ3: Teachers perceive a critical need for technology training that addresses technological resources integration, communication

infrastructure, and monitoring and surveillance to effectively overcome barriers to incorporating SRL strategies into high school eLearning environments. Figure 5 shows the categories and codes for this theme. Three categories made up this theme, and there were a total of four codes.

Figure 5

Code Tree for Theme 5



Technical Resources Integration. The first category for this theme is technical resource integration, with seven out of 10 participants (P2, P3, P4, P6, P7, P8, and P10) contributing to developing two codes. Participants perceived the integration of technology resources as an important mechanism for mitigating barriers to SRL within high school eLearning environments. They believed that targeted training in leveraging digital tools and platforms could result in a more individualized SRL experience that transcends the limitations of conventional, static curricula. Infusing appropriate technology resources into the curriculum could empower teachers to create dynamic, responsive learning environments that enhance students' capacity for self-regulation and

adaptivity, ultimately contributing to more equitable educational outcomes.

Technology Infrastructure. Five out of 10 participants (P2, P3, P4, P6, and P10) contributed to developing the first code in this category, technology infrastructure. Participants viewed the need for a robust technology infrastructure to dismantle barriers to SRL in high school eLearning environments. P6 mentioned:

> Before they do anything, they need some technical knowledge, and they need working devices. When their computers are always glitching or slowing down, it disrupts their ability to concentrate and self-manage. A reliable tech setup would minimize those inevitable distractions and delays.

An effective technology infrastructure—comprising reliable internet connectivity, advanced digital platforms, and integrated learning management systems— could provide the necessary framework for seamless access to personalized educational tools and resources. For example, P10 indicated:

> To be honest, the biggest barrier to self-regulation in my online class is the technology itself. If the infrastructure is weak, students spend more time dealing with technical issues than engaging with the content. And, I don't mean fancy stuff, just a reliable internet connection and an LMS that doesn't glitch to start.

Additionally, P4 explained:

> The biggest barrier I have is working technology. I can't even get to teaching curriculum, let alone the strategies that will make the class easier to organize. A lot of times it's not our fault either. How can you enroll in an online school when you don't have internet or a working computer? I don't think the students or

parents really understand the basic requirements of an online class sometimes.

A reliable infrastructure is an important component in supporting adaptive learning technologies that could allow students to engage in goal setting, real-time progress tracking, and tailored feedback mechanisms. P2 explained it in the following way:

> If the tools they rely on are unreliable, it hinders their ability to stay on task and to complete their assignments without distractions. For example, I had a student tell me she never makes corrections because she can't get my feedback to load. How is that helpful?

Similarly, P3 recounted the following:

> I just wish the technology worked the way it was supposed to. I was conferencing with a student, and she had no idea she was missing assignments because her calendar and progress tracker wouldn't fully load. I felt bad because I went into the meeting expecting to reprimand her, and this poor girl was clueless. She thought she was on top of everything.

By ensuring that technological resources are accessible and manageable, teachers could create a more inclusive and flexible learning environment that accommodates and promotes SRL. Consequently, a well-developed technology infrastructure not only facilitates the implementation of SRL strategies but could also ensure that students have equitable opportunities to engage with the curriculum.

Resource Integration. Four out of 10 participants (P1, P4, P7, and P8) contributed to developing the second code in this category, resource integration. Participants perceived resource integration as a strategy for overcoming barriers to

effective SRL in high school eLearning environments because it facilitated a more personalized and adaptive educational experience. P8 explained the need for varied resources in the following way:

> We need more resource options for the students. Not everyone learns the same way and not everyone understands resources the same way. They need the option to choose the program that works for them. And, those programs should already be available in the platform. My students have a hard time moving from screen to screen. Everything should be available in the same place.

Participants mentioned a desire to integrate more diverse educational resources—such as digital tools, interactive content, and comprehensive learning platforms—to support varied learning styles and individual SRL needs. For example, P1 mentioned:

> If we really want to make teaching self-regulation a priority, then it has to be fused into the curriculum. It can't be a separate thing or something we just hope the students naturally do. And we need to do more than just include a calendar and pacing guide and call it teaching self-regulation. It's got to be something more targeted.

Similarly, P7 explained:

> We have the basic tools available, but that's not really teaching them and half the kids don't use them. These kids are used to being entertained and they get bored so easily. There has to be something we can add to the platform to make learning these skills more fun, like badges or interactive games or something.
>
> This approach could allow students to engage in SRL by offering them the

autonomy to set personalized learning goals, access tailored instructional materials, and receive individualized feedback, all within a cohesive and interconnected digital ecosystem. By utilizing resources interconnectedly within a unified framework, teachers could bridge the gap between standardized curricula and student-centered learning, thereby fostering greater agency, engagement, and academic success. P4 explained the following:

> No matter what else we do, it has to be part of the curriculum. These kids aren't going out and searching for strategies. The strategies have to be embedded in the platform and in the curriculum and they have to be taught. They also have to be tailored to each student. Not everyone learns the same and not every strategy works the same.

Therefore, the strategic integration of targeted SRL resources could play a crucial role in enhancing students' abilities to navigate and manage their own learning successes in a high school eLearning context.

Communication Infrastructure Gaps. The second category for this theme is communication infrastructure gaps, with 4 out of 10 participants (P3, P5, P9, and P10) contributing to developing one code. Participants perceived gaps in communication infrastructure as a significant barrier to effective SRL in high school eLearning environments, as these gaps could impede timely and meaningful exchanges between students, parents, and teachers, thereby obstructing students' ability to set and adjust their learning goals, receive tailored guidance, and engage in self-assessment. Participants believed that addressing these infrastructure gaps could enhance the capacity of students

to manage their own learning processes more effectively and ensure that they received the support and resources necessary to thrive in a digital learning environment.

Home to School Communication Gaps. Four out of 10 participants (P3, P5, P9, and P10) contributed to developing the code in this category, home-to-school communication gaps. Participants perceived home-to-school communication gaps as an impediment to closing barriers for students accessing SRL in high school eLearning environments, as effective communication between teachers, students, and their families is critical for reinforcing learning strategies and supporting student autonomy. According to P9:

> When I think about it, there's really two problems. First, parents just assume their students are doing what they are supposed to, and they don't always respond when I try to contact them to say otherwise. Secondly, I think there is some confusion from the parents about what online learning is and what it takes to be successful.

According to participants, when communication between home and school is inadequate, parents and guardians may lack the necessary information to assist students in setting realistic learning goals, managing their study time, or addressing academic challenges. According to P10:

> One of the biggest problems I have is getting ahold of parents. I'm not there to make sure their students are focusing. I need their help, but when they don't respond to messages, phone calls, texts, or whatever other communication they prefer, it makes it difficult. Some just don't answer and some give the wrong

> contact information altogether. It can be really frustrating.

This disconnect could potentially undermine students' ability to engage in SRL, as they miss out on the vital support and reinforcement that a collaborative home-school partnership could provide. P3 also mentioned communication as a barrier, saying, "It helps so much when I can communicate with the parents and develop an understanding up front. That's rare, though." Similarly, P5 explained:

> The biggest difference 155etweenn my online classes and my regular classes is how much help I need from the parents. With my regular classes, I can handle a lot of issues in house, but when the students are home, I need the parents… There is a huge difference in the students when I have positive partnerships and regular communication with their parents.

Addressing these communication gaps through robust, transparent, and continuous channels could keep families well-informed and promote active involvement in their students' educational journey. This would enhance students' capacity to navigate and regulate their own learning processes effectively in an eLearning context.

Monitoring and Surveillance Infrastructure Gaps. The third and final category for this theme is monitoring and surveillance infrastructure gaps with four out of 10 participants (P1, P2, P6, and P9) contributing to the development of one code. Participants viewed gaps in online monitoring and surveillance infrastructure as critical barriers to facilitating SRL in high school eLearning environments, as such gaps could impede their ability to oversee and support students' autonomous learning processes effectively. Without robust surveillance infrastructure, it becomes challenging to identify

and address issues such as procrastination, inconsistent effort, or gaps in understanding that are crucial for fostering SRL. Therefore, according to participants, addressing these infrastructure gaps could be essential for creating an environment where students could effectively manage their learning, receive appropriate support, and enhance their overall academic performance.

Monitoring Tools. Four out of 10 participants (P1, P2, P6, and P9) contributed to developing the code in this category, monitoring tools. Participants perceived online monitoring tools as incredibly important in bridging barriers to SRL within high school eLearning environments, as these tools could offer critical insights into student engagement and performance. For example, P1 mentioned:

> One of the things I struggle with the most is not being able to monitor the students. I know the point of developing SRL skills is so that I don't have to monitor them, but how am I supposed to know they need help with self-regulation if I'm not monitoring. It's a Catch-22.

By utilizing sophisticated analytics and tracking features, teachers could gain real-time data on student interactions, progress, and areas of struggle that could enable them to tailor their instructional approaches and interventions to individual needs. According to P2:

> The platform I use let's me pull some reports on how long the students are online and when they log in…. But all that really does is help me have a conversation. I really want the ability to see how they are engaging. I want to know what they click on and how they interact with certain features. Like, I have no idea if they

use the calendar or goal tracker. I want to know that kind of stuff.

According to participants, these tools could help facilitate the identification of patterns in student behavior, such as time management issues or gaps in understanding, allowing teachers to provide targeted feedback and support. Similar to P2, P6 also mentioned the following:

> I have access to some reports, but they don't really tell me much. I know how my students perform on tests, but I don't always know why they perform that way. I want to know more about how they are taking notes and working with the actual class. I guess I just want to be able to pull a report on how they are using their resources.

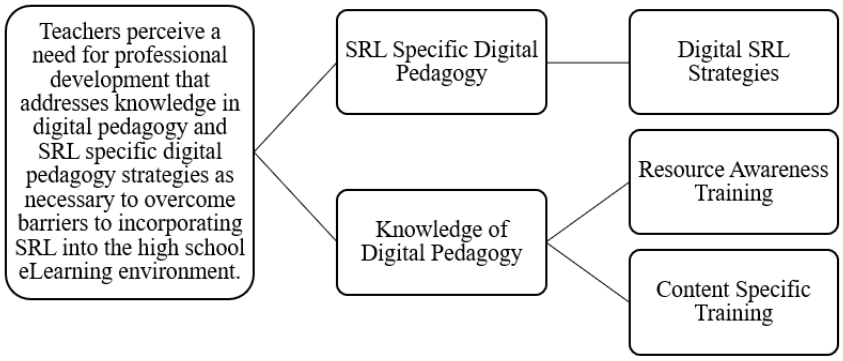
Consequently, participants believed online monitoring tools not only enhance the ability to customize learning experiences but also empower students to take ownership of their learning by setting personalized goals and receiving timely, actionable feedback. P9 summed up the barrier in the following way. "I know it sounds counterintuitive, but I don't know how to help them if I can't see what they're doing. I know they're supposed to help themselves, but many of them haven't been taught how to do that." Monitoring tools could play a pivotal role in fostering an environment conducive to SRL by ensuring that students receive the necessary support and resources to navigate their educational journeys effectively.

Theme 6: Teachers Perceive a Need for Professional Development That Addresses Knowledge in Digital Pedagogy and SRL-Specific Digital Pedagogy Strategies as Necessary to Overcome Barriers to Incorporating SRL Into the High School eLearning Environment

The next theme that emerged answered RQ3: Teachers perceive a need for professional development that addresses knowledge in digital pedagogy and SRL-specific digital pedagogy strategies as necessary to overcome barriers to incorporating SRL into the high school eLearning environment. Figure 6 shows the categories and codes for this theme. Two categories made up this theme, and there were a total of three codes.

Figure 6

Code Tree for Theme 6



SRL Specific Digital Pedagogy. The first category for this theme is SRL-specific digital pedagogy, with eight out of 10 participants (P1, P4, P5, P6, P7, P8, P9, and P10) contributing to the development of one code. Participants perceived a need for professional development that emphasizes SRL-specific digital pedagogy as a crucial

approach to overcoming barriers in high school eLearning environments by providing structured frameworks and tools that empower students to manage their learning processes effectively. This pedagogical approach could integrate digital resources and strategies tailored to SRL principles, such as goal setting, self-monitoring, and reflective practices, into the eLearning curriculum. Participants believed that by leveraging professional development focused on digital platforms that supported SRL components, teachers could foster an environment where students are encouraged to take initiative, assess their own learning needs, and adjust their strategies accordingly.

Digital SRL Strategies. Five out of 10 participants (P1, P4, P8, P9, and P10) contributed to the development of the second code in this category, digital SRL strategies. Participants perceived a need for professional development focused on SRL digital strategies as pivotal in mitigating barriers to student engagement and achievement within high school eLearning environments. For example, P1 said, “I really just want training specifically in self-regulation and what that looks like in a digital environment.” Similarly, P4 mentioned, “I’ve never been offered training in self-regulation never mind any digital training.” Participants felt that providing tailored professional development around tools and techniques that supported autonomous learning through SRL, they could better contribute to academic success in their online classes. P10 mentioned:

> I’ve had plenty of broad training in online digital tools, but no one has ever really shown me how I can use these programs to help the students regulate their own learning. I know how the programs support the academics, but how do they support the learning of the student? When these companies come into the school

to train us, they really should mention that too.

Participants also mentioned SRL specific digital strategies, such as interactive goal-setting platforms, self-assessment tools, and personalized feedback systems that would enable students to take charge of their own learning processes by setting goals, monitoring their progress, and reflecting on their performance. P4 indicated:

> I want to be trained on programs that can be incorporated into the digital environment, especially feedback tools. I give all the students feedback, but I don't know if they actually know how to use it or what to do with it. There has to be a better program and a better way to help the students see the benefits of feedback and how it can be used to self-regulate their learning.

Similarly, P9 mentioned:

> I think it would be worthwhile to talk to the students about setting goals at the beginning of the class and then giving them something to help them monitor those goals with frequent check-ins. Is there a training that would help with that? The goal setting?

By utilizing these strategies and participating in professional development opportunities designed to facilitate a more individualized and adaptive learning experience, participants felt they would be in a better position to help students identify their strengths and areas for improvement in real-time. P8 specifically mentioned the used of real-time feedback when explaining:

> Most of the issues I deal with online are because I don't know the students are struggling until they have already dug a hole. Based on my understanding of self-

> regulation, it helps students to advocate for themselves, but if there was some type of training or program that would help with that before it became a really big problem, I think that would help.

Consequently, participants believed SRL digital strategies could help to bridge gaps created by traditional, one-size-fits-all curricula by fostering an environment where students can develop critical self-regulation skills and effectively manage their learning trajectories. Offering professional development in this approach could promote greater academic independence and align with the dynamic and personalized nature of contemporary eLearning environments.

Knowledge of Digital Pedagogy. The second and final category for this theme is knowledge of digital pedagogy, with six out of 10 participants (P1, P5, P6, P7, P8, and P9) contributing to developing two codes. Participants perceived a deep understanding of digital pedagogy as essential for overcoming barriers to SRL in high school eLearning environments, as it equips teachers with the frameworks and methodologies necessary to integrate technology into their instructional practices effectively. By understanding how to harness digital platforms to support goal setting, self-monitoring, and reflective practices, teachers could effectively scaffold students' SRL skills and address individual learning needs. Professional development in digital pedagogy could contribute to closing gaps in access and support for SRL in the eLearning context.

Resource Awareness Training. Four out of 10 participants (P1, P7, P8, and P9) contributed to developing the first code in this category, resource awareness training. Participants perceived resource awareness training as critical for closing barriers to SRL

in high school eLearning environments because it could enhance their ability to effectively utilize and integrate available digital tools and resources into their pedagogical practices. P7 mentioned:

> I was never actually trained on how to teach in an online environment. I went through school learning what to do in a traditional classroom, but online is different and it requires different strategies and resources….There's so much out there, and I'm not even aware of a third of it.

Offering professional development in specific resources and their use in the eLearning environment could equip teachers with a comprehensive understanding of the learning management systems, interactive content, and analytic tools, thereby enabling them to better support students in developing SRL skills. For example, P1 indicated:

> There's been a few times I have go to my admin and asked for an online resource that does something specific like teach writing, or grammar, or progress tracking. My administrators will come back to me days later and say the county already bought a program….How was I supposed to know that? I need a list of resources I have access to and what they can be used for.

By familiarizing teachers with these resources, it could facilitate the design of more personalized and adaptive learning experiences that promote student autonomy, goal-setting, and self-monitoring. P9 indicated:

> Every year I learn about some new tool or resource that I had no idea existed, but it would have made teaching easier if I had known earlier. Some resources I could have just used for individual students, and I know it would have made learning

online easier.

Additionally, a heightened resource awareness could empower teachers to provide targeted guidance and create an environment where students are encouraged to take control of their learning processes. For example, P8 mentioned:

> I just want to know what's out there. Even if it's not something I include in the class, it could be a resource that might help students or even parents to navigate classes digitally. This type of teaching and learning is new to all of us. It would be great if someone could just develop a list of what's out there because I spend too much of my own time searching.

Consequently, resource awareness training could bridge gaps between available technology and its effective application, thereby fostering an environment conducive to SRL and addressing challenges inherent in eLearning contexts.

Content Specific Training. Two out of 10 participants (P5 and P6) contributed to the development of the second code in this category, content-specific training. Participants perceived content-specific training as a pivotal strategy for closing barriers to SRL in high school eLearning environments by equipping them with the expertise needed to align instructional content with SRL principles and digital tools. For example, P6 mentioned:

> Most of the professional development I get is broad. The presenters are trying to present to multiple subject areas and grade levels. I just want something that caters to my content area. How can I specifically use this to teach math, or science, or English, or special education students, or whatever we're teaching. I

> just want it to be specific.

Such content specific training could give teachers a deeper understanding of how to tailor content to meet diverse student needs that support goal setting, self-monitoring, and reflective practices within the digital learning space. P5 indicated:

> I know students need to know how to self-regulate in all of their classes, but I just need something that shows me what it is supposed to look like in English and then online. I've never seen anything like that offered, and it's something I think I would really benefit from.

Content-specific training could enable teachers to address content-related challenges more effectively and help bridge the gap between conceptual SRL strategies and practical application, fostering an environment where students can more effectively engage in SRL and achieve academic success.

Discrepant or Unusual Data

Discrepant data contradicts or diverges from the prevailing patterns or themes identified in the study (Hennink & Kaiser, 2022). This data highlights exceptions or anomalies that challenge the initial interpretations or conclusions. Analyzing discrepant data is crucial for providing a more comprehensive and nuanced understanding of the research findings (Agazu et al., 2022). Upon rigorous examination of the qualitative data collected, it was determined that no anomalous or discrepant data emerged that might undermine the integrity of the findings of this study. The thematic analysis revealed a coherent pattern of responses across all participants, with no outliers or deviations from the established narrative framework. Each data point was systematically cross validated

against the emergent themes, ensuring consistency and reliability of the interpretive conclusions.

Evidence of Trustworthiness

I upheld issues of trustworthiness in several ways. According to Adler (2022), trustworthiness is an essential part of qualitative research, and researchers must be intentional in the steps they take to maintain trustworthiness throughout the research process. This section will describe how I ensured credibility, transferability, dependability, and confirmability.

Credibility

First, I ensured credibility by employing several rigorous strategies suggested by Ravitch and Carl (2016) to ensure the trustworthiness and accuracy of my findings. These included prolonged engagement, persistent observation, triangulation, member checking, and maintaining a detailed audit trail to document the research process transparently. There were no adjustments to the credibility strategies stated in Chapter 3. Data were triangulated using field notes and interviews, and thick descriptions and member checking were used to add further credibility to the study. Member checks involved having the participants review the findings and interpretations of the study and allowing them to determine if their unique thoughts and experiences were accurately expressed through the findings. Triangulation was achieved by using reflective journaling and continuously reflecting on and disclosing my own biases and how these may influence the research. Reflective journaling was handwritten and included my thoughts on the interviews, the development of descriptions that supported themes to follow up with

potentially, and where participants put emphasis when describing their experiences.

Transferability

No adjustments were made to the transferability strategies stated in Chapter 3. According to King and Horrocks (2012), when considering transferability within a qualitative study, researchers are concerned with questions of generalizability. By focusing on issues of generalizability, a researcher can provide evidence that a study can be applied to other contexts, situations, times, and populations (Ravitch & Carl, 2016). To accomplish this, I provided comprehensive and rich descriptions of the participants and their settings in my study to support teachers' perspectives of SRL in a high school eLearning environment. I accomplished this by providing rich, thick details when explaining the focus of the study to allow readers to determine the extent to which the results transfer to other settings. Using purposeful sampling, I gathered all the knowledge I needed to accurately explain the participants and their settings to the researchers reading my study.

Dependability

There were no adjustments to the dependability strategies stated in Chapter 3. Dependability refers to data stability over time and conditions (Saldaña, 2021). To ensure dependability throughout the study, I strictly adhered to the research protocols from the Walden IRB. To maintain the stability of the data, I asked all interview questions in the same order and only asked follow-up questions if there were clarity issues. Notes and recordings were also kept to share with participants as an added layer of precision checking.

Although the coding process was carried out systematically and aligned with theories within my conceptual framework, it is important to note that a formal codebook was not developed. This lack of a codebook may have introduced some variability in the application of codes that could impact the consistency of the coding process. However, efforts were made to ensure consistency through regular reviews and reflections in a reflexive journal.

Confirmability

Confirmability in qualitative research is the act of ensuring that research findings are both accurate and reliable (Nieman, 2023). In this study, I established confirmability by maintaining a stance of neutrality and rigorously analyzing data derived from participant interviews without allowing personal biases or perspectives to influence the outcomes. This neutrality was sustained through a reflexive journal, wherein I systematically documented my personal experiences and reflections throughout the research process, thereby safeguarding against the intrusion of my own beliefs and experiences into the study (Ravitch & Carl, 2016). An audit trail was meticulously constructed to transparently detail the data collection and analysis procedures, encompassing the development of interview questions to the ultimate reporting of findings (Busetto et al., 2020; Creswell & Creswell, 2021). Furthermore, comprehensive records were maintained throughout the study to demonstrate consistency and elucidate the underlying rationale and processes employed.

Summary

In Chapter 4, I reported the findings of this basic qualitative study on teachers'

perspectives on implementing SRL instruction in eLearning environments. I discussed the setting of the study, the demographics of interviewed participants, and the procedures for data collection including issues of trustworthiness. This chapter focused on analyzing data and reporting results. Based on Zimmerman's model of SRL framework (1986) and Bandura's social cognitive theory of learning (1989), three research questions were developed and discussed.

Additionally, I reported on the six themes derived from data based on the categories and codes developed from this framework. Theme 1 explored teachers' perceptions of intrinsic SRL skills, digital literacy, and ethical conduct as necessary in fostering eLearning academic success in high school students. Theme 2 highlighted teachers' perceptions of extrinsic SRL support systems, guided practice, and collaborative support networks as effective strategies for promoting academic success in high school eLearning environments. Theme 3 stressed teachers' perceptions of technology literacy gaps and overdependence on external supports as key barriers to students accessing SRL instruction in high school eLearning environments. Theme 4 highlighted teachers' perceptions of a misalignment in stakeholder expectations, insufficient SRL training, and restrictive learning frameworks as barriers to implementing SRL with fidelity in high school eLearning environments. Theme 5 reflected on teachers' perceptions of critical needs, including technology training that addresses technological resource integration, communication infrastructure, and monitoring and surveillance to overcome barriers to SRL integration into the high school eLearning environment. Finally, theme 6 emphasized teachers' perceptions of a need for professional

development that addresses knowledge in digital pedagogy and SRL-specific digital pedagogy strategies as necessary to overcome barriers to incorporating SRL into the high school eLearning environment.

Chapter 5 will include a summary and interpretation of the findings from Chapter 4 within the conceptual framework of the established study. It will also discuss implications for social change in high school eLearning environments, limitations of my study, and recommendations for future research. Chapter 5 will end with a conclusion related to the importance of my research study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this basic qualitative study was to explore high school teachers' perspectives on the challenges to successful SRL implementation within the eLearning environment and the technology training needs necessary to overcome challenges. Research in traditional classroom settings indicates that academically successful high school students need to be able to self-regulate by continuously monitoring their progress toward a goal, checking outcomes, and redirecting unsuccessful efforts (Araka, 2020; Canter, 2019); however, there is a lack of empirical research about best practices for supporting SRL in eLearning environments (Aheto, et al., 2024; Garcia et al., 2022; Robson et al., 2020; Savina, 2020). Therefore, the conceptual framework for this study follows Bandura's social learning theory of self-regulation and Zimmerman's model of SRL (Bandura, 1989; Zimmerman, 2002). Based on the research questions, study design, and purpose of the study, a basic qualitative study using semistructured interviews and a thematic analysis process was chosen. This study could assist policymakers in gaining additional insights into the types of resources needed to provide practical professional learning opportunities to promote teachers' use of SRL in the high school eLearning environment. Additionally, the research results could positively impact education by supporting teachers' abilities to facilitate effective SRL within an eLearning environment that may improve students' subsequent learning and future postsecondary success.

I reported on the six themes derived from data based on the categories and codes developed from this framework. Theme 1 explored teachers' perceptions of intrinsic SRL skills, digital literacy, and ethical conduct as necessary in fostering eLearning academic

success in high school students. Theme 2 highlighted teachers' perceptions of extrinsic SRL support systems, guided practice, and collaborative support networks as effective strategies for promoting academic success in high school eLearning environments. Theme 3 stressed teachers' perceptions of technology literacy gaps and overdependence on external supports as key barriers to students accessing SRL instruction in high school eLearning environments. Theme 4 highlighted teachers' perceptions of a misalignment in stakeholder expectations, insufficient SRL training, and restrictive learning frameworks as barriers to implementing SRL with fidelity in high school eLearning environments. Theme 5 reflected on teachers' perceptions of critical needs, including technology training that addresses technological resource integration, communication infrastructure, and monitoring and surveillance to overcome barriers to SRL integration into the high school eLearning environment. Finally, Theme 6 emphasized teachers' perceptions of a need for professional development that addresses knowledge in digital pedagogy and SRL-specific digital pedagogy strategies as necessary to overcome barriers to incorporating SRL into the high school eLearning environment.

This chapter comprehensively analyzes the findings and themes derived from the collected data. I interpret these findings within the conceptual framework outlined in Chapter 2. Additionally, the study acknowledges limitations and proposes recommendations for future research. The implications of the findings are also discussed in relation to the diverse stakeholders involved.

Interpretations of the Findings

The perspectives of high school teachers on implementing SRL in eLearning

environments were reviewed through Bandura's (1986) social cognitive theory of SRL and Zimmerman's (1986) model of SRL. It is important to avoid generalizations in this qualitative study, as the findings reflect the unique contexts and experiences of the individual teachers involved. Each teacher's perspective is shaped by their specific teaching environment, student demographics, and personal beliefs, making it essential to recognize these nuances rather than applying the results broadly. This approach ensures that the rich, detailed insights gained from the study are preserved and respected. Some of the findings of this study confirm the findings from the literature, and I interpreted these results in relation to the themes and the key findings for each.

Research Question 1: SRL Instruction

Theme 1: Intrinsic SRL Skills, Digital Literacy, and Ethical Conduct Foster eLearning Academic Success in High School Students

Based on an analysis of the interviews, the first theme that emerged answered RQ 1: Teachers perceive intrinsic SRL skills, digital literacy, and ethical conduct as necessary for fostering eLearning academic success in high school students. Based on a review of the literature, the findings of the study aligned with the current literature because they emphasize the interconnectedness of these elements in fostering academic success among high school students (Aheto et al., 2024; Dignath & Veenman, 2021; Hadwin, et al., 2022). Based on the interviews, high school teachers recognized that intrinsic SRL skills were an important predictor of student success in the eLearning environment. At the same time, digital literacy equips students with essential competencies to navigate online platforms effectively. Additionally, a focus on ethical

conduct ensures that students learn with integrity, reinforcing the value of responsible behavior in digital contexts.

In relation to the participants' perceptions of intrinsic SRL skills as a predictor of academic success in the high school eLearning environment, numerous studies have also indicated that high school students who actively engage in intrinsic SRL skills demonstrate greater academic success in online contexts (An et al., 2024; Berger et al., 2021; Canter, 2019). The participants in my study emphasized various intrinsic SRL strategies that students needed to navigate eLearning challenges. For instance, many described using goal-setting techniques to create clear academic objectives that align with the findings of Chi et al. (2023) that highlight the significance of specific, measurable goals in promoting SRL.

Additionally, in research by Carter et al. (2020), teachers reported that students who utilized self-monitoring practices, such as tracking their progress and adjusting their study strategies, improved their grades. This aligns with my participants' descriptions of self-starting and problem-solving as key intrinsic SRL skills. This is also consistent with the work of An et al. (2024), who found that students who regularly assess their learning are more likely to develop adaptive learning strategies that enhance academic performance.

Furthermore, the integration of digital literacy as a component of SRL skills was a significant finding in my study that is also supported by current research. Current literature emphasizes that digital literacy is not merely about technical skills; it also encompasses critical thinking, ethical use of information, and the ability to evaluate

sources (Ye & Pennisi, 2022; Ye, 2023). Participants in this study also articulated how students' abilities to engage with digital content critically contributed to their overall academic success. This aligns with the work of Young and Kortecamp (2020), who posited that digital literacy involved cognitive, emotional, and social dimensions, all essential for effective SRL in online learning environments.

Lastly, the ethical conduct observed among students also resonated with existing research highlighting the role of integrity and responsibility in academic achievement. Studies suggested that students who adhered to ethical standards in their digital interactions were more likely to foster positive learning environments and demonstrate better academic performance (Alwerthan, 2024). Participants in this study emphasized that ethical behavior among students positively enhanced student learning experiences in eLearning settings. This finding aligned with current literature that advocated for incorporating ethical education within digital literacy frameworks (Yang & Kortecamp, 2020).

Overall, this theme fits within the framework of Bandura's social cognitive theory of SRL, which posited that the interplay of personal, behavioral, and environmental factors influences learning (Bandura, 1986, 1989, 1993). Bandura emphasized the importance of SRL in enabling individuals to manage their learning processes effectively (Bandura, 1991, 1997). In the context of eLearning, teachers' perceptions from the interviews highlighted that fostering intrinsic SRL skills, such as goal setting, self-monitoring, and self-reflection, were essential for empowering students to navigate the challenges of online education.

Furthermore, Zimmerman's (1986) model of SRL provided additional insight into how these components worked together in an eLearning setting. Zimmerman identified phases of SRL—forethought, performance, and self-reflection—that are crucial for effective learning. Teachers' beliefs about the importance of digital literacy reflected the forethought phase, where students must plan and prepare to engage with online materials (Zimmerman, 1986, 1991; Zimmerman & Kitsantas, 2005). For example, digital literacy allows students to effectively access and evaluate information, a vital skill in today's information-rich environments (Zimmerman & Schunk, 2001). Additionally, participants' perceptions of ethical conduct aligned with the self-reflection phase, where students assess their learning behaviors and choices, ensuring they act with integrity and responsibility in their online interactions (Zimmerman, 1986, 1991; Zimmerman & Kitsantas, 2005).

Overall, the theme underscores the necessity of an integrated approach to fostering academic success in eLearning environments, one that recognizes the importance of developing intrinsic SRL skills, enhancing digital literacy, and promoting ethical conduct. By aligning these elements with Bandura's and Zimmerman's frameworks, teachers could create a more comprehensive support system for students, potentially leading to more effective and integrity-driven online learning experiences.

Theme 2: Teachers Perceive Extrinsic SRL Support Systems, Guided Practice, and Collaborative Support Networks as Effective Strategies for Promoting Academic Success in eLearning Environments

Based on an analysis of the interviews, the second theme that emerged answered

RQ1: Teachers perceived extrinsic SRL support systems, guided practice, and collaborative support networks as effective strategies for promoting academic success in eLearning environments. These findings of the study align with the current literature because they underscored the importance of extrinsic SRL support systems, including calendars, rubrics, reward systems, and choice, as effective strategies for promoting academic success in eLearning environments (Hadwin et al., 2022; Huang & Lajoie, 2021). Current literature also emphasizes the importance of structured external supports, guided practice, and collaborative support networks in facilitating SRL among students, particularly in digital contexts where self-directed learning can be both an opportunity and a challenge (Hart et al., 2019; Kesuma et al., 2020).

In alignment with the research, participants in this study reported that extrinsic supports provided clarity and guidance for students and fostered a sense of accountability crucial for maintaining engagement in online learning settings. In particular, participants mentioned that the effective use of specific tools, such as calendars and rubrics, highlights this support system. This aligns with current research that mentions that using calendars and rubrics is an effective way for students to manage their time better and understand expectations (Chi et al., 2023; Masonheimer, 2023). Research also supports this, suggesting that clear guidelines and structured timelines can significantly enhance student academic performance (Borella et al., 2022). For example, Canter (2019) found that when students are provided with detailed rubrics, they are more likely to grasp the assessment criteria and align their efforts accordingly. This finding is particularly relevant in eLearning environments, where the absence of face-to-face interactions can

create ambiguity regarding academic expectations (Chi et al., 2023; Cloude et al., 2022).

Moreover, according to participant interviews, the incorporation of reward systems and the element of choice emerged as critical components in promoting academic success in the high school eLearning environment. The literature highlights that extrinsic rewards can enhance motivation, particularly when they are linked to students' personal goals and interests (Murayama, 2020). Participants in this study noted that reward systems not only incentivized engagement but also reinforced positive behaviors related to SRL, such as timely submission of assignments and active participation in discussions. Similarly, research has shown that allowing students to make choices regarding their learning materials or project topics has been shown to increase motivation and foster a sense of agency (Yahiaoui et al., 2022). Together, these findings underscored the research noting the necessity of extrinsic motivational strategies in eLearning, suggesting that while students benefit from autonomy, structured supports can significantly enhance their ability to utilize SRL strategies and succeed academically (An et al., 2024; Chou & Zou, 2020; Hadwin et al., 2022).

The participants' further emphasis on the need for guided practice and structured support through modeling in the high school eLearning environment further aligns with contemporary literature, underscoring the importance of guided practice in fostering SRL among students. Research indicated that modeling effective learning strategies not only helped students understand the content but also equipped them with the tools necessary for SRL in digital contexts (Situmorang et al., 2019; Spitzer et al.; 2019; Theobald, 2021; Vosniadou et al., 2020). According to the literature, providing explicit demonstrations of

desired behaviors could facilitate a deeper understanding of the SRL processes critical for eLearning success that is in direct alignment with the findings of this study (Walters et al., 2021).

Similarly, research on guided practice is also aligned with interviews, in which participants describe their practical applications of modeling. The interviews revealed that teachers employed various modeling techniques, such as think-aloud and visual aids, to demonstrate how to approach assignments effectively. This practice is supported by research showing that modeling can significantly enhance students' ability to internalize SRL (Hart et al., 2019). The participants' observations further reflected findings from recent studies indicating that when students see their teachers engaging in SRL, they are more likely to adopt similar approaches, leading to improved academic outcomes in eLearning environments (Theobald, 2021).

Additionally, participants emphasized a need for collaborative support networks to support SRL within the high school eLearning environment. This finding was consistent with recent literature emphasizing the importance of collaboration among parents, students, and teachers in fostering SRL (Jivet et al., 2020). Research indicated that effective communication within these networks enhanced student engagement and cultivated a supportive learning environment crucial for academic achievement in online settings (Scott et al., 2020). Similarly, the participants in this study highlighted how regular communication with parents and peers provided essential scaffolding that helped students navigate their learning experiences more effectively (Scott et al., 2020; Theobald, 2021).

In addition to parental involvement, the significance of effective feedback among participants emerged as a critical component of these collaborative networks. Participants emphasized that timely and constructive teacher feedback guided students in their learning journeys and served as a vital tool for self-reflection and growth, promoting more active engagement with SRL processes. Current research supports this perspective, illustrating that feedback is most effective when it is specific, actionable, and closely tied to learning goals (An et al., 2024; Chou & Zou, 2020; Hadwin et al., 2022). According to Spitzer et al. (2021), integrating feedback within a collaborative framework fostered a culture of continuous improvement, empowering students to adopt SRL strategies that enhanced their academic performance in eLearning environments

This need for structured support fits well within the framework of Bandura's (1986) social cognitive theory of SRL. According to Bandura, extrinsic factors could significantly impact SRL by providing the necessary support and resources that enable students to take control of their learning (Bandura, 1986, 1989, 1993). In the context of eLearning, teachers' perceptions of extrinsic SRL supports revealed how these resources could boost students' self-efficacy, encouraging them to engage more deeply with the material. By recognizing that students benefited from external guidance, teachers could tailor their instructional approaches to provide the scaffolding necessary for students to develop effective SRL skills.

Furthermore, this theme aligns closely with Zimmerman's (1986) model of SRL, which underscores the significance of external support throughout the learning process. Zimmerman delineated the phases of SRL, emphasizing that guided practice is essential

within these phases (Zimmerman, 1986; Zimmerman, 1991; Zimmerman & Kitsantas, 2005). In the forethought phase, for instance, Zimmerman (1991) noted that students benefitted from clear instructions and expectations that assisted them in setting achievable goals and planning their learning activities. Participants in my study similarly identified modeling as an effective strategy for enhancing understanding.

Additionally, participants highlighted the critical role of collaborative support networks in fostering academic success within the eLearning environment. This finding resonates with Zimmerman and Schunk's (2001) assertion regarding the value of collaborative supports and extrinsic SRL skills during the performance phase. Such supports facilitated peer discussions, resource sharing, and feedback, all of which further enriched the learning experience. Finally, during the self-reflection phase, these support systems encouraged students to assess their progress and adapt their strategies, deepening their understanding of their learning processes (Zimmerman, 1986; Zimmerman, 1991). This perspective aligns directly with participants' emphasis on collaborative support networks as essential for facilitating communication and feedback.

Research Question 2: Barriers

Theme 3: Teachers Describe Technology Literacy Gaps and Overdependence on External Supports as Key Barriers to Students Accessing SRL Instruction in High School eLearning Environments

The next theme that emerged answered RQ2: Teachers describe technology literacy gaps and overdependence on external supports as key barriers to students accessing SRL instruction in high school eLearning environments. These findings align

with current literature that highlighted the significant impact of technology literacy on students' ability to engage with SRL strategies in digital contexts. According to Lai and Hwang (2021), as eLearning becomes increasingly integral to educational practices, the disparity in students' technological skills can inhibit their capacity to manage their learning processes effectively. Similarly, participants in this study noted that students with limited technology literacy often struggled to navigate digital platforms, inhibiting their ability to effectively engage with SRL instruction.

Additionally, the interviews revealed that teachers perceived technology literacy as a foundational skill for effectively accessing and utilizing SRL tools. This perspective is corroborated by recent research that indicated that students lacking the requisite digital skills often faced challenges in SRL, such as setting goals, monitoring progress, and reflecting on their learning (Borella et al., 2022; Spitzer et al., 2021; Vosniadou et al., 2020). Situmarang et al. (2019) found that when students are not proficient in using LMS or digital collaboration tools, they may miss critical opportunities for feedback and self-assessment, impeding their ability to develop autonomous learning strategies.

Similarly, participants expressed concerns that a lack of technology literacy could lead to a widening achievement gap, as less technologically savvy students are left behind in eLearning environments. Additional research on the implications of these technology literacy gaps indicated that effective SRL instruction in eLearning settings relies on both students and teachers being proficient with technology (Chi et al., 2023). In alignment with the research, participants indicated that in some instances, they could not leverage digital tools to model and facilitate SRL strategies due to their students' digital literacy

gaps that greatly impacted the overall effectiveness of their instructional practices.

Participants also described an overdependence on external supports as a key barrier to implementing SRL strategies within the eLearning classroom. This finding aligns with current literature that identified overreliance on external supports as a significant obstacle to fostering independence in learners. According to Theobald (2021), when students depend excessively on external resources, they may struggle to develop the intrinsic motivation and SRL skills necessary for successful learning. Participants in this study corroborated the research when they expressed concern that students who frequently seek external validation or assistance often lack the maturity to navigate challenges independently, undermining their ability to engage with SRL practices and the eLearning environment. This is also supported by the research by An et al. (2024), which indicated that an overreliance on external sources of support could stifle the development of autonomy and self-efficacy in learners. Similarly, Hadwin et al. (2022), indicated that students who do not cultivate the necessary skills to engage with SRL may find themselves ill-equipped to tackle academic challenges, leading to decreased resilience and persistence in their studies.

Moreover, the interviews revealed that this overdependence on external supports could manifest in a lack of accountability among students. Current research is aligned with the participants' views, indicating that students conditioned to rely on others for direction may struggle to fully internalize responsibility for their learning (Logan et al., 2021). The literature further emphasized the importance of fostering a sense of accountability, positing that students with strong SRL skills are characterized by their

ability to set goals, monitor their progress, and take ownership of their learning journey (Spitzer et al., 2021; Vosniadou et al., 2020; Walters et al., 2021). According to Hadwin et al. (2022), a lack of accountability can lead to diminished engagement, as students may not feel personally invested in their educational outcomes. Similar studies have shown that when students take ownership of their learning, they are more likely to develop resilience and persistence, crucial for success in eLearning environments (Chi et al., 2023; Lai & Hwang, 2021).

Furthermore, participants suggested that motivation played a crucial role in developing independence in an eLearning environment. They pointed out that students required external motivators for sustained engagement in eLearning environments. This is aligned with research that supports the notion that motivation in high school students is linked to greater persistence in the face of challenges (Blau et al, 2020; Cheng & Yuen, 2020; Jivet, 2020). Araka et al. (2022) found that when students felt motivated, they were more likely to take ownership of their learning. Additionally, Chi et al. (2023) indicated that motivation facilitated goal-setting and self-monitoring, which are critical components of successful SRL and necessary to navigate the eLearning environment effectively.

Based on an analysis of the research, this theme is closely aligned with Bandura's (1986) social cognitive theory of SRL, which posited that the interactions between personal capabilities, environmental factors, and behavior influence SRL. The identified technology literacy gaps highlighted a critical personal factor: students' ability to utilize digital tools effectively. When students lack the necessary skills, their self-efficacy may diminish, leading to frustration and disengagement. Bandura's framework emphasized

that when learners do not feel competent in their environment, their motivation to engage in SRL diminishes, as they may doubt their ability to manage their learning independently (Bandura, 1986, 1989, 1993). Consequently, teachers' recognition of these gaps suggests a need for interventions that enhance students' technology skills to foster a more conducive environment for SRL.

Moreover, this theme is aligned with Zimmerman's (1986) model of SRL, which outlines the phases of forethought, performance, and self-reflection. In the forethought phase, students must be able to set appropriate learning goals and plan their tasks effectively (Zimmerman, 1986; Zimmerman, 1991; Zimmerman & Kitsantas, 2005). According to participants, students without adequate digital literacy cannot adequately set goals and plan tasks within the digital learning environment. When technology literacy is lacking, students may struggle to identify the resources necessary to achieve their objectives, hindering their learning. Additionally, during the performance phase, an overdependence on external supports can stifle the development of self-monitoring and self-control skills, as students may become reliant on guidance rather than learning to assess their progress (Zimmerman, 2000; Zimmerman, 2002). Finally, in the self-reflection phase, students who are overly dependent on external help may not engage in meaningful self-evaluation, limiting their ability to adapt strategies and improve their learning outcomes (Zimmerman, 1986; Zimmerman, 1991; Zimmerman & Kitsantas, 2005).

Theme 4: Teachers Describe a Misalignment in Stakeholder Expectations, Insufficient SRL Training, and Restrictive Learning Frameworks as Key Barriers to Implementing SRL Instruction in High School eLearning Environments

The next theme that emerged answered RQ2: Teachers describe a misalignment in stakeholder expectations, insufficient SRL training, and restrictive learning frameworks as key barriers to implementing SRL instruction in high school eLearning environments. In reviewing the literature on barriers to implementing SRL instruction in eLearning environments, this study confirmed existing research that there is a critical disconnect between the goals of educators and the expectations of students, parents, and administrators. According to Jivet et al. (2020), effective SRL practices for high schools rely heavily on a shared understanding of educational objectives among all stakeholders involved. Further research indicated that when these expectations are misaligned, it could ultimately hinder the implementation of effective SRL strategies due to confusion of the expectations (Connolly, 2020). In alignment with the research, participants expressed that students struggled to navigate the eLearning environment effectively without a cohesive framework that aligned expectations between stakeholders, limiting their opportunities to develop essential SRL skills.

Moreover, the research is aligned with participants' perspectives surrounding stakeholder expectations about teachers' professional development and instructional practices. Research indicates that teachers who lack support from administrators and parents may feel isolated in their efforts to promote SRL strategies (Connolly, 2020). Jivet et al. (2020) documented a need for ongoing communication and collaboration

among all stakeholders involved in developing educational objectives to ensure they are aligned and that teachers feel empowered to implement effective SRL instruction. Addressing alignment issues and promoting consistent educational objectives and frameworks has also been shown to promote an environment where students can thrive and develop the SRL skills necessary for success in eLearning contexts, further aligning with the participant perspectives (Maffei et al., 2022).

Additionally, participants expressed frustration regarding the limited availability of professional development opportunities focused on SRL instruction. Current literature corroborates this view, highlighting that teachers who lack comprehensive training in SRL strategies often feel ill-prepared to integrate these practices into their instructional methods effectively (Chou et al., 2024; Gonzalez & Ramirez, 2022; Kesuma et al., 2020). Similarly, research on teacher training programs indicated that effective SRL training programs enhanced educators' confidence and competence in facilitating SRL, which could ultimately benefit student outcomes (Vosniadou et al., 2020). Additional research by Hadwin et al. (2022) indicated that many educators received insufficient training in key areas of SRL, including goal-setting, self-monitoring, and strategic planning.

Further reinforcing the alignment between stakeholder expectations and a lack of robust SRL professional development, research suggests that when a substantial number of educators lack expertise in SRL, it could directly reflect the school culture and further support a misalignment in stakeholder values (Jivet et al., 2020; Maffei, 2022). Connolly (2020) pointed to this undervaluing of the importance of these strategies as a potential systemic issue. Vosniadou et al., (2020) further indicated by investing in comprehensive

professional development focused on SRL, schools could empower educators to effectively guide students in developing the skills necessary for independent learning in eLearning environments.

Finally, participants also mentioned restrictive learning frameworks as another barrier that exacerbates the issues stemming from misalignment in stakeholder expectations and insufficient training. This aligns with the literature suggesting that rigid curricular structures can stifle innovative teaching practices and limit the flexibility needed to implement SRL instruction (Lai & Hwang, 2021; Logan et al., 2021). Further research conducted by Vaughn et al. (2021) indicated that prescriptive frameworks often dictated how content was delivered, leaving little room for incorporating new strategies, such as SRL, that could enhance student engagement and independence Research by Spitzer et al. (2021) similarly highlighted that restrictive frameworks in eLearning foster a culture that limits student choice and discourages ownership of their learning. This limitation further hinders students' development of SRL skills essential for success in eLearning environments.

Overall, this theme is closely linked to Bandura's (1986) social cognitive theory of SRL because a misalignment in stakeholder expectations creates an environmental barrier that can inhibit teachers' ability to implement SRL effectively. When administrators prioritized outcomes that did not support SRL practices, participants felt pressured to conform to rigid performance metrics rather than to foster SRL behaviors in their students. This misalignment could diminish teachers' self-efficacy, as they may feel unsupported in cultivating an environment conducive to SRL (Bandura, 1989).

Additionally, insufficient SRL training restricts teachers' understanding of how to promote SRL effectively, further contributing to feelings of inadequacy and frustration (Husain, et al., 2021).

Furthermore, this theme aligned with Zimmerman's (1986) model of SRL that outlined critical phases for fostering SRL behaviors: forethought, performance, and self-reflection. Restrictive learning frameworks often limit the essential opportunities for guided practice and feedback in these phases (Cleary & Zimmerman, 2012; Zimmerman, 1991). Without the flexibility to adapt instruction based on students' needs, teachers may struggle to facilitate the forethought phase, where goal setting and planning occur. Similarly, during the performance phase, students may not receive adequate feedback to monitor their learning effectively, undermining their ability to engage in SRL. In the self-reflection phase, restrictive frameworks may inhibit meaningful evaluation and adaptation of learning strategies, further perpetuating the cycle of ineffective SRL instruction.

Research Question 3: Training

Theme 5: Teachers Perceive a Critical Need for Technology Training that Addresses Technological Resources Integration, Communication Infrastructure, and Monitoring and Surveillance to Effectively Overcome Barriers to Incorporating SRL Strategies Into High School eLearning Environments

The next theme that emerged answered RQ3: Teachers perceive a critical need for technology training that addresses technological resources integration, communication infrastructure, and monitoring and surveillance to effectively overcome barriers to

incorporating SRL strategies into high school eLearning environments. In a review of the literature on the integration of technology in educational settings, the findings of the study confirmed the current literature by highlighting teachers' critical need for technology training that focuses on resource integration, communication infrastructure, and monitoring strategies to incorporate SRL strategies into high school eLearning environments effectively.

In a review of the literature on the integration of technology in educational settings, the findings of the study confirmed the current literature by highlighting teachers' critical needs for technology training that focuses on SRL resource integration. This confirmation emphasized a significant trend within educational research - the recognition that teachers often lack the requisite skills and knowledge to harness technology in a way that optimally supports student learning (Chi et al., 2023). The literature suggests that teachers who are not adequately trained in this area may struggle to select and utilize the appropriate resources that align with their instructional goals (Chou et al., 2024; Husain, 2021; Kesuma et al., 2020). As a result, this can lead to fragmented learning experiences, where technology becomes an afterthought rather than an integral part of the curriculum. The findings of the study underscore the necessity for targeted professional development that equips teachers with the skills to seamlessly integrate diverse technological resources, thus enhancing the learning experience for students.

Communication infrastructure is another critical component highlighted in both the literature and the study findings. Effective communication channels are essential for

fostering interactions between teachers and students, particularly in eLearning environments where face-to-face interactions are limited (Aheto et al., 2024). Additional studies have emphasized that teachers need training in various communication platforms to set clear expectations and provide ongoing feedback (Bakkar & Ziden, 2023). When teachers are proficient in these tools, they can facilitate a more interactive and engaging learning environment essential for nurturing students' SRL skills.

Moreover, the research also indicated the importance of establishing a robust communication infrastructure that extends beyond mere technological proficiency; it also encompasses the development of a supportive community among stakeholders (Bakkar & Ziden, 2023). Recent research indicated that fostering a sense of belonging and community can significantly enhance student engagement and motivation in eLearning contexts (Artino & Stephens, 2006). In this study, participants noted that when communication is frequent and constructive, students feel more connected to their teachers and peers, encouraging them to take an active role in their learning. This sense of community helped teachers and students navigate challenges more effectively and reinforced the development of SRL strategies.

Consequently, this theme aligns closely with Bandura's (1986) social cognitive theory of SRL, which emphasizes the role of environmental factors in shaping learning experiences. Bandura posits that individuals are not only influenced by their personal attributes but also by the social context and resources available to them. In the context of this study, teachers' perceptions of the need for technology training reflect an understanding that effective SRL implementation requires adequate support and

resources. By enhancing their technological proficiency, teachers can better facilitate students' ability to engage in self-regulated learning, thereby creating a more conducive learning environment.

Furthermore, this theme resonates with Zimmerman's (1986) model of SRL, which outlines the importance of external support systems during the different phases of SRL. Specifically, during the forethought phase, effective communication infrastructure allows for clearer expectations and goals, enabling students to better plan their learning strategies (Zimmerman, 1986; Zimmerman, 1991; Zimmerman & Kitsantas, 2005). Additionally, teachers' ability to monitor and surveil student engagement with technology can help teachers provide timely feedback that is crucial for fostering student motivation and self-efficacy (Cleary & Zimmerman, 2012). Overall, the need for comprehensive technology training could address immediate barriers and support the broader implementation of SRL strategies, ultimately enhancing the educational experience in eLearning environments.

Theme 6: Teachers Perceive a Need for Professional Development That Addresses Knowledge in Digital Pedagogy and SRL-Specific Digital Pedagogy Strategies as Necessary to Overcome Barriers to Incorporating SRL Into the High School eLearning Environment

The next theme that emerged answered RQ3: Teachers perceived a need for professional development that addresses knowledge in digital pedagogy and SRL-specific digital pedagogy strategies as necessary to overcome barriers to incorporating SRL into the high school eLearning environment. This finding is aligned with research on the

critical gap in teacher preparation for effectively navigating the complexities of eLearning, particularly about fostering SRL among students (Vosniadou et al., 2020; Web et al., 2021). Research by Bakkar and Ziden (2023) indicated that it is essential that educators receive targeted training that equips them with both the conceptual understanding and practical skills needed to implement effective digital pedagogy strategies. According to Wilson (2021), rapid technological advancements and the increasing reliance on digital tools in educational settings further emphasize the urgency of professional development focusing on technological proficiencies and SRL.

Furthermore, in a review of the literature on professional development in digital pedagogy, the findings of this study reinforced the current literature by highlighting teachers' need for training that specifically addresses digital pedagogy and SRL strategies (Web et al., 2021). Additional studies indicated that effective professional development should be ongoing, collaborative, and closely tied to teachers' instructional practices, including integrating best practices into eLearning environments (Patfield et al., 2021). Participants in this study expressed that current professional development offerings often lack focus on integrating SRL strategies within digital pedagogy, leaving them ill-prepared to meet their students' needs. As seen in the literature, this disconnect can lead to a reliance on traditional teaching methods that do not support students in developing essential SRL, ultimately undermining their success in an eLearning context (Araka et al., 2020).

Participants indicated that without such targeted professional development, they faced significant barriers to effectively incorporating SRL into high school eLearning

environments. This sentiment aligned with research showing that teachers often feel overwhelmed by the demands of digital instruction and may not have the necessary training to facilitate SRL effectively (Maffei et al., 2022; Patfield et al., 2021). Additional research on effective professional development practices in eLearning indicated that teachers need professional development that covers digital tools and provides specific strategies for promoting SRL, such as goal-setting, self-monitoring, and reflective practices (Hadwin et al., 2022; Theobald, 2021; Vosniadou, et al., 2020).

Ultimately, addressing the need for comprehensive professional development in digital pedagogy and SRL is crucial for overcoming barriers in eLearning environments. The literature suggested that when educators receive appropriate training, they are more likely to implement effective teaching strategies that promote student engagement and autonomy (Patfield et al., 2021). Similarly, participants in this study emphasized that targeted professional development could empower them to integrate SRL practices more seamlessly into their teaching, thus enhancing students' abilities to navigate the eLearning landscape successfully.

Consequently, this theme aligns with Bandura's (1986) social cognitive theory of SRL, which emphasizes the interplay between individual capabilities, environmental factors, and social influences in shaping learning behaviors. Bandura asserted that for learners to develop SRL skills, they must be equipped with the knowledge and the necessary tools to apply that knowledge effectively (Bandura 1986; Bandura 1989). In this context, professional development in digital pedagogy empowers teachers with the skills needed to facilitate SRL practices, thereby creating a supportive environment that

encourages student autonomy and motivation.

Moreover, this theme connects with Zimmerman's (1986) model of SRL, which delineates the importance of strategic learning processes throughout different phases of SRL. In particular, the forethought phase, which involves planning and goal setting, can be enhanced through professional development that equips teachers with effective digital strategies for guiding students (Zimmerman, 1986; Zimmerman, 1991; Zimmerman & Kitsantas, 2005). Furthermore, during the performance phase, teachers trained in SRL-specific digital pedagogy can better support students in monitoring their learning and making adjustments as needed (Zimmerman, 1986; Zimmerman 1991). Ultimately, by investing in professional development that encompasses both digital pedagogy and SRL strategies, schools could create a robust framework that not only addresses immediate barriers but also promotes long-term student success in eLearning environments.

Limitations of the Study

The three limitations of my study are related to the potential weaknesses of the study design. One significant constraint is the sample size, which consists of only ten teachers. While this number allows for in-depth exploration of individual experiences and perspectives, it limits the generalizability of the findings. A larger sample size would provide a broader understanding of the phenomena under investigation and help to capture a more diverse range of viewpoints, thereby enhancing the validity of the conclusions drawn from the study.

Another limitation stems from the potential for researcher bias inherent in qualitative research. While qualitative research is assumed to be subjective and dependent

on the researcher's interpretation, as the primary instrument for data collection and analysis, I must acknowledge that my perspectives and preconceptions may inadvertently influence the interpretation of the data (Ravitch & Carl, 2016). This bias could affect how participants' responses are framed and understood, potentially leading to a skewed representation of their experiences. To mitigate this, I employed reflexive practices throughout the research process, but the possibility of bias remains a concern that must be considered when evaluating the findings of this study.

Additionally, applying the findings to other contexts presents another limitation of this qualitative study. The unique circumstances of the participants—such as their specific teaching environments, student demographics, and institutional cultures—may not be representative of other settings. Therefore, while the insights from this study may offer valuable implications for practice, caution should be exercised when extrapolating the results to different educational contexts.

A final limitation of this study was the lack of a formal codebook during the data analysis process. This may have introduced the risk of inconsistency in coding, as interpretation can evolve over time. However, an audit trail was maintained through a reflexive journal, where I documented key decisions, coding choices, and reflections throughout the analysis. This journal captured insights into the rationale behind the coding process, as well as any adjustments made to the codes as new themes emerged. The reflexive journal helped ensure transparency and consistency in the analysis by providing a clear record of the researcher's thought process and self-reflection, thereby enhancing the credibility and trustworthiness of the findings despite the absence of a

formal codebook.

Recommendations

Five recommendations for further research based on the study results and limitations of the study are offered. The first recommendation is related to the finding that teachers describe a misalignment in stakeholder expectations, insufficient SRL training, and restrictive learning frameworks as key barriers to implementing SRL instruction in high school eLearning environments. Therefore, more research needs to be done about the perspectives of various stakeholders, including administrators, policymakers, and parents, regarding the importance and implementation of SRL instruction so that a deeper understanding can be attained regarding how these diverse viewpoints influence the alignment of expectations and support structures within educational institutions. Additionally, investigating the effectiveness of targeted training programs for teachers in SRL strategies may elucidate ways to enhance instructional practices and mitigate the barriers identified.

The second recommendation is related to the study finding that teachers describe technology literacy gaps and overdependence on external supports as key barriers to students accessing SRL instruction in high school eLearning environments. Therefore, more research needs to be done about the specific technological competencies required for effective SRL instruction and the factors contributing to students' technology literacy gaps so that a deeper understanding can be developed regarding how these gaps impact students' engagement with SRL strategies and their overall academic performance. Furthermore, exploring the role of professional development for teachers in bridging

these literacy gaps could provide valuable insights into enhancing instructional practices and fostering a more conducive eLearning environment for all students.

The third recommendation is related to the study finding that teachers perceive a critical need for technology training that addresses technological resources integration, communication infrastructure, and monitoring and surveillance to effectively overcome barriers to incorporating SRL strategies into high school eLearning environments. Therefore, more research needs to be done about the specific components of technology training programs that best equip teachers to integrate SRL strategies within their instructional practices so that a deeper understanding can be developed regarding the effectiveness of various training modalities and their impact on teachers' confidence and competency in utilizing technology. Additionally, examining the relationship between robust communication infrastructure and teachers' ability to monitor student progress could provide insights into optimizing eLearning environments for fostering student autonomy and engagement in SRL.

The fourth recommendation is related to the study finding that teachers perceive a need for professional development that addresses knowledge in digital pedagogy and SRL specific digital pedagogy strategies as necessary to overcome barriers to incorporating SRL into the high school eLearning environment. Therefore, more research needs to be done about the design and implementation of professional development programs that effectively integrate digital pedagogy with SRL strategies so that a deeper understanding can be gained regarding how such training influences teachers' instructional practices and their ability to facilitate SRL among students. Investigating the

pedagogical approaches that resonate most with teachers and the contextual factors that impact their implementation could yield valuable insights into creating more effective professional development frameworks tailored to the unique challenges of eLearning.

The last recommendation is related to the limitations of this study. This qualitative study, while illuminating the perspectives of ten teachers, is subject to several inherent limitations that must be acknowledged. The small sample size restricts the generalizability of the findings, as the experiences and insights of these ten teachers may not accurately reflect the broader educational landscape or the diversity of teaching practices across different contexts. Furthermore, relying solely on interview data introduces potential biases related to participant self-selection and social desirability that could influence the responses' authenticity. While rich in detail, the qualitative approach also limits the ability to triangulate findings with other data sources, such as classroom observations or quantitative measures of student performance, which could have offered a more comprehensive understanding of the phenomena under investigation. Additionally, the subjective nature of qualitative analysis necessitates caution in interpreting results, as the researcher's perspective may inadvertently shape the themes identified. These limitations underscore the need for further research employing a more extensive and diverse participant pool and a mixed-methods approach to deepen the understanding of the factors influencing teachers' experiences of using SRL in an eLearning environment.

Implications

The study will contribute to positive social change in several ways. First, at the

individual level, it will enhance teachers' understanding of SRL strategies within eLearning environments, empowering them to better support their students' autonomous learning and motivation. Secondly, there is also potential for change at the organizational level, as the findings may inform the development of training programs and policies that foster a culture of SRL among teachers and learners alike. Thirdly, this study may also advance knowledge in the field of educational technology because it highlights the specific challenges and opportunities teachers face in implementing SRL strategies in digital contexts. By identifying effective practices and tools, this study can contribute to the ongoing discourse on enhancing eLearning experiences for teachers and students.

This study may have broader implications for educational equity, as it emphasizes the importance of equitable access to eLearning resources and support systems. By identifying best practices for promoting SRL, the study can inform policymakers and educational leaders on implementing targeted interventions and allocating resources effectively. This is particularly vital in an increasingly digital learning landscape, where disparities in access to technology and training can exacerbate existing inequities. By fostering an understanding of how to create inclusive eLearning environments, this study contributes to a broader movement toward educational equity, ensuring that all students have the opportunity to succeed in their educational endeavors, regardless of their individual circumstances.

Another contribution that this study makes to positive social change is in relation to improved professional practice concerning teacher training and development. By investigating teachers' perceptions of SRL in an eLearning environment, this study

provides critical insights into the specific skills and knowledge that teachers need to effectively foster SRL among their students. The findings of this study will identify best practices and effective pedagogical strategies that can be incorporated into teacher training programs, thereby equipping teachers with the tools they require to create eLearning environments that promote SRL.

Conclusion

In summary, online education is evolving, and understanding high school teachers' perspectives on the challenges to successful SRL implementation within the eLearning environment and the technology training necessary to overcome challenges is becoming increasingly important. The evolving landscape of eLearning necessitates a strong emphasis on SRL as a key component for student success. Current literature and participant responses reveal that while eLearning offers significant potential for personalized and flexible learning experiences, teachers' challenges in implementing SRL are substantial and require attention. The six themes identified from teachers' beliefs shed light on the specific obstacles, such as technological barriers and insufficient training, that hinder the effective integration of SRL practices into the eLearning environment. Addressing these challenges through targeted professional development and improved access to technological resources is essential for empowering teachers to create more supportive and effective eLearning environments. Ultimately, fostering SRL in digital contexts is crucial for enhancing teaching practices and ensuring equitable and successful learning outcomes for all students.

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Appendix A: Interview Protocol

Date: _____
Location: _____
Time: _____
Interviewer: _____
Number of Participant(s): _____
Name of Digital Copy: _____
File Name of Transcription: _____

Interviewer:

Thank you for your interest in participating in my research study. Before we get started, I wanted to share a bit about myself and why I am doing this study as part of my doctoral research. I have been a teacher for 12 years at both the middle and high school level where I taught English and reading to a variety of students from students with disabilities to students with gifted eligibility. Most of my experience is in a traditional classroom setting, so the goal of this research is to understand how teachers perceive SRL instruction as a support for academic achievement, the challenges in implementing SRL, and the technology and training needs required for overcoming SRL within the eLearning environment. I value your opinion on the subject matter as I am interested in learning what works and what does not. Ultimately, this study will inform future secondary educational research and professional development efforts about strategies and practices that may be useful in supporting self-regulatory development in high school students being educated in an eLearning environment.

I wanted you to know that I have a specific definition of self-regulation, which is a set of skills used to self-direct learning, including self-evaluation, organizing information, setting goals, selecting appropriate learning strategies, maintaining motivation, seeking assistance, and monitoring progress. As you answer my questions today, please keep this definition in mind.

Thank you so much for volunteering to participate in this interview today. I appreciate your time and expertise. I am looking forward to seeing the world from your point of view. I want to understand the meaning of your experience, to walk in your shoes.
I will be audio recording our interview today, so that I may make a transcript, and so that I can be sure to have an accurate record of what you share with me today.

Before we get started do you have any questions?

[START RECORDING]

Background Screening and Introductory Questions

Before we get started with the official interview, I'd like to learn a bit more about you

and your experiences with teaching and eLearning.

What is your current level of education?
What is your current role within the school?
How long have you been teaching in an eLearning environment?
What grades do you currently teach?
What subject do you currently teach?

Option A: Thank you. Let's go ahead and move into the interview questions.
Option B: Thank you so much for your willingness to participate. However, after talking with you, I'm not sure you have the depth of experience in teaching in the eLearning environment that I need to answer my research questions. Thank you for your time.

Table of Interview Questions

Transition Statement: My first group of questions relate to how you perceive self-regulated learning as a support for academic achievement in eLearning. Just as a reminder, for this interview, self-regulation is a set of skills used to self-direct learning, including self-evaluation, organizing information, setting goals, selecting appropriate learning strategies, maintaining motivation, seeking assistance, and monitoring progress.

RQ1	**Interview Questions**	**My Notes**
How do high school eLearning teachers perceive the importance of SRL instruction for their students?	**IQ1:** *What skills do you believe students must have to be successful in the eLearning classroom?*	
	Prompt: *Please explain your response more.*	
	IQ2: *What skills do you believe students demonstrate as a result of having self-regulation in the eLearning environment?*	
	Prompts: *Please give me more detail about…*	
	IQ3: *What strategies do you use to teach/ facilitate self-regulation through:* *Student-directed learning?* *Goal setting?* *Self-monitoring?* *Strategy selection?* *Maintaining motivation?*	
	Prompt: *Please explain….*	
	IQ4: *Please talk about any strategies you use to teach self-regulation skills to*	

	high school students in the eLearning environment other than those previously mentioned.	
	Prompt*:* *Please give me more detail about…*	

Transition Statement: My next set of questions are related to your persistence in overcoming barriers to SRL instruction in eLearning environments.

RQ2	**Interview Questions**	**My Notes**
What do teachers describe as barriers to SRL instruction in eLearning environments?	**IQ5:** *What barriers to promoting self-regulation have you experienced in the eLearning environment?*	
	Prompts: *Please explain your response more.*	
	IQ6: *How have you overcome barriers to promoting self-regulation in an eLearning environment?*	
	Prompts: *Please give me an example…*	

Transition Statement: My last set of questions are related to technology and training needs for overcoming barriers to SRL instruction in eLearning.

RQ3	**Interview Questions**	**My Notes**
What do teachers perceive as technology training needs for overcoming barriers and incorporating SRL in eLearning environments?	**IQ7*:*** *What do you need to teach self-regulation skills more effectively to high school students in the eLearning environment?*	
	Prompts: *Please explain…*	
	IQ8: *What technology training needs would make you feel more successful at integrating self-regulatory skills into an eLearning environment?*	
	Prompts: *Please tell me more about….*	
	IQ9: *What professional development opportunities have you been offered related to self-regulation and technology integration?*	
	Prompts: *I need more detail, please…*	

	IQ10: *What professional development opportunities would you like to see offered related to self-regulation and technology integration?*	
	Prompts: *Please give me an example of …*	

Final IQ:
What else about self-regulation in eLearning would you like to add that has not already been discussed?
What else would you like to add?

Thank you so much for your time. Again, this interview is confidential. I will be providing you with an abstract of the final study as a way to provide you with the results of this research.