Graduate students' understanding, perception, and preference of time management in online learning

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Graduate Students’ Understanding, Perception, and Preference of Time Management in Online Learning

by

Majed M Ali

A Dissertation

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Abstract

The focus of this study is to explore graduate students’ understanding of time management in online learning environments. The study also explores how the graduate students perceive and prefer to receive regularity of learning feedback. Specifically, an exploratory study was conducted following a sequential mixed methods design, dominated by a qualitative approach. Thirty-three participants voluntarily agreed to participate in this study. Six participants out of the 33 agreed to participate in the in-depth interviews. The Constructivist Grounded Theory approach was applied to collect and analyze the qualitative data. The quantitative data was collected separately and analyzed statistically. From analyzing the qualitative data, two main themes were identified: Beliefs and strategies. Results of this study indicate that the concept of a regular and fixed learning schedule for online courses is a new concept for many of the participants. The results also indicated that online learners appreciate the flexibility in online learning, however, they would appreciate receiving support and feedback about their time management. While there were no significant differences among the participants’ SRL levels, age range, gender, enrollment, employment and the students’ perception toward regularity of learning feedback, the overall results the quantitative data indicated that students' perceptions of the feedback were positive.

Keywords: online learning, self-regulated learning, time management, regularity of learning, feedback, learning analytics.
DEDICATION

This dissertation is dedicated to my parents, my father Mushabab and my mother Hadba. Distance may have separated us geographically over the years, but your prayers and endless support during my pursuit of this degree enabled me to achieve my dream.

It is also dedicated to my beloved wife, Fatmah, who sacrificially gave of her time to support my goals and encouraged me to continue the journey. Your continuous love and support what kept me sustained over the years. I will be forever grateful for your reassurance and patience. I love you.

To my daughter, Demah, you always put a big smile on my face. We will now have all the time in the world to play together. I love you from the bottom of my heart.

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Chapter 1: Introduction

The enrollment rate in online courses is rising annually at all educational levels (Allen & Seaman, 2015). Parallel to this trend, self-regulated learning (SRL), the ability to control, manage, and plan learning actions (Zimmerman, 2008), has been found to be central to learners’ success in online environments (Winters et al., 2008). However, previous research has shown that online learners struggle due to the lack of appropriate and timely use of SRL strategies (Azevedo, 2005).

In particular, time management and efficient use of time, as a key aspect of self-regulated learning (SRL), is one of the challenges online learners face (Hofer et al., 1998; Pintrich & DeGroot, 1990; Pintrich et al., 1993; Zimmerman, 2002). Time management, among other metacognition and SRL strategies such as effort regulation and critical thinking, were found to be positively associated with academic achievement (Britton & Tesser, 1991; Broadbent & Poon, 2015; McKenzie & Gow, 2004; Richardson et al., 2012; Zimmerman & Pons, 1986). Kwon (2009) and Choi and Choi (2012) found that time management is related to learners' SRL and is an influential factor in online learning success. As research has identified a significant positive relationship between SRL strategies and online academic success (Broadbent & Poon, 2015), providing SRL support to learners is assumed to improve their online academic success (Wong et al., 2019).

Since almost all higher education institutions use learning management systems (LMS) such as Blackboard to deliver online courses, SRL researchers view the LMSs’ data as real-time and objective data that represent the students' SRL behaviors (Jeske et al., 2014; Montgomery et al., 2019). LMS systems record students' log data, including time management actions such as access and time spent, frequency, and regularity of access (Coates et al., 2005; Jo et al., 2016).
Researchers found that the time management strategies are the most significant SRL behavior identified through LMS data (Asarta & Schmidt, 2013; Jo et al., 2015; Jo et al., 2014; Zacharis, 2015; You, 2016).

It was recommended that the regularity of learning should be given more attention in academic research (Asarta & Schmidt, 2013; You, 2016). SRL support and training were found to be effective ways to improve the learners’ SRL (Pintrich, 1995; Zimmerman & Schunk, 2001). Before designing or providing such support, it will be worth knowing how learners actually understand and manage their time when learning in online learning environments. However, the literature in this area is limited. Therefore, the aim of the mix method study is to explore how graduate students understand time management in online learning environments. This dissertation also explores the learners' perceptions and experiences that online learners have about time management and its skills. Figure 1 describes the overlapping areas of interest on which the study will focus on.

SRL and time managements specifically were positively connected, via an extensive amount of quantitative research, with good academic performance (Broadbent & Poon, 2015). Unpacking how online learners, particularly graduate students who have other responsibilities besides academic learning, understand and perceive time management in online learning environments is essential. This study aims to help researchers understand time management from the perspective of learners. It will assist instructional designers in designing learning systems, dashboards, and online courses with clear expectations about what students want and need. Instructors will also be benefiting from this study's outcomes as it will clarify how to provide time management tips and interventions for students in online learning environments. It is also
substantial to explore the meaning of some of the time management strategies and whether external feedback will promote the learners' SRL.

To address this gap in the literature, a mixed methods design dominated by a qualitative approach as the core component of the study and the quantitative as the supplemental component was used to explore graduate students' understanding of time management in online learning environments.

**Figure 1**

*Study Area of Interest*

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**Theoretical Framework**

The theoretical foundation of this investigation was derived from the Winne and Hadwin's Model of self-regulated learning (1998) and the Hattie and Timperley's (2007) framework of effective feedback.
Winne-Hadwin Model of Self-Regulated Learning

Winne and Hadwin's Model was selected because it has a robust metacognitive perspective, making it very suitable for this study to investigate the students' time management in online learning environments. Furthermore, since this study's context is a fully online learning environment, which required high SRL skills, the model stresses student agency and assumes that students are responsible to actively monitor and use metacognitive strategies to manage their learning (Winne & Hadwin, 1998; see Figure. 2).

In general, the Winne and Hadwin model describes four stages of SRL: (1) task definition, (2) goal-setting and planning, (3) enacting the tactics and strategies chosen in stage 2, and (4) metacognitively adapting studying techniques and looking for future needs. Also, under each phase, there are five elements referred to as (COPES): (1) conditions, (2) operations: processes and tactics, (3) products: information created by operations, (4) evaluation products: feedback (internal or external), and (5) standards: criteria for monitoring products. In essence, Winne and Hadwin’s (1998) model distinguishes between the task analysis stage and the planning and goal setting stage.

Winne and Hadwin (1998) posit that having accurate expectations of the task depends on how learners define the task, set goals, and plan to achieve them (stage 1& 2) (Winne & Hadwin, 1998). The authors also believe that all stages and their subsidiary elements are influenced by different conditions. External task-related conditions (e.g., social and contextual factors, time, task complexity, resources and environment), and internal cognitive conditions (e.g. beliefs, interest, self-efficacy, prior domain knowledge) influence the learning process which apprise operations and standards that learners bring off when executing a task (Winne & Hadwin, 1998, 2008).
Operations are the cognitive processes, tactics, and strategies that learners used to process information. Winne and Hadwin (1998) refer to these operations by the acronym SMART (Searching, Monitoring, Assembling, Rehearsing, Translating). These operations might be internal or external which create both internal products (e.g., a plan of how to solve a learning task) and external products (e.g., tactics and strategies) (Winne et al., 2011; Winne, 2001).

Figure 2
The Winne-Hadwin Model of Self-Regulated Learning

Through a metacognitive monitoring process, products are monitored and compared to a set of standards to determine how the standards and products are aligned with each other (Panadero, 2017). This phase is the evaluation phase which plays a crucial role in Winne and
Hadwin’s (1998) model as its results can show a difference between standards and products which inform learners to make major adaptations and choose tactics and strategies that can reduce the discrepancy (Greene & Azevedo, 2007). The monitoring is considered as an inherent component of SRL in Winne and Hadwin’s (1998) model, however, not all learners utilize monitoring processes while learning (Winne & Jamieson-Noel, 2002). In addition, in some cases, learners need to seek external feedback from agents such as instructors, peers, or systems (Hattie & Timperley, 2007). Therefore, providing adequate time for SRL training and support is important (Perry, 1998). Scientific research has demonstrated that learners who receive support in the importance of SRL and how to improve SRL tend to perform better than learners who receive no SRL training (Azevedo & Cromley, 2004; Bannert & Reimann, 2012).

**Hattie and Timperley's (2007) Framework of Effective Feedback**

As discussed in Chapter 2, previous research suggests that when studying the feedback effectiveness, student perceptions of the feedback should be considered. Learners will not use feedback to make changes in their learning if they do not understand the feedback and perceive it as beneficial to their learning (Paulson Gjerde et al., 2017). Therefore, Hattie and Timperley's (2007) framework of effective feedback served as the basis for a part of this investigation, which is the regularity of learning feedback experiments. Hattie and Timperley (2007) state that effective feedback must answer three major questions: Where am I going? (What are the goals?), How am I going? (What progress is being made toward the goal?), Where to next? (What activities need to be undertaken to make better progress?). One of the three levels of feedback that Hattie (2012) introduced is the self-regulation/conditional level, in which students improve their ability to monitor their learning and progress.
Significance of the Study

Time management is a crucial aspect of SRL that is highly associated with academic achievement (Broadbent & Poon, 2015; Richardson, Abraham, & Bond, 2012; Zimmerman & Pons, 1986). However, learners are still struggling in online learning environments due to the lack of appropriate and timely use of SRL strategies (Azevedo, 2005). The studies that correlate SRL, specifically the learners' time management and strategies, with good academic performance, were mostly quantitative in nature (Broadbent & Poon, 2015). There is a significant gap in qualitative research on how students actually regulate and manage their online
learning time. It became vital that we explore how online learners understand and perceive time management in online learning. This study aims to profoundly and qualitatively help researchers understand this metacognitive concept from the learners' perspectives. In addition, there is enough evidence in the literature that learners can improve their SRL skills if they were trained and provided with support (Pintrich, 1995; Zimmerman & Schunk, 2001). However, there is no existing research investigating whether learners would benefit from feedback about the skills of the regularity of learning in particular. This study also explores the online learners' perspectives and preferences about receiving feedback about their regularity of learning. The findings of this study would further assist researchers, instructional designers, and instructors in better understanding how learners understand and perceive time management in online learning, so they know what to present to students, how and in what format, and when to intervene and provide timely and appropriate feedback to learners about their learning time.

**Research Purpose and Research Questions**

The purpose of this research study is to investigate the graduate students’ understanding, perception, and preferences of time management in online learning environments. Extensive effort has approved the significance of SRL strategies, including time management, for effective online learning. Many recent tools and systems have been developed to support online learners’ SRL. Variation of students’ characteristics, needs, and abilities may influence students’ understanding, perceptions, and preferences of SRL strategies and feedback. For instance, graduate students, who are the most likely to take online courses, have schedules and more other responsibilities that overlap with their learning tasks.
Exploring the students’ understanding, perception, and preference of time management in online learning can provide insights to researchers, instructors and designers who are willing to support or examine the students’ time management in online learning.

Therefore, the primary research question with which this study is concerned is:

1) How do graduate students understand time management in online learning?

This study's secondary questions are:

2) How do graduate students perceive feedback about their regularity of learning?

3) How do graduate students prefer receiving feedback about their regularity of learning?

To answer the primary question, a qualitative approach using the Constructivist Grounded Theory was applied via in-depth interviews. The secondary research questions were answered by using by a quantitative approach to examine the graduate students’ perception and preference. The applied mixed methods design in this study was an inductive-sequential design, where the core component was qualitative, and the supplemental component was quantitative.
Definition of Terms

Online learning

In the literature, there is little agreement on the definitions of several terms such as computer-based learning, distance learning, online learning, web-based learning, e-learning, and cyberlearning (Moore et al., 2011). Mostly, these definitions are used interchangeably (Tsai & Machado, 2002). Online learning is used as an umbrella term to refer to learning that occurs on the internet (Moore et al., 2011). The definition developed by (Seaman et al., 2018) was used in this study: “A course in which the instructional content is delivered exclusively via distance education. Requirements for coming to campus for orientation, testing, or academic support services do not exclude a course from being classified as distance education” (p. 5)

Self-regulated learning

Self-regulated learning (SRL) is defined as “the process whereby learners personally activate and sustain cognition, affects, and behaviors that are systematically oriented toward the attainment of personal goals” (Zimmerman & Schunk, 2011, p. 1)

Time management

Time management is defined as “behaviors that aim at achieving an effective use of time while performing certain goal-directed activities” (Claessens, Van Eerde, Rutte, & Roe, 2007, p. 262).

Regularity of learning

Regularity of learning is defined as the extent to which learners regularly engage in learning (Jo, Kim, & Yoon, 2014). Regularity of learning is also defined as the degree to which learners tend to study at the same time of the day (Dovrak & Jia, 2016).

Feedback
Feedback is defined as “information with which a learner can confirm, add to, overwrite, tune, or restructure information in memory, whether that information is domain knowledge, metacognitive knowledge, beliefs about self and tasks, or cognitive tactics and strategies” (Winne & Butler, 1994, p. 5740)

**Learning Analytics**

Learning analytics (LA) is an emergent field that is defined as "the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs" (Learning Analytics & Knowledge- LAK, 2011).
Chapter 2: Literature Review

This chapter reviews the literature informing this study. This review of literature begins with exploring the previous online learning studies and discusses how the number of students enrolled in online courses is rapidly rising. The review also discusses the advantages and challenges in the online learning such as access to education increase, cost reduction, and self-regulated learning (SRL). More specifically, this review of studies explains how SRL is essential for learners enrolled in a self-paced online learning environment. It also looks at the importance of time management as a sub-element of SRL. Then, the review summarizes the current efforts and tools that aim to identify, measure, and support learners’ SRL and time management strategies. Lastly, the review of literature explores how educational feedback can be utilized to enhance the time management among online learners.

Online learning

The field of distance education keeps evolving, and the number of students pursuing their degrees online is increasing due to the increased internet access and the rapid development of educational technologies (Greenland & Moore, 2014; Johnson & Aragon, 2003). Online learning is becoming popular internationally, reducing the traditional face-to-face education's temporal and spatial issues (Panigrahi, Srivastava, & Sharma, 2018). Online learning is an excellent option for students who cannot attend physical classes due to difficult schedules or distant locations (Waschull, 2001).

In the literature, there is little agreement on the definitions of several terms such as computer-based learning, distance learning, online learning, web-based learning, e-learning, and cyber-learning (Moore, Dickson-Deane, & Galyen, 2011). Mostly, these definitions are used interchangeably (Tsai & Machado, 2002). Therefore, the term “online learning” is used in this
study as an umbrella term to refer to learning that occurs on the internet (Moore et al., 2011). Unlike the traditional face-to-face classroom interaction (Artino & Jones, 2012), synchronous and asynchronous are the two main ways of providing online learning (Jolliffe et al., 2012) where student/teacher interaction and communication occur in a virtual environment (Ku & Chang, 2011). Accessing learning materials anytime from anywhere and the uniformity of content differentiate the asynchronous learning from the synchronous learning in online platforms (Panigrahi et al., 2018). Blended learning -online learning with face-to-face learning- is indicated to have positive learning outcomes as well (Chang, 2016).

Improving access to education, quality of learning, reducing the cost, and improving the learning cost-effectiveness are the leading causes behind adopting online learning (Bates, 1997). Therefore, the online learning market has experienced substantial adoption growth by educational institutions and is expected to reach 65.41 billion dollars by 2023, growing with an average rate of 7.07% (Research and Markets, 2018). As a result, the use of learning management systems (LMS), is expecting a dramatic increase by 2025 with a growth rate of 15.52% to reach 18.44 billion USD compared to 5.05 billion USD in 2016 (Research & Markets, 2018). According to (Allen & Seaman, 2015), 70.7 percent of the public institutions in the United States offer online education. In 2013, it was found that the number of students taking online courses was increasing annually, and more than 25% of undergraduates students in the United States are enrolled at least in one online course (Allen & Seaman, 2015).

The enrollment rate in online courses increases faster than the enrollment rate at all the higher education institutions (Lokken & Mullins, 2015). As reported by (Allen et al., 2016), the 2014 data from the US Department of Education indicated that more than 2.8 million college students- represent about 14% of all higher education enrollment- were taking online courses
only and nearly the same number of students were enrolled in some online courses. The number of graduate students who enrolled in online courses was near one million students (Allen et al., 2016) due to the flexibility that online learning provides to graduate students and working adults (McClintock et al., 2013) who need to complete their education and have a secure income at the same time. Instructors are turning to online and blended learning as well. One of the reasons behind that is to benefit from the technologies that are not available in face-to-face classrooms (Johnson et al., 2015).

Completion of online courses is still an issue (Nilson & Goodson, 2018). The average retention rate among first time fully online students (55%) is lower by more than 20 percent than the national average retention rate (77%) in traditional and online courses (Burnsed, 2010). Some studies show that the completion rate in online learning differs by discipline but is still lower than face-to-face courses (US Department of Education, 2010; Atchley et al., 2013). Lack of physical contact between the instructor and students is another key challenge in online learning environments (Coyner & McCann, 2004; Hockridge, 2013; McClintock et al., 2013; Swaggerty & Broemmel, 2017). However, online learning literature emphasizes that interaction is significant for effective distance education (Zhao et al., 2005). That was confirmed by a meta-analysis study conducted by (Means et al., 2013), which found that students in blended learning, where students partially meet with the instructors, had a higher outcome level than the fully online learners. Similar results were found by (Baran et al., 2013).

Despite all the advantages the online learning environment offers, students are required to be autonomous and actively engaged to succeed in such online self-directed learning (Wang et al., 2013; Serdyukov & Hill, 2013). As students can learn at their own pace, self-discipline is required in online learning environment (Allen & Seaman, 2007). Unlike face-to-face learning,
engagement- as a critical element in education- is lower in technology-based learning environments (Hu & Hui, 2012). To overcome this issue, researchers have been suggesting some strategies such as feedback, incentives (e.g., badges), buddy ing (new entrant is 'buddied up' with an old-timer), and briefing (starting the module/sessions with overview and wrap-up with summary or conclusion) to improve students' engagement and retention in online learning (Nazir et al., 2015). Self-regulated learning and metacognitive supports in particular may enable learners to think and reflect on learning tasks (Hannafin et al. 1999; Winters et al., 2008).

**Self-Regulated Learning**

The field of research on student motivation and learning in higher education has many different models and perspectives. The contrast between how a student approaches learning (SAL) and the information processing (IP) approach has been identified as a key distinction in this field (Pintrich, 2004). SAL models are bottom-up models that are mostly based on qualitative interviews with students about their motivation and learning in higher education, usually used in Europe and Australia (Biggs, 1993; Dyne et al., 1994; Entwistle & Waterston, 1988; Marton & Saljo, 1976). The IP approach is a top-down approach, using quantitative methods derived from educational psychology, cognitive theories, and psychological constructs (Biggs, 1993; Dyne et al., 1994; Entwistle and Waterston, 1988), usually used by researchers in North America (e.g., Pintrich et al., 1991, 1993; Weinstein et al., 1988). The IP approach did not address student motivation (Biggs, 1993), emotion, behavior, and human agency (Bandura, 2006; 2000). Therefore, SRL became a more comprehensive perspective on student learning as it addresses cognitive, motivational, social, and emotional aspects, especially with higher education students (Panadero, 2017; Pintrich, 2000; Winne & Hadwin, 1998; Zimmerman, 2000). SRL represents a major topic in educational research and has dramatically impacted research on
learning and instruction for several decades (Winne, 2005). Scholarly work in SRL theory has increased and expanded in recent years, which produced several models of SRL (Sitzmann & Ely, 2011).

In an extensive review of SRL literature, Panadero (2017) identified the SRL models that are still actively used and have a consolidated theoretical and empirical background. These six models are Zimmerman (2000); Boekaerts (2011); Winne and Hadwin (1998); Pintrich (2000); Efklides (2011); and Hadwin, Järvelä and Miller (2011). Most of these SRL models share the common assumption of a sequence of regulatory activities (Azevedo, 2009; Azevedo et al., 2013). Forethought, performance, and reflection are three distinguished cyclical phases of SRL models (Zimmerman, 2000). The forethought phase is when learners initially get involved with the learning task by setting their goals and strategic planning (task analysis) and identifying their self-efficacy, expectations, interest, and value (self-motivation beliefs). Choosing the strategies to approach the task, collecting information about the task and the learning environment, seeking help, and managing the time and resources (self-control) comes in the second phase. Self-observation is the second category of the performance phase, where learners monitor their performance. As a result of the first and second phases, learners monitor their learning progress, evaluate their performance and then react, if needed, by adjusting or changing the goals, plans, or performance (self-reflection).

The Winne and Hadwin’s Model (1998) is SRL model that has been used as a theoretical framework in developing a number of tools that aims to measure SRL by using trace and log data. Based on the IP Theory and with a robust metacognitive perspective, Winne and Hadwin developed their SRL model to stress that students are responsible to actively monitor and use metacognitive strategies to manage their learning (Winne & Hadwin, 1998). After a number of
publications on internal feedback and metacognitive aspects of SRL (e.g., Butler & Winne, 1995; Winne, 1996), Winne and Hadwin (1998) presented their SRL model, which has been widely used in research, mainly in Computer-Supported Learning Settings (CSLS) studies (Panadero et al., 2015).

It is assumed that students already have SRL skills and strategies, but they do not actually use them in learning (Veenman et al., 2006; Veenman, 2007). Students’ cognitive, metacognitive, and motivational activities during learning are encouraged by using instructional prompts (Bannert, 2009). Veenman et al. (2006) noted that metacognition, in particular, was viewed by some theorists as a subordinate component of SRL (Muis 2007; Winne & Hadwin, 1998), while others view SRL as a subordinate component of metacognition (Brown & DeLoache, 1978). Nevertheless, Muis and Franco (2010) investigated metacognition from a regulation of cognition perspective and stated that metacognition situated as a subordinate to SRL. From various definitions of metacognition that have developed over decades (Veenman et al., 2006), metacognition can be defined as the knowledge about and the regulation of one’s cognitive learning processes (Veenman et al., 2006), that is, knowledge of how one monitors cognitive processes and how one regulates those processes (Flavell, 1976). Metacognition represents “the awareness learners have about their general academic strengths and weaknesses, cognitive resources they can apply to meet the demands of particular tasks, and their knowledge about how to regulate engagements in tasks to optimize learning processes and outcomes” (Winne & Perry, 2000, p. 533).

Metacognitive prompts aim to encourage students to reflect upon their regulatory activities such as goal orientation, setting goals, strategic planning, monitoring, and evaluation (Bannert, 2009; Veenman, 1993). Evidence from previous research shows positive effect of
metacognitive prompts (e.g., Azevedo et al., 2011; Ge, 2013; Johnson et al., 2011; Lin & Lehman, 1999; Veenman, 1993; Winne & Hadwin, 2013). Lin and Lehman (1999) found that students supported by prompts about awareness of their own strategies have significantly higher performance. Data from Johnson et al. (2011) study showed that external prompts have a positive impact on the regulatory processes and the learning outcome. Most recently, Bannert et al. (2015) investigated self-directed metacognitive prompts on navigation behavior (i.e., frequency and time spent on relevant websites) and learning outcomes. Their findings show that such prompts enhance strategic navigation behavior and performance. Instructors may offer help to prompt students’ SRL skills, but at the end, students need to control and make use of their own SRL skills (Montgomery et al., 2019). Based on the previous research, providing students with a summary of their SRL and metacognitive processes and behaviors such as regularity of learning would enhance their SRL skills and learning performance.

Metacognitive support can be provided in two forms: direct or indirect metacognitive instructions. Designing direct or indirect metacognitive instruction is a decision that strongly depends on the student’s metacognitive knowledge and skills (Veenman, 2005). Direct training is necessary for students lacking metacognitive competence. While indirect metacognitive support or prompts is adequate for students who already possess metacognitive skills, but do not implement them (Hasselhorn, 1995; Weinert, 1984). This study's target group is graduate students who should already possess the metacognitive skills due to learning skills collected during their learning journey. Time management feedback as a metacognitive prompt is assumed to motivate those students to use their time management skills (Bannert, 2007).
Time Management Strategies

The efficient use of time or time management has been recognized as a sub-element of self-regulated learning (Hofer et al., 1998; Pintrich & DeGroot, 1990; Pintrich et al., 1993; Zimmerman, 2002). Claessens et al. (2007) define time management as “behaviors that aim at achieving an effective use of time while performing certain goal-directed activities” (p. 262). A leading researcher in the field of SRL, Pintrich (1991) views time management as the students’ ability to schedule, plan, and manage their study time. Setting learning goals, allocating time, and using study time effectively all should be integrated carefully by students who should be independent agents constructing, planning, and monitoring their learning proactively (Pintrich, 2011; Winne, 2014; Zimmerman, 1998). Time management, among other metacognition and SRL strategies such as effort regulation and critical thinking, was found to be positively associated with academic achievement (Broadbent & Poon, 2015; Richardson, Abraham et al., 2012; Zimmerman & Pons, 1986; Britton & Tesser, 1991; McKenzie & Gow, 2004). MacCann et al. (2012) describe time management as "a set of habits or learnable behaviors that may be acquired through increased knowledge, training, or deliberate practice" (p. 619).

From the SRL standpoint, time management is viewed as behavioral aspect that involves students' choices and intentions about how to allocate and control study time (Pintrich, 2000; Winne, 2015). Previous research (e.g., Lynch & Dembo, 2004; Kwon, 2009; Choi & Choi, 2012) studied how learners manage time to achieve their learning goals. Kwon (2009) and Choi and Choi (2012) found that time management is an effective factor for success in online learning. Time management strategies were also found to be hidden psychological characteristics that drive regular login activity in online learning environments, resulting in high academic performance (Jo et al., 2013). Time management strategies have deep connections with the
ability of prioritizing and organizing tasks (Jex & Elacqua, 1999; Kaufman-Skarborough & Lindquist, 1999; Blaxter & Tight, 1994). On the other hand, poor time management, such as not allocating enough time for assignments and exams and failing to meet due dates for course activities, are found to be source of stress and low academic performance (Gall, 1988; Longman & Atkinson, 2004; Macan et al., 1990). In the context of graduate students and adult learning, time management strategies are increasingly required because such learners usually have to reconcile work, study, family, and other life commitments (Jo et al., 2015).

One crucial factor that can help us understand the use of time management strategies is planning (Britton & Tesser, 1991; Eastmond, 1998). It was assumed that online learners who study regularly have a well-planned schedule and are more likely to have a high awareness of their learning, which, the awareness, will lead to the regularity of learning (Jo et al., 2015). Having a regular learning routine is expected from learners to succeed academically (Blaxter & Tight, 1994). The regularity of learning in online learning can be noticed in the learners' purposeful regular participation and regular intervals among online course visits. Regular study can show the learners' ability to prioritize tasks (Jo et al., 2015). Managing learning time can be developed and taught. Research indicates that learners who received such training have shown improved learning outcomes compared to learners who did not receive training (Burrus et al., 2013; Hafner et al., 2014).

With the recent increase availability and use of technologies such as learning management systems (LMS), large quantities of data can be collected and stored (Coates et al., 2005; Jo et al., 2016). Instead of relying on students' recall through self-reports methods, LMS log data and time management actions such as access time, time spent, frequency, and regularity of access are real-time and objective data that have been collected, studied, and viewed as
behavioral evidence of students' SRL behaviors (Jeske et al., 2014, Montgomery et al., 2019). These big educational data have been utilized and researched for educational purposes to identify learning patterns (Baker & Yacef, 2009; Elias, 2011; Macfadyen & Dawson, 2010). Learning pattern is one factor that influences learning outcomes and describes how learners approach learning activities (Vermunt & Donche, 2017). A learning pattern is defined as “an interrelationship between the conception of learning, learning motivation, processing strategies, and regulation strategies” (Verstegea et al., 2019, p.2). Regulation strategies are a central element of learning patterns (Verstegea et al., 2019). A growing interest in exploring the relations between SRL activities, strategies, and learners’ behavior with outcomes in online learning has emerged (Kizilcec et al., 2017; Tempelaar et al., 2015). LMS log data and time management actions revealed positive relations with academic performance and achievement among higher education students when learning online (Asarta & Schmidt, 2013; Jo et al., 2014; You, 2016; Zacharis, 2015). Based on that conclusion, students in online learning are supposed to regulate their LMS use to engage with their online courses and achieve academic success in such a virtual learning environment.

Research has shown that learners can enhance their SRL skills and learn to be more self-regulated (Pintrich, 1995; Zimmerman & Schunk, 2001). Keeping students motivated, regulated, and actively participating in online courses requires investigation of how strategic support and self-regulation of online learners influence learning (You, 2016). Most higher education institutions are currently using LMS systems, which offers new opportunities for tracing, monitoring and analyzing students’ SRL and learning progress (You, 2015). Learning Analytics (LA) is an emerging approach that allows analyzing students LMS log data to identify online
learners’ behaviors (Kim et al., 2016), identifying students who need help (Gašević et al., 2015), and providing proactive feedback (Dietz-Uhler & Hurn, 2013).

The educational research community has been interesting in researching the educational feedback. However, there has been a lack of empirical research of feedback that used learning analytics to promote effective time management (Ahmad Uzir et al., 2020). In addition, there is a necessity for a comprehensive assessment on the effects of feedback on student learning process (Dawson et al., 2017; Pardo et al., 2019; Pardo et al., 2017).

**Learning Analytics**

Learning analytics (LA) is an emergent field that is defined as "the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs" (Learning Analytics & Knowledge- LAK, 2011). Recent research in SRL and LA provides a deeper understanding of how to support online higher education students' SRL. Most of the researchers who attempted to use LMS data to explain the online learners' behaviors examined the number of content views, the frequency of logins, and the time spent reading content (Morris et al., 2005; Qu & Johnson, 2005; You, 2016). The frequency measures can indicate the level of active participation, but they are limited if the goal of utilizing LMS data is providing guidance and feedback to improve students' learning (Hadwin et al., 2007; Misanchuk & Schwier, 1992). In addition, some researchers call for focusing on more time-based indicators extracted from LMS logs instead of using the simple time spent variable which it is not going to give a clear description of learners’ SRL (Hadwin et al., 2007).

Recently, researchers recognized this gap in the literature. Some researchers attempted to identify appropriate measures of SRL from utilizing LMS data and examine which variable has
the most impact on learning (Asarta & Schmidt, 2013; Jo & Kim, 2013; Jo et al., 2013; Jo et al., 2014; You, 2016; Zacharis, 2015). Total login time, login frequency, and login regularity were found to be powerful online log variables that are specified as predictors of students' time management strategies and learning outcomes (Jo & Kim, 2013; Jo et al., 2013). A further investigation by (Jo et al., 2015) conducted and constructed these three variables as proxy variables to represent time management strategies in online learning. Their findings show that the regularity of learning is a powerful indicator of learners' time management strategies. The regularity of login interval was calculated using the login interval's standard deviation, which means a higher value indicated highly irregular logins (Jo et al., 2015). The study's findings suggest that regularity of learning represent a consistent effort and awareness to achieve learning goals in a way that could not be fully explained by the other two variables (login frequency and total login time). The researchers also discovered that when learners have consistent awareness of their learning throughout the course, they will most likely accomplish successful completion of an online course. Dvorak and Jia (2016) examined the degree to which students tend to work on assignments at the same time of the day during the semester. They found that regular work on assignments to be associated with high grades.

Similarly, Młynarska et al. (2016) found that consistency at the activity level was positively correlated with the change in grades of the same activity. Other studies (Asarta & Schmidt, 2013; Jo et al., 2014; Zacharis, 2015; You, 2016) confirm that the access regularity was specified as the most significant SRL behavior identified through LMS data, and it should be further investigated and be given more attention. However, the regularity of learning or consistency of learning in online learning is still not fully explored (Sher et al., 2020).
Utilizing learning analytics are mainly for predicting learning performance, identifying students who need help, providing adequate interventions and feedback, and enhancing learning outcome (Campbell et al., 2007; Dawson et al., 2014). Therefore, researchers argue that LA results should be easy enough to be interpreted by learners. They also should provide instructive messages and actionable recommendations (Ferguson, 2012; Gašević et al., 2015). However, in terms of regularity of learning, there is no existing research investigating whether learners would benefit from feedback about their regularity of learning in particular. Therefore, a part of this study explores how students perceived the concept of the regularity of learning and its feedback.

**Feedback**

*SRL and Feedback*

SRL is multifaceted, and its process extends beyond cognition. SRL involves controlling motivation, emotion, and behavior, all of which influence each other during the SRL process (Hadwin et al., 2018). Therefore, SRL recognizes a human agency, which means that learners have purpose, intent, and goals. At the same time, feedback is information that describes the present state of learning compared to the goals that the learners want to achieve. Students generate their internal feedback when they monitor their learning engagement and assess their progress towards the goals (Winne & Hadwin, 2008). The generated internal feedback in relation to cognitive, motivational, or behavioral levels is a result of a comparison of current progress against desired goals and internal standards, which, the comparisons, will help learners to decide if they need to re-interpret the task and/or change/adjust their goals, tactics, and strategies. This whole process will lead to an improvement in the learners' self-regulation (Butler & Winne, 1995; Nicol & Macfarlane-Dick, 2006).
Highly self-regulated learners generate better internal feedback and know how to use them effectively to achieve their goals (Nicol & Macfarlane-Dick, 2006). Besides, self-regulated learners can interpret and decode the external feedback they receive from teachers, peers, or computers and use them effectively to reach their desired goals (Butler & Winne, 1995). This external feedback can strengthen, confirm, or conflict with the student's internal feedback or interpretation of the task and the learning progress (Nicol & Macfarlane-Dick, 2006). Learners must actively engage with the external feedback to see learning impact (Ivanic et al., 2000). Extensive reviews of studies on educational feedback show that there is evidence that useful feedback promotes learning and increases achievement in all levels of education and across all subjects and skills (Black & Wiliam, 1998; Hattie, 1987; Crooks, 1988; Boud, 1995; Boud et al., 1999).

Sadler (1989) influenced many researchers interested in feedback and learning, as he described what students need to benefit from feedback in learning. Sadler argues that students must know what good performance is, compare current performance with good performance, and act to close the gap between both performances. Hattie and Timperley (2007) state that effective feedback must answer three major questions: Where am I going? (What are the goals?), How am I going? (What progress is being made toward the goal?), Where to next? (What activities need to be undertaken to make better progress?). Hattie (2012) introduced three levels of feedback: 1) Task and product level: corrective feedback. 2) Process level: students developing their learning strategies, 3) Self-regulation/conditional status: students improving their ability to monitor their learning and progress. He also noted that providing praise can be supplied in feedback, but not in a way that it dilutes the power of feedback (Hattie, 2012).
The value of feedback has long been acknowledged to help learners accomplish successful learning (Black & William, 1998; Hattie & Timperley, 2007). Previous research suggests that when studying the feedback effectiveness, student perceptions of the feedback should be considered as well. Students most likely will not use the feedback to make changes in their learning if they don't understand the feedback and perceive it to be beneficial to their learning (Paulson et al., 2017). As feedback can be positive or negative (Hattie & Clarke, 2018), Podsakoff and Fahr (1989) stated that “individuals become more dissatisfied with their previous performance level, set higher performance goals for their future and perform at a higher level than those who receive positive feedback or no feedback at all” (p. 62). In terms of SRL, feedback enables learners to monitor progress towards learning goals and adjust their strategies to obtain these goals. That role makes feedback a key element in SRL (Butler & Winne, 1995).

**Learning Analytics and Feedback**

Many existing tools are already available to help learners practice SRL (Nussbaumer et al., 2015). However, these tools are not always helpful for learners in developing their SRL skills (Beetham & Sharpe, 2013). Therefore, using learning analytics dashboards (LAD) to deliver feedback to students is becoming more common in higher education (Corrin & de Barba, 2014). Schwendimann et al. (2017) define (LAD) as “a single display that aggregate different indicators about learner(s), learning process(es) and/or learning context(s) into one or multiple visualization” (p. 8). The LAD emerged at the beginning as a tool designed to be used by the academic staff, advisors, and instructors who can interpret the data and use it to improve the students' overall outcomes (Arnold, 2010; Duval, 2011). While most feedback provided by LAD are designed based solely on learners’ performance indicators, recent studies show that effective feedback needs to be designed based on SRL theories that support learning processes and
learners’ awareness (Sedrakyan et al., 2018). Most of the research studies on LAD are only linked to the reflection phase of SRL (Jivet et al., 2017; Matcha et al., 2019). However, the existing literature on LAD suggests that feedback delivered by learning analytics tools should support all SRL phases (Matcha et al., 2019). LAD faced by students or Student Facing Learning Analytics (SFLA) provides performance feedback calculated by analytics algorithms of data generated from students' use of educational technologies such as LMS (Teasley, 2017). There is great portion of research literature suggests number of approaches of new SFLA such as Open Learner Model (Bull & Kay, 2010; Bodily et al., 2018). The open learner model (OLM), is a tool that visualizes individual learners’ current level or understanding of a topic. Data that feeds that model come from a variety of sources including teacher, self-assessment, computer-based learning platform, or from the individual learners themselves. OLM are built over time as it collects data constantly which allows the model to update as the students learns. The model, based on the collected data, visualize the most up to date information informing the learners and the teacher about the learners’ attributes, good and poor performance or knowledge (Bull, 2020)
Chapter 3: Methodology

The primary purpose of this study is to understand how graduate students understand and manage time in online learning environments. This study also focuses on how graduate students understand the concept of regularity of learning as a time management strategy and how they perceive the value of its feedback process. As addressed earlier, SRL enables learners to succeed in online environments (Winters et al., 2008a). Researchers have examined which SRL strategies are associated with academic performance (Broadbent & Poon, 2015; Cho & Shen, 2013; Kim et al., 2015). Time management and efficient use of time, as a key aspect of SRL, was found to be positively associated with academic achievement (Broadbent & Poon, 2015; Richardson et al., 2012; Zimmerman & Pons, 1986).

However, despite the annual rising enrollment rate in online courses (Allen & Seaman, 2015), online learners are still struggling due to the lack of appropriate and timely use of SRL strategies (Azevedo, 2005). More specifically, time management is one of the challenges online learners face (Hofer et al., 1998; Zimmerman, 2002). The reason behind that is the online learning environment is a flexible learning environment that requires students to be autonomous and self-directed (Wang et al., 2013; Serdyukov & Hill, 2013). To overcome this issue, researchers have been suggesting that strategies such as metacognitive feedback and prompts would support and enhance students' SRL skills and learning performance (Bannert, 2009; Veenman, 1993; Winne & Hadwin, 2013).

Most recent effort was initiated by some researchers in the field of learning analytics. Instead of relying on SRL self-reports measures, big data generated by advanced technologies such as learning management systems (LMS) have been utilized, studied, and viewed as behavioral evidence of students' SRL behaviors (Jeske et al., 2014, Montgomery et al., 2019).
For time management particularly, log data and time management actions such as access time, time spent, frequency are types of trace data used to identify learning patterns (Baker & Yacef, 2009; Elias, 2011; Macfadyen & Dawson, 2010). Learning analytics research has found that the regularity of learning is another powerful indicator of learners' time management strategy (Jo et al., 2015). Learning analytics systems have been used to deliver feedback to students in form of dashboards (LAD) (Jivet et al., 2018), LADs are becoming more common in higher education (Corrin & de Barba, 2014). However, LADs, as a form of feedback, usually fail to support learners to improve their SRL (Molenaar et al., 2019). Some recent studies show that effective feedback, LADs in this case, needs to be based on SRL theories that support learning processes and learners' awareness (Sedrakyan et al., 2018).

Although there is an extensive amount of quantitative research that correlates SRL, specifically the learners' time management, with good academic performance (Broadbent & Poon, 2015), it became apparent that there is a significant gap in the qualitative research on how students regulate and manage their online learning time. Unpacking how online learners, particularly graduate students who have other work and social responsibilities, understand and perceive time management in online learning is essential. This study aims to help researchers understand this metacognitive concept from the learners' perspectives. It will help LA designers and instructional designers to design systems, dashboards, and online courses with clear expectations of what students want and need. Instructors will also benefit from this study's outcomes as it will clarify how to provide time management tips and interventions for students in online learning environments. It is also substantial to explore the meaning of some of the time management strategies, such as regularity of learning for graduate students and whether external feedback will promote learners' SRL.
To address this gap in the literature, a sequential mixed methods design (Ågerfalk & Fitzgerald, 2008; Creswell & Creswell, 2018) dominated by a qualitative approach was used to discover the phenomenon of students’ time management in online learning. Generally, qualitative research is most likely to be “exploratory, naturalistic, subjective, inductive, ideographic, and descriptive/interpretative” (Chenail, 2011, p. 1713). Qualitative research is complicated as it requires large amount of data, high quality and credibility, enormous amount of time, labor intensity, non-generalizability of findings and high degree of researcher integrity (Miles et al., 2013). However, qualitative research is also flexible in time and data collections methods. Qualitative methods as described by (Munhall & Chenail, 2008) can “embrace the situated context and contingencies of human experience and search for meaning in the lives of human beings” (p. x). Unlike quantitative methods, qualitative methods describe and explain experiences, meaning, and sense-making without “using preconceived ‘variables’” (Willig, 2008, p. 8).

Besides a description of a phenomenon and attention to process, qualitative research intends to produce knowledge through “collaboration within a social structure and with its people” (Hays & Singh, 2012, p. 4) as well. Participants in qualitative methods have the opportunity, by the direct interaction and dialogue with the researcher, to clarify and/or revise their meanings of core research concerns (Storey, 2011). Student voice was at the core of this investigation as their experiences elucidate on this phenomenon. Before designing LAD system to support students' self-regulated learning and time management, qualitative research allows silenced voices -students in this study- to be heard (Creswell, 2013). Another reason that explains why this study depended heavily on the qualitative approach is the richness of the data
that can be gathered through qualitative research, which allows in-depth understanding via extensive data on the current phenomenon that is currently rarely discovered in the literature.

According to (Maxwell, 2010), using quantitative methods in qualitative data has several advantages as the numbers can help researchers identify patterns not apparent in the constructs or codes and improve internal generalizability (Maxwell, 1992). Some qualitative researchers "rely on frequency counts to interpret and present findings" (Hays & Singh, 2012, p. 13). However, it is significant that researchers provide a description beyond statistics (Ercikan and Roth, 2006). This chapter provides information regarding the research purpose, design, population, sample, data collection methods, and data analysis of this study.

**Research Design**

This study follows the constructivist paradigm as constructivism assumes that there are multiple realities that are subjective and influenced by context and interaction between participants and researcher (Ponterotto, 2005). This paradigm is appropriate for the current study because reaching out to students directly will provide a unique and personal perspective of reality that is an outcome of different individuals' experiences.

Consideration of individual learner characteristics, attitudes, perception, preferences, readiness, and cultural and social differences can account for variance in student learning and performance in an independent learning environment such as the online learning environment. In particular, graduate students who have commitments besides their academic obligations, such as family and work, may find online learning more appealing. The consideration of these differences is important to discover and understand individuals' or a group of specific individuals’ experiences or construct a theory. Understanding individual learners differences can be overwhelming, but it is essential as it will ensure that all potential support and interventions...
meet the learners' needs and expectations. Therefore, I find that the constructive approach is appropriate for the proposed study.

**Grounded Theory (GT)**

A grounded theory (GT) approach was used in this study to describe and understand, rather than evaluate and measure how graduate students understand and manage their time in online learning environments. GT research attempts to discover patterns that develop from interactions between different perspectives and actions (Patton, 2002). The interactions between the researcher and the participants in a GT study allows the phenomenon to be deeply understood, the participants' voices to be heard, and the research contexts to be fully described. As a way to merge quantitative and qualitative research approaches in social research, GT was initially developed by Barney Glaser and Anselm Strauss in 1967 in their book *Discovery of Grounded Theory: Strategies for Qualitative Research* (Bryant & Charmaz, 2007; Glaser & Strauss, 1967). They defined grounded theory as “the discovery of theory from data—systematically obtained and analyzed in social research” (Glaser & Strauss, 1967, p. 1). The book describe how they interpreted the qualitative data that they systematically obtained and analyzed to inductively generate a theory from a participant observation study of hospital staff's care and management of dying patients. The authors aimed to move the traditional descriptive qualitative inquiries to be more explanatory research that provides a conceptual and deep understanding of the phenomena being studied (Charmaz, 2006).

Although GT was initially developed in the domain of sociology, the growing popularity of GT has been seen recently in many other disciplines such as health care, education, psychology, business, and management (Locke, 2001). Since the time GT was initially developed, its originators, their students, and many other researchers and methodologists have
adapted, articulated, extended, and interpret the GT’s original research practice and style (Birks & Mills 2015; Bowers & Schatzman, 2009; Charmaz, 2006; Clarke, 2005; Morse et al., 2009). In 1978, Glaser published his book *Theoretical Sensitivity* in which he explains the systematic processes of GT and its key strategies or “codify qualitative research methods” (Charmaz, 2006). About ten years later, Strauss published his book *Qualitative Analysis for Social Scientists* (1987), in which he brings the symbolic interactionism view to GT's methods. Symbolic interactionism assumes that individuals' actions and reactions can be understood only through interactions and the exchange of symbols and language between people and society (Blumer, 1969; Charmaz, 2014). Strauss believed that exploring the individuals’ stories and experiences to understand social processes will empower GT as a qualitative approach. A remarkable development of the history of GT happened in 1990 when Strauss moved GT toward verification and published his book *The Basics of Qualitative Analysis* with his co-author Juliet Corbin (Mills & Birks, 2014). Glaser viewed this book as “undermining his intellectual property” (Noerager Stern, 2009, p. 28).

Consequently, Glaser (1992) published his book, *Basics of Grounded Theory Analysis: Emergence vs. Forcing*, in which he criticizes Strauss and Corbin’s book and highlights the differences between his perspective of the original GT and Strauss and Corbin’s approach (the Straussian approach) (Alammar et al., 2018; Noerager Stern, 2009). Glaser argues that the Straussian approach and procedure force the data and the analysis processes to predefined categories, which restrains the emergent theory (Glaser, 1992). On the other hand, Strauss and Corbin view that the classic GT is lacking a systematic structure, which makes it hard for researchers to understand the data and develop a theory (Alammar et al., 2018).
Generally, the main differences between the Glaserian and Straussian approaches are in the use of the literature and coding procedures (Birks & Mills, 2011). Glaser is against the use of literature in any stage of a GT study as he believes that will create a prior influence (Glaser, 1992). Glaser also advises for open, selective, and theoretical coding procedures that are less structured but explicit enough to allow a theory to emerge (Glaser, 1978). Contrastingly, Strauss and Corbin's approach or Straussian approach encourages the use of only the appropriate literature in GT research (Alammar et al., 2018; Corbin & Strauss, 2008). The Straussian's coding procedure is more structured and conditional as they advise researchers to follow open, axial, and selective coding system (Strauss & Corbin, 1990). However, the two approaches are still sharing some essential characteristics and procedures such as the constant comparative analysis and theoretical sampling and saturation (Alammar et al., 2018; Birks & Mills, 2011; Glaser, 1992; Oktay, 2012; Strauss & Corbin, 1990).

In terms of the philosophical position, the first-generation GT researchers did not clarify which philosophical position GT should follow (Urquhart & Fernandez, 2006). According to his co-author (Holton, 2008), Glaser does not support the division between positivist and interpretive paradigms, and he believes that GT is a neutral stance between the two paradigms (Glaser, 1998; 2003; Holton, 2008). In contrast, Strauss and Corbin clearly adapted the interpretive paradigm (Holton, 2008; Strauss and Corbin, 1990; 1998) as their work was influenced by symbolic interactionism (Mills & Birks, 2014). In fact, there has been a long history of active debates of whether both approaches can be categorized as positivist, post-positivist, interpretive, or independent philosophical paradigm research (Annells, 1996; Bryant, 2002; Charmaz, 2011a, 2011b; Madill et al., 2000; Urquhart, 2013; Urquhart & Fernandez, 2006).
The classic GT (Glaser's) and the implication of symbolic interactionism in the Straussian have their roots in the positivist paradigm (Watling & Lingard, 2012). The positivist paradigm assumes that true reality exists in an external world and can be discovered only by objective observation and experimentation (Guba & Lincoln, 2005). However, it is worth mentioning that GT development happened in the mid-twentieth century, which was the "golden age of rigorous qualitative analysis" (Denzin & Lincoln, 2005, p.16) or the emergence of the post-positivist paradigm (Watling & Lingard, 2012). Between 1950 and 1970, the post-positivist paradigm greatly influenced qualitative researchers' work (Mills & Birks, 2014). The post-positivist approach rejects and critiques positivism and views the reality as "only imperfectly and probabilistically apprehendable" (Guba & Lincoln, 2005, p.193). Unlike the positivist paradigm that assumes there is a universal truth and experiences can be directly observed, the post-positivist paradigm approximately acknowledges the human experiences and assumes that experiences can be measured directly and indirectly, but the universal reality can never be fully realized (Hays & Singh, 2012). Because of the philosophical and methodological gaps in the classic and the Straussian approaches of GT and the influence of postmodern notions, second generation grounded theorists (such as: Bryant, 2002; Charmaz, 2005; Clarke, 2005) developed new methodological frameworks that moved GT away from positivism and post-positivism to constructivism (Hays & Singh, 2012).

Constructivism views knowledge as a result of human interactions and relationships. Individuals' views of the world and the meaning of truth are influenced by their history and cultural context (Mills et al., 2006). Constructivism rejects the existence of objective reality; instead, it asserts that "realities are social constructions of the mind, and that there exist as many such constructions as there are individuals (although clearly many constructions will be shared)"
(Guba & Lincoln, 1989, p. 43). Hence, a relativist ontological view requires that individuals deny the existence of objective reality (Guba & Lincoln, 1994).

From the epistemology point of view, constructivism stresses that the meaning is co-constructed in a subjective interrelationship between the researcher and participants (Hayes & Oppenheim, 1997; Pidgeon & Henwood, 1997). Rather than being objective observers, constructivism acknowledges the researchers' humanness as a part of the research endeavor and outcome (Appleton, 1997; de Laine, 1997; Guba & Lincoln, 1989; Stratton, 1997).

From that ontological relativist and epistemologically subjectivist, constructivist grounded theory reshapes the researcher and participants' interaction in the research. A student of Glaser and Strauss, Kathy Charmaz (2000) emerged as the leading advocate for constructivist grounded theory (Mills et al., 2006). According to (Charmaz, 2003), constructivist grounded theory “assumes the relativism of multiple social realities, recognizes the mutual creation of knowledge by the viewer and viewed, and aims toward an interpretive understanding of subjects’ meanings” (p. 250). Charmaz views the ultimate goal of creating a theory in a GT study is to inspire social change and social analysis (Charmaz, 2005). Charmaz focuses on how researchers in constructivist grounded theory studies should treat data and their analytical outcomes. According to (Charmaz, 2000), "Data do not provide a window on reality. Rather, the 'discovered' reality arises from the interactive process and its temporal, cultural, and structural contexts" (p. 524). Researchers, the authors, as identified by Charmaz, brings to the analytic process their own histories and assumptions, and engage in co-constructing experiences and meaning with the participants (Charmaz, 2008). Through the constant comparative method, researchers construct and analyze the data from "shared experiences and relationships with participants and other sources of data" (Charmaz, 2006, p. 130).
Constructivist grounded theorists emphasize the importance of reflexivity and memos when conducting a constructivist GT study. Researchers must keep thinking about what, how, and why they are doing and their influence on the data and findings (Mills & Birks, 2014).


As described by (Charmaz, 2000), constructivist GT's writing style should be more literary than scientific. Charmaz encourages researchers to use creative writing tactics and strategies that empower their writing and take “the reader into a story and imparting its mood through linguistic style and narrative exposition…without transforming it into fiction, drama, or poetry” (Charmaz, 2006, p.172). In addition, Charmaz emphasizes the principle of flexibility in constructivist GT as she stated that researchers when analyzing the data, must "learn to tolerate ambiguity…became receptive to creating emergent categories and strategies" (Charmaz, 2008, p. 168).

**Coding**

GT coding is distinguished from other forms of qualitative research by two aspects (Charmaz, 2012). First, it involves a close coding of statements, actions, processes, events, and documents. Most qualitative researchers code for topics and themes; however, coding in GT involves coding for processes, meanings, and actions, not for sorting and summarizing only. Instead of describing the data, coding in GT should help the researcher define what is happening in the data and connect it with what it means (Charmaz, 2006). This coding system helps researchers to describe the connections between data. Second, GT coding fosters analyzing the data by asking analytic questions such as:
The method of constant comparison is a core method in analyzing data in GT research. Researchers are engaged in three levels of constant comparisons when collecting, coding, analyzing, and categorizing data. These three levels compare codes with codes, codes with emerging categories, and categories with categories (Glaser & Holton, 2004; Holton, 2007). A fourth level was suggested later by (Glaser & Holton, 2004), which compares the emerging theory compared with the literature (Holton, 2007).

The basic coding procedure of the original Classic is guided by the idea of the natural emergence of a theory to be discovered from the data (Glaser, 1992). Glaser emphasizes that GT researchers should stay objective as possible by abstaining from literature, employing a rigorous and constant comparison technique, and collect large data (Glaser, 1992). As summarized by (Holton, 2010), the coding procedure of the Classic GT occurs in two stages: substantive (open coding, selective coding) and theoretical coding. Later on, Strauss and Corbin (1990) designed a very systematic and rigorous coding procedure classified into four stages: Open coding (properties and dimensions), Axial coding (5 stages), Selective coding (5 stages), and Conditional matrix. Strauss and Corbin's coding structure was criticized by many researchers, including the co-founder of GT Glaser (1992) and the founder of the Constructive GT Charmaz (2000). They both view that the Strauss and Corbin coding structure transformed the original
flexible coding guideline and the natural emergence of theory to very complicated instruction and forcing the data into predetermined concepts and categories. Instead of using axial coding, Charmaz prefers to develop subcategories of a category and show the links between them. She makes sense of the data from the subsequent categories, subcategories, and links between them (Charmaz, 2006). That led Charmaz to present a third adaption of GT coding for a constructive version of GT.

The coding procedure in the constructive GT, according to (Charmaz, 2006) is more interpretative, intuitive, and impressionistic than the Classic and Straussian GT. Constructivist grounded theorists assumed that theory does not emerge from data; rather, constructivist grounded theorists "believe researchers construct the analysis of the data and thus the categories and core category that eventually makes up a grounded theory" (Mills & Birks, 2014, p.111). Therefore, the coding procedure in the constructivist GT consists of at least two main phases: an initial phase and a focused phase (Charmaz, 2008). The initial phase involves line-by-line coding in the early stages of research, especially for interview data. "Line-by-line coding means labelling each line of data" Charmaz, 2012, p. 5). The initial phase helps researchers to see their data afresh gives them leads to pursue what kinds of data to collect next (Charmaz, 2006). Line-by-line coding requires that researchers actively engage with data and begin to conceptualize them. Charmaz advocates that researchers in initial coding should remain open "to seeing what you can learn while coding and where it can take you" (2006 p.48). She also believes that initial coding should stay close to the data and code them as actions (Charmaz, 2006). Following the initial phase, the focused, selective phase comes second. It builds on the most substantial or frequent codes that emerged in the initial phase. In the focused phase, researchers start to
synthesize, integrate, and organize initial codes to develop the most salient categories in a large amount of data.

Glaser (1978) presented a coding procedure known as theoretical codes to conceptualize "how the substantive codes may relate to each other as hypotheses to be integrated into a theory" (p.72). He presents a series of analytical categories in an extended list of theoretical coding families to make the analysis process more coherent and comprehensive (Glaser, 1978). Theoretical coding is described by Charmaz (2006) as "a sophisticated level of coding that follows the codes you have selected during focused coding" (p. 63). In brief, theoretical codes conceptualize how the substantive codes are related and help direct the researchers' analytical stories in a theoretical direction.

**Memo writing**

The technique of memo writing was also introduced by Glaser and Strauss (1967) in the original GT. Memo writing is a technique that records the researcher's reflection on the process of data coding and constant comparison. Glaser and Strauss stress that recording memos is always significant in the whole process of a GT study as it "provides an immediate illustration for an idea" and serves to develop reflection, ideas, and codes (Glaser and Strauss, 1967, p. 108).

**Theoretical Sampling**

Theoretical sampling is considered as “one of the most advantageous and least used grounded theory strategies” (Charmaz, 2012). GT rationality assumes that researchers will construct categories through the consistent comparative methods discussed above. The defined categories will be sampled by theoretical sampling to develop these categories' properties until no new properties emerge (Charmaz, 2006; Thornberg & Charmaz, 2011), which means that theoretical sampling requires that a researcher need at least one category. It is critical to mention
that identifying research participants, documents, or a study sitting is initial sampling, not theoretical sampling. Initial sampling is establishing "sampling criteria for people, cases, situations, and/or settings before [a researcher] enter the field" (Charmaz, 2006, p.100). The initial sampling allows a researcher to find relevant materials needed for a study and gain access to research settings or people. Theoretical sampling is an abductive process done by "gathering data to fill out the properties of a tentative category" (Charmaz, 2012, p.11) to keep researchers from "becoming stuck in unfocused analyses" (Charmaz, 2006, p. 97). The researcher using theoretical sampling looks for properties' saturation and data saturation.

**Population and Sample**

Participation recruitment and data collection has taken place for the study during the Summer and Fall semesters of 2020. Thirty-three participants have voluntarily agreed to participate in this study. Six participants out of the 33 agreed to participate in the in-depth interviews. To achieve consistency in the research context, data collection was carried out only in the School of Education as the online courses' structures and natures vary according to their academic discipline. The School of Education is one school of a large, research-based public university in the Northeastern United States. All the participants were at least 18 years old and were enrolled in a graduate-level fully online course.

At the beginning of each semester, the initial contact was made through a department coordinator who sent an invitation email to all graduate students in the School of Education who were taking fully online courses. Few instructors forwarded the invitation email to their students enrolled in their online courses. The direct contact with participants started after students agreed on the consent form and submitted their demographic information. More details about the study procedure are explained in the procedure section below.
Recruitment occurred over three segments. The participants in the first segment were a purposive convenience sample since they were the easiest for me to approach, giving the resources available (Patton, 2002). As the study progressed, the initial coding of earlier data tentatively identified some categories which was used to guide theoretical sampling and reshape the followed data collection segment, feedback, and interview questions. Theoretical sampling assists in increasing the development of the concepts, identifying the relationships between concepts, and revealing the variations between those concepts (Corbin & Strauss, 2008).

Purposeful sampling was also used during the data collection to understand participants' online learning experience (Hays & Singh, 2012). Rather than claim generalizability, qualitative research intends to facilitate concept transferability (Kvale & Brinkman, 2009; Sandelowski, 2008). As "sampling adequacy, evidenced by saturation and replication" (Morse, Barrett, Mayan, Olson, & Spiers, 2002, p.18), identifying the perfect sample size to achieve theoretical saturation in GT studies is complicated (Charmaz, 2014). However, according to (Corbin & Strauss, 2008), adequate sampling may have been reached when "considerable depth and breadth of understanding about a phenomenon, and the relationships to other categories have been made clear" (p. 149). In this study, GT was employed to achieve this study's main objective which was studying how graduate students understand and perceive time management in online learning.

Generally, qualitative studies require a small sample size, as Creswell (2009) suggested that GT research's guidelines recommend a sample size from 15 to 20 participants. Thirty-three participants have voluntarily agreed to participate in this study. Six participants out of 33 agreed to participate in the in-depth interviews. Thirty-three participants was not such a large sample size if the aim of the study was to generalize the results; however, this sample size was large enough to generate statistical data that could give us a glance at the nature of the participants'
perceptions and preferences toward the regularity of learning feedback. The in-depth interviews were limited to six participants through a purposeful sampling process which involved selecting cases that met specific criteria that are significant to the study (Patton, 2002). The selection criteria of the six participants were mainly based on the participants’ level of SRL in online learning environments (measured by OSLQ survey, as described below). Two participants from each SRL level (low, medium, high) were selected. Other variables such as age, gender, marital status, academic and employment statuses were considered in the selection process to allow for more participants’ characteristics variety.

Table 1 shows the semester and number of participants in each data collection cycle. The participants received a compensation of $10 Amazon card for their effort and time. Participants who accept to be interviewed received an additional $20 as an Amazon gift card.

Table 1

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2 – 2020</td>
<td>9</td>
</tr>
<tr>
<td>Summer 3 -2020</td>
<td>8</td>
</tr>
<tr>
<td>Fall 2020</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
</tr>
</tbody>
</table>

Why Graduate Students?

To include an appropriate sample of participants with the highest insight into the research focus (Bowen, 2008; Breckenridge & Jones, 2009), I selected participants who are graduate students and are enrolled in a fully online course at the School of Education. As mentioned earlier, graduate students were chosen to be the study's population. Graduate students were targeted as it seems that, according to some reports and statistics (IPEDS, 2019), online learning is more
appealing to graduate student who are more likely to be busy with life activities beside their academic load (Clinefelter et al., 2019). In addition, limiting the courses to the School of Education courses was to achieve the consistency of research context as online courses' structures and design varied according to their academic discipline.

**Participants’ Characteristics**

*Participants in the Questionnaire*

For the results from the perception and preferences questionnaire, there were 33 complete questionnaire responses. An overview of the participants' attributes and characteristics including sex, age range, academic enrollment status, employment status, and SRL level of respondents are presented in Table 2. Most participants were female ($N=26$, 78.80%). While there are participants from different age groups, most of the participants were between 25 and 34 ($N=18$, 54.5%). There were 14 full-time students (42.4% of the sample), and 19 part-time students (57.6% of the sample). The majority of the participants are enrolled in an educational master’s program ($N=27$, 81.8%). Twenty-one of the participants ($N=21$, 63.8%) are full-time employees, seven participants ($N=7$, 21.2%) are part-time employees, and five participants ($N=5$, 15.2%) are unemployed.

**Table 2**

_An Overview of the Participants Attributes and Characteristics_

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>21.20%</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>78.80%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 - 34</td>
<td>18</td>
<td>54.50%</td>
</tr>
<tr>
<td>35 - 44</td>
<td>7</td>
<td>21.20%</td>
</tr>
</tbody>
</table>
Participants in the Interviews

Six interview sessions were conducted with six participants. Since the focus of this study is on investigating the time management as SRL strategy among graduate students, the selection of the six participants were mainly based on their level of SRL in online learning environments (measured by OSLQ survey). Data of two participants from each SRL level (low, medium, high) were selected for analysis. Other variables such as age, gender, marital status, academic and employment statuses were considered in the selection process to allow for more participants’ characteristics variety. Table 3 provides an overview of the interviewed participants’ attributes and characteristics.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 - 54</td>
<td>2</td>
<td>6.10%</td>
</tr>
<tr>
<td>55 - 64</td>
<td>4</td>
<td>12.10%</td>
</tr>
<tr>
<td>65 - 74</td>
<td>2</td>
<td>6.10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>14</td>
<td>42.40%</td>
</tr>
<tr>
<td>Part-time</td>
<td>19</td>
<td>57.60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic Program</th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's</td>
<td>27</td>
<td>81.80%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>4</td>
<td>12.10%</td>
</tr>
<tr>
<td>Certificate</td>
<td>2</td>
<td>6.10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>21</td>
<td>63.60%</td>
</tr>
<tr>
<td>Part-time</td>
<td>7</td>
<td>21.20%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
<td>15.20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experience with Online Courses</th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>17</td>
<td>51.50%</td>
</tr>
<tr>
<td>4-7</td>
<td>6</td>
<td>18.20%</td>
</tr>
<tr>
<td>8-10</td>
<td>8</td>
<td>24.20%</td>
</tr>
<tr>
<td>More than 10</td>
<td>1</td>
<td>3.00%</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>3.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Table 3

*Characteristics of Interview Participants*

<table>
<thead>
<tr>
<th>Student</th>
<th>Gender</th>
<th>Age</th>
<th>Marital Status</th>
<th>Children</th>
<th>Lives with</th>
<th>Occupation</th>
<th>Enrollment</th>
<th>SRL Score</th>
<th>SRL Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracy</td>
<td>Female</td>
<td>25-34</td>
<td>Single</td>
<td>None</td>
<td>Roommate</td>
<td>Full time</td>
<td>Full time</td>
<td>2.95</td>
<td>Low</td>
</tr>
<tr>
<td>Bryan</td>
<td>Male</td>
<td>25-34</td>
<td>Single</td>
<td>None</td>
<td>Alone</td>
<td>Full time</td>
<td>Part time</td>
<td>3.18</td>
<td>Medium</td>
</tr>
<tr>
<td>Keith</td>
<td>Male</td>
<td>65-74</td>
<td>Married</td>
<td>2</td>
<td>Family</td>
<td>Full time</td>
<td>Part time</td>
<td>3.42</td>
<td>Medium</td>
</tr>
<tr>
<td>Erin</td>
<td>Female</td>
<td>55-64</td>
<td>Single</td>
<td>None</td>
<td>Alone</td>
<td>Part time</td>
<td>Part time</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td>Dawn</td>
<td>Female</td>
<td>45-54</td>
<td>Married</td>
<td>3</td>
<td>Family</td>
<td>Full time</td>
<td>Part time</td>
<td>4.2</td>
<td>High</td>
</tr>
<tr>
<td>Beth</td>
<td>Female</td>
<td>25-34</td>
<td>Single</td>
<td>None</td>
<td>Partner</td>
<td>Full time</td>
<td>Part time</td>
<td>4.4</td>
<td></td>
</tr>
</tbody>
</table>

Below is a brief description of each interviewed participant. The names of the participants here were pseudonym.

**Beth.** Beth is a middle school full-time teacher. Beth teaches technology and engineering education. Beth’s undergraduate degree was in the field of technology education. She is currently a part time student in a Curriculum and Instructional Technology master program. Beth’s experience with online courses, as a graduate student, is limited as she is still in her first year as a master student. However, in her undergraduate, Beth tried to take at least one online course every semester because she wanted to finish her degree faster. Beth lives with a partner and has no children. Other than teaching and graduate work, Beth works together with her partner to do house chores. Her average score in the Online Self-regulated Learning Questionnaire (OSLQ) indicates that she is among the high online self-regulated learners.
Bryan. Bryan finished his undergraduate degree in secondary education in math and social studies. He is currently a part time master student in the School of Education. He teaches Algebra for ninth graders and coach a sport in the evenings during the school year too. Bryan does not have any experience with online courses as an undergraduate student, however, he has taken more than four online courses in his master program. Bryan lives by himself and almost has all the time to teach and study. Bryan’s average score in the OSLQ indicates that Bryan belongs to low online self-regulated learners’ category.

**Dawn.** Dawn is a full-time teacher teaching English as a new language for K-12 students. She is married and have three children: two, four, and six-year-old. Dawn obtained her bachelor’s degree in childhood education and her Master’s in K-12 and literacy. Dawn teaches in charter school which does not require ENL teachers to have the certification mandated by the state. However, to make sure that she is preforming well and for the sake of her own knowledge, she went back to school and now finishing a graduate certificate in teaching. Dawn has good experience with online courses as she has taken four online courses as a graduate student. Dawn is among the high online self-regulated learners according to her average score in the OSLQ.

**Erin.** Erin is a graduate student at the doctorate level in the field of curriculum and instructions. She has a master's degree, obtained twenty years ago, in teaching English to speakers of other languages. She teaches English as a second language at a community college level. Erin lives alone by herself and she does not have to worry about family obligations and noise as she described. Erin believes that online learning is her favorite learning delivery method, however, she has only taken less than four online courses as a graduate student. According to her average score in the OSLQ, Erin is among the medium online self-regulated learners.
Keith. Keith is an experienced educator with eighteen years of being visual art full-time teacher for middle school and high school students. He is now a part time graduate student finishing his master’s degree in curriculum and instructional technology. Keith lives with his wife and their sixteen and twelve-year-old children who are both doing 100% online learning and at home to do their education. Keith is an experienced online leaner as he has taken all his eight graduate courses online. Keith’s average score in the OSLQ put him in the medium online self-regulated learners’ category.

Tracy. Tracy has an undergraduate degree in liberal arts with specialization in psychology and now she is doing her master’s degree in mental health counseling. Tracy’s career has been in the field of teaching English as a second language. She is currently interning as part time at an Intensive English Language Program which offers English courses to undergrad and graduate international students. She also has taught English for K-12 students in the Middle east and Europe. Tracy focuses her time almost on work and graduate study. Tracy’s has taken less than four online courses as a graduate student. She lives with a roommate and her extended family lives far away that makes her free from any family responsibilities. Tracy’s average score in the OSLQ indicates that Tracy belongs to low online self-regulated learners’ category.

Procedure

In the first week of class, the department coordinator sent an invitation email to graduate students in the School of Education who were taking fully online courses. The email briefly describes the purpose of the study and the role of participants and the researcher. It also includes a link to the study's detailed consent form. After accepting the form, participants were asked to provide some demographic and academic information such as age, gender, graduate program, enrollment status, occupation status, level of experience in online learning, the online courses
currently taking, and whether a participant set a regular personal schedule to study for my online courses (see Appendix 1). After that, participants were asked to complete the Online Self-regulated Learning Questionnaire (OSLQ) taken from (Barnard et al., 2009) to measure the participants’ self-regulation level in online learning environments (see Appendix 2). More details about the OSLQ questionnaire are in the data collection section.

After receiving the participants' information and the list of online courses they were enrolled in, participants were asked to choose one online course from that list and make sure it was offered 1) by the School of Education and 2) as an asynchronous online course. The reason behind these criteria was to achieve the consistency of the research context. The list of courses that participants provided was verified again with the official classes schedule website. Starting from the second week of the semester to the end of the fourth week, participants were asked every Sunday, via a reminder email, to submit a study time log for the past week for their chosen online courses (see Appendix 3). Sometimes, it was necessary to send a second and third reminder to participants who fail to submit their log on Sunday.

After collecting study time for three weeks, a simple personalized feedback designed by the researcher was sent to each participant (see Appendix 4). The feedback aim was to emphasize the concept of the regularity of learning as an evident time management indicator that may help online learners to perform better. It also included a visual element as a diagram showing the actual time participants provided in the past three weeks (Appendix 4). As the data collection progressed, some minor modifications inspired by the participants' comments were made on the feedback design. To see the difference between the designs, please see (Appendix 4). The theoretical background of this feedback was based on the work of (Hattie & Timperley, 2007) in feedback literacy (Where am I going? How am I going? Where to next?). The feedback design
also benefited from the literature in the field of learning analytics dashboards and visualized feedback. The literature in this area recommended that the visual elements in feedback should be simple and easy enough to be understood by students as it is proven that students most likely will not use the feedback to make changes in their learning if they do not understand it (Paulson et al., 2017).

The design of the feedback and word choices was evaluated in a prior pilot study. The evaluation process was done in four stages. It started with a college student, then with a graduate student, and then with a college professor, finally it was evaluated with eight graduate students from the School of Education as a pilot study. Changes and modifications were made when recommended by evaluators. More details of the pilot study are described below.

Along with the feedback, participants were asked to complete a short questionnaire about their perceptions and preferences toward the feedback (see Appendix 5). More details about the design of this questionnaire are in the data collection section. Participants were then asked to be interviewed about their participation in the study. Participants who accepted to be interviewed were scheduled for a virtual follow-up interview session. A reminder email was sent to participants one day before each interview. The reminder includes the interview meeting details (link or phone number), the interview questions, and a copy of the participant's regularity of learning feedback. This whole procedure was repeated three times until the theoretical saturation was achieved.

**Pilot Study**

To explore and test the research design and tools utilized in this research, I conducted a pilot study in Fall 2019 using a qualitative method. This section explained in detail how the pilot study outcomes helped me find the best-fit research design for this current study, and how it
assisted me in refining the data collection methods as well. The pilot study also informed the regularity of the learning feedback process and design used in the current study.

The primary questions with which the pilot study was concerned were: To what extent do students would like to receive feedback about their regularity of learning? How do students perceive and prefer to see the regularity of learning feedback? The pilot study's focus was on the regularity of learning feedback, so I can have a start point of how students would like to see the feedback before I design one. This approach was motivated by the idea of design with students, not for students. In the pilot study, six graduate students (four females and two males) volunteered to participate in the study. The participants' ages ranged from 25 to 44 years (M=32.8). All the participants were full-time graduate students. Four participants work in part-time jobs, and two participants are unemployed. I used the most common method for data collection in qualitative research, which was interviews with individual participants (Foley & Timonen, 2015).

**Pilot Study: Prototypes**

Before the interview sessions started, participants were assigned randomly to one of the prototypes (visual, written, and both visual and written) that hypothetically represent the participant's regularity of learning feedback. For consistency, prototypes with the regularity of learning feedback always showed the individual regularity of learning as being behind the course and/or the average of course.

**Pilot Study: Interviews**

The researcher conducted the interviews in quiet areas in the University Library except for one interview session, which was conducted remotely via Zoom based on the participant's preference. A question guide was used and followed by the interviewer. The aim of the
interview was stated to the participant with an emphasis to understand students' perception and preferences about providing regularity of learning feedback in online courses and that there were no correct or wrong answers and that what they shared would not affect their grades or academic record in any way. Students were also reassured that all opinions and information collected would be kept confidential and anonymous. All the interviews were audio recorded with participants' consent. The areas/aspects discussed in the interview included students' perceptions and preferences of the regularity of learning feedback in online learning, the benefits of that feedback for learning and self-regulating learning improvement, the feedback design, utilization and any particular significant experiences they had relating to the self-regulating learning and learning in online courses. Some examples of the guiding questions about participants' perception toward the regularity of learning feedback are:

- Tell me what you think about the regularity of learning in online learning.
- Tell me what you think regarding the regularity of learning feedback, whether it can improve learning or not.
- How should learners act toward the regularity of learning feedback?
- Please explain your feeling when you first saw the regularity of learning feedback.
- How are you going to respond to the regularity of learning feedback?

The guiding questions about the participants' preferences toward the regularity of learning feedback and recommendations were generally asking about what, when, where, how they want to receive the feedback and recommendations.

**Pilot Study: Outcomes**

From the thematic analysis of the interviews, six key themes were identified to answer this study's first research question (How do students perceive the regularity of learning
feedback?). The themes are Attitude, Judgment, Affects, Plans, Activities, and Concerns. For the second research question (How do students prefer to see the regularity of learning feedback?), five key themes were identified: Design, Accessibility, Feedback Time, Privacy, Performance Comparison. The thematic analysis reveals three additional themes that describe the participants' preferences toward the feedback recommendations section. These themes are recommendation type, format, and time.

It is vital to examine the effects of the feedback on learners' SRL and learning outcomes. This pilot study only examines the feedback from the point of view of graduate students who have educational and teaching background. Future research should examine the concept of the regularity of learning from other disciplines and levels of education, such as the undergraduate level. To obtain an initial overview of what students think about the regularity of learning feedback, hypotheticals prototypes were used. That can be a limitation and future research could examine the students' attitude based on real feedback from real LMS data.

The outcomes from the pilot study encouraged me to look deeper into the concerns that the students mentioned. Besides looking at the students' attitude toward regularity feedback, the results motivated me to investigate how students understand time management in an online learning environment.

**Role of the Researcher**

As the researcher, my role was to collect the questionnaires data, collect the time log reports from participants, design and write the individual regularity of learning feedback, create interview questions, and conduct in-depth interviews with the participant. Furthermore, I analyzed the quantitative data and the interview responses.
In preparation for conducting this study, I integrated my experiences as a former eLearning and educational technology specialist and current graduate student. I also benefited from the research tools, training, and courses that I have taken as a doctoral student at the School of Education at the University at Albany. I have taken online graduate courses, which demonstrated to me a range of online courses approaches. During the current study, I was keeping in mind that my online learning experiences, as a student and as an educational technology specialist, may have different types of roles, designs, tasks, and expectations.

In addition, I always monitored any type of bias that may arise from my prior experiences to limit my background from reaching conclusions within my research study based on my interactions with the graduate students. To help understand and record my thinking, I kept writing reflectively during the research process as recommended by (Booth et al., 2008).

I believe that my background in designing, teaching, and taking online courses helped me understand the related challenges when I met with the participants in the current study. Hence, I believe my prior experiences helped me to interpret information during data collection better. However, I "bracket' or set aside" my personal beliefs, opinion, experiences, and assumptions while conducting this study to understand how participants "experience their world" (Schwandt, 2007, p. 24).
Data Collection

This study's data sources primarily constituted six in-depth interviews with six participants from three data collection segments. In addition, sources of quantitative data included demographic and personal information, a short questionnaire that asked participants about their perception and preference toward the regularity of learning feedback, participants’ level of experience with online learning, participants’ level of SRL in online learning, the participants’ study time for three weeks, were obtained. Figure 4 describes the process and steps for the data collection.

OSLQ

At the beginning of this study, participants responded to 24 questions taken from the OSLQ (Barnard et al., 2009). The OSLQ (Appendix 2) comprises six subscales: environmental structuring; task strategies, goal setting; help-seeking; time management; and self-evaluation. Each question has a 5-point Likert-type response with values ranging from strongly agree (5) to
strongly disagree (1). The average of all subscales gives a measure of overall SRL. Better self-regulation in online learning is indicated by students’ higher scores on the OSLQ. OSLQ was used in this study to determine the participants’ self-regulated learning level in online learning.

**Interview**

Glaser and Strauss (1967) emphasize that data collection in qualitative research need to be rigorous. In social sciences research, interview as a data collection method is an effective and popular method (Nunkoosing, 2005; Silverman, 2013). Interviews in qualitative research should be done according to a strong but flexible plan (Sunstein & Chiseri-Strater, 2012). In this study, the interview method was mainly used for data collection for several reasons. Interviews allowed me to respond flexibly to participants with follow-up questions, prompt narratives, pursue more profound understanding, and encourage participants to make meaning. According to (Marshall & Rossman, 2016), an in-depth interview is a "close and personal" (p. 62) method that embodies the research in which researchers investigate "individual lived experience" (p. 61). Interviews allow for "collaboration" and "friendly talk" between the interviewer and the participants (Sunstein & Chiseri-Strater, 2012, p. 219). A good interview should not be just asking questions and recording answers. Researching people, listening, and asking for clarification, using good personal interaction skills, and digging deeper into explanation are the characteristics of a good interview (Marshall & Rossman, 2016; Sunstein & Chiseri-Strater, 2012). Patton (2002) emphasizes that good follow-up questions come from "knowing what to look for in the interview, listening carefully to what is said and what is not said, and being sensitive to the feedback needs of the person being interviewed" (p. 374). In-depth interviews require that the researchers be "deeply and unavoidably implicated in creating meanings that ostensibly reside within respondents" (Holstein & Gubrium, 1995, p. 3). In this study, I personally conducted the
interviews and interacted with the participants in virtual conversations. Body language, tone of voice, and emotional intensity were observed by the researcher and includes in the field notes and memos. In the interviews, "the subjective view [of the participants] is what matters" (Rossman & Rallis, 2017, p. 110). Therefore, subjects were chosen for their expertise as graduate students with a variety of experiences with online learning, occupation status, and family and social relationships.

In-depth interviews should be conducted in a shared space in which both researcher and participants affect the process of collecting data where the qualitative researcher is a participant-observer (Marshall & Rossman, 2016). However, due to the unprecedented situation of the COVID-19 pandemic, which required social distancing, and based on geography and participant preference, participants were primarily interviewed virtually by Zoom or telephone calls. The interviews were recorded digitally after obtaining verbal informed consent. Participants were assured that all opinions and information collected would be kept confidential and anonymous. The recordings were transcribed verbatim digitally using Otter.ai (a web application that provides speech to text transcription). The accuracy was then checked and verified word by word against the taped interviews by the researcher.

The “grand tour” approach (Rubin & Rubin, 2005) was used in the interviews to encourage participants to share rich data about their experiences. Following this strategy, initial interview questions from the interview guide was used (see Appendix 6), and clarification follow-up and probing questions were asked when needed (Charmaz, 2006; Rubin & Rubin, 2005). After an initial casual conversation making participants more comfortable, the purpose of the research and the participant's role in the research were explained to the participants. The participants were then asked for some background information such as education status, marital
status, occupation, current course load, and about the online learning experience such as the number of online courses taken. The participants were also asked to describe their experience with an online course at graduate school (load, structures, schedule, conflicts with family, work, etc.). The first question was very open-ended: "Tell me about your experiences with online courses as a graduate student." The researcher encouraged the participants to go deeper by using comparisons such as: "Does any particular experience stand out as specifically good or helpful to you or bad and not helpful?", "Why was that?", "How do describe this experience comparing to face-to-face courses?", or "How has this view changed over time?". Probing questions were used to elaborate and clarify more details (Rubin & Rubin, 2005). As the data analysis proceeded and categories became distinct, the follow-up questions were advanced to explore specific categories that emerged. Using field notes during the interview sessions, the researcher was aware and recording his preconceptions, impressions, and feelings.

As suggested by (Oakley, 1981), sharing of the self can build trust with research participants. However, as the researcher, I avoided making my own experiences and feelings to be central to the conversations during the interviews. As stated by (Nunkoosing, 2005), "when we seek to find what we already know in interviews, we learn little to advance our knowledge" (p.702). Although drawing on my underlying knowledge and experiences about online learning as a graduate student and educational technologist may enable me to encourage responses that the participants may not previously thought of, I was open-minded to avoid making assumptions and to develop my own understandings.

The discussion in each interview session was divided into two main parts. In the first part, the concept of time management in online learning was discussed. In the second part, the concept of the fixed study schedule and regularity of learning and its feedback were discussed.
with participants. Before starting to talk about the regularity of learning, the designed feedback was shared with participants as a way to connect the participants with their real-time data.

**Participants’ perception and preference questionnaire**

A web-based questionnaire instrument comprised two parts (perceptions and preferences) administered to assess the participants’ attitudes towards the regularity of learning feedback. The first part comprised five items to assess the participants perception towards the regularity of learning feedback using a six-point Likert scale. The second part comprised: one multiple-choice-style question on participants’ preference for the type of feedback; one multiple-choice-style question on participants’ preference for the frequency of the feedback; and one open-ended question to allow the participants to give any additional comments not covered in the questionnaire.

The Likert scale items were based on statements from previous studies assessing student attitudes towards audio and visual feedback (Marriott & Teoh 2012; Parker & Fletcher, 2017). Modifications were made to these statements, so they become relevant to the regularity of learning feedback rather than audio-visual feedback. These items were rated using a six-point Likert scale: strongly disagree, disagree, somewhat disagree, somewhat agree, agree, strongly agree. Permission to use this modified instrument was obtained from the original author before the data collection began.

For the two multiple-choice-style questions, the questions were designed based on the results of the pilot study mentioned earlier. These two questions asked about the two most issues that students are concerned about: design and frequency. The questionnaire allowed participants also to add any additional comments via one open-ended question.
The modified version of the questionnaire was evaluated by two researchers holding a Doctoral degree in learning analytics and information visualization and one university professor whose research interests include learning design, assessment, and computing studies. The survey was improved based on the feedback received from the evaluators regarding the survey design and questions.

As the study also has one phenomenology component to assist in describing the nature of the participants’ experiences with the regularity of learning feedback, the overall result from the perception questionnaire and the qualitative data obtained from the depth-interviews was analyzed to give a general sense of the participants’ experiences.

**Data Analysis**

**OSLQ**

After questionnaire outcomes exported into Microsoft Excel for data cleaning procedures (e.g., recoding variables, identifying outliers), the data was exported to SPSS statistical software. Barnard et al. (2009) provided evidence to construct validity of the OSLQ for students taking a blended course and an online course. It was reported in prior studies that Cronbach’s alpha reliability coefficient (or Cronbach’s alpha) of .90 for the overall tool to values ranging from .67 to .90 for the subscales (Barnard et al., 2009). The Cronbach’s alpha reliability coefficient (or Cronbach’s alpha) was applied to construct validity of the OSLQ in this study and the Cronbach’s alpha was .81. In addition, the Shapiro-Wilk test was applied to assess the normality for the data obtained by the OSLQ questionnaire. Participants were assigned to the high, medium, and low online SRL groups based on median and percentiles results from the OSLQ questionnaire.
**Interviews**

Data analysis was performed using the constant comparison method. After each interview was transcribed and verified, the transcripts were uploaded into NVivo R1 software (QSR International is a qualitative research software developer based in Melbourne, Australia) and coded, initially using open coding (Glaser & Strauss, 1967). Each interview data was compared to data obtained from previous interviews. This process was completed each time before proceeding to the next interview. As some codes began to appear, these codes were conceptualized into categories. As categories began to emerge, the coding, analysis, and comparison process changed from open to selective coding. The categories were constructed using the model functionality of NVivo. In the selective or second-level coding, categories were conceptualized from the open coding, and subsequent coding was used to illuminate these categories' properties. Then, I narrowed down the analysis to core categories or themes (Glaser, 2001). Those core categories and their properties formed the basis of the theory derived from the data. Except for the initial data, new data was always compared to the previous data for similarities and contrasts. Data that was not useful for the emergent theory was archived in a disparate category. When no new data were found relevant to the category or categories of interest, saturation was occurred, and coding was ended.

**Participants’ perception and preference questionnaire**

For the data obtained by the participants’ perception and preference questionnaire, the questionnaire outcomes were exported into Microsoft Excel for data cleaning procedures. Then the data was exported to SPSS statistical software. The Shapiro-Wilk test, a well-known test of normality that is more appropriate for small sample sizes (< 50 samples) (Elliott & Woodward, 2007), was applied to assess normality for the data obtained by this questionnaire. As the
assumption of normality was violated, a non-parametric test, Mann Whitney U Test, (Mann & Whitney, 1947) was used to identify any statistically significant differences in the mean questionnaire scores between: gender (male and female) and enrollment status (full and part-time students). Mann-Whitney (M-W) U test “is used with a between-groups design with two levels of the independent variable” (Morgan et al., 2010, p. 147). The nonparametric analysis of variance test, Kruskal-Wallis (K-W) (Kruskal, 1952; Kruskal & Wallis, 1952), was computed to determine if there is a significant difference among the SRL levels (high, medium, low), age range, and employment status (full-time, part-time, unemployed) on students’ perception toward the feedback. In addition, frequency analysis was applied to the two questionnaire items: the type of feedback and student preferences for how often to receive the feedback. For the questionnaire's open-ended question, the text was analyzed on a line-by-line basis and coded by the researcher.

The overall results from the perceptions and preferences questionnaire and the qualitative data obtained from the depth-interviews were analyzed to give a general sense of the participants' perception and experiences nature with the regularity of learning feedback. An overview of the data analysis approaches for the interview and questionnaire items is outlined below in Table 4.

Table 4

Data Analysis of the P&P Questionnaire

<table>
<thead>
<tr>
<th>RQ</th>
<th>Data Collection Method</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding</td>
<td>Interview</td>
<td>Qualitative constant comparison method</td>
</tr>
<tr>
<td>Perception</td>
<td>Questionnaire Items: 1 to 5 (Six Likert scale)</td>
<td>Frequency analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MWU test: Gender, Enrollment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K-W test: SRL level, Age, Employment</td>
</tr>
</tbody>
</table>
Many methodologists argue that realistic methodologists developed the concepts of reliability and validity for quantitative research, and therefore, they cannot be used in qualitative research without them being reconstructed and re-conceptualized (Golafshani, 2003; Healy & Perry, 2000; Noble & Smith, 2015). Quantitative studies concern about the issues of validity and controlling variables, while qualitative research concerns about the researcher's subjectivity as an important factor in qualitative research. To bring qualitative research closer to the objective quantitative paradigms, some methodologists suggest that researcher subjectivity should be minimized, and data should be analyzed as text. However, a recent approach in qualitative research advocates for researchers to acknowledge and embrace their subjectivity (Peshkin, 1988) and see subjectivity as a positive element that should be viewed as a way to understand the phenomenon (Charmaz, 2014). Several criteria and strategies were followed to help ensure the trustworthiness and rigor of this study.

**Triangulation**

According to (Lincoln & Guba, 1985), triangulation is a technique used to enhance the trustworthiness of research. Triangulation is the procedure of comparing information and results from different sources or gathered information using different methods. The objective of triangulation is to reduce researcher bias and validate findings. To enhance opportunities for comparison from different perspectives under different conditions, the data were collected in this study from graduate students with a diverse range of age, gender, occupation, academic status,
level of SRL, and experience with online learning. In addition, the data collection process took place during different semesters (summer and fall) and with courses with different lengths (eight weeks and semester-long courses) to cross-check and verify evidence. For the participants’ perceptions and preferences toward the regularity of learning feedback, responses were collected from a questionnaire and follow-up interviews (from approximately 18% of the sample), which added a more in-depth understanding of participants' experiences and reduced the chance of bias.

**Thick description**

Providing a sufficient and thick description of a study's context allows readers to evaluate whether the results can be transferred to other populations or settings (Creswell, 1998). Participant recruitment and inclusion criteria were described in detail in the participants’ section. Furthermore, demographic and background questions were included in the first questionnaire that participants completed after they accepted the consent form. That information was confirmed and investigated deeply with the participants who accept to participate in the interview sessions.

During and after each interview, field notes and memos were taken. Field notes and memos included notes about the participants' responses and the interview observation, as well as the researcher's reflections regarding the previous interviews or literature. The information documented in the field notes and memos was used throughout the data collection, analysis, and interpretation processes, which helped in developing the emerging concepts and themes.

**Criteria of adequacy**

The use of theoretical sampling is "one of the hallmarks of the GT approach" (Fassinger, 2005, p. 162). To construct a grounded theory with theoretical completeness, theoretical sampling was a necessary process (Charmaz 2014; Glaser, 2001). Theoretical sampling is the
process of consistent comparative of data and emerging categories to explain and verify the emerging concepts until data saturation is being reached (Charmaz, 2014). In the current study, I used mainly in-depth interviews to obtain rich and significant data from participants who were allowed to express their views and experiences fairly. The data collection and participant recruitment continued until data saturation was achieved.

**Audit Trail**

Ongoing memos and field notes helped in bracketing my own personal experiences and keeping a detailed record of the study process. These memos and notes were taken during the data collection, analysis, and interpretation processes. The field notes and memos let me keep a record of how data was reduced and analyzed, and how the conclusions were reached.

**Auditing**

Lincoln and Guba (1985) emphasize that the "audit may be the single most important trustworthiness technique available to the naturalist" (p. 283). An audit would involve in reviewing the study documentation and steps to ensure that qualitative methodology was followed. For this study, two peer auditors, qualitative researchers, were asked to audit the process of the study. They were provided with some samples of raw data and iterative versions of the interview questions and transcripts. They were also given early versions of this study's background and procedures, which outline the study problem and purpose. The reason behind seeking feedback from auditors was to ensure that the grounded theory tradition was followed during the formalization of the study outline, data collection, and analysis.

**Peer-review**

I sought advice and feedback from my colleague and doctoral students whom I asked to read and critique my work. Also, the version of the questionnaire used to examine the
participants' perceptions and preferences toward the regularity of learning feedback was evaluated by three researchers holding a Doctoral degree in related fields. Their feedback and comments were implemented in the final draft of the questionnaire.

**Member Checking**

According to (Creswell, 2007), member checking strengthens the credibility and validity of qualitative studies and reduces the incorrect and misinterpreted data. Two techniques of member checking were used in this study. During the interviews, I was asking for clarification and validating the participants’ responses as a way to increase the accuracy. Another member checking technique was used by asking participants to review a draft of their transcribed interview at the end of the data collection process.

**Credibility**

As the main and only researcher in this study, I continued intensively involving in the study process. My experience as an e-learning and educational technology specialist helped me to fully understand the study context and the online course design and systems. I am a graduate student too, which assisted me to know and feel the participants' standpoints. During the interviews, I usually verified the accuracy of the data collected from participants, which made the data's validation ongoing process. I took "the role of an interested learner" and an active listener (Charmaz & Thornberg, 2020, p. 13). The interview questions were open-ended rather than leading questions. I usually provided prompts when needed as well. While reviewing the literature and collecting and interpreting the data, I usually took a critic's position, which led me to reach out to experts and the advisor and committee members for comments and feedback.
Ethical Considerations

The protocol of this study was reviewed by the Institutional Review Board of the State University of New York at Albany, and the approval was granted. In the recruitment email, the purpose of the study, the procedures for both researcher and participants, and the participants’ ability to withdraw from participation for any reason at any time will be fully communicated to participants.
Chapter 4: Results

This study used a sequential mixed methods design (Ågerfalk & Fitzgerald, 2008; Creswell & Creswell, 2018) to explore how graduate students understand time management in online learning environments. In the applied mixed methods design, the core component was qualitative, and the supplemental component was quantitative. By applying the Constructivist Grounded Theory (Charmaz, 2000), the main data collection method in this study was via in-depth interviews with six participants. The study also used a quantitative approach to examine the graduate students’ perceptions and preferences toward the regularity of learning feedback using questionnaire data from 33 graduate students. The GT approach was applied only to the qualitative data set, while the quantitative data was collected separately and analyzed statistically. Results were then compared and analyzed further. In the analysis stage, the qualitative data were analyzed first with applying the process of constant comparative to explore the key themes that help answering the first research question in this study. The quantitative data was then analyzed to explore the students’ perception and preference toward the regularity of learning feedback. Analyzing the quantitative data (non-experimental approach) intended to help in answering the second and the third research questions in the current study. The two sets of data were analyzed separately with an exploratory stance maintained when analyzing both the qualitative data and the quantitative data. The outcomes from the qualitative and quantitative data intended to assist in understanding how graduate students understand time management in online learning environment and how they perceive the feedback in that context. This chapter is organized by research questions.

Research Question 1: How do graduate students understand time management in online learning?
To investigate how graduate students understand time management in online learning environments, six participants were purposively selected to be interviewed in this study (Patton, 2002). The selection criteria were mainly based on the participants level of SRL in online learning (measured by OSLQ survey). Two participants from each SRL level (low, medium, high) were selected. Other variables such as age, gender, marital status, academic and employment statuses were considered in the selection process to expand the variety of the participants’ characteristics.

Interview data was analyzed first by using open coding approach. In this initial phase, I stayed close to the data and coded the text using line-by-line coding. During this phase, I used my field notes and memos from the previous steps and interviews to help me understand the where the data could take me. I have to admit that I was very much open in the open coding phase when I was labelling each line of data. Thirty codes were identified in the first open coding phase (See Table 5).

Following the initial phase, more focused or selective coding phase came second. In the focused coding phase, the most substantial or frequent codes that emerged in the initial phase were conceptualized into categories. During this phase, I synthesized, integrated, and organized the initial codes into larger codes or categories to narrow down the analysis process. Each category was given a brief description that describes the properties of that category and the codes it contains. The thirty codes identified in the first phase were filtered through a focused coding processes to ten codes (See Table 5).

Finally, I narrowed down the analysis by synthesizing and integrating the categories emerged in the focused coding phase into two key themes (Beliefs and Strategies). These two key themes
were interpreted and discussed to answer the first research question. Table 5 shows the identifies codes in each coding stage.

**Table 5**

*Identified Codes*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Codes</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Coding</td>
<td>Accessibility, Accomplishment, Adaptive Scheduling, Degree, Discipline, Environment, Experience with Online Courses As a student, as a teacher, Method, Tools, Technology, Family, Recommendation, Understanding the regular learning, Amount, Flexibility, Needs, Organization, Feeling, Planning, Impact Planning, , Profession, Self-monitoring, Support, Technique, Time Allocation, Tracking Study Time, Understanding Time Management, Regularity of learning.</td>
<td>30</td>
</tr>
<tr>
<td>Focused Coding</td>
<td>Understanding of Time Management, Challenges, Experience with Online Courses, Adaptive Scheduling, Planning, Regular Learning, Time Allocation, Accuracy, Tools, Tracking Study Time</td>
<td>10</td>
</tr>
<tr>
<td>Key Themes</td>
<td>Beliefs and Strategies</td>
<td>2</td>
</tr>
</tbody>
</table>

**Beliefs**

When participants were asked to explain their experience with online learning as graduate students, all of them attempted to relate online learning to the flexibility. Indeed, it is already well-known that flexibility in time and place is a feature that online learning offers which makes this type of learning format preferred by most learners. However, when carefully examining the reasons that made the participants value the flexibility in online learning, time in its different forms was the real hidden factor that increases the popularity of online learning among students, especially students who have other significant responsibilities such as the graduate students in this study. The different forms of time can be travel time to work or school, time with family, work time, preferred study time, amount of study time, or study time pace. The following are few
quotes from the participants showing how they usually connect time with studying for online
courses:

Keith: “I am employed full time, [online fully] is just easier. I don't have to worry about
the time requirements or the distance to travel more”

Dawn: “I'm at this point in my life, I need to do fully online, but I actually prefer in
person...I am teaching full time right now, and then we also have three kids at
home. So, it makes it almost impossible to go to an actual classroom”

Erin: “I am a night owl. I am completely not good during the day. I could stay up all
night working. I do so much better work when I can work according to my own
schedule”

Bryan: “when we're doing readings and discussions, I am able to take the time I need to
read them... It takes me a long time to read through something, make sense of it
before I can respond... that is where online really helps me”

Beth: “I tried to take at least one online course per semester. I felt that allowed me to do
my degree faster... online courses helped me stay on track, because it allowed me
to do more work during the week, because of my time constraints”

Tracy: “It's being able to kind of study whenever I do, finish the course as fast as
possible”

On the other hand, all the participants brought up some challenges they encounter in the
online learning environment. Directly or indirectly, time was also behind most of those
challenges mentioned by the participants. Some of the participants were aware that they were
facing a time-related issues such as time requirement and availability:

Dawn: “As a graduate student, I felt like [online courses] are very time consuming”
Keith: “[in online courses] you’re chunking it I guess, like finding a way to chunk your available time to meet the requirements of what you have to have done”

Bryan: “So, it is where if we’re taking the time every day to set the environment for ourselves”

while some other participants linked those challenges to other course-related issues such as tasks and amount of work. However, the nature of online courses’ requirements and the number of their assignments are eventually connected to the students’ effort and time management self-regulation.

Tracy: “Because I think to compensate for not having face to face class time, the amount of online assignments increases”

Beth: “it's very heavy in discussion, and very heavy on reflection and sharing personal experiences”

“I find that a lot of people don't post early on in the week like the professor recommends. So, I find that I miss out on reading a lot of those discussion posts because other people don't post until later on in the week when I've already completed most of my work”

Given those obstacles in online learning, participants were asked about their understanding of time management in the online learning environment and how they usually attempt to tackle those challenges and succussed in their online courses. With no hesitation, all of the participants acknowledged that success in online courses requires effort and time planning and management. Participants explained several approaches they typically follow in this matter. From the participants’ comments and the nature of the approaches that they revealed, it was obvious that the participants are aware that students in online learning should have a higher
degree of self-agency toward managing their learning. Instead of waiting for a course’s work to be accumulated and then rush to finish the work in the last minute, some participants explained how they follow a daily or weekly consistent effort approach to accomplish their goals that they set for themselves.

Bryan: “I would piece it out during the week. So, it is a little more spread out for myself”

Tracy: “I always dedicate the weekend mornings to studying. So, I kind of like Saturday morning will look at the week to come kind of figure out what I need to accomplish before the next class and then kind of work backwards from that class to get things accomplished”

Keith: “I know that online learning to require that there is a certain amount of time that is required for the course... not waiting until the last possible minute to get something done, but it is that little bit each day is so much better than a lot of it really fast”

The other three participants mentioned other approaches such as self-control and self-monitoring, preplanning, and getting things done quickly.

Erin: “here is my basic rule, I try to start things as soon as possible. For example, I know that I have a case study due the 14th of August, most people wouldn’t start it before then. I will actually start it before then”

Beth: “an online class to me requires far more organization, digitally speaking... because it is on your own terms, and because it is really self-driven, you have to have a good backbone and be able to control what you do and not veer off until like Facebook land or YouTube land, when you should be doing your work”
Dawn: “I feel like it has to be preplanned... I go through an actual calendar that I write in, and I map the entire course out. So, I know, I can't work week by week unless I see the full picture already written out”

Strategies

Participants were asked to give their opinions about two different ways of managing and planning study time for online learning courses. The first approach was the flexible and loose way of scheduling study time where students would not necessarily set a specific study time. Instead, students might wait for the free and convenient time to come and start working on their online courses’ tasks. Similarly, students following the flexible approach would set a wide and loose time schedule for their online courses’ study. The second approach that the participants were asked to give their thoughts about was the fixed or regular schedule that students would set for themselves when studying for online courses. Interestingly, all the participants, except one participant, revealed that the ideal approach for studying for online courses would be an approach that combines both aforementioned approaches.

From the constant comparison between the participants’ perspectives, it was obvious that all five participants acknowledged that a fixed and regular study schedule would help them to better focus on course tasks, function better, and avoid interruptions or be rushed. However, all the five participants admitted that they still need some flexibility as each one of them stated that she or he sometimes has unexpected events that require some adaptability. Whether they live in a big house or alone, work or study full or part time, a degree of adaptability was signified by all the five of the participants.

Dawn, for instance, is a self-regulated online learner as showing in her OSLQ score. She is also a self-motivated learner who sought self-improvement as she is enrolled in a graduate
certificate program that is not a job requirement. Dawn believes that the flexible and loose schedule is not appropriate for her and she prefers the fixed study schedule. Apparently, the reason behind her preference of fixed schedule was because she believes that goals accomplishment requires making the study time and environment more recognizable by herself and by the people around her.

Dawn: “I can't wake up and just be like, oh, today I am going to see how my day is going to go and kind of fit it... [flexible and loose approach] is definitely something that does not work for me. Definitely, based upon my personality, I have to have everything scheduled and worked out in a certain way. Just so I know what I am doing, and everyone around me knows what my time is... because my husband knows like okay, if you are there from nine to noon, no one is bothering you”

Dawn is also organized in terms of study time. She specified the morning time for studying for her online course. From noon to 3:00PM is the time when Dawn meets her students remotely. At the evening and nighttime, Dawn devotes the time for the family and for herself.

Dawn: “I guess the fear, if your mind knows that you are on a regular schedule and you are studying at a certain time, I think you can fully wrap your head around and immerse yourself into what you're doing ... if my mindset is knowing that I have a set time, I'm more clear on my objectives and my goals that I need to accomplish”

It seems that Dawn has a recognizable degree of self-awareness. She is aware of her ability and performance as she does not take more than online course per semester to ensure that her academic performance meets her expectations. In terms of allocating time for course’s tasks, Dawn claimed that she is kind of accurate when predicting how much time needed for each task.
She is also aware of the time when her productivity is higher as clearly admitted that she is a morning person who cannot function well at night.

Dawn: “*I only take one course a semester because I just feel like it is too overwhelming trying to figure out what is due when for each class*”

“I do not function very well working on my courses at night. I am more of a morning person”

Beth is another high online self-regulated participant, based on her OSLQ score, who has the same mindset as Dawn does. Beth understood that there is much going on in life and people are having hard time grasping what needs to be done. She believes that people should tame the factors that are flying around them by managing their time and devoting specific time to tasks, otherwise they will end up in living in chaos that may lead to high stress, burnout, or personal relationships issues. Beth philosophy views that people, who are always waiting for that free moment without a specific timeframe, are constantly looking for those free moments and forget about the now or current moment. Beth does not have kids and lives in a quiet household with limited responsibilities, but she tried to explain her perspective by giving an example of someone who is a parent attending his or her child’s sport game. If the parent had the mentality that it is constantly looking for the free moments, they will be focusing on the workload on their mind instead of enjoying the current significant events.

Beth: “*because you're constantly thinking of when am I going to have time to do my grad work? When am I going to have time to write that report? When am I going to have time to submit my discussion? ... instead of focusing on their son or daughter's basketball game, or soccer ball game... and I think it really takes them away from their life*”
At the same time, Beth stated that based on life circumstances, there is a need for some flexibility when planning for graduate work. Her way of dealing with such unexpected events is by keeping some time open. Except for emergency, Beth still prioritizes her grad work as she views graduate school as her choice that she puts her money in to better herself and better her future. She is against the instant gratification that makes students do assignments or memorize information just because they need it for a specific assignment or moment. Instead, Beth viewed education not only as high grades, but as something serious that she puts a lot of focus into, and a lot of thought into, and she gears toward applying the information that she learned to her life.

Beth: “if... something comes up, I will prioritize my grad school because I know that that is the expectation and that is what needs to be met, and I am dedicated, and that's what I am going do”

“when people view college as staying up until three in the morning getting work done, I just need to get this report done, or I just need to do this, and I will feel so much better when it is done. We forget about why we're in college...This is our choice to pursue our education for whatever we want to do with our lives”

From the participants whose OSLQ scores are at the medium level of online self-regulated learning, Keith is an example of graduate student who doesn’t outline a fixed schedule for studying for his online course due to the time that his full-time job requires and due to the family obligations. Instead, Keith follows an informal and flexible daily routine that allows him to check for his schoolwork to see what needs to be done. Although, the fixed studying schedule for online courses is an unfamiliar concept to him, Keith expressed how that way of planning and time management strategy would benefit him as he wished that he could go back in time I follow more fixed schedule. To be clear here, it is not because Keith is struggling academically in his
online courses, in fact, Keith described that his online learning experience in his graduate program has been “fantastic”. Keith explained that it is just because that the notion of dedicating a specific time to online courses would benefit him more in terms of organization.

Keith: “If I am setting time aside specifically just to learn and to apply to the tasks are required, I could see where that would have a positive effect on you the academic performance and get the student outcome. At 1,000% makes sense. I almost wish I'd met you two years ago, be honest, I really do, I wish two years ago I was kind of exposed to this... I wish I could go back in time that's exactly what I would do”

Keith would prefer fixed schedule with some adaptability. It is understood as Keith is a father of two teenage children, works full time, and responsible for other house chores. It seems like Keith would love to follow a schedule that organizes his time and effort for his online courses, but he still has some fears such as dealing with unexpected event that could get in the way if he wants to plan ahead. Those fears that Keith described could be related to the lack of support that Keith was looking for. In fact, he recalled a unique experience with one of his online courses where the instructor offered them a type of time management support.

Keith: “In fact, it was my fourth or fifth course that I had the instructor actually gave us the formula for figuring out how many credit hours and then how much time you really need to be doing”

In terms of allocating time for study tasks, Keith stated that he doesn’t actually need to time himself or predict time for the task that he is about to start working on for his online courses. Still, Keith stated that he is always aware of the tasks that needs to be done and the nature of tasks, but he doesn’t watch the clock neither know how long they take. In any course
task, Keith would start working on that particular task and finish whenever he is done without setting a specific time frame.

Keith: “that drives my wife nuts that I am sort of a timeless person... because I do not really watch the clock. I can honestly say that that these online classes have produced a state of flow for me, and I do not realize that two hours or three hours have gone by. I could even tell you what I have to do today. I've got a reading to provide literatures, I've got to at least do an initial pop. I have no idea how long that's going to take”

Participants with low online self-regulated leaning level, Tracy and Bryan, shared some thoughts about how a fixed schedule could better their online learning experience. It worth mentioning that Tracy and Bryan are from the same age category, they both work full time, and they both are master students. Tracy is enrolled as a full-time student in mental health counseling, while Bryan is a part time student in education. They both live away from their extended families which leaves them with some fewer responsibilities except for work and grad school. They both were interviewed separately, however, both of them shared some positive comments about the fixed study schedule. With some personal reflections, they revealed how such approach could be valuable for them as online learners.

Tracy: “I could see how that could be beneficial, and then kind of thinking about my own study habits. I guess I kind of do that a little bit with like, every Saturday morning kind of evaluating things. Yeah, I can see how that could be helpful”

Bryan: “… at least personally, if we know that something is coming, so we know that okay, at this 7 PM time I need to work on something, it is a lot easier, at least for me, to focus on that task. Instead of saying, Oh, I magically have this free half
hour, what am I going to fill it with? When you know, okay, I have this two-hour chunk of time from seven to nine every night that I am able to work on something and knowing that I am not going to get distracted, I am not going to fill it with other tasks, then you can really focus on those academic pieces, and that is really the only way we learn if we are focused on something”

Bryan revealed that he would benefit more from a fixed study schedule as his initial plan. He also considered an adaptive schedule as a second option in case he needed to change his plans. Bryan explained that he may need to follow a constant self-evaluation process to make sure that he keeps his study on track.

Bryan: “At least for me, I would say that having the regular time would be most beneficial. But then things happen where you have to adapt. So, the adaptive schedule would be the secondary piece. I would start with having that same chunk of time every day and then if it had to change for some reason, then reallocating the time throughout the week”

Tracy mentioned that she felt that she could do better job in having a more regular and fixed study schedule, however, she revealed that she is pretty satisfied with the way that she is currently doing. Tracy did not hide her worries about whether having a fixed study schedule would add another stress factor.

Tracy: “... maybe I am just using my own experiences but thinking about all of the things that I already have to do at certain times, adding another thing that I have to do at a certain time is, like, exhausting to think about. So, able to at least be flexible with when I study allows me to be more engaged, I think”

In Tracy situation, she stated that she has a pretty rigid schedule for the rest of her responsibilities other than graduate schoolwork. It is worth mentioning that the only factor that
Tracy could think of when she was asked about the factors or events that impact her study schedule was the work stress.

Tracy: “... work stressors, ... so for example, I was feeling really, really rundown after working with some of my clients, and I had planned to finish a paper that night, but I said, Okay, you can do this tomorrow, because you're not going to finish it today”

Erin was the only one participant who was exception in terms of having a study schedule. She appreciates the flexibility in the online learning to the degree that she does not have or prefer to have a study schedule.

Erin: “I am terrible with time management. I study when I feel like it. I can be discipline as in I don't like doing things for last minute, but if I do not feel like doing something, if I know my work is not going to be good because I am tired, then I won't do it. I waited until I feel like it”

Erin described herself as very flexible person in terms of scheduling events and tasks. In terms of allocating time and predicting time for course tasks, Erin reported that she is more or less accurate. Erin is fifty years old, but when it comes to study time, she repeatedly described herself as teenager in that stance. The question that Erin was asked multiple times during the interview is what the reasons behind this way of approaching her courses’ tasks are. Erin replied always with the same answer, It is not because she is busy with work or with other responsibilities but because it is:

Erin: “completely how I feel. Completely, if I feel like, I will make a good effort doing it. I am like a teenager in that sense”
The approach that Erin followed is not only for online courses, in fact, she would do the same study routine for in person classes too.

Erin: “for face-to-face courses schedule, I just go to class when I have to, and then I will do what I have to, but not according to a schedule”

The way that Erin believes that it helps her to succeed in her online courses is because she is not waiting to the last minute. By doing so, Erin thinks that she gives herself more time to accomplish her goals.

Erin: “Even though it sounds like I have no discipline, I do. Because when I start something early, I don't have to deal with it at a certain time. I think for people who do things at the last minute, I think being on a certain schedule is good”

At the same time, Erin does not see a need in changing the way she studies for her online courses. She seems to be satisfied with her current way of studying routine.

Erin: “the problem is that I get good grade already, but that is probably why would I change. If I got bad grades, I would probably change”

It is worth mentioning that planning according to the due dates is the most popular tactic that participants use when planning for studying for online courses.

Participants were asked also about whether they keep a record or a log of their study time for their online course. It is not surprising that all participants do not actually keep track of their study time. In fact, it was one of the motivators for some participants to take a part in this study as the study required that participants to report their study time for an online course for three weeks. Some participants were interested to see how their study time looks like.
Dawn: “I actually do not use a time log. That is why I was really interested in doing this [the study] to kind of see. I really liked to see how it was spread out in that graph to kind of actually look at how I studied”

Beth: “I would not say that I keep a log of it. I would not normally write down the times that I work on my assignments. I just keep an eye on the clock and figure out like, okay, started at six, how many hours do I really want to spend on this particular assignment. I don't really take a note of the time that I spend, I more of just allocate time to spend”

Tracy: “not so much of a log... I don't really use time so much, but I will write down in my planner, I read today, or when I did the readings”

Bryan: “It is usually not written on paper. Since I go by week, I can usually remember”

Erin: “Not at all. You are the only I did that for... But I would not do that ordinarily”

Keith: “I do not. In fact, I used an app... for your study, so I actually had something that allowed me to start/stop like check in check out, and then I could actually put down what I was working on. So, no I do not, and I have not really kept up a log or record of my time. [it was the] first time, this why I would need to see your report”

In addition, participants were asked whether they would be interested in using a digital tool that would track and record their study time. All the participants valued the idea of having such a tool that document their study time automatically. Even the participants who do not actually follow a fixed study time believed that the time tracker would have positive impact on students as they can use it to see how much effort and time were invested in their learning. However, some participants expressed some concerns about the time measurement methods and
accuracy. They mentioned that most of their learning activities actually happened offline. Some participants suggested that a combination of self-report (manual) and automatic time log will increase the credibility of a digital time tracker.

Bryan: “I am not sure how accurate the data would be from Blackboard, because me personally, whenever I have my internet browser open, I have Blackboard open too. If I am working on a Tuesday night on something, and I have to skip Wednesday, I still keep all the readings, all the materials up on my computer screen. So, Blackboard might see that Oh, he is working on it for 36 hours straight, but I was only working on it for two”

Tracy: “I think that could be nice. I'm thinking about is, often I end up leaving a page open for a very long time and doing other things. And coming back... So, I wonder how that would kind of influence that reading?”

Beth: “I think that it would be helpful if Blackboard had that analytics side of things... I feel like it would be very appropriate to have something like that, some type of dashboard to track when you're logging in”

Dawn: “I think I would use it if I had access to checking it. And I kind of could use this as a self-monitor way to make sure that I am kind of staying on track and holding everything true to myself, I would use it if I had access to it”

Erin: “it might get me to be more regular at my time, I don't think it will have much of an influence on me. But if I start getting into trouble, what would happen is I would start looking at it more if I started getting into trouble”
Summary of Findings related to the First Research Question

From analyzing the interview data, thirty initial codes were identified which were then categorized into 10 categories and then narrowed down to two key themes. Beliefs and strategies were the two main identified themes from the qualitative data which helped in answering the question of how graduate students understand time management in online learning environments. All the participants appreciated and strived for the flexibility that online learning offers, however, they all agreed that a regular study schedule would improve their learning performance and outcomes. In addition, participants revealed that they do not really track their study time for online courses, therefore, they showed interests in receiving support or help regarding their time management.

Research Question 2: How do graduate students perceive feedback about their regularity of learning?

Students’ perceptions of the feedback they received are shown in Table 6. Overall, student perceptions of the feedback were positive. In terms of the feedback being clear and easy to follow, 94% of students strongly agreed, agreed or somewhat agreed. In addition, almost all the participants (97%) believed that the feedback was successful in identifying when they were studying regularly, with 97% of students strongly agreed, agreed or somewhat agreed. Most of all the participants (94%) believed that the feedback would show periods where students were not studying regularly. Most of the participants (93%) felt that the feedback was personalized to them. The majority of the participants were satisfied with the amount of feedback received with 93% of students strongly agreed, agreed or somewhat agreed.
Table 6

**Student perceptions of regularity of learning feedback**

<table>
<thead>
<tr>
<th>Item</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD</td>
<td>D</td>
</tr>
<tr>
<td>The feedback was clear and easy to follow</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>The feedback showed periods when I was studying regularly</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>The feedback showed periods when I was NOT studying regularly</td>
<td>0(0%)</td>
<td>1(3%)</td>
</tr>
<tr>
<td>I found the feedback was personalized to me</td>
<td>0(0%)</td>
<td>1(3%)</td>
</tr>
<tr>
<td>I was satisfied with the amount of feedback that I received</td>
<td>0(0%)</td>
<td>1(3%)</td>
</tr>
</tbody>
</table>

Note: SD – strongly disagree, D – disagree, SwD – somewhat disagree, SwA – somewhat agree, A – agree, SA – strongly agree.

**SRL Level**

The Shapiro-Wilk test was applied to assess normality of the student’ level of SRL on their perception toward the feedback. According to (Morgan et al., 2009), a variable is at approximately normal if the skewness is less than plus or minus one (< +/-1.0). The results of the test suggested that data for students with low SRL is the only data that was normally distributed and have skewness values between -1 and 1, a skewness of -.55 (SE=.66). While the data for students with medium and high SRL are not normally distributed, with negative skewness of -2.73 (SE=.66) for the medium SRL students, and negative skewness of -1.32 (SE=.66) for the high SRL students (Cramer, 1998; Cramer & Howitt, 2004; Doane & Seward, 2011). As mentioned earlier, participants were assigned to the high, medium, and low online SRL groups based on their median and percentiles results from the OSLQ questionnaire.
As the assumption of normality was violated, the nonparametric Kruskal-Wallis (K-W) (Kruskal, 1952; Kruskal & Wallis, 1952) analysis of variance test was computed to determine if there is a significant difference among the SRL levels on students’ perception toward the feedback. The Kruskal-Wallis test identified whether there was a statistically significant difference between two or more groups of an independent variable, however, it did not identify which specific groups were statistically significantly different from one another. This test was used as the sample size was small and the assumption of equality of group variances was violated.

Kruskal-Wallis test revealed that there were no significant differences among the three SRL levels on students’ perception toward the regularity of learning feedback, $X^2 (2) = 4.20, p = .12$. Table 7 shows that the mean ranks of the students’ SRL levels on students’ perception toward the regularity of learning feedback. Overall, high SRL students had higher mean ranks on students’ perception toward the regularity of learning feedback compared to the medium and low SRL students. Because the overall test results were not significant, pairwise comparisons among the students’ SRL levels were not completed.

**Table 7**

*K-W Test Summary Table Comparing Students’ SRL Levels on Students’ Perception Toward the Regularity of Learning Feedback*

<table>
<thead>
<tr>
<th>SRL Level</th>
<th>N</th>
<th>df</th>
<th>$X^2$</th>
<th>p</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>11</td>
<td>2</td>
<td>4.20</td>
<td>.12</td>
<td>12.18</td>
</tr>
<tr>
<td>Medium</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td>19.05</td>
</tr>
</tbody>
</table>
Gender

A Shapiro-Wilk’s test showed that the mean scores of the perception and preferences questionnaire were approximately normally distributed for males but not normally distributed for females, with a skewness of -0.346 (SE=0.794) for the males and a negative skewness of -1.635 (SE=0.456) for the females (Cramer, 1998; Cramer & Howitt, 2004; Doane & Seward, 2011).

Therefore, a non-parametric test, Mann Whitney U Test, (Mann & Whitney, 1947) was used to test whether there were differences in students’ perception toward the regularity of learning between female (N=26) and male (N=7) participants. Mann-Whitney (M-W) U test “is used with a between-groups design with two levels of the independent variable” (Morgan, Leech, Gloeckner, & Barrett, 2010, p. 147). M-W U indicated that perception scores for females and males were not significantly different. Mean ranks were 17.31 and 15.86, respectively, U = 83, p = .72, r = .06. (See Table 8).

Table 8

<table>
<thead>
<tr>
<th>Mean Rank</th>
<th>Mann-Whitney U</th>
<th>z</th>
<th>p</th>
<th>r(z/√N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students’ Perception</td>
<td>15.86</td>
<td>17.31</td>
<td>83</td>
<td>-.356</td>
</tr>
</tbody>
</table>

Enrollment

<table>
<thead>
<tr>
<th>High</th>
<th>11</th>
<th>19.77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>
Although Shapiro-Wilk’s test suggests that the mean perception scores were approximately normally distributed for full and part time students, however, the visual inspection of their histograms, normal Q-Q plots and box plots showed some outliers and indicated that the data were not approximately normally distributed for both full time and part-time students.

In addition to the indications that suggested the variables were not approximately normally distributed, the sample has a small size, therefore, Mann Whitney U Test was used to test whether there were differences between full time (N=14) and part time (N=19) students on their perception toward the regularity of learning. M-W U indicated that perception scores for full time students and part time students were not significantly different. Mean ranks were 18.61 full time students and 15.82 for part time students, $U = 110.5$, $p = .41$, $r = .144$. (See Table 9).

**Table 9**

*M-WU Test Summary Table Comparing Enrollment Status on Students’ Perception Toward the Regularity of Learning Feedback*

<table>
<thead>
<tr>
<th></th>
<th>Mean Rank</th>
<th>Mann-Whitney U</th>
<th>z</th>
<th>p</th>
<th>$r(z/\sqrt{N})$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ Perception</td>
<td>18.61</td>
<td>15.82</td>
<td>110.5</td>
<td>-.827</td>
<td>.408</td>
</tr>
</tbody>
</table>

**Age**

The nonparametric Kruskal-Wallis (K-W) analysis of variance test was computed to determine if there is a significant difference among participants’ age categories in terms of their perceptions regarding the regularity of learning feedback. The results indicated that there were no significant differences among the five age groups regarding students’ perception toward the regularity of learning feedback, $X^2 (4) = 1.49$, $p = .83$.  

89
Table 10 shows that the mean ranks of the students age categories on students’ perception toward the regularity of learning feedback. Overall, the students who are between 65 and 74 years old had higher mean ranks on students’ perception toward the regularity of learning feedback compared to the students in the other age categorizes. Because the overall test results were not significant, pairwise comparisons among the five age groups were not completed.

Table 10

K-W Test Summary Table Comparing Five Age Groups on Students’ Perception Toward the Regularity of Learning Feedback

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>df</th>
<th>$X^2$</th>
<th>p</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - 34</td>
<td>18</td>
<td>4</td>
<td>1.49</td>
<td>.88</td>
<td>17.81</td>
</tr>
<tr>
<td>35 - 44</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>16.43</td>
</tr>
<tr>
<td>45 - 54</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>12.5</td>
</tr>
<tr>
<td>55 - 64</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>14.13</td>
</tr>
<tr>
<td>65 - 74</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Employment

A Shapiro-Wilk’s test suggested that the mean scores of the perception and preferences were approximately normally distributed for full time employees, part time employees, and unemployed participants. However, the skewness and the visual inspection of histograms showed that the mean questionnaire scores were not approximately normally distributed, with a negative skewness of -1.46 (SE=.50) for the full-time employees, a negative skewness of -1.57 (SE=.79) for the part time employees, and a negative skewness of -1.26 (SE=.91) for the unemployed participants (Cramer, 1998; Cramer & Howitt, 2004; Doane & Seward, 2011).

Kruskal-Wallis was performed to compare employment status because the samples were small, and the dependent variables were non-normally distributed, skewed, and other
assumptions of the homogeneity of the variance assumption were violated. This test revealed that there were no significant differences among the three employment status groups on students’ perception toward the regularity of learning feedback, $X^2(2) = 1.54, p = .46$.

Table 11 shows that the mean ranks of the students’ employment status groups on students’ perception toward the regularity of learning feedback. Overall, the part time employees had higher mean ranks on students’ perception toward the regularity of learning feedback compared to the full-time employees and unemployed students. Because the overall test results were not significant, pairwise comparisons among the students’ employment status groups were not completed.

**Table 11**

*K-W Test Summary Table Comparing Students’ Employment Status Groups on Students’ Perception Toward the Regularity of Learning Feedback*

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>N</th>
<th>df</th>
<th>$X^2$</th>
<th>p</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed full time</td>
<td>21</td>
<td>1.54</td>
<td>.46</td>
<td>17.81</td>
<td></td>
</tr>
<tr>
<td>Employed part time</td>
<td>7</td>
<td></td>
<td></td>
<td>118.07</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
<td></td>
<td></td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In summary, the frequency analysis revealed that the overall of participants’ perceptions of the feedback were positive. As the sample size was relatively small, and the assumption of normality was violated, the nonparametric Kruskal-Wallis (K-W) was used to examine whether there is a significant difference among the participants’ SRL levels, age, and occupation status.
In addition, Mann Whitney U Test was used to test whether there is a significant difference among the participants’ gender and enrollment status. The results from both tests showed that there were no significant differences among any of the participants’ categories on their perceptions toward the feedback.

**Research Question 3: How do graduate students prefer receiving feedback about their regularity of learning?**

Students were asked how they preferred their regularity of learning feedback to be presented and how often they preferred to see that feedback (Table 12).

**Table 12**  
*Student Preferences for Feedback*

<table>
<thead>
<tr>
<th>Item</th>
<th>Response Item</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I prefer my regularity</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>of learning feedback</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>to be:</td>
<td>26</td>
<td>78.8</td>
</tr>
<tr>
<td></td>
<td>1. Visual</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>2. Textual</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>3. Both (Visual and</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Textual)</td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>4. No preference</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>I prefer to receive my</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>regularity of learning</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>feedback:</td>
<td>26</td>
<td>78.8</td>
</tr>
<tr>
<td></td>
<td>1. Every week</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>2. Bi-weekly</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>3. Every month</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>4. No preference</td>
<td>11</td>
<td>33</td>
</tr>
</tbody>
</table>

The majority of student respondents (N=26, 79%) preferred to see their regularity of learning feedback in a design that has both visual and textual components. Only 9% (N=3) of respondents preferred to see their regularity of learning feedback as text only. The same number of respondents (N=3, 9%) preferred to see their regularity of learning feedback in visual items only. One respondent (3%) did not have any preferences toward the design of the regularity of learning feedback.
About one-third of the participants showed no preferences in terms of how often to receive the feedback. While one quarter of the participants preferred to see their regularity of learning feedback every month. The same percent, one-quarter, preferred to receive the regularity of learning bi-weekly. About 18% \((N= 8)\) would like to receive the regularity of learning every week.

**Results from the Open-ended Question**

Sixteen participants chose to answer the open-ended question at the end of the questionnaire which was given to the participants to add any comments not covered in the questionnaire. The participants’ comments were analyzed separately by coding them line-by-line. Three themes from this coding process were identified. The themes are: perceptions, experiences, and recommendations.

**Perceptions**

Eleven out of the sixteen participants provided positive comments about their participation in the study. Seeing the time pattern was surprising to some of the participants but their comments indicated that keeping a time record or log about the study time is an interesting practice.

“I’m very glad I participated in the study as keeping a log was helpful and I will likely continue that going forward”

“I hope to continue on with this study..., it has been an enjoyable experience!”

From analyzing the comments, some of the participants don’t really keep watching their study time. In fact, some of the participants appreciate that they were able to see their time pattern giving that the practice was only for three weeks.

“I never realized how regulated I was with my studying until I logged it”
“It was interesting to see the pattern that has worked for me during my [course code] course”

In fact, there was participant who expressed in detail how the practice of keeping a study time log, not the feedback, helped her to see her busy and free time during the time COVID-19 while she was having a busy household with limited access to computer.

“The process of keeping the log was more beneficial than the feedback itself. This time period was a unique one due to COVID factors as the first week I was still doing remote learning for my children and had very strange hours in which I could access our single computer, the second week the remote learning was finishing, and the computer was more available, but my husband was working from home which also impacted my study times, the final week was settling in to a more normal routine. Keeping the log helped me to see how much time I needed and when my open periods would be”

Seven participants from the sixteen appreciated the feedback and the provided chart. It indicated that some students would appreciate the support and feedback that would support their SRL and their course time management.

“This was a great report, and this entire exercise helped me with my own self-regulation”

“This project shows me that I am not using my time in the best fashion, and it shows me that I should be managing my time in a better, more productive way. Which I plan on doing. Thank you”

“I think providing weekly feedback on regularity would be beneficial since it would allow the student to track their own progress”

“The chart along with the typed feedback was helpful”
Experiences

Four participants out of the sixteen chose to talk about their personal experiences with the online courses and how they managed their time. The narrative was used to praise the feedback process and to critique it as well. It is worth mentioning that the design of the feedback was not the focus of this study. Exploring the graduate students’ perception toward the notion of receiving feedback about their time behavior was more important in this study. Keeping that in mind, the critical perspectives from participants were appreciated as it will assist in forming future research directions. An example of a critical comments was from a participant who was trying to explain that the primary reason for her to be an online learner was because she desired to not have a fixed but flexible schedule. She identified herself as a student with strong time management which allowed her to maintain a high GPA in graduate school. She was suggesting that feedback about time by itself is not enough. She believed the feedback should consider efficiency, productivity, and outcome as well.

“The feedback was based upon time only, but not based at all upon efficiency, productivity, or outcome produced in those times, nor consideration of factors that may affect the planning of schedule... I have taken many courses of graduate coursework at two institutions in this flexible scheduling manner and have maintained a GPA of 3.9... As such, I don't think that this feedback in this format is beneficial to online learners”

She raised an important point that should be considered by instructors and researchers. Online students may appreciate a feedback that shows them the value of their time and on what course task it was invested.

Another participant explained how his day job and busy weekend with family forced him to give his online course the time he had left over. While he appreciated the feedback and the
experience in participation in the study, his comments showed some kind of satisfaction with what he has been doing for the past three years as graduate students benefiting for the flexibility the asynchronous online learning provided him.

“I agree with the premise of setting a regular time to perform all of my requirements/demands for online learning, but life at this time has not allowed it... Your review feedback of my learning regularity shows the pace that has served me for my entire online learning journey since 2018”

Recommendations

Six participants provided valuable recommendations to improve the feedback process about regularity of learning. Most of the recommendations were suggestions that the feedback could incorporate other elements such as students’ feeling, level of stress, and productivity or work accomplished during study time. Instead of analyzing the study time, one participant suggested that the feedback process should also analyze the students’ free time as a way to provide a more personalized study time recommendation. This particular participant also suggested that including some motivation tips or time management tactics in the feedback would be more productive.

“feedback could include productivity during the time periods to show my best times to get things done... maybe adding components to log interruptions and work accomplished to find the most productive times!”

“Perhaps inquire about the student's feelings about their success in the class when taking the time stamps to provide a more clear connection and direct relationship between their routines of study and academic success, because students are very unique and particular
with which times of day and lengths of time work best for them. This would help make your feedback more specific to each individual student.”

“It might be more productive to analyses individuals free-time and how to properly use ones time. Maybe providing ways to motivate oneself or tactics to study at home”

Even though, the feedback provided brief explanation of the concept of regularity of learning and its association with academic success, some participants still believe that the feedback could include more detailed explanation about the regularity of learning.

“It would be helpful to know the definition of "regularity" in the context of this study. Does it mean the same day every week, the same time, the same number of hours, etc.? ”

“I would like to know more about the irregularity of learning including what it entails specifically and numbers associated with this pattern i.e. hours, days of the week, GPA, etc.”

**Summary of Findings Regarding Student Perceptions and Preferences**

Overall, from the results of the five questionnaire items, student perceptions of the regularity of learning feedback were positive. Data for students’ perception toward regularity of learning feedback mostly were not distributed normally. Therefore, a non-parametric Mann Whitney U test and Kruskal-Wallis test was used to determine if there is a significant difference among the students’ SRL levels, age range, gender, enrollment, employment on the students’ perception toward regularity of learning feedback. The results of the Mann Whitney U test and Kruskal-Wallis test revealed that there were no significant differences among those groups on the students’ perception toward regularity of learning feedback. From the open-ended question, participants reported positive comments regarding the regularity of learning feedback. They stated that the feedback made them realize how their study time pattern looked like. They also
indicated that they would like to receive feedback and support regarding their time management in online courses. However, some participants stated that the time management feedback should include other elements such indicators about productivity, motivational, emotional, feeling, and stress.
Chapter 5: Discussion and Conclusions

Discussion of Findings

Using a mixed methods design dominated by a qualitative approach as the core component of the study and the quantitative as the supplemental component, this study explored graduate students’ understanding of time management in online learning environments. In-depth interviews were the main data collection in qualitative part. For the quantitative approach, the study used the questionnaire as a data collection method to explore the graduate students’ perceptions and preferences toward the regularity of learning feedback. The total number of participants in this study was thirty-three participants. Six participants out of the thirty-three participated in the interviews. Purposeful sampling was followed in this study where variable such SRL level, age, gender, academic enrollment, occupation, and online learning experience were considered. The study started with asking the participants to track and report their study time for an online course for three weeks. The participants were then shown their study time in a form of a chart and feedback that recommended them to follow more regular study time. At the same time, the participants were asked to complete a short questionnaire that asked them for their perception and preferences toward the feedback they received. The data collection process was then ended with interviewing six participants to explore their understanding of time management in online courses. Collecting and analyzing the qualitative data followed the Constructivist Grounded Theory traditions, while the quantitative data was collected separately and analyzed statistically. An exploratory stance maintained when analyzing both the qualitative data and the quantitative data.

Research Question 1: How do graduate students understand time management in online learning?
Beliefs and strategies were the two main identified themes from the qualitative data which helped in answering the first research question of how graduate students understand time management in online learning environments. All the participants appreciated and strived for the flexibility that online learning offers, however, they all agreed that a regular study schedule would improve their learning performance and outcomes. They revealed that they still need to use some adaptability and flexibility when studying online due to their life activities as graduate students (McClintock et al., 2013). This is in line with the same results mentioned in previous research that adult learners and graduate students, in particular, have other work and life commitments besides learning, which makes it hard for them to regulate or keep track of their online learning regularity (Jo et al., 2015). From discussion with the participants about time and online learning course, it appears that participants with high SRL level have better self-awareness and self-monitoring in regards of time when working on tasks for online courses. It seems that those students with those abilities and skills strive to stick with a specific schedule or routine when they study for online courses. On the other hand, most of the participants with medium and low SRL levels seem to prefer a regular and a fixed schedule if possible, but it looks like they are more relaxed with their study schedule. The medium and low SRL students attempted to show some significance of their families and work over their graduate work. At the same time, those participants showed interests in receiving support or help regarding their time management. This could be related to what have been suggested by many SRL researchers that online learners may have the abilities and skills to manage their SRL (Veenman et al., 2006; Veenman, 2007), but they do not really use them effectively in real life practices (Azevedo, 2005; Broadbent & Poon, 2015). In addition, the participants said that they do not really track their study time for online courses. This raises the significant need of providing time
management prompts, guidance, and support to online learners based on their time habits. It has been indicated in existing research that this type of SRL support would enable learners to think and reflect on learning tasks (Azevedo et al., 2011; Ge, 2013; Johnson et al., 2011; Lin & Lehman, 1999; Veenman, 1993; Winne & Hadwin, 2013). This study shows that the concept of a regular and fixed study schedule for the online courses is a new concept to most of the participants. That indicates that the notion of regular online learning time is not explored yet, and more work is needed (Sher et al., 2020).

Research Question 2: How do graduate students perceive feedback about their regularity of learning?

To connect the study participants with the concept of time management in online learning, the participants were asked to track and document their study time for an online course and report their time weekly for three weeks. Then, the participants were shown their study time in a form of a chart and feedback that recommended them to follow more regular study time. Along with the feedback, the participants were asked to complete a short web-based questionnaire about their perception and preferences toward the feedback they received. The first part comprised five items to assess student attitudes towards the regularity of learning feedback using a six-point Likert scale. The second part comprised: one multiple-choice-style question on student preference for the type of feedback; one multiple-choice-style question on student preference for the frequency of the feedback; and one open-ended question to allow participants to give any additional comments not covered in the questionnaire. The questionnaire aimed to give us a glance of how students would perceive to feedback about their time behavior. The overall results indicated that student perceptions of the feedback were positive as the majority of the participants reported positive answers to the questionnaire’s questions. Again, this is a
confirmation to what have been discovered in the literature that students may have the SRL skills already and would use them if they were trained and supported (Azevedo, 2005; Broadbent & Poon, 2015). As learning dashboards, systems or digital instruments that visualize learning data, aim to support learning awareness, more specifically targeting regulation of learning (Sedrakyan et al., 2020), an urgent need for developing feedback systems that assist online learners in time management is noticed.

**Research Question 3: How do graduate students prefer receiving feedback about their regularity of learning?**

When the participants were asked how they prefer to see their time management feedback, most of the participants reported that they would like to see the time management feedback in visual and textual formats. In addition, the participants’ preferences varied regarding how often they would like to receive the regularity of learning feedback. This was expected as prior studies concluded that learning analytics visualization and feedback selection may vary with students’ achievement goal orientations (Shirazi Beheshitha & Gasevic, 2016).

The main outcomes from the participants answers to the open-ended question was categorized in three themes: perception, experience, recommendations. Some participants were surprised when they saw their study time patterns as they never had the opportunity to keep track of their study time for online courses. Most of the participants who chose to fill out the open-ended question reported positive comments about the regularity of learning feedback. They would love to have such feedback in their future online courses. In fact, this is what was reported in the work of which indicated that there is limited research in the learner-facing dashboards that use trace data to support learners’ SRL (Arroyo et al., 2007; Bodily et al., 2018). It should be noted that some participants stated that feedback about time only would not be
enough. They recommended including other elements to the time management feedback such as motivation tips, productivity report, and stress indicator. They also suggested that time should be connected to learning tasks in which students will be able to see how much they spent in those tasks so they can reevaluate their time spending and allocate more accurate time for future tasks.

I believe this is a great point that should highly be considered when working on designing or providing time management tips or feedback to students. Moreover, it is the core key of the COPES model of SRL where learners activate the control and monitor loop during learning, and evaluate the accomplished products to the standards to evaluate their progress towards their goals (Winne & Hadwin, 1998; 2013; Molenaar et al., 2019).

A few participants showed some concerns about the regularity of learning feedback measurement methods and accuracy. Some of them suggested that it would be better if the system allows students to enter their offline learning time, offers live feedback, and provides feedback about different events and activities in different formats and in multiple time frames. This is exactly what many researchers in areas such Open Learner Model (Bodily et al., 2018) and Multimodal Learning Analytics (Mitri et al., 2018) have recommended. Learning analytics feedback tools should consider collecting data from different sources and allowing users to communicate with the system and choose what to include and how to see the output.

**Overall Discussion**

When comparing the current study’s findings with what has been found in the literature, I believe that this study educed the hidden beliefs that online learners may have toward time and online learning. Previous studies told us that students, more specific graduate students, enjoy online courses because they offer some flexibility in time and place. Some recent efforts approved that regular study schedule for online courses has a positive relationship with learning
outcomes. We also know from the previous literature that students might be aware of, but do not use, time management skills in successful online learning. I believe that some online learners may misunderstand what time flexibility that online learning environments offer means. Some graduate students understand that as long as they have good grads in their online courses, they do not need to be organized in terms of setting a study schedule or allocating study time. Some of the students, who have many significant and daily responsibilities beside doing online learning, would always try to find free time to study between the midst of their daily activities. I would argue that this vague way of scheduling study time may impact the students' experiences with online learning. They may still receive high grades but at the same time they might have negative feeling or stress toward learning online. This way of time management will unintentionally affect the students’ lives if they keep skipping family events or being less focused on work because they constantly thinking about when they would study for their online courses. When these students were exposed to the concept of regulating their study time for online courses, most of them thought that would definitely help them improve their online learning experience. This is a key finding that this current study would add the literature in SRL and time management in online learning. Students do not really know what time management in online learning looks like. Therefore, many online learning students would appreciate receiving tips, feedback, or instructions that help them manage their time and organize their efforts with what they are already handling at work or at home. Using technology and learning analytics to provide time management promotes or feedback in form of dashboard would assist students in setting goals, planning, and monitoring when studying (Winne & Hadwin, 1998; 2013). By using time management dashboards, hidden and unstructured time data can be documented and organized. Then, students will be able to constantly monitor their learning process by monitoring the
deployment and effectiveness of the time strategies they use to achieve their learning goals. The products of monitoring will help students to reevaluate their time management and may be make changes or adapt new tactics or strategies (Winne & Hadwin, 2013). Additionally, time management dashboard will benefit instructors and researchers. Monitoring students’ time management behaviors will allow instructors and researchers to identify and categorize how high SRLs manage, monitor, and re-monitor their time. This use of the big and rich data will help in grouping students into different categorizes based on the SRL processes which will ease the process of providing feedback and intervention when needed (Azevedo et al., 2013).

However, there are some significant elements that should be considered when providing time management feedback. First of all, it looks like many students would prefer to see how their time management is connected to their productivity and effectiveness. It means that students would like to see how much time they spent or need to spend on a certain task. This will assist students to be more accurate in allocating and predicting time for courses tasks. Secondly, providing time management feedback or dashboard in different formats or designs is significant. Time management feedback or dashboard should not be evaluated based on the design only. How effective that tool to the students should considered as well (Bodily et al., 2018). Lastly, time management feedback and dashboard will prompt regulated learning externally (Azevedo & Cromley, 2004). To maximize the effectiveness of such tool, timing and frequency should be carefully considered. If we consider that students are having issue with time management, sometimes it will not be ideal to leave it to them to choose when they should receive or see the feedback. Time management prompts and intervention should be provided in a way that not annoying nor scarce. Fading the prompts to make students feel they are more independent in
managing their time is another way that would be considered as well (Azevedo & Hadwin, 2005; Bouchet et al., 2016).

**Discussion through the Lens of Winne and Hadwin’s model of SRL**

In terms of Winne and Hadwin’s model of SRL (Winne & Hadwin, 1998; 2013), there are four phases in which learners perform a learning tasks. Phase 1) Learners in the first phase define and interpret the learning tasks. That happens by interpreting external task conditions such as time limits, resources, help available, and internal cognitive conditions such as beliefs, knowledge domain, knowledge or experiences of study tactics and strategies. In fact, first phase helps learners understand what the learning task is.

Phase 2) Based on the outcomes of the first phase, learners create goals for the learning tasks and set plans to approach that goal or set of goals. Phase 3) After that, learners engage in different operations. Some of that operations can be primitives or complicated. Phase 4) Then, learners evaluate the products that were formed in the previous phase. Based on the results of the evaluation, learners will either repeat the process until they achieve their goals or revise the products and adapt different goals and strategies. Making adaptation can involve changing the external conditions (e.g., changing time plan, seek help) and/or the internal conditions (increase knowledge about the task, learn a strategy or tactic) before starting the task again.

If we look at the results of this study through the lens of Winne and Hadwin’s model of SRL, it is obvious that learners in online learning mostly struggle with time management at the first phase. At that phase, learners need an accurate model of the assigned task. That means supports and guides should first start from this phase. Support and guidance may come in forms of providing description of each learning task and estimate the time for that task. The most appropriate way to address this matter is by given an estimation for the required time for each
course task in the course syllabus and in the task description. By doing so, learners will understand the task’s conditions more clearly which will lead to estimated more accurate and realistic goals.

I believe that telling learners about how much time they need to work on a course task is not less important than telling them about the due date or when they need to submit. Connecting the required time with the course tasks and assignments will help learners to plan for their learning as well. Instead of throwing the whole load on the learners’ shoulders to define the tasks’ conditions (time constraints), it will be more helpful to provide time estimation for the tasks from a domain expert so the learners could plan accordingly. Learners still need to receive time management feedback that help them to be meta-cognitively active in monitoring and regulating their learning. However, if the learners start the learning process with unclear expectations, all the followed phases of the Winne and Hadwin model of SRL will produce inaccurate products and the evaluation and monitoring steps will recommend wrong directions. Therefore, the impact of time supports on the learners’ task’s interpretation should receive more attention in the future research directions.

**Limitation and Future Directions**

This dissertation has several limitations. It should be noted that this study is explorative in nature. This is because there were no prior qualitative studies looked in the area of time management as a sub element of SRL in the context of online learning and with graduate students. Hence, the outcomes of this study can be used as an initial effort to design more complicated instruments to measure study time for online learners. The sample size used to examine the students’ perception and preference toward the feedback was relatively small. Future research that would look for designing and feedback or dashboard about students’ time
management should consider recruiting larger sample size. I also recommend that more efforts should be given to explore how providing estimation of task’s time and time management feedback, support, or tips would impact students’ SRL and learning. Even though it was for connecting the participants with the concept of time management, the study also used a self-report method to collect study time. Future research could benefit from the digital footprints or trace data that the learning management systems offer to track, identify, and analyze learners’ temporal patterns. Since the current study collected study time from students for three weeks only, it will be interesting to explore the students’ perception for such feedback but for longer period of time e.g., a month, half semester, a semester, or for the whole academic program experience.
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Appendix

Appendix 1

Demographic Information

1. Age

2. Gender

3. Graduate program: Master’s  Doctoral  Certificate

4. Academic Enrollment Status:  Full time  Part time

5. Employment Status:  
   Full time  Part time  Unemployed  Retired

6. How Many FULL ONLINE courses have you taken as a graduate student?
   0-3  4-7  8-10  more than 10

7. How many Full Online courses are you taking THIS semester?
   1  2  3  4

8. I set a personal regular schedule (day and time) to study for my online courses.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree
Appendix 2

Online Self-regulated Learning Questionnaire (OSLQ)

<table>
<thead>
<tr>
<th>Items</th>
<th>Subscale</th>
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<tbody>
<tr>
<td>1. I set standards for my assignments in online courses.</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>2. I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester).</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>3. I keep a high standard for my learning in my online courses.</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>4. I set goals to help me manage studying time for my online courses.</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>5. I don’t compromise the quality of my work because it is online.</td>
<td>Goal Setting</td>
</tr>
<tr>
<td>6. I choose the location where I study to avoid too much distraction.</td>
<td>Environment Structuring</td>
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<tr>
<td>7. I find a comfortable place to study.</td>
<td>Environment Structuring</td>
</tr>
<tr>
<td>8. I know where I can study most efficiently for online courses.</td>
<td>Environment Structuring</td>
</tr>
<tr>
<td>9. I choose a time with few distractions for studying for my online courses.</td>
<td>Environment Structuring</td>
</tr>
<tr>
<td>10. I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom.</td>
<td>Task Strategies</td>
</tr>
<tr>
<td>11. I read aloud instructional materials posted online to fight against distractions.</td>
<td>Task Strategies</td>
</tr>
<tr>
<td>12. I prepare my questions before joining in the chat room and discussion.</td>
<td>Task Strategies</td>
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<tr>
<td>13. I work extra problems in my online courses in addition to the assigned ones to master the course content.</td>
<td>Task Strategies</td>
</tr>
<tr>
<td>14. I allocate extra studying time for my online courses because I know it is time-demanding.</td>
<td>Time Management</td>
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<tr>
<td>15. I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule.</td>
<td>Time Management</td>
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<tr>
<td>16. Although we don’t have to attend daily classes, I still try to distribute my studying time evenly across days.</td>
<td>Time Management</td>
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<td>17. I find someone who is knowledgeable in course content so that I can consult with him or her when I need help.</td>
<td>Help Seeking</td>
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<td>18. I share my problems with my classmates online so we know what we are struggling with and how to solve our problems.</td>
<td>Help Seeking</td>
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<td>19. If needed, I try to meet my classmates face-to-face.</td>
<td>Help Seeking</td>
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<td>20. I am persistent in getting help from the instructor through e-mail.</td>
<td>Help Seeking</td>
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<td>21. I summarize my learning in online courses to examine my understanding of what I have learned.</td>
<td>Self-Evaluation</td>
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<td>22. I ask myself a lot of questions about the course material when studying for an online course.</td>
<td>Self-Evaluation</td>
</tr>
<tr>
<td>23. I communicate with my classmates to find out how I am doing in my online classes.</td>
<td>Self-Evaluation</td>
</tr>
<tr>
<td>24. I communicate with my classmates to find out what I am learning that is different from what they are learning.</td>
<td>Self-Evaluation</td>
</tr>
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</table>
Please enter the approximate time you started and stopped studying last week for this online course. (Using From-To and AM/PM). You do not have to fill in all the textboxes, if you studied only for one 2-hour session 10am to 12pm on Wednesday, enter: 10am-12pm in the Wednesday row of the form below. If you studied multiple times in one day, you can enter those times in the "study session 2" and "study session 3" parts of the form.

<table>
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<tr>
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<th>Study Session 4</th>
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</table>

Please enter any additional comments or details:
Hello StudentName,

This feedback aims to help you monitor your regularity of learning in this course. Having a regular learning routine has been found to be strongly associated with and predictive of better learning performance.

**Recommendation**

Regularity of learning has a significant effect on course achievement. Therefore, I would recommend that you set a regular learning session(s) at the same time every day/week where you will login to the course, review the materials and finish the required tasks.

Thank you.
Hello StudentName,

This feedback aims to help you monitor your regularity of learning in this course. Having a regular learning routine has been found to be strongly associated with and predictive of better learning performance. It looks like you have a regular study time every Wednesday and Thursday only.

**Recommendation**

Regularity of learning has a significant effect on course achievement. I would recommend that you set a regular learning session(s) at the same time every day/week where you will login to the course, review the materials and finish the required tasks.

**Thank you.**
Hello StudentName,

This feedback aims to help you monitor your regularity of learning in this course. Having a regular learning routine has been found to be strongly associated with and predictive of better learning performance. It looks like you almost have a regular study time every day in the morning. You also have regular study sessions on Thursdays between 4:00PM and 6:00PM.

Recommendation

Regularity of learning has a significant effect on course achievement. Therefore, I would recommend that you keep having a regular learning session(s) at the same time every day/week where you will login to the course, review the materials and finish the required tasks.

Thank you.
Appendix 5

Student’s Attitudes Toward the Regularity of Learning Feedback

Part One: Students’ Perceptions

Q1 The feedback was clear and easy to follow.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree

Q2 The feedback showed periods when I was studying regularly.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree

Q3 The feedback showed periods when I was NOT studying regularly.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree

Q4 I found the feedback was personalized to me.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree

Q5 I was satisfied with the amount of feedback that I received.
   Strongly disagree  Disagree  Somewhat disagree  Somewhat agree  Agree  Strongly agree

Part Two: Students’ Preferences

Q6 I prefer my regularity of learning feedback to be:
   • Visual
   • Textual
   • Both (Visual and Textual)
   • No preference
   • Other:

Q7 I prefer to receive my regularity of learning feedback:
   • Every week
   • Bi-weekly
   • Every Month
   • No preference
   • other

Q8

Please could you use the box below to give any comments not covered above? You might want to tell us about how the regularity of learning feedback could be improved, what you particularly liked/did not like about regularity of learning feedback or other comments about regularity of learning feedback in general.
Appendix 6

Interview Questions:

General questions, opening:

- What do you prefer to take: full online, blended, or face-to-face courses? Why?
- How do you describe your experience with full online courses?
- Do you have experience in teaching online courses?

Broader questions

- How do you understand time management in online learning?
- How do you usually manage your study time for online courses?
- How do you allocate your study time for your online course?
- What impact your planning/scheduling study time for your online course?
- How the pandemic of (COVID-19) impact the way you plan and mange your study time for your online course?
- Please describe whether you are flexible with rescheduling?
- What do you use to keep a time log/record for your online courses?
- Recent studies have shown that regularity of learning (study at the same time every day or every week) has a positive relationship with academic performance. How do you make sense of regularity of learning in online courses?
- How do you make sense of adaptive scheduling that is flexible and changeable?

Let’s look at your chart and talk about your time in your current/recent online course:

- From looking at your chart, could you please describe your study time for this course?
- What do you understand from you study time for this course?
- What made you choose to study in these time periods? (for example, your availability - work, family, etc-, course due dates, workload from other courses, others).

Feeling:

a. What did you feel when you saw your study time on the chart? Why?

b. How about the whole feedback, including the recommendation part, how did you feel about it? Why?

Understanding the Study time chart:

a. Was the chart easy for you to understand?

b. What did you understand from it?

d. Did it help you to understand your regularity of learning?

  i. If yes, how did it help?

  ii. If no, what would you add or remove to make it easy for you to interpret your regularity of learning?

e. I will show you different visualizations and I would like you to rate the top three that you think they are the best to show your time?

Recommendation:

a. How do you make sense of the recommendation section?
b. How would you change it?

- **Personalization:**
  a. What would you add to make the feedback more personal to you?

- **Amount:**
  a. How about the amount of feedback you received, how often do you prefer to receive such a feedback?
  b. What about making it always available inside the course site, would you be interested in receiving it into your email as well? Why or why not?

- **Technology:**
  a. What do you think about analyzing your time log from Blackboard?
  b. If it was collected, analyzed and showed to students in form of a dashboard, do you think it would be beneficial? Why or why not?
  c. What would you suggest to improve the collection and analysis process of student time logs?