Understanding Students' Self-Regulation in Asynchronous Online Learning

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ABSTRACT

Despite rapid growth in online enrollment within higher education (Seaman, Allen, & Seaman, 2018), persistence and completion rates remain lower for online courses than face-to-face courses (Adams Becker, Cummins, Davis, Freeman, Hall Giesinger, & Ananthanarayanan, 2017; Lederman, 2018; Mon, 2010). This discrepancy in persistence and completion between the two modalities indicates a need to better understand learner self-regulation within online learning environments (Hart, 2012; Lee & Choi, 2011; Levy, 2007; Murphy & Stewart, 2017; Sansone, Fraughton, Zachary, Butner & Heiner, 2011). The ability for the online learner to maintain autonomy in their own learning is critical to their academic success. However, issues arise when students enter higher education lacking self-regulatory strategies. Students who do not exhibit such skills demonstrate lower academic achievement than those who do, as identified in Zimmerman's (2008a) summary of seminal work in the field of self-regulated learning (SRL) since the 1970s. It is critical to investigate the topic of SRL because it is so closely tied with achievement in online courses (Wentzel & Wigfield, 2009; Zimmerman, 2008b).

Through a philosophical pragmatic lens, this study used a sequential, explanatory mixed methods approach (Creswell & Plano Clark, 2011) to better understand the experience and actions of undergraduate students in an asynchronous online course who possess varying levels of self-regulation. In doing so, it also offers ideas on whether instructional methods and/or the course environment influence the development of self-regulatory practices. The study was guided by three research questions:

1. What is the experience of students in an online course who possess and/or lack self-regulation strategies?
2. What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?
3. What instructional methods or environmental factors help students develop self-regulation skills to succeed in an online course?

In the quantitative phase, participants completed the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991), which gave a self-reported snapshot into students' motivation, self-regulating skills, and learning strategies. Trace log data from the learning management system (LMS) was additionally collected during four weeks of the semester, and provided an actual account of students' actions and interaction within the course. Together, the MSLQ survey data and trace log data were used in an interim phase of the study in order to select three focal participants and develop a semi-structured interview protocol for the qualitative phase. The qualitative phase was conducted as a follow-up step to the quantitative phase in order to provide a complete picture of three individual focal participants. This phase consisted of data collected through two sets of in-depth interviews conducted with each of the three focal participants, and researcher observations of the three participants throughout five different weeks of the semester.

Through inferences made between the quantitative and qualitative results of this study, the research questions were answered through students' experiences and actions in an online course as it relates to SRL abilities, as well as the teaching strategies or LMS course environment factors which help or hinder students' SRL processes. It was found

that while students appreciate the flexibility of an online course, no matter what level their SRL abilities are, flexibility can also lead to challenges. The flexible nature of a course appeared challenging when working with groups online, when a student is taking an online class for the first time, or is not used to the time management required for success online. It was also found that students exhibit varying actions within an online course, depending on their degree of SRL skills. Students with higher levels of SRL strategies tend to dedicate specific time and places to work on coursework, and demonstrated a propensity to log in to the course LMS earlier and more frequently during each course week. Conversely, it was found that a student with lower SRL abilities did not dedicate a specific time or place to studying for the course, and tended to miss group discussion deadlines. Finally, it was found through reports from focal participants that an online instructors' presence, frequent communication, use of video posts and discussions, and outlining weekly expectations were helpful teaching strategies which encouraged students to maintain a level of motivation and SRL skills within the course.

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CHAPTER 1

INTRODUCTION

As an online instructor and instructional designer in higher education, I have often noticed the differences between students and their abilities to adapt to the self-managed learning required in asynchronous online courses. Student actions or inactions that I many times perceived as indicators of boredom or disengagement may in fact be attributed to students' inability to incorporate self-regulated learning strategies into online learning environments. In today's Internet-based world, it is not difficult to imagine how online learners are often distracted from course tasks and activities. We have all been there: you turn on your computer (or mobile device) with a specific task in mind only to be bombarded with distractions like text or email messages, news stories, Facebook posts, and Instagram or Twitter feeds.

Despite rapid growth in online enrollment within higher education (Seaman, Allen, & Seaman, 2018), persistence and completion rates remain lower for online courses than face-to-face courses (Adams Becker, Cummins, Davis, Freeman, Hall Giesinger, & Ananthanarayanan, 2017; Lederman, 2018; Mon, 2010). This discrepancy in persistence and completion between the two modalities indicates a need to better understand learner self-regulation within online learning environments (Hart, 2012; Lee & Choi, 2011; Levy, 2007; Murphy & Stewart, 2017; Sansone, Fraughton, Zachary, Butner & Heiner, 2011). The ability for the online learner to maintain autonomy in their own learning is critical to their academic success. For instance, success in online education often requires a level of self-directed learning, technical skills, and prioritization in order to keep up with course content (Chen & Jang, 2010; Kauffman,

2015). However, issues arise when students enter higher education lacking these self-regulatory strategies. Students who do not exhibit such skills demonstrate lower academic achievement than those who do as identified in Zimmerman's (2008a) summary of seminal work in the field of self-regulated learning (SRL) since the 1970s. Distance education enrollment in higher education is rising more rapidly than ever before, (Seaman, Allen & Seaman, 2018), so the critical topic of student self-regulation is important to investigate because it is closely tied with achievement in online courses (Wentzel & Wigfield, 2009; Zimmerman, 2008b). The contribution of this study is not only in better understanding students in online courses with varying degrees of self-regulatory skills, but also in identifying strategies that can be employed by instructors and course designers to assist learners in developing tools for academic success.

The remainder of this chapter focuses on foundations of this research study through key terms and issues in online education, and orients the study through the philosophical lens of pragmatism. The overall purpose and research questions of the study are also outlined.

Defining Online Education

Online education is considered a modern form of traditional distance education, and the terms are used interchangeably throughout this dissertation. Distance education is characterized by a variety of combinations in which time, place, or both separate the instructor and learner. Simonson, Smaldino, Albright, and Zvacek (2012) suggest that "the purest form of distance education occurs at different times and in different places" (p 10). In line with this idea, Palloff & Pratt (2007) offer a definition of *asynchronous* distance learning, or a scenario in which learning and communication occurs at any time

and at irregular intervals (as opposed to synchronous learning where interactions occur at the same time, such as through real-time video). Internet technologies have made online education nearly synonymous with distance education by providing online learning spaces that easily separate time and space between instructors and learners, but continue to offer a feeling of social presence and similar learning experiences between distance and face-to-face modalities.

Simonson et al. (2012) offers an explanation of how distance education is practiced and divided into four attributes through the two variables of time and space:

1. *Institutionally based*. The institutions can be traditional schools or universities, or nontraditional institutions such as corporations. In fact, online education that is institutionally-based is what separates distance education from self-study.

2. *Separation of teacher and student*. The separation of instructor and learner by both geography and time. In practice this might be asynchronous distance education, meaning that students access content or instruction separately, on their own time. Additionally, the separation of knowledge or intellect between teacher and student is implied.

3. *Interactive telecommunications*. The first component of this characteristic, "interactivity," is critical. Interaction among students, between student and instructor, and student and content should be a regular, commonplace occurrence in distance education. "Telecommunications," or electronic media, is the technology that makes interaction and communicating at a distance possible. This has become a mainstay within distance education today, making online education the primary form of distance education.

4. *Connections between learners, resources, and instructors*. This characteristic indicates that the interaction between instructor and student (and between student and resources) permit learning to occur. It includes a combination of instructional design within the course, the organization of resources, and interactions with the instructor to promote effective learning experiences.

Simonson et al. (2012) suggest that if any of these four components are altered, then the resulting situation is not considered distance education. Current online education largely stays true to these four tenets, with various nuances of distance education continuing evolve, such as an emphasis on a framework for presence (Garrison, 2017) and defining the intricacies of blended or hybrid learning (a combination of face-to-face and online components) (Boelens, De Wever, & Voet, 2017; Bowyer & Chambers, 2017). Seaman, Allen, and Seaman (2018) uphold a definition of distance education which emphasizes the separation of time and space, and also point out the increasing prevalence of blended education and its integration with their definition of online education. They make distinctions among "exclusively" distance education, "some but not all" distance education, and "at least one" distance education courses:

> "Exclusively" distance education: All of the student's enrollments for the term were through distance education courses.
> "Some but not all" distance education: The student enrolled in a mix of course modalities, including some distance education courses.
> "At least one" distance education course: A new data field created as the sum of the above two categories. (p. 6)

For the purpose of this study, the standard four-part definition provided by Simonson et al. (2012) will be used to frame distance education due to its clarity in aptly describing the teaching and learning practices present in this study's course and website, and its

focus on a separation of time and space and primarily asynchronous interaction between instructor and students.

Current state of online education. Over the past decade and a half, colleges and universities have been experiencing a dramatic rise in online enrollment, one that far surpasses the rate of growth in traditional classroom enrollment. The BABSON Survey Research Group (Seaman, Allen & Seaman, 2018) reports that during the past four years, overall enrollment in higher education (both traditional and distance) has steadily declined, while distance enrollment has continued a steady increase. Between 2015 and 2016 alone, the growth rate for students enrolled in at least one online course was 5.6%, a population which represented 31.6% of all students in higher education. Breaking this number down further, students taking exclusively distance education courses was 14.9% of total enrollment, whereas students taking a mix of both distance and traditional courses was 16.7% (See Figure 1).

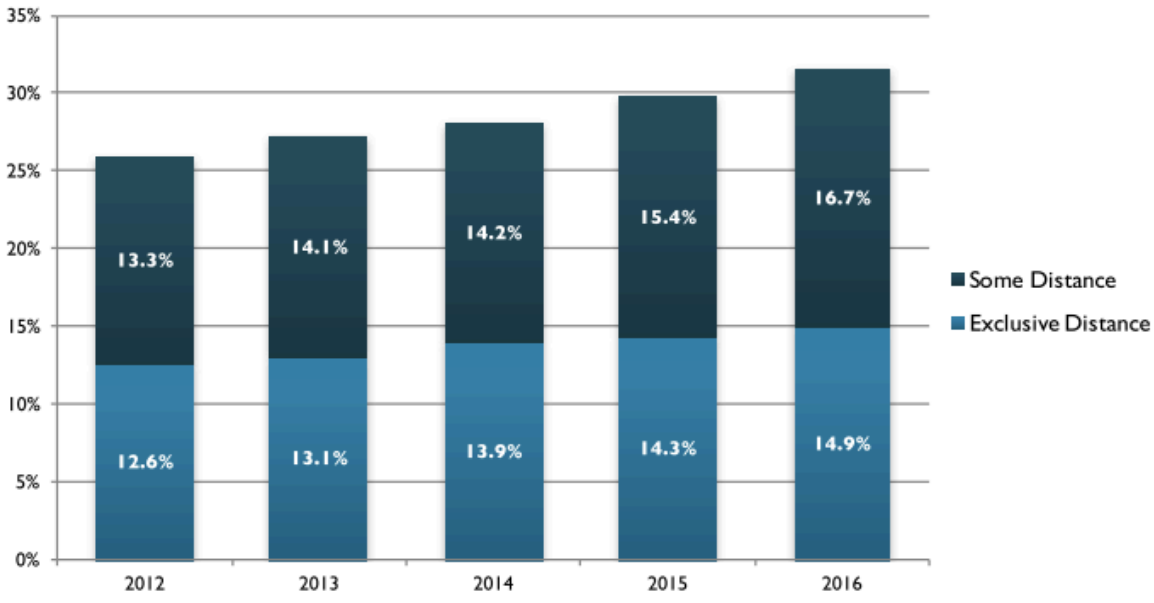

Figure 1: The percentage of students taking distance courses in 2012-2016 (Seaman, Allen & Seaman, 2018)

In spite of the positive growth numbers for online education, withdrawal and unsuccessful completion rates continue to stay higher than that of traditional face-to-face courses, with research estimating is between a 10%-40% higher dropout rate than that of traditional courses (Adams et al., 2017; Lederman, 2018; Mon, 2010). Reasons for such low completion rates online have pointed to early disengagement, a lack of community, and poor time management skills (Hart, 2012; Murphy & Stewart, 2017). Massive Open Online Courses (MOOCs) additionally experience even higher dropout rates, with completion rates estimated at approximately 10% or less (Adams et al., 2017; Daniel, 2012).

Given the overall state of online education, complete with both rising enrollment and higher than average incompletion rates, it remains critical to obtain a deeper understanding of student experiences through quality research. For this study, a theoretical lens of pragmatism and the learning theory of self-regulated learning (SRL) provide foundations for which to both understand student experiences in online education, and to identify practical applications to address these current issues.

Pragmatism as the Philosophical Lens

Pragmatism provides the philosophical lens through which I approach this research study. The concept of pragmatism advocates for approaching an issue in education with the end goal of functional application for practitioners and researchers, thus using this practical goal as a primary guiding force of the research study rather than epistemologies or paradigms (Dillon, O'Brien, & Heilman, 2004). The philosophy of pragmatism in this study is visible through its relationship to its mixed methods methodology as well as its practical goals for use in educational practice and research.

The assumption is that in adhering to pragmatism, a researcher should not lock oneself into a particular paradigm prior to determining the purpose, questions, and goals of the research project (Patton, 2002). As Patton (2002) argues, focusing on debates between philosophies often prevent us from focusing on practical work:

> [Paradigms are] deeply embedded in the socialization of adherents and practitioners. Paradigms tell us what is important, legitimate, and reasonable. Paradigms are also normative, telling the practitioner what to do without the necessity of long existential or epistemological consideration. But it is this aspect of paradigms that constitutes both strength and weakness—a strength in that it makes action relatively easy, a weakness in that the very reason for action is hidden in the unquestioned assumptions of the paradigm. (p. 69)

In following the pragmatic foundation of neither rejecting one paradigm for another, the natural tie between pragmatism and research methodology lies in mixed-methods research. Through such research, the primary goal (from a pragmatic sense) is that results and implications may be used in practical application in a real-world context, addressing real-world questions. Morgan (2014) points out that the root of pragmatism lies in the assumption that "knowledge comes from taking action and learning from the outcomes" (p. 7). Similarly, Maxcy (2003) confirms that pragmatists focus on the destination of an idea rather than the origins. An additional tenet of pragmatism is that through the process of inquiry, quantitative and qualitative methods are indeed compatible. In fact, it was the philosophy of pragmatism which first legitimized this compatibility in the 1990s (Teddlie & Tashakkori, 2003). Even earlier, in the late 19th century, pragmatists were already searching for meaningful research not through adhering strictly to a single method, but with a goal of an authentic experience and "the desire for a better world" (Maxcy, 2003, p. 53).

In applying pragmatism to the field of education, Dillon, O'Brien and Heilman (2004) argue for research *for* education, not *about* education. This points to the end goal of practical application of findings and results in order to enhance both teaching and learning. They are, however, careful to note that although the core of pragmatism is in rejecting epistemological purists, the more important point is to conduct research with practicality as the overall purpose:

> In calling for pragmatism, we are not advocating the approach of one or another theorist who is identifiable as a pragmatist; instead, we are advocating the spirit of the pragmatic tradition, which asserts that conducting inquiry to useful ends takes precedence over finding ways to defend one's epistemology. (p. 178)

By using pragmatism as a lens through which to guide this study, its overall contribution to the field of education and online learning is more focused on practical applications and solutions. In using the viewpoints and methodologies most appropriate for the challenge at hand, this research study takes the form of 1) shifting worldviews to incorporate both qualitative and quantitative inquiry to obtain a better understanding of the issue, and 2) focus on the practical applications of the results, and how they can be implemented by educators with the end goal of improved learner achievement in online education.

Overview of Study

This study uses a mixed methods approach to better understand the experience and behavior of undergraduate students in an asynchronous online course who possess varying levels of self-regulation. In doing so, it also offers ideas on whether instructional methods and/or the course environment influence the development of self-regulatory practices. This study merged key concepts from self-regulated learning and distance education together in order to better identify techniques that help students in higher

education achieve success in online environments. The study was guided by three research questions:

1. What is the experience of students in an online course who possess and/or lack self-regulation strategies?
2. What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?
3. What instructional methods or environmental factors help students develop self-regulation skills to succeed in an online course?

Overview of Chapters

In the following chapters, I describe the research, analysis, and interpretation process taken to understand students' self-regulation in an asynchronous online course during the fall 2014 semester. Chapter 2 reviews the literature of self-regulated learning (SRL) and its relationship to online education. Chapter 3 outlines the sequential explanatory mixed methods research design followed and its relationship to the underlying theoretical lens of pragmatism used throughout this study. Chapter 4 highlights the results from the quantitative phase of data collection, while Chapter 5 provides details into an interim phase which used the quantitative findings for focal participant selection and interview protocol development. Chapter 6 provides results of the qualitative phase, and Chapter 7 explores interpretation of the mixed results of both quantitative and qualitative data, and discusses inferences of the findings. I conclude my dissertation in Chapter 8 with practical implications for online education identified through the findings of this study.

CHAPTER 2

REVIEW OF LITERATURE

The goal of this chapter is to explore self-regulated learning (SLR) in-depth and its role and importance in online education through a review of the research literature. SLR is the conceptual learning framework for this dissertation, as it explores the autonomy and self-directed strategies necessary within the asynchronous, separated nature of online education. It is also essential to explore the various ways in which self-regulated learning has been measured and assessed in the past, both in face-to-face environments and online environments. In evaluating the measurements used in previous research, the benefits and limitations of both quantitative, qualitative, and mixed methods research are investigated in relationship to self-regulated learning and online education. Finally, gaps in the literature are addressed by summarizing recommendations from previous studies, identifying areas that need improvement and advancement, and how this dissertation study addresses some of these needs.

Overview of Self-Regulated Learning

The primary importance of SRL is in the possibility for students' improved academic performance and course completion when certain strategies are employed (Hart, 2012). A leader in the field of SRL, Barry Zimmerman (2001) defines self-regulated learning as the degree to which students are "metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 5). Examples of SRL strategies include setting goals, managing one's time effectively, or seeking help when needed. Alderman (2008) points out that academic achievement through SRL strategies has been found to be true of learners in all levels, from young children to

college students. However, there are multiple reports that few teachers in the K-12 environment teach students effective SRL strategies (Corno, 2004; Dembo, 2004; Huh & Reigeluth, 2018) and that programs focused on teaching SRL skills are not considered mainstream (Putwain, Nicholson, & Edwards, 2016). If SRL strategies are not taught in the formative K-12 years, this exacerbates the challenge for students entering the higher education landscape where online education continues to grow at a rapid pace (Seaman, Allen, & Seaman, 2018), which is the context that strong SRL strategies are keys to success.

Students who do possess SRL skills are capable of thoughts, feelings and actions that they continually adapt in order to participate in their goals and monitor their learning. The actual process is a cyclical mediation between feedback from themselves, others, and the environment (Alderman, 2008; Zimmerman & Cleary, 2009). According to Zimmerman (2008b), there are multiple, varied models which attempt to describe the cognitive processes occurring during self-regulated thought and subsequent behavior. Zimmerman and colleagues conceptualized a three-phase model (Zimmerman, 2001; Zimmerman & Cleary, 2009) that emphasizes a cyclical feedback loop.

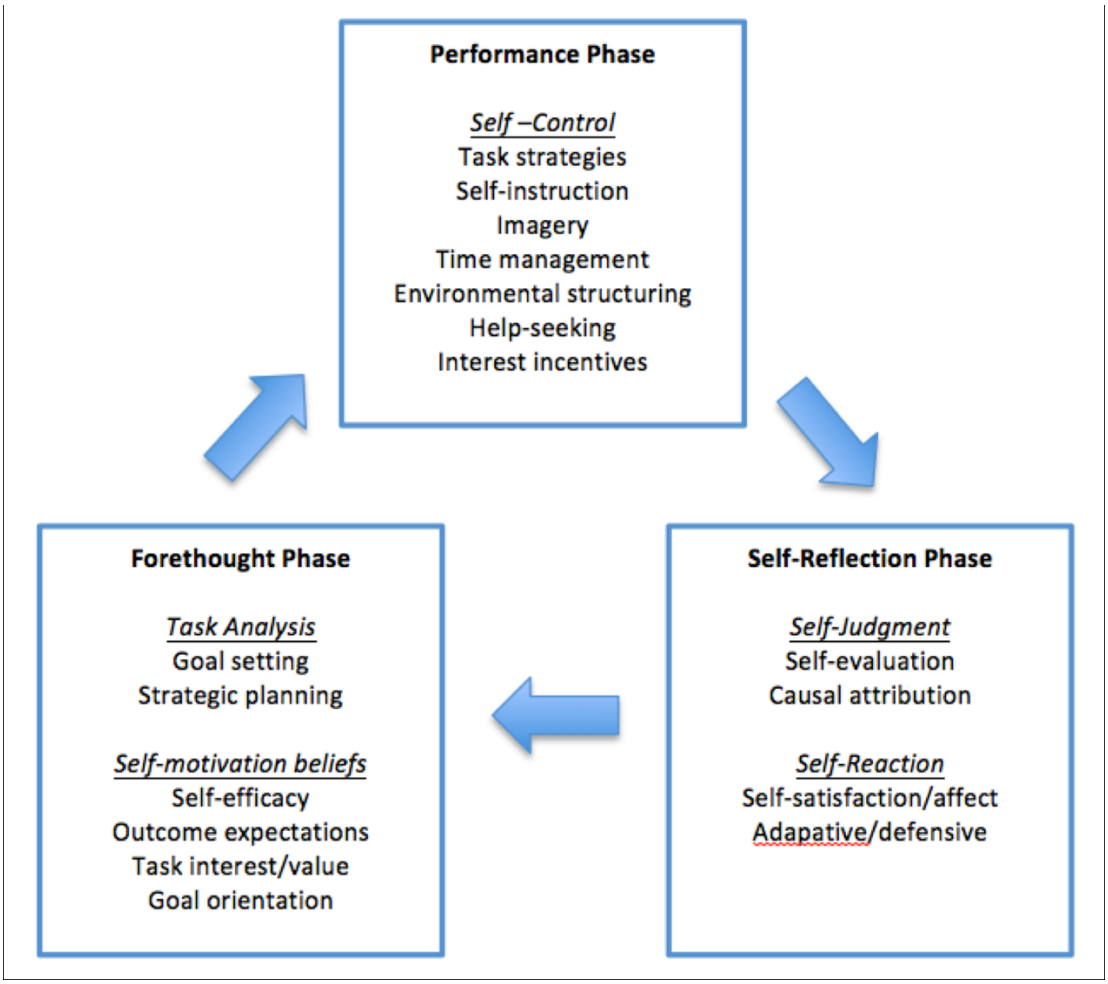

Figure 2: Phases and feedback loop of self-regulation (Zimmerman, 2008b; Zimmerman & Cleary, 2009)

The feedback loop offered by Zimmerman's model is essential to each instance of self-regulation because feedback is information provided from the consequences of one's behavior or understandings of the relevance of certain actions or adaptations. Examples of feedback types include social (praise or guidance from teacher, peer or parent), environmental (feedback from the computer or task), or personal (awareness of physiological or behavioral outcomes).

Other SRL models also exist, with the most well-known models outlined in a meta-analysis conducted by Panadero (2017). Boekerts and Corno's model (2005)

proposes a top down/bottom up process which primarily differentiates students' SRL between students' goal and task orientation (extrinsic or intrinsic). Winne and Hadwin (1998) propose a model which emphasizes students' metacognitive strategies and the effect of SRL on learner motivation. Finally, Pintrich's SRL model (2000) is considered a widely respected model. Pintrich is a leader in connecting SRL and motivation empirically, and his biggest contribution is with the Motivated Strategies for Learning Questionnaire (MSLQ), one of the most widely used Likert-scale instruments in measuring learners' SRL (Panadero, 2017; Pintrich, Smith, Garcia, & McKeachie, 1991). However, none of these models (nor lesser known ones) are cited or used as widely as Zimmerman's model (Panadero, 2017). In a meta-analysis of six SRL models and citations, Panadero (2017) found that Zimmerman's model is the most widely used. As of March 2017, Zimmerman's was cited the most, at 4169 citations total with an average of 254 per year. The total citations was nearly 1,000 more than the next most cited model, Pintrich's SRL model (2000).

Zimmerman (2008b) summarizes SRL models through the common threads shared between them. In essence, all SRL models include the following foundations: (a) processes, strategies, or responses by learners to improve their academic achievement; (b) self-oriented feedback loop measuring effectiveness of methods or strategies, and responding; (c) identifying how/why students choose certain processes, strategies, or responses; and (d) a focus on factors that lead to a failure to self-regulate. This final common SRL characteristic, factors that lead to a failure to self-regulate, is one of the most important factors to pay attention to in response to understanding the higher dropout rates in online education (Murphy & Stewart, 2017). Zimmerman (2008b) summarizes

that most theorists "assume that student efforts to self-regulate their academic learning often require additional preparation time, vigilance, and effort. Unless the outcomes of these efforts are sufficiently attractive, students may not be motivated to self-regulate" (p. 8). This is directly in line with what has been asserted regarding both online education and adult learning, where learners need to be self-directed in their learning strategies and actions in order to be successful (Knowles, 1990; Simonson et al., 2012).

In this study, I used Zimmerman's SRL model (Zimmerman, 2008b; Zimmerman & Cleary, 2009) as the framework to guide the research. Pintrich's MSLQ model (Pintrich et al., 1991; 2000) was also used because the constructs of Intrinsic Goal Orientation, Time and Study Regulation, Metacognitive Self-Regulation, and Effort Regulation are well-aligned with Zimmerman's SRL assertions.

Self-Regulated Learning and Motivation

Motivation and self-regulated learning are intricately linked, and many researchers have attempted to identify the role one plays in the process of the other and in student academic performance. Motivation can be viewed through primary indicators such as energized or activated behavior, directed behavior, regulated persistence of behavior, the desire to pursue a goal or task, and the choice of goals and effort in pursuing the goal (Alderman, 2008; Bandura, 1977; Keller 2007). The underlying assumption among these functions is that an individual (or in this case, the learner), should be able to direct and regulate their behavior or efforts in order to maintain motivation. Although researchers have come to differing conclusions on exactly how these two learning constructs are linked, it is clear that both motivation and SRL are intricately linked and both play a key role in student success (Cho & Heron, 2015; Cho &

Shen, 2013; Mega, Ronconi, & De Beni, 2014; Pintrich, 2000). In fact, students who lack the proper skills for directed learning are at a disadvantage compared to those who do, and educators should strive to help students develop their own qualities of motivation and provide relevant resources in order to scaffold development (Alderman, 2008; Dabbagh, Kitsantas, Al-Freih, & Fake, 2015; Nicholls, 1979).

In this brief introduction to motivation, the complexity and relationship between the two learning constructs of motivation and SRL is apparent, as directing and regulating behavior is a key characteristic of SRL. Upon further inquiry into the relationship between these two concepts, I found that a commonly investigated link between motivation and SRL is between students' goal orientations (a construct of motivation) and ability to successfully self-regulate their learning. Goal orientation has primarily to do with a student's intrinsic or extrinsic motivation, or the meaning and reason behind the learning and tasks. A student's intrinsic motivation is placed on the learning itself and long-term knowledge acquisition, whereas extrinsic motivation is placed on more external foci such as getting good grades or compliance (Ryan & Deci, 2009). Pintrich (2000) highlights the connection between SRL and goal orientation; "the what, why, and how of motivation forms a general theory or orientation to the task that can influence many of the different processes of self-regulation" (p. 473). In this way, Pintrich (2000) asserts that motivation is an essential precursor to a students' process of self-regulation. In fact, both Pintrich (1999) and Cho and Shen (2013) found that intrinsic goal orientation is positively correlated with self-regulated learning. Specifically, Cho and Shen (2013) found through a study of undergraduates in an online course that students' intrinsic goal orientation predicted their metacognitive self-regulation strategies. This

finding echoes Pintrich's (1999) conclusion, who also found that extrinsic goal orientation was negatively correlated with students' successful SRL strategies.

In a differing opinion, Hartnett, St. George, & Dron (2011) found through a qualitative study that both intrinsic and extrinsic goal orientation had positive relationship on students' learning regulation. However, they are careful to point out that motivation is much more multifaceted than a simple intrinsic and extrinsic dichotomy and suggest that additional research is needed into the complexity among the constructs of motivation and SRL. In taking the relationship between motivation and SRL further, Mega, Ronconi, & De Beni (2014) propose a new theoretical model which demonstrates the positive relationships between motivation, SRL, and overall student success. In their quantitative study of over 5,800 undergraduate students, they found positive predictive ties between educational psychology constructs of emotions, self-regulated learning, motivation, and academic achievement.

Finally, in yet another attempt to explore the complex relationship between motivation and SRL, Sansone, Fraughton, Zachary, Butner, and Heiner (2011) assert that SRL is the key link holding together motivation and success. They note that as a student values a particular goal more, they are more motivated to put in the time and effort (or SRL actions) to reach that goal, thus increasing success. This insight is particularly interesting, as Sanson et al. (2011) indicate that SRL's role is in fact when the planned action begins to take place. In other words, as a student is motivated towards a goal, they are then and more likely to actively exhibit successful SRL strategies in order to achieve the goal. The authors describe this interconnection by stating, "enhancing students' motivation to reach learning goals might affect motivation and performance outcomes

because it affects whether and how students attempt to make the experience of learning more interesting and involving" (p. 202). This assertion is similar to how I have understood the relationship between motivation and SRL both through professional experiences and immersion in this study. I believe that while SRL skills are essential for the online learner, one must in fact be motivated first to execute these actions and see the value in them.

Self-Regulated Learning and the Community of Inquiry

Self-regulated learning also has close ties and similarities with the Community of Inquiry (CoI) framework, developed by Garrison (2000; 2006; 2017). In the CoI model, Garrison asserts that in order to lessen the physical and emotional distance created by online education, social, cognitive, and teaching presence must be intentionally designed and integrated into distance education to create an effective and successful learning experience for students. Figure 3 displays the CoI framework and the intersections among social, cognitive, and teaching presence. Social presence refers to the individual's ability to portray himself/herself in the online environment, as a way to interact and connect with others in constructive learning. Cognitive presence, on the other hand, is the construction of knowledge and reflection gained through interaction with others in a community of learning. Finally, teaching presence refers to the design of the course, and the instructors' facilitation and direct instruction which ultimately foster both social and cognitive presence (Armellini & De Stefani, 2016; Garrison, 2000; Garrison, 2006; Garrison, 2017).

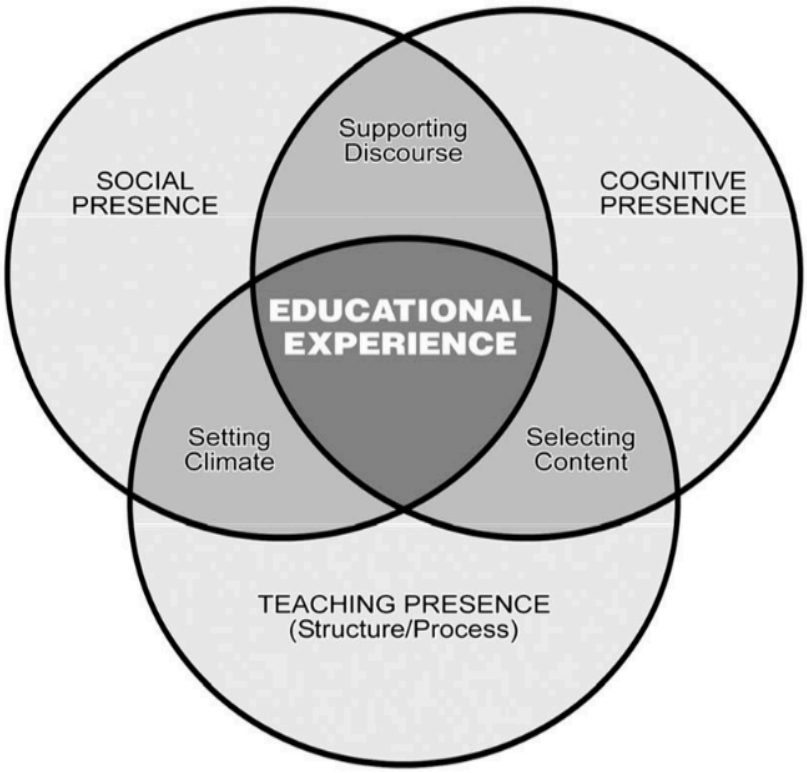

Figure 3: Community of Inquiry framework (Garrison, 2006)

Armellini and De Stefani (2016) have additionally concluded that social presence and interactions in the online learning environment actually make up the majority of work in the online environment, and can also be considered primary teaching and cognitive presence action. For instance, a teacher's course design strategy of creating small groups for a project can be considered an example of both teaching presence and cognitive presence, but the core of this strategy is essentially a social presence experience where students co-construct knowledge together. In this light, interaction and the SRL feedback loop concept are seen as a central part of the online learner's experience. As interactions are increased either between instructor and student or student and student, they work to further promote students' SRL skills (Croxton, 2014). Armellini and De Stefani (2016) conclude that their research "points to social presence as a major lever for

engagement, sense-making and peer support" (p. 1202). Similarly, Garrison and Akyol (2015) have connected SRL to the Community of Inquiry model through the importance of student interaction by saying that "self-regulation is what the learner brings to the learning environment and evolves to co-regulation through interactions and engagements in a community of inquiry" (p. 68).

In an update to the CoI framework, Garrison and Akyol (2015) explored metacognition (a construct and strategy of self-regulated learning), and suggested that it must be viewed as both an individual and social construct. They assert that metacognition extends past individual regulation, and must be thought of through the lens of interaction and collaborative learning. In this study of 192 graduate students from across the United States and Canada (which included 81 on-campus students and 107 online students), Garrison and Akyol (2015) conceptualized their research through the Community of Inquiry framework, which further solidified the connection between the CoI framework and SRL. The authors coined the term "co-regulation" to indicate a collaborative metacognitive strategy, and the survey asked participants to rate their response to statements such as "I pay attention to the ideas of others," "I consider the feedback of others," and "I monitor the learning of others," (p. 69). Ultimately, the authors concluded a need for further exploration of metacognition in light of the impact of social presence and interaction on students' self-regulation. Garrison and Akyol (2015) suggest that further research is needed into co-regulation and the intricacies surrounding metacognition as a construct for collaborative learning.

Finally, a recent study highlights again to the significance of the relationship between SRL and the Community of Inquiry framework. Cho, Kim, and Choi (2017)

studied 180 college students enrolled in an online course. They used the Motivated Strategies for Learning Questionnaire (Pintrich, 1991) and compared students' degree of SRL strategies to their sense and perception of the CoI within the course. Their findings confirmed that SRL plays a significant role in students' perceived CoI, and concluded that students with a higher propensity towards SRL skills also experienced a higher level of social, cognitive, and teaching presence within the course. Cho, Kim, and Choi (2017) conclude that "we anticipate that these learners can contribute to cultivating CoI because, presumably, their active participation promotes social presence, teaching presence, and cognitive presence" (p. 15). These findings are significant not only in further solidifying the natural link between SRL and CoI, but also in identifying that presence within an online course cannot be strictly attributed to the actions of the instructor or design of the course, but that a student's level of SRL also plays a role.

Self-Regulated Learning and Online Education

Zimmerman's SRL model (2008b) and the Community of Inquiry model (Garrison, 2006) have been highlighted in this review because of their emphasis and recognition of interactions among students, and between students and the instructor. The interaction and communication among the key entities in online learning provides a valuable piece of the SRL feedback loop and is also essential to cognitive and teaching presence, especially in the context of online education. In online learning, communication and interaction among students, between student and instructor, and student with the content and online environment are important factors to consider. This foundation of online education and additional points of importance are explored through key theories within online education.

Theories of online education. As Simonson, Schlosser and Hanson (1999) advise, "theory is important to the study of distance education because it directly affects the practice of the field" (p. 60). In keeping in line with this thinking, it is necessary to briefly explore foundational theories in online (distance) education.

In an early explanation of distance learning, Charles Wedemeyer's theory of independent study emphasized the vast distance and separation between the teacher and learner both across time and space (1981). Because of this, the distance learner must be independently directed, and is required to take on responsibility for his or her own learning. Closely related to this theory, Michael Moore's theory of *transactional distance* (1997) adds to the idea of independent study by asserting that because of the separation of time and space, there must be an emphasis on communication and interactions between the instructor and learner, learner and learner, and the learner with content. Moore (1972) has also emphasized a need for learner autonomy, noting that due to the lack of structure typically present in a traditional face-to-face classroom, the student assumes a higher degree of responsibility for the learning process. It is important to note Moore's emphasis on both autonomy *and* increased interaction, as concepts essential to the foundation of distance learning (1972; 1997). His emphasis on the need for increased communication and interaction highlights the importance of Zimmerman's (2008b) feedback loop model in online learning environments. Interaction with peers, the instructor, and the course environment is not only important in closing the separation of distance and time, but is necessary in reemphasizing the feedback needed for students' self-regulation. Similarly, his assertion that the online learner must maintain self-discipline and autonomy upholds the tenets of SRL as well.

Knowles' (1990) theory of *andragogy* is additionally appropriate in the study of distance education since many adult learners today take online courses, and traditional undergraduate students are also at the cusp of this group. Andragogy places the emphasis on autonomy and opportunities for students to make choices in their learning. Learners are expected to maintain a high degree of independence, but they also desire clearly stated goals and objectives. In a study of adult learners in an online undergraduate course, Bannier (2010) found that in online settings, adult learners responded positively to tasks which were more relevant to their goals, and situations that provided autonomy and flexibility. Similar to Zimmerman's (1990) summary of students' motivation to self-regulate, adult learners exhibit a need for tasks and outcomes that were "sufficiently attractive" (p. 6).

Overall, the theories that lay the groundwork for online education share common roots and strands of thought. They identify independence, autonomy, and interaction as primary requirements for the successful distance learner. They also emphasize that high achieving distance learners *must* be self-driven and responsible for their own learning (Simonson et al., 2012). In a sense, they must be self-regulated learners.

Key research in SRL and online education. Research continues to stress that high-achieving online learners must be independent, self-directed, and responsible (Broadbent & Poon, 2015; Hung, Chou, Chen & Own, 2010; Hong & Jung, 2010; Kauffman, 2015). In the online classroom, activities are often asynchronous and students must maintain a level of self-directed learning, technical skills, reading and writing skills, and prioritization in order to keep up with course content (Chen & Jang, 2010). In other words, the successful online learner must possess key self-regulatory strategies. The

following examples of current research in SRL and online education validate these findings, and move the field forward with further questioning into the intricacies in SRL.

Winters, Greene, and Costich (2008) present a meta-analysis of 33 empirical research studies that investigated students' SRL through computer-based learning environments (CBLEs). The specific points of interest in their analysis included how learner and task characteristics play a role in SRL; whether learning supports or conditions enhance quality of student SRL; and the conceptual, theoretical, and methodological issues for this area of research. Through this meta-analysis, the authors found that online learners tend to adapt their SRL processes to online learning. However, learner and task characteristics influence these processes. For instance, students adapt their goals and plans in accordance with changes in task complexity. Other significant conclusions include that those students with higher prior knowledge tend to plan and monitor their learning more. Additionally, academically successful students use more active learning strategies. Finally, Winters, Greene, and Costich (2008) found through their analysis that students may perceive the support tools provided as aiding SRL, but they do not always use what is available to them. They concluded through a review of the research findings that the most effective support offered for SRL skills development included an instructor's use of adaptive scaffolding for students' conceptual understanding as well as SRL strategies, which increased planning, monitoring, and effective study strategies used in concert with improved learning outcomes. For example, the authors highlight a comparative study from Azevedo (2005) where students who received adaptive scaffolding support from a live tutor not only experienced larger

learning gains, but also utilized more planning, monitoring, and strategy process than their peers who did not receive adaptive scaffolding.

In a more recent meta-analysis of SRL in online learning environments, Broadbent and Poon (2015) evaluated 11 peer-reviewed journal articles between 2004-2014 that specifically looked at SRL strategies by online students and their academic success. The authors first confirmed that SRL strategies are significantly and positively associated with academic achievement, which was a finding confirmed by all 11 articles. Specifically, the SRL constructs of metacognition, time management, effort regulation, and critical thinking were found to be associated with students' academic success. Broadbent and Poon (2015) concluded through this review that students with good time management, who are conscious of learning behavior, who are critical thinkers in the content of the class, and persevere in their understanding of the course materials are more likely to achieve academically in the online learning environment.

Sansone, Fraughton, Zachary, Butner, and Heiner's (2011) SRL research focused on the self-regulation of motivation (SRM) and the variable of online students' interest or engagement on their self-regulation, motivation, and course performance. These researchers interestingly positioned self-regulation as a dependent variable, indicating that students' SRL and course performance can be altered due to the engagement that they bring to a topic or concept. Based on their findings, the authors make practical recommendations for key course design considerations in online learning environments. Their advice includes providing a higher level of interest and learning opportunities when moving traditional face-to-face content online (such as providing additional multimedia enhancements and direction to further content to explore). However, the opposite is also

cautioned, whereby providing too many more options and opportunities for exploration outside the course environment might create a scenario in which learners focus too much on activities other than the core content required.

In a final example of in-depth research into SRL, Deimann and Bastiaens (2010) conducted a large quantitative study taking up the idea of volition or "the ability to stay task-focused and ward off distractions" (p. 1). Alderman (2008) confirms that volition is a key construct within SRL, and describes it as the *will power* of the individual. Deimann and Bastiaens' emphasis on studying students' volition competence was in an attempt to address challenges in online education, such as dropout rates, and to demonstrate that motivation itself does not fully explain human behavior. One of their primary recommendations is in a warning to researchers about approaching motivation too simplistically. Another recommendation is for future research to pay attention to "problematic learning episodes" such as procrastination (2010). Importantly, this research is one of the only empirical research studies which recognizes the need to expand the scope of research within motivation to include students who have a lesser degree of self-regulation.

Measuring Self-Regulated Learning

There are multiple ways which self-regulated learning has been empirically measured across developmental ages and disciplines. These ways include diaries, observations, questionnaire measures and statistical measures, think aloud protocols, interviews, trace logs, and case studies (Roth, Ogrin, & Schmitz, 2016; Zimmerman, 2008a). The most popular method of evaluating students' SRL is through self-report survey instruments (Roth, Ogrin, & Schmitz, 2016). A widely used SRL measurement

has been the Motivational Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991), which includes subscales of self-regulation such as goal setting and time and environment management. However, the MSLQ was developed primarily for face-to-face education, and Cho and Summers (2012) indicated that additional work needs to be done in order to fully validate the instrument for distance education. Still, the MSLQ continues to be widely used in measuring SRL in online contexts (Artino & Jones, 2012; Cho, Kim, & Choi, 2017; Matuga, 2009). Similar to what is done in this research study, adaptations of questions in the MSLQ are often made to better fit the context. In fact, Barnard, Lan, To, Paton, and Lai (2009) developed a similar survey to the MSLQ, intending to take into context the unique experiences of students in the online learning environment. Their Online Self-regulated Learning Questionnaire (OSLQ) aims to measure SRL in online and blended learning environments, and showed promising reliability and potential for further development and validity testing (Barnard, Lan, To, Paton, & Lai, 2009). Roth, Ogrin, and Schmitz (2016) included the OSLQ in their assessment of SRL measurement techniques, and it was found to be reliable, but included fewer subscales as opposed to other similar self-reported instruments. For example, the OSLQ has six subscales, whereas other self-reported Likert-scale surveys including the MSLQ had between ten and 20 subscales (Roth, Ogrin, and Schmitz, 2016). This research study uses the MSLQ as a self-reported measure of SRL because at the time of the study (in 2014) it was one of the most widely-used and reliable surveys for this purpose and the adaptation had already been piloted in a similar study (North & Ellis, 2015). However, future similar studies may benefit from the OSLQ as a similar option for measuring online SRL specifically.

Winters, Greene, and Costich (2008) also emphasize the need to incorporate multiple data sources beyond SRL self-reports in either surveys or interviews, as their meta-analysis indicated poor calibration between what students think they do and what they actually do. Trace data provided through the learning management system and interviews with the instructor may provide more accurate and robust understandings of students' learning behaviors or actions (You, 2016). Finally, Winters, Greene, & Costich point out that not all research studies investigating SRL utilize a theoretical model, such as the one presented by Zimmerman (2001); they caution that without identifying or following a SRL model, constructs may not be measured adequately.

Summary

The investigation into student's ability to self-regulate their learning is important due to the asynchronous, separated nature of online education and the increase in online enrollment throughout the United States. Such research has often been grounded in various models and theories of SRL; however, few studies specifically attempt to understand students' failure to self-regulate in online education. The literature adequately identifies qualities of successful online learners, yet there is a scarcity of research that explores a better understanding of students who lack important SRL skills.

Self-regulated learning is also seen to be closely tied with both motivation and the Community of Inquiry framework. Motivation plays an important part as the key between one's goal orientation, and the activation of one's SRL strategies. The Community of Inquiry framework also plays an important role in students' SRL through an emphasis on interaction through social, cognitive, and teaching presence. As these interactions are

increased (either between instructor and student or student and student), they work to further promote students' SRL skills.

This study contributes to the field by adding to the already well-defined qualities of successful online students, and additionally addressing students with varied, potentially lower, levels of self-regulation. It is important to better understand students' successful SRL strategies as well as how educators can promote such strategies, since many online students in higher education may not have received proper SRL practice in the K-12 environment. This study uses a pragmatic lens, mixed methodology, and the learning theory of self-regulated learning (SRL) to identify practical strategies and implications for supporting student self-regulation and success in online education.

CHAPTER 3

METHODOLOGY

The purpose of this dissertation study was to understand the experience and actions of students in an online course with varying degrees of self-regulated learning (SRL), and identify approaches that can be used to assist learners in developing strategies for academic success. The study used a mixed methods approach in order to obtain a deeper understanding of the issue, and was approved by the University of Minnesota's Institutional Review Board (Appendix A). The research was guided by three research questions:

1. What is the experience of students in an online course who possess and/or lack self-regulation strategies?
2. What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?
3. What instructional methods or LMS environmental factors help students develop self-regulation skills to succeed in an online course?

The Study Context

The study was set within an online course offered through a college of education at a large Midwest university. The course was a 5000-level elective course, typically taken by undergraduate juniors and seniors. The topic of the course focused on introducing learners to computer applications commonly used in business and education settings. The course was completely online, and used Moodle as its learning management system (LMS). Other learning technologies were occasionally integrated for reflections, projects, or virtual meetings (such as Flipgrid, Weebly, and Google Hangouts).

The course studied was offered during the fall semester of 2014. Total enrollment in this course was 19 students, majoring either in business and marketing education or human resource development. The course took place over 15 weeks. The instructor had a total of 22 years of experience teaching in K-12 and post-secondary education, with five of those years in higher education. He had taught this specific online course five times prior to fall 2014.

Researcher position. I had taught this same course seven times previously, although I had not done so since fall 2013 (one year prior to collecting data). Moodle had undergone two version updates since the last time I had taught the course. Although content and objectives were similar from semester to semester, each instructor had liberty in instructional design and delivery methods. My prior experience with the course provided a familiarity with the content, instructional delivery, and course environment. However, it is my belief that learner experiences are unique from student to student, and from course to course. My own perspective of the course as an online instructor and as a previous online student myself was important in providing an interpretive nature of context and authenticity to the data analysis (Patton, 2002). As a mixed methods researcher using a sequential, explanatory mixed methods design it was additionally appropriate to analyze data from an interpretivist perspective, given that the choice was made to place more emphasis on qualitative results rather than the quantitative (Teddlie & Tashakkori, 2003).

Overview of Mixed Methods Research

As a relatively new approach in the field of research, the understandings and definitions of mixed methods research continues to evolve. In their seminal article,

Johnson, Onwuegbuzie, and Turner (2007) used insights from key mixed method scholars to create a definition which included not only the mixing of data collection methods, but also methodologies and worldviews. Their definition emphasized both qualitative and quantitative viewpoints, data collection, analysis, and inference techniques in order to achieve both breadth and depth of understanding. Greene (2007) contributed to the evolving scope of mixed methods research by expanding on this definition and included additional emphasis on "multiple ways of seeing and hearing, [and] multiple ways of making sense of the social world" (p. 20).

Perhaps the most comprehensive definition of mixed methods research is provided by Creswell and Plano Clark (2011), which emphasizes both the mixture of philosophical assumptions and methods of inquiry:

> Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis and the mixture of qualitative and quantitative approaches in many phases of the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone. (p. 5)

In this definition, the ability for the researcher to assume multiple philosophies and worldviews, and employ multiple methodologies and methods are necessary in order to obtain a more complete understanding of a research problem. Importantly, this definition was patterned after an understanding of the case study methodology in which research stems from multiple modes of inquiry (Creswell & Plano Clark, 2011). This point re-emphasizes the importance of grounding this dissertation study in a mixed methods orientation and methodology, as its final product of both qualitative and quantitative

phases is the deeper understanding of three focal participants (which can be viewed as akin to small cases).

Researchers who view themselves as paradigm purists often see the mixture of methodologies as impossible due to the dichotomies that persist between quantitative and qualitative paradigms. Niglas (2010), however, places research on a multidimensional continuum where a wide range of design options is available within the spectrum (identified by the typology: QUAN ---> QUAL). The mixture of choices in this spectrum allows the researcher to best address the question at hand on a number of different levels: objective and subjective, confirmatory or explanatory, generalization or description. Creswell and Plano Clark (2011) emphasize the fact that through mixing these approaches, one often gains a better understanding of the research problem than either quantitative or qualitative inquiry alone. This study is designed with a similar orientation towards mixed methods research, where the combination of the two methods gives a richer and better understanding of the topic at hand than does one singular method alone.

Research Orientations

The philosophy of pragmatism underlies the research orientations throughout the duration of this study. At the core of pragmatism, researchers reject the idea of "pigeon-holing" oneself into a single paradigm or methodology, and instead survey the wide spectrum of resources available for practical purposes in design, analysis, and evaluation. Researchers who subscribe to this understanding will often avoid methodological orthodoxy in favor of methodological appropriateness (Patton, 2002). Tashakkori and Teddlie (2010) additionally argue that through pragmatism and mixed methods the forced-dichotomy between *postpositivism* and *constructivism* should be abandoned. In

brief, postpositivism research typically follows quantitative inquiry, positioning the researcher as objectively as possible.

Constructivism research, on the other hand, follows qualitative inquiry in which the researcher recognizes and openly addresses their subjective position in relationship to the participants and data (Creswell & Plano Clark, 2011). Although these orientations are positioned as opposites, by viewing this research study through a pragmatic lens, the values of both postpositivism and constructivism orientations (and therefore quantitative and qualitative methodologies) were used to obtain a deeper, more holistic understanding of the topic. As Creswell and Plano Clark (2011) suggest these differences should in fact be honored, but with the recognition that they cannot be reconciled. They note that "these contradictions, tensions, and oppositions reflect different ways of knowing about and valuing the social world" (p. 45).

Shifting of worldviews. The idea of "shifting" worldviews within a single research study is inherent in the individual designs of mixed methods studies. Both postpositivist and constructivist worldviews are present within this study, and are consistent with an explanatory mixed methods design explained further in this chapter (Creswell & Plano Clark, 2011). However, it is first important to understand the foundational assumptions underlying both philosophies. Using Creswell & Plano Clark's (2011) ideas for "elements of worldviews and implications for practice" (p. 42), the following assumptions were used while I shifted from one worldview to the other during this study.

Postpositivist worldview. A postpositivist orientation characterizes the quantitative phase of the study. This phase typically involves a more objective approach

through quantitative data collection using reliable instruments (such as a survey) to remain impartial to the collection. Researchers make all attempts to remain unbiased and the overall process is deductive, meaning that the goal is to test a theory or previously determined construct (Creswell & Plano Clark, 2011). In this study, the quantitative phase used a survey and LMS trace logs to measure the previously identified theory of students' SRL. Following this phase, the worldview shifted to constructivism for the second phase of the study.

Constructivist worldview. Constructivism characterized the second qualitative phase of this dissertation. Constructivism many times includes closeness or increased interaction between the researcher and participants (such as through interviews). Due to this type of data collection, there is an assumed and accepted bias on the part of the researcher who openly recognizes biases and the impact on interpretations. Additionally, constructivism assumes an inductive process, where the researcher begins with participants' view, and builds patterns, theories, or generalizations.

In this study, the emergent themes resulting from the qualitative phase were given stronger emphasis during final analysis and inference. This act of using either quantitative or qualitative data as the primary data source is common in mixed methods practice (Tashakkori & Teddlie, 2010). In this case, emphasis on the constructivist worldview and qualitative data illustrated my own philosophies regarding learning as a primarily constructivist process, and it additionally helped in providing depth of understanding to the quantitative results.

The Research Design

In this study, a sequential explanatory mixed methods design was used (also referred to here as simply an explanatory design), which consisted of distinct sequential phases: quantitative data collection followed by qualitative data collection (Creswell & Plano Clark, 2011). In an explanatory design the researcher first collects and analyzes the quantitative data and typically uses the results to purposefully select a small number of participants or cases for the qualitative phase. However, in this study, there were few participants who agreed to be considered for qualitative interview phase of the research (following their participation in the first quantitative phase of the study - completing the Motivated Strategies for Learning Questionnaire), so the selection of qualitative participants was based more on willingness to participate rather than strictly the results of the quantitative data analysis. Creswell and Plano Clark (2011) recognize that this is often times the case in such a design, commenting that during the qualitative phase, "sometimes the participants will simply be individuals who volunteer to participate in interviews" (p186). They note this approach may provide a weaker connection between the phases, but that in some cases it may be necessary.

Following the quantitative phase, a middle, interim phase consisted of a review of the quantitative findings and selection of three individuals (referred to as focal participants in this study) for participation in the subsequent qualitative phase. Based on the focal participants selected, an interview protocol was developed which was grounded in known self-regulated learning (SRL) strategies (Pintrich et al., 1991; Pintrich, 1999) and the survey results of the focal participants completed in the quantitative phase.

During the second phase, qualitative data were collected from the three focal participants and analyzed for patterns and themes to better understand their experiences and actions within the online course as well as to help explain or elaborate on the quantitative results obtained in the first phase. The qualitative phase built upon the quantitative phase and the two methodologies were connected through final analysis and inference. This final stage of inference and interpretation was the key in bringing both methodologies together in order to address the research questions. Figure 4 illustrates the progression of the mixed methods study design used, and data collected during each phase. Miller (2003) explains the connection between inferences and conclusions by stating that the "process of inference is thought to involve a set of beliefs that become premises so that a conclusion about these beliefs can be shown to follow" (p. 426).

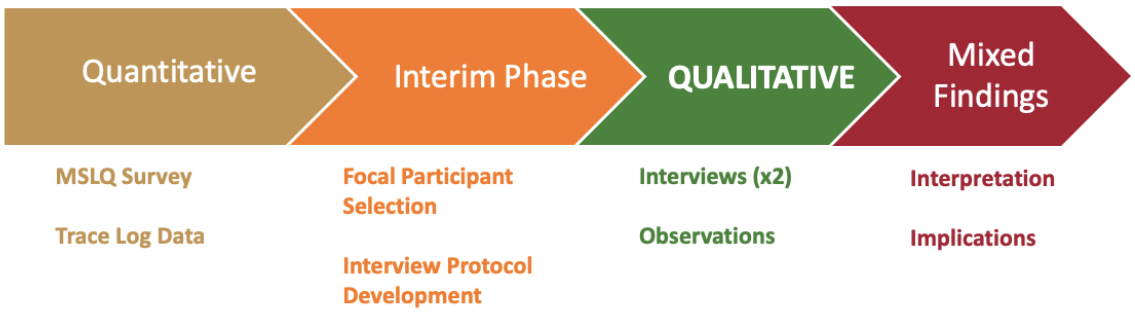

Figure 4: Sequential, explanatory mixed methods study progression of data collection

In this study, the rationale for an explanatory design approach was that quantitative data and subsequent analysis provided a general understanding of students' SRL within the course as a whole, in addition to providing a way to purposefully select individual focal participants for the second qualitative phase. The qualitative data and

analysis refined and helped to explain or shed new light on the quantitative data, and explored participants' experiences and actions in more depth.

Within an explanatory design, there are typically two variants: one design which emphasizes the quantitative phase, and another that emphasizes the qualitative phase. In this study the emphasis was placed on the second qualitative phase. This variant is also known as the "participant-selection variant," where initial quantitative results are used to not only inform the selection of participants, but also to develop interview questions or protocols for the qualitative phase where the most in-depth information is gained (Creswell & Plano Clark, 2011). A visual representation of this is presented in Table 1, using the indication of "QUALITATIVE" in all capital letters to indicate where the emphasis was placed during analysis and inference.

Table 1

Phases, procedures, and products of this study's explanatory mixed-methods research design

PHASE	PROCEDURES	PRODUCTS
1) Quantitative Inquiry and Analysis	Survey Trace log data	Level of self-regulated learning strategies Online learning actions
Interim Phase	Descriptive analysis Item frequencies Select 3 participants from unique categories: Low or High SRL	Mean distributions SRL characterization Focal Participants (n=3) Interview protocol
2) QUALITATIVE Inquiry and Analysis	Interviews with 3 focal participants Online observations of focal participants Substantive open coding analysis	Interview transcripts Researcher observation notes Emergent themes from each focal participant Differences and similarities among focal participants

3) Mixed Methods Inference	Inference of mixed data, interpretation, explanation	Better understanding of experience and actions Discussion Implications

A connection between the research questions and data sources is outlined in Table 2, illustrating which data sources will be used to address each research question during interpretation.

Table 2

Connection between research questions and data sources

RESEARCH QUESTION	**DATA SOURCE**
Q1: What is the experience of students in an online course who possess and/or lack self-regulation strategies?	• MSLQ Survey • Trace Log Data • Interviews • Observations
Q2: What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?	• Interviews • Observations
Q3: What instructional methods or LMS environmental factors help students develop self-regulation skills to succeed in an online course?	• Interviews • Observations

Phase One: Quantitative inquiry. In the first quantitative phase of the study, student self-reports of self-regulatory strategies and abilities were collected using an adaption of the Motivated Strategies in Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991) as well as user trace logs from the online learning management system, Moodle. Using descriptive analysis and a similar procedure by Hadwin, et al. (2007), trace log data for each indicator (total logins, days logged in, view events, and action events) was divided into categories based on the mean frequency. In

this study, the frequency results were categorized into either “low” or “average and high” in each of the LMS trace log categories (as opposed to low, average, and high, due to the low number of participants. n=10). This phase took place during weeks 4 through 8 of the course (see Table 3).

Table 3

Table illustrating timeline of data collection

<table>
<tr><th>Course Week</th><th colspan="2">Quantitative Data Collection</th><th>Interim Phase</th><th colspan="2">Qualitative Data Collection</th></tr>
<tr><td>1</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td></td><td></td><td>Observations</td></tr>
<tr><td>3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td rowspan="4">MSLQ Survey</td><td>Trace Log Data</td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>Trace Log Data</td><td></td><td></td><td>Observations</td></tr>
<tr><td>6</td><td>Trace Log Data</td><td rowspan="3">Focal Participant Selection and Interview Protocol</td><td></td><td>Observations</td></tr>
<tr><td>7</td><td>Trace Log Data</td><td></td><td>Observations</td></tr>
<tr><td>8</td><td></td><td></td><td></td></tr>
<tr><td>9</td><td></td><td></td><td rowspan="3">Interview #1</td><td></td></tr>
<tr><td>10</td><td></td><td></td><td></td></tr>
<tr><td>11</td><td></td><td></td><td></td></tr>
<tr><td>12</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>13</td><td></td><td></td><td></td><td></td><td>Observations</td></tr>
<tr><td>14</td><td></td><td></td><td></td><td>Interview #2</td><td></td></tr>
<tr><td>15</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Recruitment and participants. Participants were recruited by a recruitment letter and video from myself, which was posted in the Moodle course site by the instructor (Appendix B). The instructor additionally informed students of the opportunity to participate in the study via a course announcement. A Consent Information Sheet (Appendix C) was also posted on the course website, and the same text was also included in the Motivated Strategies for Learning Questionnaire that students completed when they agreed to participate in the study (Appendix D). The total enrollment in the

course was 19, and 11 of these students chose to participate in this quantitative phase of the study.

Data collection. During the quantitative phase, data collection consisted of a Likert-scale survey measuring self-regulatory capabilities of students, and user trace log data which indicates login frequencies and observable actions provided by LMS analytics.

MSLQ Survey. The survey used was a modified version of the Motivational Strategies for Learning Questionnaire (MSLQ), which uses Likert-scale items (1=Not at all like me; 7=Very much like me) and was 22 questions long (Appendix D). The survey was completed online, and was accessed by participants through a hyperlink placed in a Moodle course module by the instructor along with the other study recruitment materials. It was available during weeks 4 through 8 of the semester. There was an incentive for taking the survey, which was a $15 Target gift card offered to one randomly drawn participant. The survey used Qualtrics software with access to results only accessible through my own individual login.

The MSLQ is a self-report instrument that evaluates college students' motivational orientations and their use of learning strategies as they relate to a single college course (Pintrich, Smith, Garcia, & McKeachie, 1991). The full version of the MSLQ includes two sections: a motivation section and a learning strategies section. A majority of the learning strategies section pertains directly to SRL strategies, with items related to students' use of different cognitive and metacognitive strategies, in addition to items concerning student management of resources. In total, there are 15 different scales in the MSLQ which are designed to be used either together or singly. According to

Pintrich, Smith, Garcia, and McKeachie (1991), "the scales are designed to be modular and can be used to fit the needs of the researcher or instructor" (p. 3). The MSLQ subscales chosen for the survey used in this study include three scales taken from the learning strategies section (metacognitive self-regulation, time and study environment, and effort regulation) and one scale taken from the motivation section (intrinsic goal orientation). These four subscales were selected due to their direct correlation with both the forethought phase and performance phase in Zimmerman's SRL model (Zimmerman, 2008b; Zimmerman & Cleary, 2009) (see Figure 2), where strategies such as goal setting, strategic planning, task interest/value, and goal orientation are primary motives to self-regulate, while SRL performance strategies such as task strategies, time management, and environmental structuring indicate the actions or behaviors of students who self-regulate. Some of the wording of certain questions from the MSLQ were altered due to the online mostly asynchronous nature of the course. This modified version of the MSLQ survey was piloted once before this dissertation research during a study of in-service teachers who were taking an online course (North & Ellis, 2015). Through this pilot, Cronbach's Alpha analysis indicated that all subscales were reliable (n=18).

Trace logs. During the quantitative phase of the study, trace logs were also collected from participants who consented. This data was collected during four different weeks of the semester (weeks 4 – 7). Data was collected using Moodle analytics of the course, and included the frequency of logins during each week, and the actions during each login (such as viewing resources, creating discussion posts, responding to posts, or submitting assignments). The trace log data collection strategy is similar to that of and Ivankova and Stick (2007) and You (2016), and helped to not only corroborate self-

reports with actual behavior, but to also identify active online participants versus passive participants. The benefit of this type of data is that it provided an alternative quantitative view of participants within the course, which provided a snapshot of their actions in an unobtrusive way.

Interim phase: Focal participant selection and interview protocol. Following the collection and analysis of quantitative data, three individuals emerged as focal participants for the subsequent qualitative phase. According to the typical progression of a sequential, explanatory mixed methods design, the individual participants identified for the second qualitative phase are often purposefully selected through the quantitative analysis results. In this study, the goal was to select three individuals based on indicators of low, mid, and high self-regulated learning tendencies, similar to the strategy used by Ivankova and Stick (2007). However, there were not enough quantitative participants who indicated they were willing to take part in qualitative interviews and observations. Due to this limitation, participants for the qualitative phase were selected on a volunteer basis. There were four students who volunteered to participate in the qualitative phase of the study, and three of them were selected based on a review of their individual quantitative data.

After three focal participants were identified, review of the quantitative analysis was used to develop an interview protocol. Questions were developed based on further investigation into each participant's answers on the MSLQ survey, and their online course actions as indicated by the trace logs. To begin creating the interview protocol, a semi-structured interview (Patton, 2002) was created in relationship to SRL constructs (Appendix E) (Zimmerman, 2008a; Zimmerman & Martinez Pons, 1996). Any

inconsistencies from the quantitative data (such as surprising results or anything else that stood out) served as additional lines of questioning. This strategy is similar to the structured interview developed by Zimmerman & Martinez-Pons (1986) to assess student use of SRL strategies. The interim phase lasted approximately two weeks, during weeks 6 and 8 of the semester.

Phase two: Qualitative inquiry. The second qualitative phase was conducted as a follow-up to the quantitative phase, in order to obtain a better understanding of the quantitative results and provide a more complex understanding of the three focal participants.

Data Collection. During the qualitative phase, key variables of students' self-regulation and results from data in the quantitative phase were further explored through in-depth interviews with each participant, and observations were done of their course activity.

Interviews. The interview portion with each of the three participants took place virtually (via Google Hangouts) and was recorded and transcribed. Questions were guided by the semi-structured interview protocol created previously during the interim phase. Each focal participant agreed to participate in two separate interviews, once at a mid-point of the semester (scheduled for Weeks 9-11) and again at the end of the semester (scheduled for Week 14). The second interview protocol was developed based on results from the first interview and observation data, in addition to Zimmerman's third SRL phase of self-reflection (Zimmerman, 2008b; Zimmerman & Cleary, 2009). Questions about self-evaluation, reflection, and adaptive techniques were key additions to

the second interview. Two participants completed both interviews, whereas the third participant only completed one interview.

Observations. Observations of each focal participant within the Moodle course was conducted to help better understand the determine the actual actions of the focal participants within the online course, and to use as comparison to participants' MSLQ survey self-reports and interview responses. Observations were completed during five separate weeks (weeks 2, 5, 6, 7, and 13). Researcher notes focused on perceptions of focal participants' activity within the course, their interactions with tasks or assignments each week, and their interactions with peers. Special notes were also taken regarding unexpected activity noticed.

Summary

To summarize, the purpose of this research study was to understand the experience and behavior of students in online courses with varying degrees of self-regulated learning (SRL), and identify strategies that can be employed to assist learners in developing tools for academic success. The research is guided by three research questions: 1) What is the experience of students in an online course who possess and/or lack self-regulation strategies? 2) What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies? 3) What instructional methods or LMS environmental factors help students develop self-regulation skills to succeed in an online course?

A theoretical lens of pragmatism guided the study by providing a lens through which to merge two worldviews of quantitative and qualitative research, in addition to viewing the importance of and practical applications of self-regulated learning. The

research design followed a sequential explanatory mixed methods approach, which inherently shifted the focus during the study from a postpositivist, quantitative approach to a constructivist, qualitative approach. The analysis and interpretation of the data mixed these two methodologies together into inferences and implications, with the qualitative findings additionally shedding light on the quantitative results in addition to providing a complete, holistic view of self-regulated learning of learners in online education.

CHAPTER 4

QUANTITATIVE RESULTS

Introduction

The quantitative phase was the first step in the sequential explanatory mixed methods design used for this dissertation. The purpose of the quantitative data in this study was to help identify three different participants for the qualitative phase, and to develop an interview protocol to use during this qualitative phase. The quantitative results were also used to give a more in-depth, holistic understanding of the three focal participants course experiences during final triangulation and analysis of the data. The quantitative data was collected through the Motivated Strategies in Learning Questionnaire (MSLQ), (Pintrich, 1991), completed by participants between weeks 4-8 of the course as well as learning management system (LMS) trace log data collected during weeks 4-7 of the course. In addition to serving the purpose of further participant selection and qualitative data collection procedures, the quantitative data also helped to address the research question, "What are the actions of students in an online course who possess and/or lack self-regulation strategies?"

Methods

Course context. The study took place at a large, land-grant university in the Midwest where online classes are offered, but are not the norm. Participants in the quantitative phase were chosen based on their enrollment in the selected online course. The course was 15-weeks long, and typically taken by undergraduate juniors and seniors. It was a required course for students undergraduate business majors, and was offered as an elective for other majors. It was offered fully online using Moodle (https://moodle.org) as the learning management system (LMS), and course content was focused on

introducing learners to computer applications commonly used in business and education settings. The course was offered during the fall 2014 semester.

Recruitment information for this study was placed in a module towards the top of the course website, and was labeled "Research Study Participation." It included a brief introduction to the study and a page with a recruitment letter and video from myself, inviting students to participate and explaining what will be expected (Appendix B). Under the video and recruitment letter, the Consent Information Sheet was provided (Appendix C).

The course was formatted in a way that each module represents one week of the course. Each week began on Monday and continued through the following Sunday. Only one or two modules were unlocked and visible as the upcoming week approached. Each module was typically organized into three sections: expected outcomes, readings and media, and assignments. A fairly recent update to Moodle was the inclusion of "checkboxes" next to each item (readings, resources, assignments, or discussions) within a module. Items could be checked by students as they completed the task.

The instructor for the course (referred to as Mr. Smith in this dissertation) had taught this course five times previously. He has taught in both higher education and K-12 settings for a total of 22 years, with the majority of those years in K-12. Mr. Smith was given a $25 Amazon.com gift card in appreciation of his help in posting recruitment flyers and other research information in the course's Moodle site.

Participants. Students were recruited for the study through a recruitment letter and video from myself (Appendix B), which was posted in a module by the instructor. The instructor also informed students of the opportunity to participate in the study via a course announcement. A Consent Information Sheet (Appendix C) was posted on the

course site, and the same text was also included in the Motivated Strategies for Learning Questionnaire (MSLQ) that students completed when they agreed to participate in the study (Appendix D).

All learners enrolled in the course were undergraduate college students in a college of education at the university. Eleven out of 19 enrolled students chose to participate in the quantitative phase of the study. Participants consisted of 4 males and 7 females, with 9 participants between ages 18-24, and 2 participants between ages 25-35. Two participants were juniors and 9 were seniors. All learners reported taking an online course previously, with 4 having taken 1 online course before, 2 having taken 2 online courses before, and 5 having taken more than 3 online courses previously (Table 4).

Table 4

Demographics of quantitative participants

Variable	**Category**	**Frequency**	**Percent of Students**
Age	18-24 25-35	9 2	81.8 18.2
Gender	Male Female	4 7	36.4 63.6
Year in School	Junior Senior	2 9	18.2 81.2
Previous Online Courses Taken	1 2 3+	4 2 5	36.4 18.2 45.5

Data collection procedures. Data collection during this phase of the study consisted of students first taking a modified version of the Motivational Strategies for Learning Questionnaire (MSLQ), a Likert-scale survey which measures reported self-

regulatory practices of students (Pintrich, et al. 1991). Additionally, trace log data of participants (who volunteered to have this data collected) was collected from the Moodle course environment in order to identify login frequencies and observable actions provided by the learning management system analytics.

MSLQ Survey. The survey used was a modified version of the Motivational Strategies for Learning Questionnaire (MSLQ), which uses Likert-scale items (1=Not at all like me; 7=Very much like me) and is 22 questions long (Appendix D). The MSLQ was developed by the National Center for Research to Improve Postsecondary Teaching and Learning in Ann Arbor, MI. Lambda-ksi estimates (similar to factor loadings) were provided for each question. The authors confirmed that the "goodness of fit" indices were reasonable, and stated that "overall, the models show sound structures, and one can reasonably claim factor validity for the MSLQ scales" (p. 80). The MSLQ survey was modified in order to shorten the survey (the original survey is 81 questions long), and to highlight four subscales which directly relate to Zimmerman's (2008b) phases of SRL forethought and performance. The MSLQ subscales selected were metacognitive self-regulation, intrinsic goal orientation, time and study environment, and effort regulation.

In this study, the survey was completed online by students using Qualtrics, and was accessed by participants through a hyperlink placed on a course home page by the instructor along with the other study recruitment materials. Survey data was collected during weeks 4 through 8 of the semester. As an incentive for completing the survey, a random drawing was conducted for one $15 Target gift card.

Trace logs. Trace log data was collected from participants who agreed to have this type of data collected from their actions within the Moodle LMS. Learners had the opportunity to consent to this data collection within the final section of the MSLQ

survey. The data was collected from four different weeks of the semester (weeks 4 – 7), and was collected using Moodle analytics. Data collected included the frequency of log ins during each week (total number of logins and number of unique days logged in), and the viewing and action events during each login. A "viewing event" indicated any time that a student viewed a page, resource, or assignment. Alternatively, an "action event" indicated any time a student contributed something in the learning environment, such as a discussion post or an assignment submission. This data collection strategy is similar to that of Morris, Finnegan and Wu (2005), who sought to also understand student engagement and predict overall completion of an online course using LMS log data. In that study, the authors defined viewing content, creating content, and responding to others as forms of student participation and indications of engagement. They used this in their understanding of student persistence in the course, in addition to analyzing students' frequency of logins. In this study, a similar framework was used, where student logs from the LMS helped to identify *active* online actions versus *passive* actions at a given time, while also using login data to paint a picture of participants' frequency of attention to the course. Additionally, the trace log data helped to corroborate students' self-reports (either from the MSLQ survey or subsequent individual interviews) with their observable actions in the online learning environment.

Analysis and Findings

The purpose of the quantitative analysis was to gain insights into the self-reported SRL actions of learners within the course while also using observable quantitative data (trace logs) to glean understandings of learner's observable actions within the online course. This quantitative data would be ultimately used to help select three focal participants to participate in the second qualitative phase of the study, and to develop a

semi-structured interview protocol for use during the qualitative phase. The quantitative data was also meant to provide another dimension and understanding of the qualitative participants' experience and actions in the online class.

MSLQ survey analysis. The first step of analysis was to recode the questions that were considered "reverse" questions (in other words, questions where a lower numbered response on the Likert Scale is considered positive, as opposed to the majority of questions were a higher response was positive). This step was necessary to complete before computing subscale variables, in order to create consistent responses across questions where all higher numbered responses indicated a positive response, and lower numbered responses indicated a more negative response. There were five reverse questions in the MSLQ survey:

> #8 - When course work is difficult, I give up or only study the easy parts
>
> #12 - I often feel so lazy or bored when I work on activities or assignments for this class that I quit
>
> #13 - I often find that I don't spend much time on this course because of other activities
>
> #21 - While completing readings or activities in a course like this, I often miss important points because I am thinking of other things
>
> #22 - I find it hard to stick to a study schedule in a class like this

The reversed questions were adjusted by recoding them and creating new variables for each. In creating the new variables, the following formula was used:

8 – Original Variable = New Variable

By this logic, if a participant had entered "7" for one of the reverse questions, then the recode formula is "8-7=1", where "1" is the participant's new response.

In analyzing the data of the MSLQ survey, pilot study data was referred to where the same modified MSLQ survey was used in a fully online course (North & Ellis, 2015). According to results from this pilot survey (which included 18 participants), the subscales of Metacognitive Self-Regulation, Intrinsic Goal Orientation, Time and Study Environment, and Effort Regulation were shown to be reliable, with Cronbach's Alpha numbers all above 0.77. From the current study's data, subscales were created and reliability analysis was done on each. The descriptive analysis and reliability scores for each subscale are shown in Table 5.

Table 5

MSLQ subscale items/questions, descriptive statistics, and reliability for this study

MSLQ Subscale	n	Question Items	Mean	Min	Max	Standard Deviation	Cronbach's Alpha
Metacognitive Self-Regulation	10	1, 4, 11, 15, 16, 19, 21	5.03	4	6	0.582	-0.030
Intrinsic Goal Orientation	10	2, 10, 17, 20	4.97	4	6	0.893	0.506
Time/Study Regulation	10	3, 6, 7, 13, 14, 18, 22	4.32	2	7	1.172	0.783
Effort Regulation	10	5, 8, 9, 12	5.08	3	7	1.048	0.546

The Cronbach's Alpha results were overall weaker for this study in contrast to the stronger results from the pilot study (North & Ellis, 2015) (Table 5). This could be due to a much lower number of participants (10 responses as opposed to 18 in the pilot study), and the fact that this study had a low number of responses. To this regard, Steiner (2003) discusses a number of myths related to the reliability of Cronbach's Alpha, including one of the most common myths being that once the reliability of a scale is determined for one

study, it is considered reliable for all other studies. Steiner (2003) points out that this cannot hold true because the reliability of the scale is dependent on the results of the participants, not of the survey itself. This leaves the Cronbach's Alpha score as an estimate and subject to some degree of error. This fact, coupled with the low number of participants, could account for the variance between reliability scores for the MSLQ subscales (Steiner, 2003) in this study. It should also be noted that Steiner's (2003) recommendations for the threshold of the Alpha coefficient can in fact be as low as 0.50 for the early stages of research and basic research tools (as in this study and survey). Through this recommendation, the Cronbach's Alpha for this research study could be understood as reliable for all of the subscales except for the Metacognitive Self-Regulation, which had a reliability score of -.030 (Intrinsic Goal Orientation had a reliability score of .506, Time/Study Regulation had a the highest reliability score of .783, while Effort Regulation had a score of .546).

MSLQ survey results. The following section summarizes the survey items and findings of each subscale of the MSLQ survey: Metacognitive Self-Regulation, Intrinsic Goal Orientation, Time/Study Regulation, and Effort Regulation.

Metacognitive Self-Regulation: The MSLQ questions which addressed Metacognitive Self-Regulation were items 1, 4, 11, 15, 16, 19, and 21. The question items in this subscale include these questions:

#1 When I become confused about readings or activities in this class, I go back and try to figure it out.

#4 When I approach new course material, I often skim it to see how it is organized.

#11 When completing activities in this course I try to determine which concepts I don't understand well.

#15 When I participate in this class, I set goals for myself in order to direct my activities in each study period.

#16 I try to change the way I participate and complete assignments in order to fit the course requirements and the instructor's teaching style.

#19 I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over for immediate purposes of this course.

#21 While completing readings or activities in a course like this, I often miss important points because I am thinking of other things. (REVERSED)

According to Pintrich et al. (1991), metacognition is the awareness, knowledge, and control of one's cognition. The questions in the MSLQ which refer to metacognitive self-regulation place emphasis specifically on the individual's ability to control and self-regulate aspects of metacognition (and do not address the knowledge aspect). Pintrich et al. (1991) also assert that there are processes that indicate metacognitive self-regulatory activities, such as goal setting and task analysis in order to better organize and comprehend material, self-testing and questioning for integration with prior knowledge, and fine-tuning and continuous adjustment of both cognitive activities and behavior on a particular task.

Through descriptive statistics of this subscale, as a whole students' self-report of their ability in the area of metacognitive self-regulation was fairly good or just above average. In other words, the minimum score was 4 and the maximum score was 6. The average of all responses was 5.03, with a standard deviation of 0.582 (Table 5). However, it should be noted that the Cronbach's Alpha indicator of this scale as reliable was -0.030

(potentially due to the small sample size) and so these results might not be as reliable as other subscales used. However, for the purposes of this study the most important aspects of the results are to gain a general understanding of students' perceptions of themselves in terms of metacognitive self-regulation abilities, and the range of overall responses from participants point to an above average self-reported performance. This implies that students have an awareness and average or somewhat positive view their planning, monitoring, and regulating capabilities (all of which are indicators of metacognitive self-regulation).

Intrinsic Goal Orientation: The questions in the MSLQ which addressed Intrinsic Goal Orientation were items 2, 10, 17, and 20. The specific questions in this subscale used on this study's survey are listed here:

> #2 If given the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.
>
> #10 In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.
>
> #17 In a class like this, I prefer course material that really challenges me so I can learn new things.
>
> #20 The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.

Pintrich et al. (1991) describe Intrinsic Goal Orientation as the students' perceptions of why s/he is engaged in a learning task. In the context of this study, questions were re-worded so that goal orientation was measured for this specific course (not learning as whole). The Intrinsic Goal Orientation subscale measures the degree to which a student believes they are participating in a task for reasons such as challenge,

curiosity, and mastery. Pintrich et al. (1991) add that a student's goal orientation "is an end all to itself, rather than participation being a means to an end" (p.9).

On the MSLQ survey, students self-reported their intrinsic goal orientation slightly lower than their metacognitive self-regulation abilities. For instance, the mean score for the intrinsic goal orientation subscale was 4.97. The minimum score was 4, and the maximum score was 6. The standard deviation was 0.893. The Cronbach's Alpha score was 0.506, which again appears somewhat low, but still acceptable for early stages of research (Streiner, 2003). The results from this subscale indicate an average self-indication of intrinsic goal orientation based on the minimum, maximum, and mean scores of the students. This means that overall, students mostly perceived their tasks as being important for the purposes of challenge, curiosity, or mastery (Pintrich et al, 1991). Possessing intrinsic orientation for tasks is important, as it leads to increased motivation and long-term knowledge retention as well as increased student success (Alderman, 2008).

Time/Study Regulation: The question for the subscale Time and Study Regulation were items 3, 6, 7, 13, 14, 18, and 22. The specific questions are listed below:

#3 I have a regular time and place set aside for working on this course.

#6 I make sure I keep up with the monthly readings, activities and assignments for this course.

#7 I usually work on course activities in a place where I can concentrate on my work.

#13 I often find that I don't spend much time on this course because of other activities. (REVERSED)

#14 I make good use of my study time for this course.

#18 I login to the course site regularly each week.

#22 I find it hard to stick to a study schedule in a class like this. (REVERSED)

Pintrich et al. (1991) describe Time and Study Regulation as the ability of the student to manage and regulate both their time and study environment. Time management includes a focus on scheduling, planning, and managing study time. Alternatively, regulating one's study environment refers to managing the setting in which a student does class work. Ideally, the student is able to create a study environment which is relatively free of distractions (Pintrich et al., 1991).

Through the MSLQ survey, students reported a very wide range of abilities when it came to time and study regulation. The descriptive statistics for this subscale indicate that some students find these qualities unlike them, and some find them very much like themselves. For instance, the minimum score for this subscale was 2, and the maximum score was 7. The mean score for the scale was 4.32, and had a deviation of 1.172. The Cronbach's Alpha reliability indicator was 0.783, which is an acceptable high rating. Of the four subscales, time and study regulation had the largest range between the minimum and maximum scores, and additionally had the lowest overall mean score. What we can understand from this is that the participants in this study not only reported a very wide range of time and study management techniques, but that overall this was reported as an area of less confidence with students as a study regulating strategy (given the wide range and lower mean score of 4.32).

Effort Regulation: The fourth subscale, effort regulation, was made up of MSLQ items 5, 8, 9, and 12:

#5 Even when course materials are dull and uninteresting, I manage to keep working until I finish.

#8 When course work is difficult, I give up or only study the easy parts. (REVERSED)

#9 I work hard to do well in this class even if I don't like what we are doing.

#12 I often feel so lazy or bored when I work on activities or assignments for this class that I quit. (REVERSED)

Pintrich et al. (1991) describe effort regulation as students' self-management and ability to control their effort or attention in the face of either distractions or uninteresting tasks. It is indicative of the students' commitment to completing a study or learning goal, even when there are challenges. Pintrich et al. (1991) assert that one's effort management is important to academic success because not only does it signify goal commitment, but additionally indicates the students' ability to regulate the continued use of learning strategies. Similar to the time and study environment subscale, the effort regulation scale was another subscale in which the range was fairly wide. The reported minimum score was 3, and a maximum score was 7. The mean was 5.08, and the standard deviation was 1.048. The Cronbach's Alpha score was 0.546, again indicating that this score may be appropriate for early research and basic research tools (Streiner, 2003). These results indicate an average or above average perception of students' own effort when it comes to the online coursework, and especially in regards to focusing attention in the face of distractions, or uninteresting activities.

Summary of MSLQ findings. The overall results of the four subscales in the modified MSLQ survey indicated that students felt somewhat confident about both metacognitive self-regulation strategies and their intrinsic goal orientation, but did not report the same consistent confidence in either time and space regulation or effort regulation. Intrinsic goal orientation and metacognitive self-regulation strategies had the

highest means of the four subscales and lowest variance. This first indicates that overall, participants were internally motivated in this class (as seen by the intrinsic goal orientation scale). This is an overall positive picture of students' motivation for the course and content, and indicates that students had a positive view of why they participated in activities within the class. Because the metacognitive self-regulation scale was viewed as unreliable, the same assumption cannot necessarily be made. However, the overall range and mean score was still considered somewhat high in terms of students' reported metacognition of self-regulating activities (with the lowest score of 4, and the highest score of 6, and a mean of 5.03).

Alternatively, there was much more variance in the reports of time and study environment regulation and effort regulation in the course, both of which are learning strategies scales in the MSLQ survey and point to students' overall ability to persist in the face of distractions, and dedicate a specific time or place to coursework each week (Pintrich et al., 1991). Both of these scales had students reporting a wide range of practices, either that these self-regulation practices were not like them, or very much like them. For instance, the Time/Study Regulation scale had students reporting a minimum score of 2 and a maximum score of 7. Likewise, the Effort Regulation scale had results between 3 and 7. These wide ranges helped point to concepts which should be considered and investigated further during the qualitative phase.

Trace log analysis and findings. In addition to collecting data via the MSLQ survey, data was also collected from Moodle's learning management system analytics. Trace data is specific time-stamped resources of everything that a student does within the learning management system (Hadwin, et al. 2007). You (2016) asserts that using trace log data from an LMS provides practical data in terms of student learning behaviors

within the given online environment that other typical data collection sources for self-regulated learning does not capture. While most other quantitative data collection instruments for SRL is done through self-reported surveys, You (2016) suggests that the value of LMS data is in collecting a comprehensive set of student actions occurring in the online environment. What is more, there are studies which indicate that the level of student participation in the LMS correlates with academic achievement and engagement (You, 2016; Morris et al., 2005). While this study did not look further to use trace log data as a prediction of students' achievement in the course, the research still confirms the importance and value of looking at this type of data to gain a better understanding of students' SRL actions.

The trace log data collection and analysis in this study is closely aligned with a study conducted by Hadwin, Nesbit, Jamieson-Noel, Code, and Winne (2007) who examined eight students and their LMS trace log data in comparison with their self-reports of self-regulated learning activities. This study's small number of students and the focus on correlation with students' self-reports of SRL in an MSLQ survey made it a particularly helpful guide for my dissertation research. Hadwin et al. (2007) also mention that using LMS data is helpful because "while self-report data provide invaluable information about learners' perceptions of learning, they do not measure how students actually employ studying tactics" (p. 108).

In this research, the trace log data was collected from six of the participants who completed the MSLQ survey per their consent within the online MSLQ survey (each student was given the option to opt in or out of trace log data collection). The logs were obtained throughout four weeks (weeks 4-7) of the course. The data was collected by navigating within Moodle to a single student and retrieving login data for a particular

week. The data collected included four indicators: 1) the number of unique logins (indicated by either a change in IP address or a login that occurred more than one hour after the previous login); 2) number of different days the student logged in; 3) number of "view events" (when a student viewed a resource such as an article, page, or video); and 4) number of "action events" (when a student made a contribution in the environment such as a discussion post or assignment submission). These categories were based on similar categories used by Hadwin et al. (2007).

The data for each participant was first exported into Microsoft Excel for organization, and then copied into SPSS for statistical analysis. The analysis consisted of basic descriptives and frequencies of the trace data in order to 1) give a brief and simple snapshot of each students' actions in the online course each week, and 2) to obtain a larger, general trend of the participants in the online learning environment. Additionally, following the similar analysis procedure by Hadwin et al. (2007), trace data for each of the four indicators was divided into categories based on the mean frequency. In this study, due to the low number of participants, the frequency results were categorized as either "low" or "average and high" in each of the LMS trace log categories (total logins, days logged in, view events, and action events). Table 6 provides the descriptive statistics for the data collected for each week.

Table 6

Descriptive statistics of trace log data for each week
n=6

	Min	**Max**	**Mean**	**Std. Deviation**
Week 4				
Weekly logins	2	6	4.17	1.472
Days logged in	2	4	3.00	.894

View events	21	73	47.50	20.305
Action events	0	5	2.83	2.137
Week 5				
Weekly logins	4	6	4.83	.983
Days logged in	3	5	4.00	.632
View events	27	55	43.00	9.818
Action events	2	5	3.17	.983
Week 6				
Weekly logins	2	5	3.50	1.225
Days logged in	2	4	2.67	.816
View events	10	53	27.17	15.562
Action events	0	2	1.00	.632
Week 7				
Weekly logins	3	8	4.67	1.751
Days logged in	3	5	3.67	.816
View events	30	75	47.50	18.545
Action events	3	4	3.33	.516

Next, participants were grouped into “low” and “average or high” categories for the total logins, days logged in, view events, and action events (Tables 8-11). For each participant, each of the LMS trace log categories collected was totaled across the four weeks observed, and then placed into the appropriate category (either below or above the mean of all data collected). This step was necessary in preparation for the interim phase of the study, where participants were selected for qualitative interviews and observations based on quantitative results.

Findings by participant. The following section summarizes the results from the trace log data analysis. From participants' indication on the MSLQ survey, six students agreed to have their LMS logins and views/actions collected for the purposes of this study. Table 7 displays the descriptive statistics for the total number of logins, number of days logged in, view events, and action events for the six participants during weeks 4, 5, 6, and 7 of the course; Tables 8-11 display how each participant was categorized based on the trace log results for each category.

Table 7

Individual participant frequencies for trace log data

	Total Number of Logins	**Total Number of Days Logged In**	**Total Number of View Events**	**Total Number of Action Events**
Participant 1	16	11	215	12
Participant 2	15	14	163	13
Participant 3	17	13	171	10
Participant 4	21	15	142	10
Participant 5	20	15	209	9
Participant 6	14	12	91	8
Mean	*17.17*	*13.33*	*165.17*	*10.33*

Table 8 displays the total number of logins by each participant, and whether they were considered "low" or "average or high" compared to the mean total logins. The mean number of logins during the four weeks of collected data (Weeks 4-7) was 17.17. Participants 6, 2, and 1 each logged in less than the mean, whereas participants 3, 5, and 4 logged in either higher than the mean or the same as the mean (when rounded to the whole number).

Table 8

Total number of logins for each participant	
n=6 Min=14 Mean=17.17 Range=7 Max=21 Std Deviation=2.787	
Lower Total Logins	
Participant 6	14
Participant 2	15
Participant 1	16
Average or Higher Total Logins	
Participant 3	17
Participant 5	20
Participant 4	21

Logins were categorized into "low" or "average or high"

Table 9 displays the total number of unique days logged in by each participant, and whether they were considered "low" or "average or high" compared to the mean total days logged in. The mean number of logins during the four weeks of collected data was 13.33. Participants 1 and 6 each logged in less than the mean number of days, whereas participants 3, 2, 4, and 5 logged in either higher than the mean or the same as the mean (when rounded to the whole number).

Table 9

Total number of days logged in for each participant	
n=6 Min=11 Mean=13.33 Range=4 Max=15 Std Deviation=1.633	
Lower Days Logged In	
Participant 1	11
Participant 6	12

Average or Higher Days Logged In	
Participant 3	13
Participant 2	14
Participant 4	15
Participant 5	15

Days logged in were categorized into "low" or "average or high"

Table 10 displays the total number of view events by each participant, and whether they were considered "low" or "average or high" compared to the mean. The mean number of view events during the four weeks of collected data was 165.17. Participants 6, 4, and 2 each logged in less than the mean number of days, whereas participants 3, 5, and 1 viewed resources either higher than the mean or the same as the mean (when rounded to the whole number).

Table 10

Total number of view events for each participant	
n=6 Min=91 Mean=165.17 Range=124 Max=215 Std Deviation=45.784	
Lower View Events	
Participant 6	91
Participant 4	142
Participant 2	163
Average or Higher View Events	
Participant 3	171
Participant 5	209
Participant 1	215

View events were categorized into "low" or "average or high"

Table 11 displays the total number of action events by each participant, and whether they were considered "low" or "average or high" compared to the mean. The mean number of action events during the four weeks of collected data was 13.33. Participants 6 and 5 each showed action events less than the mean, whereas participants 4, 3, 1, and 2 each had action events either higher than the mean or the same as the mean (when rounded to the whole number).

Table 11

Total number of action events for each participant	
n=6 Min=8 Mean=10.33 Range=5 Max=13 Std Deviation=1.862	
Lower Action Events	
Participant 6	8
Participant 5	9
Average or Higher Action Events	
Participant 4	10
Participant 3	10
Participant 1	12
Participant 2	13

Action events were categorized into "low" or "average or high"

Summary of Trace Log Data Findings. Through the process of collecting and analyzing students' trace log data, some of the actual actions of students within the online class can be visible. Using this analysis, it is evident that among these six participants there were those who were more "present" in the LMS during these four weeks than other students. First, it was surmised from the trace log data that Participant 3 was consistently at the higher end of all trace log data collected. S/he had a higher than average total

number of logins during the four weeks studied, logged in on a higher number of days, and had a higher number of view events as well as action events. Conversely, Participant 6 was on the lower end of the range for each of these categories with a lower than average total number of logins, days logged in, view events, and log events. The remaining participants showed a mix between low and average or high trace logs. For instance, both Participants 4 and 5 had higher than average total logins and days logged in, but Participant 4 showed a lower number of view events (with high action events), whereas Participant 5 showed a lower number of action events (with high view events). Participant 1 demonstrated a lower than average number of total logins and days logged in, but had higher view and action events. Finally, Participant 2 showed a lower than average total of logins, but logged in on a higher than average number of days. Additionally, s/he showed a low number of view events, but higher than average action events.

While these actions in the LMS cannot be used alone to make conclusions about a students' overall actions, experience, or self-regulation within an online class, they can be used in conjunction with other points of data collection to begin to develop a broader picture of these learning constructs.

Summary

The quantitative phase of the study consisted of two different data collection moments for the purpose of informing the subsequent qualitative phase and providing a deeper and different view of students' experiences and actions in the online course, which were triangulated at the end of the study. In this phase, participants were first asked to complete the Motivated Strategies for Learning Questionnaire (MSLQ), which gave a self-reported snapshot into students' motivation, self-regulating skills, and learning

strategies. Next, trace log data was collected during four weeks of the semester (weeks 4-7), which provided an actual account of students' actions and interaction with the course according to their total number of logins during the selected weeks, number of different days logged in to the course, total number of view events, and the total number of action events. Together, the MSLQ survey data and trace log data were used in the next interim phase of the study in order to select three focal participants and develop a semi-structured interview protocol for the qualitative phase.

CHAPTER 5

FOCAL PARTICIPANT SELECTION AND INTERVIEW PROTOCOL

Following the first phase of quantitative data collection, I used the preliminary results to determine individuals who would be appropriate for the subsequent qualitative phase and would also be willing to participate in interviews. The preliminary quantitative results included basic descriptives and frequencies from the MSLQ survey as well as frequency analysis of the trace log data. Additionally, I used the quantitative analysis results to develop an interview protocol to be used during the first round of interviews in the qualitative phase of the study.

Selection of Focal Participants

Typically in an explanatory-designed study, the quantitative data analysis provides information from which to purposefully select a small number of participants for the qualitative phase. However, during the quantitative phase of this study, there were few participants who agreed to be considered for the qualitative phase, so the selection of participants was largely based on willingness to participate rather than strictly the results of the quantitative data analysis. Creswell and Plano Clark (2011) recognize that this is often the case in such a design, stating that during the qualitative phase, "sometimes the participants will simply be individuals who volunteer to participate in interviews" (p.186). They note this approach may provide a weaker connection between the phases but that in some cases it may be necessary (Creswell & Plano Clark, 2011).

In the MSLQ survey students took during the quantitative phase, a total of four individuals indicated that they were willing to participate in the qualitative phase as

participants in interviews and observations. Based on their willingness to participate in the interviews, they supplied their names along with their MSLQ survey completion. Each participant's individual quantitative results from the MSLQ survey and trace log data was compared alongside the overall aggregate results from all quantitative participants (n=10 and n=6, respectively). (See Table 12; names have been changed to protect identities).

Table 12

Quantitative participants who volunteered for qualitative phase interviews, reflecting participants' MSLQ subscale scores and trace log data

	Previous online classes	MSLQ Subscale Metacog. Self Regulat.*	MSLQ Subscale Intrinsic Goal Orient.	MSLQ Subscale Time/ Study Regulat.	MSLQ Subscale Effort Regulat.	Total Log-ins	Days Logged In	View Events	Action Events
Jess	3+	6	5	7	6	17	13	171	10
Marissa	1	5	6	5	6	21	15	142	10
Emily	2	6	6	5	3	20	15	209	9
Daniel	1	5	6	5	7	14	12	91	8
Class Mean (MSLQ n=10) (Trace Logs n=6)	-	5.01	4.98	4.47	5.08	17.17	13.33	165.17	10.33

**The subscale for Metacognitive Self-Regulation was not considered reliable using Cronbach's Alpha.*

Jess self-reported the highest of the four student participants in Time/Study Regulation variable, and also was the only one of the three who had indicated taking

more than three online courses before. Emily was considered as a strong possibility for the interview phase of the study due to her lowest reported score for the Effort Regulation variable (a subscale that was shown to have the widest range of responses). Likewise, Daniel reported the highest response for Effort Regulation. Marissa's responses were understood as average as she did not demonstrate a very high or low subscale score compared to the other three participants.

In looking at the trace log data for each of the participants, Daniel stood out as having the lowest data of all the variables. He had the lowest number of total logins (14), unique days logged in (12), view events (91), and action events (8). This, compared with his high self-reported effort regulation made him a viable candidate for the qualitative phase of the study, as I wanted to better understand the discrepancy between the low trace log data numbers and the high self-reported effort regulation strategies, along with his other average to high self-reported SRL learning strategies. Marissa showed the highest number of total logins (21), whereas Emily demonstrated the highest number of view events (209). Both Jess and Marissa had the highest number of action events with 10 each.

Ultimately, I determined that the most unique focal participants from these four candidates were Jess, Emily, and Daniel based on both the overall high indicators of self-regulation they all reported in the MSLQ survey as well as the wide range of login frequencies that was observed. These three participants were each considered unique due to a number of reasons. Jess was unique in that she was the only participant of the four candidates who had taken more than three online classes previously, and she also reported the highest score for the Time/Study Regulation subscale. In contrast, Emily

scored the lowest on the Effort Regulation subscale, but had the highest number of view events as well as higher than average total logins and days logged in. Finally, Daniel was also as a unique candidate for interviews due to his very high self-rating of Effort Regulation, although his trace log data indicated the lowest number of logins for all variables: total logins, days logged in, view events, and action events. Jess, Emily, and Daniel were invited to participate in the qualitative interview portion of the study and all three consented. Marissa was not invited to participate in the next phase of the study.

Interview Protocol Development

After the selection of the qualitative participants, an interview protocol was developed to be used in the next phase of this study.

First Interview Protocol. Using data collected from the MSLQ survey for each of the three selected focal participants, an interview protocol was developed in preparation for the qualitative phase of the research. An interview protocol is a guide for the interviewer that lists the questions or issues that are to be explored in the interview. It may provide topic or subject areas in which the interviewer is free to explore, probe, or ask questions to illuminate a particular subject area. As opposed to a list of interview questions, a protocol additionally indicates the "script" that a researcher will use for the discussion before the questioning starts, reminds the researcher to gain consent, and allows for spontaneous wording of the questions in a more conversational style while still maintaining focus on the particular subject(s) which has been predetermined (Jacob & Fergerson, 2012).

For the first round of interviews, the same protocol was used for all three participants (Appendix E). The interview protocol developed for the first set of

interviews was based on trends noticed in both the MSLQ survey results and the results of the class' trace log data, which can be viewed in Table 13. For instance, the subscale of "Time/Study Environment" on the MSLQ survey had a very wide range of responses (the minimum response was 2 whereas the maximum response was 7), indicating that overall students have widely varied dedicated times or spaces dedicated to studying in this course, if at all (Table 5). Of the four subscales, time and study regulation had the largest spread between the minimum and maximum scores, and the lowest mean score, so I felt it was important to ask all three interview participants about specific strategies related to their time and place regulation for coursework.

Similarly, the subscale "Effort Regulation" was also one that had a wide range of responses in the MSLQ survey, with students reporting a minimum of 3 and a maximum of 7 in regards to SRL strategies such as persistence in the face of distractions or uninteresting and challenging work. Because of this range, I made sure to also ask students about effort regulation strategies, which are apparent in the interview protocol.

The MSLQ survey results also indicated that students report fairly positive abilities when it comes to metacognitive self-regulation and intrinsic goal orientation. Both of these subscales had a mean score of roughly 5 (metacognitive self-regulation was 5.01, and intrinsic goal orientation was 4.98). Each of these subscales also had lower variances at 0.238 and 0.798, respectively (Table 5). Thus, I felt it was important to dig deeper into each of these subscales during the first interview to understand in what ways specifically students felt that they were achieving these indicators of self-regulation well (if at all).

Finally, questions in the first interview were also developed based on the research questions in order to gain an overall understanding of students reported experience in the online course, and whether or not the instructor or LMS features were helpful in their self-regulated learning strategies.

Table 13

Interview protocol questions and corresponding SRL purpose

Interview Protocol Question	**Purpose**
On an average week, how many times do you think you log into the course site on Moodle each week?	Effort Regulation Corroborate Trace Logs
Overall, how do you feel about your ability to stay on task during this course?	Effort Regulation
Tell me a little about how you manage your work time and space for this course… do you have a dedicated time and place you work on this course each week? (If so), can you describe it for me? Why is it important for you to have this?	Time/Space Regulation
If not, tell me a little about your process each week, and how you accomplish the class tasks for the week.	Effort Regulation
What drives you to log in to the course site, and to work on activities throughout the week? (how do you stay focused, given that that structure is that you direct your own study time with the course content throughout the week?)	Metacognitive Reg. Intrinsic Goal Orient.
Is there anything you'd like to change about your management of your time, or effort in the course throughout the rest of the course?	Time/Study Regulation Effort Regulation
Have you ever experienced a week where other "life" activities got in the way of working on this class? What was that like, and how did you adjust?	Effort Regulation
Tell me about an aspect of the course environment or structure that has helped you maintain motivation or focus within this class? Tell me about an aspect of the course environment or structure that has challenged you to maintain motivation, drive, or focus within this class?	Intrinsic Goal Orient. Metacognitive Reg.
As the course progresses into the second half other semester, is there anything you would change about maintaining your motivation or focus/drive each week? Or your effort within the course?	Metacognitive Reg. Effort Regulation
I would like to walk with you through a typical week. Tell me a little about how you approach a week like last week. How did you plan your time and work effort in order to complete each requirement for the week?	Metacognitive Reg. Effort Regulation Time/Space Regulation

	Corroborate Trace Logs
Finally, I'd like to ask you about the learning management system itself, Moodle. For instance, in this version of Moodle, I noticed there are the little check boxes next to each task. Is this something that you use? Does this (or anything else in the LMS) help you in any way?	Metacognitive Reg.

Following the selection of the interview participants and development of the first interview protocol, the first set of interviews was scheduled for Week 9 of the semester. Two participants completed the first interview during Week 9, whereas another participant had scheduling challenges and completed the interview during Week 11.

Second Interview Protocol. Interview protocols for the second interviews were developed uniquely for each participant using follow-up questions based on their responses during the first interview, course observations, and findings from the trace-log data. Questions for the second interview were also developed based Zimmerman's third and final SRL phase of self-reflection (Zimmerman, 2008b; Zimmerman & Cleary, 2009). Questions regarding participants' self-evaluation, reflection, and adaptive techniques were key additions to the second interview. The second round of interviews were scheduled for Week 14 of the semester (which was the second to last week of the semester). Examples of questions from the second interview protocols include:

- Overall, how did the course go? How do you feel about your performance in the course?
- Tell me more about the study habits that you have for this course, which you talked about previously. How did you develop these?
- Is there anything you would have done differently over the semester in terms of your effort in the course?

- If you had one suggestion for a future instructor of this course that could be changed to make it more motivating for students, what would it be?
- What recommendations do you have for students taking online classes?

Summary

In an explanatory mixed methods design, the purpose of the first quantitative phase is to assist in selecting participants for the latter qualitative phase of the research study in addition to developing interview protocols. This design requires the need for an "interim" phase, where quantitative data is used to develop an interview protocol to be used during the qualitative phase. In this study, results from the MSLQ survey along with the results from trace log data analysis pointed towards three qualified focal candidates for the qualitative phase (Jess, Emily, and Daniel). Additionally, the MSLQ survey results and trace log data also informed the development of the interview protocol questions, which became a primary point of data collection in the qualitative phase.

CHAPTER 6

QUALITATIVE RESULTS

Introduction

The second phase of the study was a qualitative phase, conducted as a follow-up step to the quantitative phase in order to better understand the quantitative results, and ultimately provide a complete picture of the three individual focal participants. The qualitative phase consisted of data collected through two sets of in-depth interviews conducted with each of the three focal participants, and researcher observations of the three participants throughout five different weeks of the semester.

The interview data addressed the research questions, "What is the experience of students in an online course who possess and/or lack self-regulation strategies?" and "What instructional methods or LMS environmental factors help students with low self-regulation skills succeed in an online course?" while the observation data collected served to address the research question, "What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?"

Methods

Participant context. One of the purposes of an explanatory mixed-methods design is that the quantitative data is used for identification of participants for subsequent qualitative data collection. In this study, the quantitative data was intended to help select three individual focal participants to participate in the qualitative phase of the study. However, data collection realities led to a more purposeful selection of participants for this qualitative phase. As part of the survey administered during the quantitative phase, participants were asked whether they would like to be considered for individual

interviews and qualitative data collection for a small compensation (a $20 Amazon.com gift card). Only one survey participant indicated that they would like to be interviewed. Due to this reality, a more thorough request for interview participants from the quantitative participants occurred, which included three additional email requests from the instructor and myself. Subsequently, three additional students volunteered to be part of the interview process. Chapter 5 outlined the selection of three of the four volunteers based on their quantitative MSLQ and trace log data results. Because of the recruitment process needed for the qualitative phase, the final three qualitative focal participants are considered "volunteers" rather than being intentionally selected. Creswell and Plano Clark (2011) note this as a typical limitation of this type of design, but state that it may necessary to select qualitative participants who are volunteers, rather than purposefully selected.

Data Collection. During the qualitative phase, key variables of self-regulation and results from the quantitative data were further explored through in-depth participant interviews as well as observations of participant course activity. The interview portion with each of the three participants took place virtually through Google Hangouts and was recorded. Questions were developed and guided by the semi-structured interview protocol (Appendix E) created previously during the interim phase, based on the results of the quantitative data. Following the first interview of each participant which took place during Weeks 9 or 11 of the semester, a second interview protocol was developed based on responses from the first interview and from observation data. The second interview with each participant took place during Week 14; however, only two participants completed the second interview. Observations of each focal participant within Moodle

took place during Weeks 2, 5, 6, 7, and 13 of the semester with detailed notes recorded of the perceptions of each participant's actions, course content and assessment expectations and activities for participants, and interesting or unusual things that stood out to me.

Qualitative Participants

Demographic and personal information about the three focal participants was collected during the interview process. Participant names have been changed to protect the identities of the participants.

Participant #1: Jess. Jess was a female student in her early 20s. She was a senior, graduating in the current semester (fall of 2014), which was one semester ahead of schedule. Her major was Human Resource Development, with a minor in Human Resources and Industrial Relations. She had taken multiple online classes before, reporting at least one course every semester of college (indicating that she has taken more than five online classes previously). Of her previous online courses, Moodle was the primary learning management system. Jess also reported that she had a part-time job outside of school.

Participant #2: Emily. Emily was a female student in her early 20s. She was a senior, also graduating at the end of the current semester (fall of 2014, one semester ahead of schedule). Her major was Human Resource Development. Emily reported taking two online courses previously during college, both of which used Moodle as the learning management system. Emily did not report having a job outside of school at this particular time.

Participant #3: Daniel. Daniel was a male student in his early 20s. He was a senior graduating at the end of the current semester, which was one semester later than

originally planned. He transferred to the university from a community college following his freshman year. Daniel's major was Business and Marketing. This was his first fully online course. Previously, he had taken one hybrid (blended) course at the community college, and could not recall which learning management system was used. Daniel reported that he was working full-time in addition to his full course load.

Qualitative Analysis Procedures

As a preliminary step to the analysis, a full read-through was done of each participant's interviews and observations transcripts and notes. This step was strictly reading, and I did not make any marks, notes or assumptions of patterns/themes. More specifically, this initial reading was done participant by participant (for example, reading through a single participant's interview transcripts and observations, before moving on to reading transcripts and observations from the next participant). In reading the data this way, a larger, holistic picture of each participant individually was gained prior to beginning the actual analysis procedure. This step follows Patton's recommendations of organizing qualitative data by grouping all data on each individual case together (2002, p. 449-450).

In following Patton's recommendations (2002) for the first phase of a qualitative analysis being inductive, both interview and observation data was analyzed using a substantive open coding technique, where data is categorized through coding, and descriptive patterns and themes are identified. Coding is a primary categorizing strategy in qualitative methods research, and open coding is specifically the inductive process of developing new insights as to what is important in the data, rather than to identify how data fits into already established categories (Patton, 2002; Maxwell, 2013). This approach

was important in my analysis process in order to stay in line with the pragmatic and mixed methods viewpoint of conducting an exploratory analysis of what patterns or themes emerge in the data, versus a confirmatory analysis of grouping data into preexisting constructs. (Onwuegbuzie & Teddlie, 2003).

I followed the open coding process by grouping the data into "substantive" categories, which refers to the actual content of the participant's own words or actions, in an attempt to understand what they actually meant or did (rather than attempting to place their words or actions into previously defined categories). According to Maxwell (2013), substantive categories are descriptive in nature because they stay close to the data themselves, and develop a more general conceptualization instead of depending on a previously developed theory. It is additionally an important strategy to capture participants' ideas that may not fit into pre-existing categories or theories (p. 108). In the coding process, a categorical coding matrix was created as a way of visually displaying patterns and themes that were identified within each case (Appendix F). This process was helpful in understanding where participants did or did not fit a particular theme, and also helped progress the analysis into patterns and an overall conclusion (Maxwell, 2013; p. 112). Overall, this substantive coding process reflects the pragmatic viewpoint by favoring methodological appropriateness and pursuing methods and designs which fit the situation best (Patton, 2002; p. 72). In this study, it was most appropriate to use open coding and substantive categories in order to achieve an accurate, authentic, and inductive picture of the experiences of students in an online class.

Finally, another key characteristic of substantive coding is that the emergent categories are descriptive in nature, by including descriptions of the participants' beliefs,

inductive descriptions of what the researcher has understood, and does not stray too far into the abstract (Maxwell, 2013, p. 108; Patton, 2002). Maxwell (2013) gives examples of substantive descriptive codes such as "classroom norms can empower children," or "beliefs guide practices" (Maxwell, 2013; p. 109). In following this practice, the emergent categories from the substantive coding process in this study were descriptive of the participants' words and my own understanding of them, and aim to be easy to read, understand, and interpret.

Establishing credibility. In order to maintain credibility in the qualitative phase, two strategies were undertaken: testing and affirmation of the authenticity of patterns or themes, and identifying the reflexivity of the researcher. Testing and affirmation of the results is done through an iterative process of identifying both convergence and divergence of the data (Patton, 2002; p. 465). Reflexivity, on the other hand, is an identification of how what the researcher knows and understands shapes the perspective of the data and conclusion (Patton, 2002; p. 495). Both of these strategies supply the analysis and conclusion of the qualitative data with transparency, credibility, and perspective.

In order to identify convergence of the patterns that were seen through the interview and observation data, I followed Patton's (2002) recommendations. I continuously reflected back and forth between the data and the identified patterns and themes in order to ensure accuracy of the themes, accuracy of the placement of data in the patterns, and to ensure completeness and saturation of the themes. This was a deductive process, as opposed to the inductive analysis process of identifying emergent themes. Additionally, the identification of divergent data was also practiced throughout

the analysis process, which is to carefully examine data that does not appear to fit into the identified patterns and themes (Patton, 2002; p. 466). In this study, there were few pieces of data that were found to be divergent from the dominant patterns and themes found. These data points were not found to be significant (as to warrant additional patterns), and were not found to invalidate the themes identified in this dissertation study.

Finally, identifying the reflexivity of the researcher provides transparency to the analysis process and emergent themes found (Patton, 2002). In this case, I had been a previous instructor of this course, which gave a certain level of understanding of the expectations of students as they move through weekly content and assignments. I paid careful attention not to discuss with students specific assignment content or design in order to avoid any bias that might be present since I designed many of the assignments in the class during previous semesters. In avoiding conversations about content and design, I aimed to focus primarily on participants' experience and actions within the course.

Qualitative Findings

Five main themes emerged from the patterns identified during the analysis process. The first theme that emerged was while students value the flexibility of online courses, it also creates challenges and is viewed as both a benefit and hardship in their coursework and study habits. The second theme reflects that while students' study habits vary, they still recognize the importance of certain study or learning strategies for success. The third theme indicates that participants often use the face-to-face class environment as a benchmark for comparison to the online environment, especially regarding study habits and dynamics. The fourth theme showed that online group work presents both benefits and challenges to the learner, resulting in mixed feelings about the

task. Finally, the fifth theme demonstrates practices by both the instructor and functions of the LMS were helpful for student task management and motivation. Next, each theme is described using evidence/examples from each of the three participants through interview and observation data.

Theme #1: While students value the flexibility of online courses, flexibility also creates challenges and is viewed as both a benefit and hardship. A common occurrence throughout the interviews was that participants mentioned an appreciation of the flexibility that online courses provide, especially for busy schedules. However, that same affordance of flexibility can make it difficult to stay on task in the course, especially when students try to remember the requirements for each week, or when working on group discussions and projects.

Jess. Jess reported an appreciation for the flexibility that online courses afford, especially because she was working a part-time job where she was at work all day; "I'm working full days, part-time, so it's nice that I can complete my assignments, or my blog posts, or whatever it may be, when it fits within my schedule" (Interview 1, Week 9). Later, she additionally reiterated how she likes that online courses do not typically mandate a specific schedule, which gave her the opportunity to adjust her own study schedule throughout the week, depending on her work schedule. She shared, "It's provided a real flexible schedule within my online courses, so it's been great" (Interview 1, Week 9). Overall, Jess reported that given the choice, she would not take an online class over a face-to-face class, but she does still enjoy them and enjoys the flexibility.

Jess' report of her appreciation for flexible scheduling is evident through observations of her course activity in the learning management system for the online

course, where she typically followed a certain login and viewing pattern each week (mostly for discussion assignments), but occasionally deviated from this schedule and was still able to complete all discussion contributions early, and with the same quality. When asked about any deviations from her typical schedule, Jess indicated that this was typically due to busier than normal schedules, and reiterated the convenience of an online course which allows for flexibility in assignment completion:

> I most certainly have to deviate from my schedule, or find time to dedicate other time to do it, or do it separately, not just in the one time I've put in to my schedule. But that doesn't always happen, so I might change things throughout the week (Interview 1, Week 9).

Even though Jess valued the flexibility of an online course, she shared that it can make certain tasks challenging. This was evident when she reported the experience of participating in online group discussions or projects, where she felt that her own work sometimes depended on "having to work around someone else's schedule is a little bit different, and perhaps not why I signed up for an online course" (Interview 1, Week 9). Even though flexibility is part of what she liked best about an online class, it can also create challenges when working with a peer or group online. Jess clarified during the second interview that it was the need to work somewhat synchronously in a typically asynchronous environment which created the challenges; "I think it's the timeline… When you attach a timeline to a group where people have to be present and face-to-face it can get a bit fuzzier. So, those are some of the negative experiences" (Interview 2, Week 14). When noting some of the challenges she experience during group work and needing to rely on classmates for project success, she indicated that the flexible nature of the online class may be contrary to some students' learning style. She reported:

> I have some friends that will not take online courses unless it's required of them; they just know they are very kinesthetic learners, that they have to be in class. For some people it just doesn't fit their personality and their learning style (Interview 2, Week 14).

Finally, although it was observed (during the five weeks of course observation) that Jess always completed discussion posts and assignments in advance of their deadlines, she still reported during the interviews that the work in an online course can be difficult to keep track of and remember, which she herself found evidence of in other classmates. She commented,

> Online classes can be great because they can be really flexible, but it's also easy to forget about. I mean I know that more than once in our text-based discussions I was unable to complete a discussion because a group member had forgotten about it, and forgotten to post (Interview 2, Week 14).

Emily. Emily's appreciation of the flexibility of online classes stems from the ability to complete work on her own time, whenever it is most convenient for her throughout the week; "Some weeks, [it] just depends on how I'm feeling on the day" (Interview 1, Week 10). According to her own self-report and the observations of her course logins and activity throughout the week, Emily tended to work on discussion posts earlier in the week, around Mondays or Tuesdays. She said that it is best for her schedule that way, and will "log in multiple times during that day" (Interview 1, Week 10).

Emily also mentioned instances where she tended to skip parts of her work for the online class, if she was experiencing a busier week than usual with work from her other courses. As she stated, "It comes down to if there's a lot going on, I'll skim the readings and not really read them thoroughly" (Interview 1, Week 10). While this strategy might not be unique to the online environment (Emily may also employ the same skimming strategy in a face-to-face class), the context and implication of Emily's statement is that

during a busy week, it was her online class work that she tended to skip work on rather than other face-to-face courses.

Daniel. It is Daniel's busy schedule of being a full-time student and having a full-time job that characterized his appreciation of the flexibility of the online course:

> I really like the flexibility, especially with 21-credits it's nice to be able to work around and fill in the gaps with an online class. It doesn't have a structure necessarily that I have to read by a specific time or be in class at a specific time, so that's nice (Interview 1, Week 11).

Daniel also enjoyed the flexibility of being able to access online course material through his mobile device, and said that he regularly accessed readings and assignments on his phone, in addition to monitoring his grade. He said "I check it on my phone all the time, if there's a grading update or I know that I'm going to come in close in terms of time of assignments, sometimes I'll go on my phone" (Interview 1, Week 11). One frustration for Daniel, however, is that submitting assignments via mobile device was frustrating due to challenges with formatting.

For Daniel, a persistent challenging part of the online class were in the multiple deadlines each week, typically regarding discussion posts. In this course, the instructor required the first post to be completed by Thursdays, with responses due by Sunday night. The multiple deadlines in a single week seemed to pose a challenge for Daniel, seemingly because it did not allow for as much flexibility as he needed for his schedule. He shared, "Occasionally I miss those Thursday deadlines. So personally, I think the Sunday thing works better for me because I either have class or work on most days so personally I would prefer if it was just Sunday" (Interview 1, Week 11).

While Daniel certainly seemed to be attracted to the flexibility of the online class, he seemed to struggle most with time management of the class, since it was up to him to

set aside time each week for the course (rather than a set time or day each week, such as for face-to-face courses). Daniel struggled to figure out how to juggle the requirements for the class, and commented, "That's just the name of the game at this point," indicating that it was a consistent struggle for him (Interview 1, Week 11). This tension was also clearly present when Daniel went out of town for the week, in order to attend one of the school's football games. He fell behind during that week and stated that "I haven't really had my A-game since returning from [the trip]" (Interview 1, Week 11).

One of his strategies in attempting to manage his workload for the class was to log in to the class early in the week in order to gauge the overall work for the week. This strategy was corroborated by his observed course logins during the earlier part of the week, with multiple "page views" but very little active participation earlier in the week. This is compared to his much more active participation (posts and assignment submissions) later in the week, typically on Sundays. During the interview, at one point Daniel laughed as he shared that this was his strategy to figure out "exactly how long I can put it off" (Interview 1, Week 11).

Theme 1 Summary. One of the primary reasons students were drawn to online courses is because of the flexibility they can afford, especially with students who hold jobs outside of school (such as Jess and Daniel). However the benefit of flexibility began to become challenging when other priorities (namely face-to-face priorities such as work or other classes) had a tendency to take precedence in a student's schedule, and when students were not able to complete their work as intended because it relied on the productiveness of others in a group discussion or project. In these instances, the online

work tended to get skipped over, and students additionally experience frustration at the need to rely on others for success, when they prefer to complete work on their own time.

Theme 2: Students recognize the importance of using studying or learning strategies for online course success. This theme has direct connections to the self-regulated learning constructs of time and study management, and effort regulation (Pintrich, et al., 1991). Individual participants all reported variety in their SRL strategies when it came to effort within the course, ranging from specific times or places to work on course tasks, to specific organizational strategies used in order to stay on track within the course. Although SRL was quite varied among the learners, each participant recognized that having a learning and study strategy was important to success in the course, and more specifically to online courses.

The following sections provide specific evidence of this theme through the analysis of the three focal participants, which was primarily located within the interview data with corroborating data present in the observations of behaviors in the online LMS.

Jess. Jess selected dedicated times each week to focus on her classwork for this specific class. As she shared during her interviews, "I do try to just pick a time and just devote how many hours it takes, or however long it takes to do my assignments, or my discussion posts" (Interview 1, Week 9). She also mentioned that during this time she tries to complete all the coursework for the week at once. She reported that she typically completed the homework for this class early in the week, either on Sunday or Monday. This was corroborated by the observations of Jess' activity in the LMS, where the majority of her activity was observed to happen earlier in the week, and she frequently

viewed all resources and completed assignments often between five and seven days in advance of the deadline.

Jess recognized that because of the asynchronous and flexible nature of online courses, it helped to have a set day or time each week to work on class activities. She recognized this as a success strategy:

> What works for me is to have a set pattern, and to treat it like an in-class class. And if you're struggling and forgetting about assignments and forgetting about being present for a video chat, then you have a set time carved out so that you don't forget about it (Interview 2, Week 14).

Jess showed a lot of confidence in her ability to stay on point in the online class and succeed due to her study strategy of having a very distinct schedule for online courses. As she said, "I feel really good about my ability to stay on task. I think because I do try and carve out specific time for [this class], it's really easy to make that time, and stay on top of things" (Interview 1, Week 9). When asked how she developed such successful strategies for online learning, Jess indicated that it was never something that was necessarily taught to her, but rather she learned through "trial by fire" situations in which she had to learn what worked best for her individually:

> I guess since I have had so many online classes I guess I found that's just what works best for me… I definitely had to learn a work schedule for taking online classes. I learned that it helps me to have a specific day or specific time during the week to devote to that class. (Interview 1, Week 9)

Emily. Emily's strategy was to create and dedicate a specific study space and productive environment in order to complete coursework. She reported liking to make her study time feel more formal this way; "It just feel more formal if I'm sitting at a table; sometimes I sit at my desk also" (Interview 1, Week 10). She also liked to create an appropriate atmosphere by playing "study music" during this dedicated time. As she

describes, “I play instrumental music; it helps to create a more studious atmosphere for me personally” (Interview 1, Week 10).

Emily also recognized that there are a lot of distractions for her when trying to complete schoolwork, and so she would make a concerted effort to minimize distractions around her when working, such as eliminating the temptation to be on social media, or texting. As she describes the temptations,

> There’s like a lot of distractions when you’re working online, so I’ll kind of be working on it for a while, then be checking Facebook, then be working for a while, then get distracted with something, so I’ll usually then be working on it throughout the day. (Interview 1, Week 10).

Due to this recognized challenge, Emily implements certain study methods to help minimize distractions, such as eliminating the social network distraction, or distraction with her phone: “I’ll close out of Facebook. Also if I’m texting people, I’ll say like, ‘I have to go to homework now’ and I’ll put my phone away in my backpack or something” (Interview 1, Week 10).

In terms of a dedicated time each week devoted to study, Emily recognizes the importance of it but occasionally struggles to make it a reality. While she does mention at one point that she tries to log in initially on Tuesdays and make the first discussion post of the week, (which is indeed reflected in the observations of activity in the LMS), she later says that would like to dedicate more formalized time to working on her online classwork. She says, “I don’t really have a designated time… I usually end up doing it around the same time each week, but I would probably write it down in my schedule like “this block is for [this course]” (Interview 1, Week 10). Emily recognizes the importance of this strategy to online learning success when she says, “You give it the time that it needs, and you’re not just trying to rush through it” (Interview 1, Week 10).

Through the interviews, Emily also noted certain strategies that she employs in her study habits in the course, and indicates that these are personally motivating for her. First, she describes how she likes to log back into the course multiple times throughout each week in order to check on the responses from others in the class to her discussion posts. It is clear that the discussion and more specifically the responses from others are motivating for her when she says, "I'll do more follow up because I'm more interested in seeing what other people have commented back" (Interview 1, Week 10). This is corroborated by her observed activity in the LMS, that she does in fact login for brief amounts of time on multiple days of the week, typically viewing the discussion forum for the week. What is also unique about Emily (as compared to what was observed of the other two participants) was that at the beginning of the week, (Mondays or Tuesdays), she typically logged in and visited the discussion boards from the previous week; which, after learning what her motivating strategy was, it can be assumed this is an indication of her checking on any classmates' responses to her posts.

Finally, Emily was also motivated by checklists, and she regularly took the time to write out lists and checklists for the tasks in the course. She said, "I really like writing out lists and checking things off, so that's a big motivator for me personally" (Interview 1, Week 10). She also noted that the instructor employed a similar strategy using a function of the LMS: "I think a good way that he helps us stay on track with what we're supposed to do is with the little checkboxes he puts next to each article. I really like those" (Interview 1, Week 10).

Daniel. According to Daniel's own reporting, his study habits changed throughout the semester. He indicated that he started out "strong early on," but then reported that his

efforts began tapering off as the semester progressed. During his first interview during Week 11, he shared, "I login probably only a handful of times, like two to three times per week just to make sure I'm on task and that I have the deadlines under wrap" (Interview 1, Week 11). In terms of specific times of the week that he logged in, Daniel did not dedicate specific times on his calendar for the course, but did say that he logged in typically on a Wednesday or Thursday, and then again on Sunday in order to "knock out" the assignments before the deadline. These behaviors were observed in his behavior in the LMS, where he typically did not login to the course until later in the week, usually between Thursday and Sunday.

One of the strategies that Daniel did employ for the class was checking for course materials and assignment deadlines on his phone. Another strategy he used for the discussions was to read the posts already made by his classmates, make his initial post, and then read others; "Just the way that time works out, if there are readings, I'll always do that first. And then I'll kind of read what other people are posting, and get a feel for what's going on, and go from there" (Interview 1, Week 11). What is apparent in Daniel's own reporting of his strategies is that his motivation was primarily to simply get something done versus other motivations such as social engagement or learning from his peers (e.g., Emily's motivation in group discussions).

Even though Daniel reported feeling confident in his ability to stay on task, he did reference a number of times his inability to remember the tasks and assignments due for this class. As mentioned before, during one instance he left town to attend a football game, and missed the regular Thursday deadline; "I hadn't even looked at it" (Interview 1, Week 11). The instructional strategy of having multiple deadlines each week (one on

Thursday, and one on Sunday) seemed to cause Daniel some challenges throughout the semester, as he tended to miss the Thursday deadline. He said, "Personally I would prefer if it was just Sunday. But I understand why he (the instructor) does that, he wants people to read, and collaborate and stuff" (Interview 1, Week 11). Daniel's comments reiterate this theme in that even though he did not have a dedicated study strategy to meet the Thursday deadlines, he did understand the pedagogical reasoning behind it and its importance. Additionally, Daniel recognized the importance of maintaining a schedule for working on the class and appeared to indicate that such a strategy may have resulted in more success for him in terms of meeting the deadlines; "In an ideal world, that's what I would do" (Interview 1, Week 11).

Daniel often expressed frustration over the number of times that he missed deadlines for the course, and it became clear that this was one of the primary challenges of the course for him. He pointed out that he does not intentionally forget or ignore the work, but that for various reasons he either forgot or made a mistake in recording the deadline:

> I didn't mindfully neglect it. It's incredibly frustrating to me when I've checked, and I've logged what I needed to do, and then my logging turns out to be incorrect, and I have no one to blame but myself. But, I don't want to skimp on the process just because I've missed it. (Interview 1, Week 11).

Part of the frustration that Daniel expressed is that he did not have very strong strategies for staying on task within the course, but he seemed to recognize that it was needed for success. For instance, Daniel shared that he did not have a place where he wrote down or recorded the assignments and due dates for his online course, even though he did have such a strategy for his face-to-face courses. As he noted, "I don't have a system, I'm not very good at how I record things, which is probably my problem, really" (Interview 1,

Week 11). In one instance he missed a Thursday deadline due to confusion between two classes, both of which had a deadline on the same day; "I think I may have missed Thursday night because I had on my [calendar] that I had an online submission, but that was for another class" (Interview 1, Week 11).

Additionally, when he was asked about whether or not he has a dedicated place where he typically works on the course, Daniel answered, "Not really… If there's a Thursday assignment I'll just go home and crank it out. There's not necessarily a specific location that I prefer" (Interview 1, Week 11). From this self-report, Daniel was lacking some of the strategies that may be helpful in an online, asynchronous course, but he did realize that this may be why he has struggled to meet some of the course deadlines throughout the semester.

Theme 2 Summary. What is notable in this theme is the difference in study habits among the three participants. While Jess and Emily both found strategies of time and place management to be beneficial for their work, which can be connected to the Time and Study Regulation construct laid out by Pintrich et al. (1991) in the MSLQ, Daniel appeared to struggle in finding successful self-regulated strategies for online learning which indicates that it takes time for students to develop these skills for online learning. As exemplified in the interviews with Jess and Emily, one strategy is to have a specific time and specific place set aside for work on the course each week.

The interviews from participants seem to indicate that online courses typically require a "trial by fire" learning curve in order for students to figure out the best learning strategies to use for success in online classes. Jess mentioned this idea, "I think it is more of a trial by fire thing. I guess since I have had so many online classes I guess I found that

just what works best for me" (Interview 2, Week 14). From this statement, it is assumed that these strategies are not typically suggested or recommended by instructors but rather students must figure this out for themselves. It also takes time and experience for students to settle on what strategy or strategies works for them so that they find success in online courses. It appeared that both Jess and Emily have already begun to realize this and made deliberate efforts to implement certain study or work strategies for success in online learning. Jess and Emily reported that they each have separate study strategies which are direct indications of successful SRL strategies - a dedicated time to work (such as in Jess's case), and a dedicated space for work (such as in Emily's case). These both refer to the Time and Study Regulation construct laid out by Pintrich et al. (1991) in the Motivated Strategies for Learning Questionnaire. This strategy is also potentially a solution to a challenge identified in the previous theme, the flexibility of online courses. Jess suggested, "If you're struggling and forgetting about assignments and forgetting about being present for a video chat, then you have a set time carved out so that you don't forget about it" (Interview 2, Week 14). Finally, Daniel appeared to be in the "trial by fire" situation at the time of this research study, in which he tried various strategies and was in the process of learning from certain mistakes along the way (such as trying to hone his scheduling system for due dates). This was not surprising, as this was his first fully online course and he has not had opportunity previously to hone these skills.

Theme 3: Students make comparisons of their study habits and group dynamics within face-to-face learning environments compared to online learning environments. The third theme was that the students often spoke of their study habits and group projects within the online course in comparison to typical face-to-face courses.

They noted that certain study habits were helpful for the online environment, and also compared group work dynamics in the current online course to their experiences with group work in face-to-face courses.

Jess. Throughout both interviews, Jess often compared her interactions with her online groups or peers to the experience of equivalent work groups in face-to-face classes. Overall, she expressed frustration with online groups and indicated that her group members did not seem to feel accountable to one another, as she as noticed in other face-to-face groups. She said, "In a face-to-face classroom, I think there's a little more accountability attached to classroom projects versus an online project" (Interview 1, Week 9). Later, she clarified this statement by saying that her online group members were "not really following through with their expectations," and explained that in online text-based discussions, students tend not to be as invested as they are in face-to-face discussions or group work (Interview 2, Week 14).

In addition to comparing her online group work experience to previous face-to-face experiences, Jess drew upon the structure of face-to-face classes to guide her study habits:

> I learned that it helps me to have a specific day, or specific time during the week to devote to that class. As if I were actually going to a classroom. I like the flexibility of an online class, but it's easier for me to manage if I treat it like a regular class (Interview 2, Week 14).

Another key takeaway from Jess' statements were that this strategy was something that she learned, indicating that the strategies for success in an online course are not something that is intuitive or easily accomplished for many students. For example, Jess indicated that if she did not purposefully assign a similar "structure" to the online course, then it was easy to forget about; "It is something I have to be cognizant about, because

it's not like I'm going to class, so I have in the past forgotten about online courses" (Interview 1, Week 9). She reiterated in the same interview that if she did not pretend like she is actually "going to a classroom," the online course did not become a habit and it became less of a routine for her to complete the work. Finally, she made a similar recommendation for first-time online learners: "My recommendation would be to just treat an online class like an in-person class. Online classes can be great because they can be really flexible, but it's also easy to forget about" (Interview 2, Week 14).

Emily. Emily also compared face-to-face classes to the online learning environment, and specifically indicated that online course readings are more difficult to get through because of the nature of the online environment. She indicated that there were too many distractions pulling for her attention in the online class, and compared it to the challenges of working from home versus from an office. She said that when she needed to complete a long reading, it was more difficult to do it at home instead of doing the same thing in a different physical setting such as an office or classroom. "It's definitely the online environment," she stated, indicating that completing tasks for an online class is not as easy for her compared to tasks within a face-to-face classroom or an office environment (Interview 1, Week 10). Additionally, Emily reported that making a dedicated time each week on her calendar was helpful for studying and being successful in the online class. She advocated for applying a face-to-face course element to the online class;

> I usually end up doing it around the same time each week, but I would probably write down in my schedule like 'this block is for my [online class]'... because it feels more structured and you give it the time that it needs. Just like for a normal class (Interview 1, Week 10).

Daniel. Similar to Jess, Daniel often compared interactions with his online groups to the experience of the face-to-face equivalent. When he spoke about group members who may not do their share of the work within a project, Daniel made this comparison:

> In an in-person class you can easily take care of something like that, because I find that the people that are motivated within the group or excel within the group will crowd out the work of a bad member. And you can kind of feel the same dynamics at play… But it isn't as easy to judge [online]. It's clear who is aggressive in a [face-to-face class], I guess (Interview 1, Week 11).

Daniel continued his explanation through indicating that poor performing members can be compensated for more within a face-to-face learning environment than in the online environment. He shared an example of how students cannot hide their performance online: "If there's a four person group, three people can do all the work in an in-class project, then no one knows any different. Whereas [online] it is very clear to see who hasn't met expectations" (Interview 1, Week 11). Later on in the same interview, Daniel again reported how differently his experience was in face-to-face groups versus online groups. He indicated that the "rules" are different online; "I wouldn't say the online experience is anything like the classroom experience. I think the rules are even different. I would definitely agree that really only these four members are imperative to your success." In this statement, Daniel demonstrated how much of the coursework in this online class was devoted to group work or discussions, which he felt placed a higher degree of importance on the performance of the other group members.

One of the other challenges Daniel reported in online groups or discussions is that the level of familiarity with the group members is lower than in face-to-face courses. He stated, "As far as on a personal level, I don't think it comes close to the in-class experience; interacting with people and really flushing out the personality to that end"

(Interview 1, Week 11). Daniel also explained later on in the same interview that he could not equate the experience of online groups to the experience of working in groups within a face-to-face classroom due to the limitations online (and more specifically limitations in how the discussion forums were set up):

> The limitations of the online forum are that, myself included, the group members only need to post; basically post and then reply to others. So it is essentially like a 4-person forum. I feel like it's a very different element… I wouldn't say the online experience is anything like the classroom the experience (Interview 1, Week 11).

Finally, Daniel deviated from Jess and Emily in that he does not tend to apply the same face-to-face studying strategies to his online coursework. For instance, he reported that he uses a physical, hard copy planner for his face-to-face classes, but uses an online calendar for his online classes. Using two different calendars for his classes proved to cause confusion and challenges for him throughout the semester:

> I used [the online calendar] for two weeks, and for whatever reason I just fall off, in terms of real hard-core undergrad organization. But the assignments I just kind of mentally keep track of, which is obviously a lot more susceptible to failure than a hard copy (Interview 1, Week 11).

Ultimately, Daniel did not report any strategies that he had for treating online courses like face-to-face courses for improved performance, although he did recognize the need for better organization or a calendaring system indicating that the differences in his study habits may have hindered his ability to stay on task in his online courses.

Theme 3 Summary. In the case of participants like these students who are primarily on-campus students that occasionally enroll in online courses, a comparison of study efforts and class work to face-to-face learning environments can be helpful for them when trying to stay on track within an online course. The structure of a face-to-face course (dedicated time and space) is helpful for students' self-regulation when they

navigate the flexible, asynchronous nature of an online course. Jess and Emily seemed to notice the benefit of this strategy the most, as they both reported using helpful self-regulated strategies such as setting aside a dedicated time or space to work on the online course. Even Daniel, who seemed to struggle more with staying on task in the online course, recognized that planning his work out more each week may have helped him.

It is also important to draw attention to Emily's struggle in completing readings which are online versus in hard copy format or completing a task within the face-to-face classroom. She shared that when she needed to complete a long reading, it was difficult for her to complete it at home due to distractions.

Finally, both Jess and Daniel indicated that they struggled working within online groups, and it may have been more challenging than what they typically experienced in face-to-face learning environment. The challenges they reported (e.g., lack of accountability, lack of student investment in a text-based online discussion) all indicate a need for carefully constructed group assignments and discussions, on the part of instructors or instructional designers.

Theme 4: Online group work presents both benefits and challenges to learners, resulting in mixed feelings about working in groups within online learning settings. The fourth theme builds on a key finding from Theme 3. Participants reported that there were many challenges associated with engaging in online group work but also indicated that group and social interactions were an enjoyable part of the class. The following sections provide specific evidence of this theme using interview and observation data from the three cases.

Jess. Jess really enjoyed group work in the online class when she was able to actually see and hear her group members as opposed to the strictly text-based asynchronous threaded discussions. She first identified positive group interactions when she referred to the asynchronous, video discussion posts (using a web-based program called Flipgrid) that the groups were asked to do midway through the semester. In fact, she commented that she would have appreciated more opportunities to interact through video with group members:

> We had a few times where we had to opportunity to do like a video post, like we had to record a minute long video about ourselves at the beginning of the semester. Which was great, but we were never mandated to watch each other's videos, which would have been a good idea now reflecting back on it! (Interview 1, Week 9).

Jess also mentioned how a mandate from the instructor to participate in video activities more like this would have been motivating for her. What is more, Jess shared that this was the first time in all of her online classes that video discussion or virtual meetings were used to support online collaboration; "It was the first time that I had ever really seen these people face to face. All of my prior online discussions have happened via text, so, it was a unique experience" (Interview 2, Week 14). She added in the same interview;

> I liked a lot of the, I might say, the recognition. I see these people that I had been discussing with… it was nice to have a face with a name and to get to talk. But just allowing us to get to know one another. That was nice.

Jess appreciated and was motivated by the opportunities for interactions with her group members and valued discussing and working with them. The observation data in the LMS illustrates her affinity for group discussions. Based on logins and course page views, Jess was fairly involved in the group discussions and viewed them frequently. She even viewed them many times ahead of the deadline and posted substantial comments

multiple days ahead of deadlines. As an example, during the Week 2 module it was seen that Jess posted her initial response for the upcoming Week 3 module four days before the due date. Additionally during Week 5, she had already posted initial responses before the course week started on Monday, and visited the discussion forum again on four additional days throughout the week, posting two more times before the Sunday deadline. She additionally visited the previous week's forums twice after the week had ended.

Not all of the group work or online collaboration within the class was a positive experience for Jess, however. She identified that the group projects, in particular, were challenging for her because of the need to rely on others and wait for their participation in order to complete her own part. She said,

> One of the frustrations that I have with the course is not the discussions, but the group project aspects. I mean, if I have to wait for someone to make a post to comment on in a group discussion, then it's not that big of deal. But if I have to wait for someone to participate in a project, to continue with my part, then having to work around someone else's schedule is a little bit difficult, and perhaps not why I signed up for an online course (Interview 1, Week 9).

She further explained that the logistics of a group project online were one of the causes of frustration for her, when synchronous meetings were required; "We had to pick a time that worked for all of us, and we had to be accountable for all being in this [Google] Hangout during that time. Some of my group members really struggled with that, being on time" (Interview 2, Week 14). Jess's feelings around the required group work online additionally confirm findings in Theme #1 where the flexibility of an online course can actually create both challenges and frustrations for students. She commented:

> There were aspects of any other face to face groups, just like members being accountable, and not really following through with their expectations…but I think it's the timeline, when you attach a timeline to a group where people have to be present and face to face it can get a bit fuzzier. (Interview 2, Week 14)

When I asked Jess about recommendations she would have for students in similar situations experiencing challenges with online group projects, she suggested again that treating a course like a face-to-face class is the most helpful strategy. She explained:

> In our group project we had a little bit of issues going on because some people just weren't being held accountable or willing to be accountable. So my recommendation would be to just treat an online class like an in-person class. (Interview 2, Week 14).

Jess reiterated this feeling again later in the interview:

> I mean I know that more than once in our text based discussions I was unable to complete a discussion because a group member had forgotten to post. And I'm not trying to be critical about it, because we all have lots of things to do. But what works for me is to have a set pattern, and to treat it like an in-class class. (Interview 2, Week 14).

Even though Jess encountered both positive and negative experiences within the assigned group work, she demonstrated an appreciation for the process of working on a project with an online group, which was a new experience for her. As she said, "It taught me a lot about working with and collaborating with others others via technology, both the positives and negatives, so it's been a good learning experience… I learned a lot about working with groups online" (Interview 2, Week 14).

Emily. Emily also had both positive and negative experiences during group work for the online class. Primarily, Emily reported positive experiences in her small group discussions because she was motivated by the feedback she received from classmates, and was genuinely interested in others' responses to her posts. Emily stated, "I'll do more follow up because I'm more interested in seeing what other people have commented back," which illustrates the motivating quality of peer interactions for her (Interview 1, Week 10). Her comment is corroborated by what I observed in her course behavior; each day that she logged on, she first went to the discussion boards for the

week, and additionally viewed the previous weeks' forums. She did this even without any evidence of her classmates posting again the forums. These actions demonstrate that reading others' posts and viewing new comments is something that is important for Emily.

Emily also experienced challenges in engaging in online group work projects for the class. She shared with me that she enjoyed the independent work more than the group work. She indicated that sometimes the group work project was what caused her to feel behind:

> Up to this point I felt really good, because it's been independent work, but recently this week we've been doing more group work things, and so I don't feel as good about my ability to be up to where I should be during the group work parts of it. (Interview 1, Week 10).

Although Emily did not expand on her group work experiences in the interviews as much as the other two participants, it was clear that Emily had mixed experiences with the online group work where the discussions and feedback from peers was a primary point of motivation for her, whereas the group work project became more of a challenge and point of struggle for her.

Daniel. Although Daniel fell behind in his group discussions on occasion, he did report positive experiences with them. Daniel shared that he liked to see what others were talking about in a group discussion before weighing into the conversation himself. He said he took his cues for what to focus on in his comments based on the discussion posts that others in his group had already made in the forum; "I kind of like to at least gauge what people are talking about, if there's something in the reading they're talking about, I like to go there instead of just regurgitating what's already said in the forum." (Interview

1, Week 11). From this perspective, Daniel was motivated by being a unique voice in the group conversation.

One aspect of Daniel's experiences of online group discussions that was different than the other two participants was that he was not overly concerned with what others in his group posted in response to his posts. When asked about these interactions, Daniel said, "I generally do try and see if there are replies to my post. I guess I don't necessarily go out of my way, though." Daniel's reports were additionally corroborated and evident through the observations of his actions online, where he would typically post to a discussion forum late in the day on Sundays, when the discussion posts were due. Through observations, it was confirmed that he did indeed make the majority of his posts late at night on Sundays after 10:00pm (such as in Weeks 5, 7, and 13) and did not visit the forum again posting during any of the weeks observed. This behavior, in contrast to Jess and Emily, demonstrates that peer feedback was not necessarily a motivating factor for him in the online course.

Daniel also experienced challenges in group work throughout the course. He reported struggling with gauging the group dynamics, which he said was more difficult to do in the online environment versus a traditional face-to-face course; "I can feel the same dynamics at play, but it isn't as easy to judge. It's clear who is aggressive, I mean." He further explained that in an online group a student cannot "hide" and that the lack of work by an individual is more apparent; "If there's a 4 person group, 3 people can do all the work in an in-class project, then no one knows any different. Whereas this is very clear to see if someone hasn't met the expectations" (Interview 1, Week 11).

Overall, Daniel did not feel that he could compare the experiences of face-to-face group discussions with his online group experiences. When describing the online group work, he said:

> I wouldn't really equate it to the classroom. The limitations of the online forum are that the group members only need to post… basically post their post and then reply to others. So it is essentially like a 4-person forum. (Interview 1, Week 11).

He also identified that the online social "rules" or understandings are different for face-to-face groups than they are for online groups. Daniel described how he believed there is more accountability and reliance on group members for success in online groups compared to what he has typically experienced in face-to-face settings; "I wouldn't say the online experience is anything like the classroom experience. I think the rules are even different. I guess you could say that really only these 4 people are imperative to your success" (Interview 1, Week 11).

Theme 4 Summary. Even though group work or peer interaction were not completely positive experiences, the act of engaging with other course members had motivating impacts for each of the participants. For example, Jess reported intrinsic motivation that resulted from the group work tasks, as she found that the learning experience of working with groups online was something new and encouraging for her. Jess concluded her thoughts on the group work by sharing, "I learned a lot about working with groups online" (Interview 2, Week 14). Emily was also motivated by the task, as she reported following up frequently in the forums in order to see if group members had responded to her posts. And finally, Daniel's own motivation was heightened by the fact that he enjoyed using the comments and discussions from his peers and group members as a knowledge check or gauge in his own learning process.

Through these focal students' interviews and observations of their online behaviors, it is clear that online group discussions (both synchronous and asynchronous) or projects provided a peer interaction which can be helpful for increasing students' self-regulated learning skills. All three participants indicated that feedback from peers was something that either improved their motivation or helped them in understanding the content better. Simultaneously, online group work can also pose challenges for students including frustration with group members not staying accountable in their work or timeliness, and logistical challenges of scheduling synchronous meetings in the context of an asynchronous course.

Theme 5: Learners reported that practices by the instructor and functions of the LMS were helpful for supporting their task management and motivation. Overall, the three participants were positive about the various methods the instructor utilized within the online environment which helped them maintain a certain level of SRL and overall motivation. This theme refers not only to the pedagogical strategies of the instructor, but also the instructional design strategies employed within the course environment, Moodle.

Jess. Jess most appreciated the presence that was achieved through the use of video. It was this focus on using video (both for assignments and video posts by the instructor) that she reported to be the most helpful teaching practice from the instructor. For example, she referred frequently to the assignments where students were asked to answer questions using video posts rather than text-based discussions. She appreciated this strategy because she felt that she got to know her group members better this way; "We had the opportunity to do a video post [where] we had to record a one minute long

video about ourselves at the beginning of the semester, which was great" (Interview 1, Week 10). During the second interview, she reiterated how much she enjoyed this task, and her appreciation of how the instructor purposefully set up the group work and interactions in a way which allowed the students the time and space to get to know each other through video posts. She voiced her appreciation by saying, "just allowing us to get to know one another. That was nice" (Interview 2, Week 14).

Jess also reported how much she enjoyed the video posts that the instructor made as well, sharing that she was then able to understand his teaching style better. She added that this was the first online course she has had that relied on video heavily, and that she enjoyed the experience:

> I think it's helped me a lot to visually see the instructor. I mean I never understood a 'teaching style' before for an online instructor, but I have a perceived teaching style for him as an instructor. Which is kind of strange for me, because it's an online class or instructor, it should just be a text box, you know? (Interview 2, Week 14).

This moment was an especially enlightening excerpt from Jess's interview because it demonstrates how much students are used to the text-based nature of online courses and how asynchronous video can add personal quality, teaching presence, and style to a course.

Jess also reported that there were helpful elements of the course or decisions from the instructor, Mr. Smith, which she used during her coursework. What is more, she appreciated that Mr. Smith pointed out some of the LMS tools which were helpful for her in planning, studying, and organizing herself throughout the course. For instance, in the LMS used, Moodle, there were checkboxes next to module items which students could use to mark which tasks they had completed throughout the week. Jess began using these

checkboxes after Mr. Smith pointed them out to the class, which she reported was at the beginning of the semester. She said,

> He actually pointed those out that it's something new offered, and he kind of made it a point to bring those to our attention at the beginning of the course, which was really nice because I would not have noticed that they were there. So that's been really helpful. (Interview 1, Week 9)

Within each weekly module, the instructor also provided a written overview for the week's expectations and included a list of tasks to be completed. Jess reported how she enjoyed the instructor's attention to organization and the task list, which she used as a checklist each week; "I like to do the readings and see the tasks for the week, like the outline about what we're supposed to do for the week" (Interview 1, Week 9). Jess was able to better understand the overall organization of the course, and appreciated the guidance that Mr. Smith provided in how he expected students to move through the content of each week. She mentioned that the readings were used as a guide to help students move through the other weekly assessments, and said that "the course is set up in such a way that they (the readings) guide you through what you're doing" (Interview 1, Week 9). One example of this strategy was during a week of group work with no other course activities. Jess reported that the readings for this week were chosen specifically to help facilitate and foster productivity in virtual group work:

> The suggestions in these readings were how to better collaborate online; and even when we were setting up our group details, we were using those to guide us, needing to offer comments or suggestions on how to work in group collaboration online. (Interview 1, Week 9)

The focal participants were also asked during each interview about whether they found any practices from the instructor to be challenging as they studied or participated in the course. Jess was overall very positive about Mr. Smith's teaching strategies

throughout the course and mentioned again how much she appreciated the video discussions that the groups did and how she wished that there would have been a requirement for students to watch each other's videos in order to have an even better sense of interaction with her group members:

> We had the opportunity to do a video post, like we had to record a minute long video about ourselves at the beginning of the semester, which was great, but we but we were never mandated to watch each other's videos, which would have been a good idea now reflecting back on it! (Interview 1, Week 9).

Emily. Emily also reported an appreciation for some of the instructor's teaching strategies, specifically his written weekly introductions and expectations, in addition to weekly videos he recorded and provided for the class that additionally outlined the week's expectations. For example, Emily liked how in his weekly written and video introductions, Mr. Smith made suggestions for the order to complete the readings in. She additionally stated that she liked how the instructor helped students stay on track as to what was expected each week, and did not leave anything too ambiguous; "I think a good way that he helps us stay on track with what we're supposed to do, is with the little checkboxes he puts next to each, like article, I really like those" (Interview 1, Week 10). Additionally, Emily reported an appreciation of and increased motivation in the class when Mr. Smith recorded a video each week that outlined the expectations. She explicitly stated that it was the video itself (as compared to the written weekly outline) that was motivating for her; "When he records it, I feel like I understand the requirements better, and it's more personal, so you feel more motivated that week" (Interview 1, Week 10).

In terms of the decisions that Mr. Smith made in the design and development of the course, Emily also voiced an appreciation for the small checkboxes that Moodle provided as an option next to module task items. She identified that using them helped

her stay on track for the week, especially for the required readings. She said, "I think a good way that he helps us stay on track with what we're supposed to do, is with the little checkboxes he puts next to each article. I really like those" (Interview 1, Week 10). Emily expressed a desire for other instructors to use the same feature in other courses as well; it was a small, yet effective feature of the LMS that she appreciated instructors using.

Emily also mentioned one challenge that she experienced related to the choice of readings from the instructor. She reported that she had difficulty staying engaged with coursework because some of the assigned readings were too long, irrelevant, or dated. When she discussed what made her disengaged in the class, she mentioned "Long articles, sometimes articles that feel like they're older and not as relevant… but long articles are just harder to get through. Harder to stay engaged" (Interview 1, Week 10). During this same part of the second interview in Week 14, Emily was asked about whether this was something she typically found difficult in all classes, or if the online class was unique in this way. She reported that this is more of a struggle in an online class; in her own words, she said, "You know, it's kind of like when you work from home, and you feel like you can go do dishes, and it's not like you're sitting down and working… So it's definitely the online environment" (Interview 1, Week 10). In this regard, Emily pointed out that longer, older, or irrelevant readings are more of a struggle to stay engaged with in the online class compared to typical face-to-face courses.

Daniel. Daniel also reported helpful teaching and communication practices used by the instructor which helped him to stay on track during times of the semester when he was falling behind. One strategy that helped Daniel the most was when Mr. Smith would

contact him after missing a deadline. Daniel reported that after missing an assignment deadline because he had traveled out of state that week, he appreciated the follow-up from the instructor. Daniel recounted, "Mr. Smith actually emailed me. I hadn't even looked at [the assignment]. And Mr. Smith was like, 'Hey you're two days late'... I had just defaulted to just thinking of the Sunday deadline" (Interview 1, Week 11). In this manner, Daniel demonstrated how helpful it was for the instructor to reach out and remind him of a missed deadline, especially because there were sometimes different deadlines each week (typically either on a Thursday or a Sunday).

This helpful practice by the instructor was illustrated by Daniel again when he reported a situation in which he was late posting to the discussion board. In this case, Daniel reported that Mr. Smith did not contact him; however, because he had contacted him previously Daniel felt more accountable and he reached out in a private email to Mr. Smith about his tardiness. Daniel shared with me, "I knew that I'd been late with a couple posts. Two Thursday posts, specifically. Well, Mr. Smith hadn't said anything to me, so I said 'hey I totally missed this'. The moral of the story is that I emailed him" (Interview 1, Week 11). What is important to highlight from Daniel's report of this incident is his use of the phrase, "the moral of the story." This phrasing underscores that it is not necessarily the continuous contact from an instructor to a student which keeps him or her on track, but rather it is the personal nature of communication and the connection which is formed between students and instructor that matters. This relationship can lead to students' feelings of accountability and actions including attempts to get back on track with course work.

Even though Daniel had mentioned that he did not like the instructor's practice of requiring the first discussion post by Thursdays, he later reported during the same interview that he did like the window of time allowed between the first posts (on Thursdays) and when the replies to others were due (Sundays). He explained, "Mr. Smith sets it up pretty well where you have to post your initial post by Thursday, and then respond by Sunday, so everyone has at least a solid window" (Interview 1, Week 11). Even though Daniel reported appreciating this window of time for making his follow-up posts to classmates, it should be noted that observations of his actions during Weeks 2, 5, 6, 7, and 13 in the course revealed that he posted his first reply to a discussion forum on a Thursday only once. Additionally, during three of the five weeks observed, Daniel posted both his initial post and reply on the same day (Sunday), indicating a delayed initial post (rather than posting once on Thursday, and returning later in the week for final responses).

One additional teaching practice that Daniel appreciated from Mr. Smith was his ability to be "present" in the class and to know when a student was falling behind. He said, "I like Mr. Smith, he's very 'present' I guess, for lack of a better word. I think that he's in there, like in the trenches. He knows when I hadn't posted something" (Interview 1, Week 11). This is a very telling statement, and indicative of the encouragement and motivation that students can feel in a class simply by knowing that the instructor is paying attention. For Daniel, his stories recounting the email exchanges between he and Mr. Smith when he had fallen behind in class are illustrations of the improved self-regulation and accountability that can occur when the instructor reaches out to students individually.

Daniel also identified course design and development features that were helpful for him in his work effort and overall motivation in the class. First, he liked the flow and strategic progression of the course. He especially liked that each week's content tended to build on the previous week's content:

> I feel that there's a very good logical progression in terms of how Mr. Smith has laid it out. He kind of builds on his coursework, which makes a lot of sense. It doesn't really jump around a lot, so it's like every week is a prerequisite for the next (Interview 1, Week 11).

This progression of content from week to week was also observed. Daniel additionally noted that the flow and organization of the course was appreciated:

> I think it flows well, especially for computer technology like in this course. I think it works really well, because not only is the stuff covered last week pertinent for this week, it's fresh in your mind so you can kind of build off of that experience. (Interview 1, Week 11).

Daniel additionally appreciated the current, relevant, and authentic readings and content that the instructor included in the course. This type of material seemed to motivate Daniel and helped him engage with the material in the class; "I think it's very useful material. The reading is actually really light and what there is, is not scholarly literature. It's not academic writing. He'll post a 3-page Times article about Twitter last week. And it's all pertinent, relevant information" (Interview 1, Week 11). While materials such as the current news readings that Daniel mentioned might be prevalent in the class due to the course topic and content, Daniel's appreciation of this content indicates what truly motivated him to engage with the course - relevant and current materials.

The only instructional practice that was challenging for Daniel were the multiple due dates for discussion posts. Although he understood the rationale for the gap in dates

between when the first discussion reply should be posted to when the other replies were due, Daniel struggled with making the posts in time by the required due date (specifically the Thursday due date) as evident in both his interview comments as well as the course observation data. It was observed that Daniel missed three Thursday deadlines during Weeks 5, 7, 13). Additionally, Daniel reported:

> I had defaulted to just thinking of the Sunday deadline, but occasionally I miss those Thursdays deadlines. So personally, I think the Sunday thing works for me because I either have class or work on most days so personally I would prefer if it was just Sunday. But I understand why he does that, he wants people to read, and collaborate on stuff (Interview 1, Week 11).

Even though these due dates proved to be challenging for Daniel, it was difficult to determine if there would have been a better date or strategy for posting deadlines. While Daniel mentioned multiple times that Thursdays were a difficult due date for him, it was unclear whether or not another day (besides the typical Sunday deadline) would have been better for him.

Theme 5 Summary. One of the most prominent instructional strategies that participants found helpful in this online course environment was the instructor's use of asynchronous video announcements or video discussions. Video added an increased sense of presence for students and created a larger feeling of connectedness and accountability. As Jess noted, she really appreciated the instructor's use of video himself, which created a visual sense of his "teaching style" for students. His strategy was something she had never experienced in online classes before -she was used to simply seeing her instructors as a "text box." Emily also really enjoyed the instructor's use of video, and reported that she was more motivated in the weekly tasks and assignments

when the instructor laid out the expectations in a video rather than simply supplying the requirements in writing.

Other helpful strategies for online instruction that were identified by focal participants included the use of checklists or LMS checkboxes in order to help outline expectations and task items for the week. Not only was this a feature of the Moodle LMS that proved to be helpful as a self-regulating feature for both Jess and Emily, but they both indicated that it was helpful that the instructor pointed this out to them as a new, helpful feature that he was implementing in the class. This demonstrates that while LMS features may be helpful for students in developing self-regulated learning practices, it also helps if the instructor points out the features, and models the benefit for students.

Discussion of the Qualitative Phase Results

The three focal participants in this study reported and exhibited varying self-regulated learning experiences and skills within the course, including grappling with issues such as flexibility, study habits, online group dynamics, and their instructor's teaching strategies. Flexibility was a prominent characteristic of online education that seen as beneficial for students as they try and fit classes into a busy schedule of work and other courses. However, it is also a characteristic that proves challenging due to the lack of structure typically present in a face-to-face course. This was identified from all three participants as a challenge, for varying reasons. For instance, Jess found the flexibility and lack of structure challenging when she had to participate in group projects or discussion, and found it difficult to have to wait on others to participate during the week in order to get her own work done. Emily, on the other hand, found the flexibility of an online course challenging when she had a busier than usual week, and needed to skip or

skim parts of the material or course and adjust her typical study schedule. Daniel, even though it appeared he had the busiest schedule due to school and work loads, found the flexibility difficult in order to stay on track with deadlines for the course and manage his weeks accordingly. These experiences are not uncommon for online students. Flexibility is often named as one of the largest benefits of online learning for students (Crews & Butterfield, 2014; Kim, Liu, and Bonk, 2005). However, it is a factor that requires increased self-directed and self-regulated practices, which students may not fully realize if they are not used to this mode of education and learning. In fact, Arbaugh (2004) indicates that students may not fully adapt to this style of learning until they have taken more than a couple online classes and learned how to adjust to the flexibility and self-regulation that online learning requires. "The appreciation of this aspect of online learning may not readily be available in early online learning experiences. Students' self-monitoring and self-management skills in an online learning context likely need additional development" (Arbaugh, 2004, p. 171). Additionally, Arbaugh suggests that students should take at least two online courses before drawing conclusions about the delivery method as a whole. This recommendation matches the experiences noticed by the three participants in this study, where the learners who had taken online courses previously (Jess and Emily) fared better in their SRL strategies than did Daniel, who had not previously taken a fully online course.

All three participants reported a range of study habits when it came to their work in this online course. Jess reported that she enjoyed a dedicated time each week to work on the course, while Emily reported that she attempted to utilize a "studious" atmosphere for work, such as the library or the kitchen table. While it did not appear that Daniel had a

strict time or place that helped him stay on task while working on coursework, he did mention that such a strategy would have been a helpful addition to his weekly schedule, mentioning that a calendaring system similar to his face-to-face course strategy would be helpful for his online class. Even amidst the variety of SRL skills among the participants, all three indicated that strategies such as dedicated time, location, organization, or limiting distractions are helpful skills for online learners to have in order to succeed.

The views expressed by the participants are similar to literature surrounding the topic of strategies for successful online learners. For instance, in a systematic review of 12 different studies, Broadbent and Poon (2015) found that online students' time management strategies and effort regulation were positively correlated with improved student outcomes online. Additionally, they found that metacognition and critical thinking were also indicators of improved outcomes (Broadbent and Poon, 2015). It should be noted that even though the participants in this study did not expressly indicate that strategies such as metacognition and critical thinking were activities that benefited them online, they may not be typical activities that a student thinks about when reporting on their effort or study strategies in a course.

More specifically, time management was one of the most critical aspects of student effort in this study. While Jess and Emily seemed to have strategies in place to manage their study time for the course each week, Daniel appeared to struggle with this concept each week. He reported missing deadlines on multiple occasions, and mentioned that he was typically working on the course at the last-minute on Sunday nights. In fact, time management is viewed as one of the crucial components for successful online learning (Kauffman, 2015). Additionally, Kauffman (2015) found that student strategies

such as time management, organization, planning, and self-discipline are all indicators of successful online students. These are all factors that the learners in this study mentioned as either strategies that they had learned were beneficial for them in online learning environments, or indicated that a lack of such strategies made it a challenge to succeed online.

One of the main patterns noted through the interview process in this study was that participants tended to frame their experience in the online class in relationship to their traditional face-to-face class experiences. For instance, Jess and Daniel both compared their online groups to the experience of the face-to-face groups they are accustomed to. Jess mentioned there is not as much accountability in an online group, whereas Daniel indicated that the "rules" for online groups are different than in-person groups. These group challenges they reported (e.g., lack of accountability, lack of student investment in a text-based online discussion) all indicate a need for carefully constructed group assignments and discussions, on the part of educators. Additionally, Emily framed her own online study habits in relation to face-to-face study strategies, indicating that doing all coursework at home was challenging because of the distractions that exist that typically would not be present at an office or library. Although it has been empirically established that the delivery mode of a course (online or face-to-face) is not an effective predictor of student success (Dziuban & Moskal, 2011), this does not prevent students from making comparisons between face-to-face and online environments. Although face-to-face and online course comparisons might not be viewed as rigorous or noteworthy in academic research, we should not discount the perceptions and disconnect that students still feel between the two modalities (Weldy, 2018). In fact, it is this perceived difference

that may lead to lower student outcomes. As Kauffman (2015) succinctly says, "Students perceive online courses differently than traditional courses. Negative perceptions can lead to unfavorable learning outcomes including decreased motivation and persistence" (pg. 1).

Throughout the patterns in both Theme #3 and Theme #4, participants expressed group work challenges in the online course environment. Even though this was a primary challenge for students (and they tended to indicate that these challenges were more difficult than typical face-to-face group work), group work is a course design strategy that has been shown to be one of the more effective assessments for online education. Kauffman (2015) asserts that any constructivist approaches, such as peer-moderated discussions and group projects, facilitate more self-directed learning skills and a sense of community among online learners. This sense of community is additionally an integral part of the SRL feedback loop that Zimmerman (2008b) asserts is essential for student success.

The three participants spoke about the group work that was done throughout the course, both within group discussions and group project assignments. Working with others in their group virtually appeared to result in mixed feelings about the task, as these learners appreciated the connection to their classmates, appreciated the learning experience of collaborating online, but also experienced difficulties in group accountability and scheduling. It is not uncommon for students to experience both benefits and challenges within online group assignments, and the results shown here are very similar to results found in similar research studies. For example, Kim, Liu, Bonk (2005) report on a mixed-methods study of a group of MBA program students who

appreciated the real-world applicability of online group work, the connection with peers, but additionally found the experience challenging for a variety of reasons. The researchers found that students had higher satisfaction and a more meaningful learning experience within the course due to a sense of community, interaction with other students and the instructor, and the virtual teams experience which provided skills translatable to the workplace. In fact, students even expressed a desire to have more training in virtual team work skills integrated into their program (Kim, Liu, Bonk, 2005). However, similar to the present study, Kim, Liu, and Bonk (2005) also found that students experienced challenges online due to the group assignments due to scheduling conflicts and a lack of emotional connection with others in the group. This lack of connection was as a barrier to effective communication and productivity for online group assignments (Kim, Liu and Bonk, 2005). The experiences of the students in the Kim, Liu and Bonk study are not unlike the experiences of students in the present study, where Jess reported enjoying "seeing and hearing" group members through video discussions, Emily reported motivation from interaction with her peers online, and Daniel reported progress in a topic by taking cues from his peers in the discussion. Finally, all three participants reported challenges related to accountability and scheduling conflicts in online group assignments.

Both the benefits and challenges reported here by the participants in regards to online group projects or discussions indicate a need for carefully constructed group assignments on the part of instructors or instructional designers within online learning environments. This aspect of online learning cannot be overlooked, as Palloff and Pratt (2005) demonstrate that group work and collaboration online is imperative to student success; "In the online environment, collaboration can be seen as the cornerstone of the

educational experience" (p.xi). This corroborates the assertion that that interaction and social cognition are key variables in student motivation and self-regulation as they assist in closing the gap and isolation that exists in online learning environments (Croxton, 2014; Zimmerman & Cleary, 2009).

All three participants reported a number of teaching practices by the instructor which proved helpful for them in maintaining self-regulation and motivation within the class. One of the recurring points of satisfaction for these learners was the instructor's presence, to which each participant expressed in their own words. For example, both Jess and Emily reported appreciation for the frequent use of video both as a group assignment tool and as a weekly overview from the instructor. This sentiment has great potential for improving online instruction for students, as instructors become comfortable using video of themselves for online courses, as well as integrating video use into group assignments. Similarly, Daniel mentioned his appreciation of the instructor's presence through his continued follow-up and connection through individual emails to Daniel, which then prompted Daniel to increase his effort within the course. Overall, Mr. Smith had an active presence within the class, including frequent communication and engagement with students. These findings are similar to outcomes reported by Armellini and De Stefani (2016), Cho, Kim, and Choi (2017), and Garrison (2006), who report that that social presence, teaching presence, and cognitive presence are all factors which have been shown to improve satisfaction and success in online education, as well as diminish the feeling of isolation and distance among learners and between student and instructor. In this study, students reported increased motivation and interaction with both their peers and instructor as Mr. Smith made it a point to include video response assignments for

groups, post weekly introduction videos, and email students (such as Daniel) who fell behind in coursework. Kim, Liu, and Bonk (2005) identify that a variety of instructional methods, similar to strategies reported here in this study, is the most effective way to foster students' critical and reflective thinking, and has additionally been shown to improve student satisfaction.

The participants were also asked about any features within the LMS which they felt were helpful in their study habits or efforts. Both Jess and Emily reported that they appreciated the checklist of boxes that were present in each week's module. Importantly, their appreciation also stemmed from the fact that the instructor actively used them and pointed them out as a helpful feature to the class. By utilizing the checklist feature, Mr. Smith encouraged students to following a planning process and deliberate progression through the content, which can be seen as both a metacognitive self-regulating strategy as well as an self-regulation effort strategy (Pintrich, et al., 1991). However, Jaggars and Xu (2016) additionally make it clear that there needs to be a clear link between specific course design features and concrete, student-level course outcomes. They note that this extends to the teaching practices of the instructor as well, asserting that "frequent and effective student-instructor interaction creates an online environment that encourages students to commit themselves to the course and perform at a stronger academic level" (p. 270).

Limitations of the Qualitative Phase

One limitation of the qualitative phase of this study included the purposeful selection of participants. As there were only four students from the initial quantitative phase who volunteered to participate in the qualitative phase, the selection of students for

interviews was limited. Creswell and Plano Clark (2011) do confirm that this is often a situation that arises in this type of mixed methods design. Despite this limitation, the three participants in this phase of the study reported variability in their self-regulating learning skills, which was many times also corroborated by observation data. This variability acts to provide richer data in addressing the research questions and understanding the experience of students within online learning environments.

Another limitation was the fact that Daniel only participated in one interview. Daniel did not return requests towards the end of the semester for the second interview scheduling, and was observed not logging into the course LMS very frequently. However, the one interview that Daniel did participate in during Week 11 was longer than the other participant's first interviews, and was quite in-depth. However, when I reviewed and analyzed the qualitative data, I noted that Daniel's single interview provided as much insight as the other two participants' first and second interviews together. So, the decision was made to continue with the study as planned with three focal participants (including Daniel). However, this situation demonstrates a limitation in studying the topic of self-regulation, in that students who might not have strong self-regulatory skills or who are struggling to keep up may not stay on-task as a volunteer for a research study either. This reality poses a challenge that requires future attention. How do researchers learn more about students with low self-regulated learning skills, when participating in a study like this places even more challenges on their already stressful schedule?

A final limitation of the qualitative phase is although the observations of the participants during Weeks 2, 5, 6, 7, and 13 of the online course provided a window into

their actions within the course LMS, it provided only a brief snapshot of their actions throughout the entire semester. It assisted in corroborating or challenging the self-reports of the participants through the interview data, but the participants were not observed long enough to draw in-depth conclusions from observation data alone. A more longitudinal observation data collection would be beneficial in this regard. Another potential point of future research would be to follow students across multiple online courses, in order to take into account findings which are potentially influenced by unique teaching strategies and course design decisions.

Summary of Qualitative Results

In summary, the three focal participants presented here exhibit varying degrees of self-regulated learning strategies within an online course. One student may treat an online course similarly to a face-to-face course by scheduling a dedicated time or place for study, whereas another student tends to complete work whenever time permits during the week. For example, the suggestion by Jess that online courses can be easy to forget about does seem to hold true, especially given the reports from Daniel. Daniel appeared to lack certain skills such as time management or task organization within this online course, and subsequently forget to complete certain assignments. This is important to relate back to the literature where Zimmerman (2008a) suggests that students who do not exhibit self-regulating skills demonstrate lower academic achievement than those who do.

The two students who had previous online learning experiences (Jess and Emily) appeared to fare better in the class with both of them having a stronger propensity towards self-regulating skills such as a dedicated time and space for studying, defined goals each week, and limiting distractions. Daniel, however, reported to struggle more

with meeting deadlines and staying on task. As one of the primary differences between Daniel and the other two participants was that he had not taken any online courses previously, his challenges could be understood as a simple lack of experience with the SRL strategies needed for success in online learning settings.

Overall, the qualitative analysis of interviews and observation data illustrate that Jess, Emily, and Daniel had many similar experiences related to SRL strategies, although they each demonstrated them and reported their efforts in varying ways. Despite these differences in strategies and efforts, the basic foundations of successful online learning strategies hold true for online learners whether they are experienced online students or are first time distance learners. For instance, all three participants reported helpful strategies of time management, self-directed learning, and careful attention to group dynamics and collaboration in order to create a successful and satisfying online learning experience.

CHAPTER 7

INTERPRETATION AND DISCUSSION

Introduction

The final phase of this mixed-methods study was data integration and inference of the findings for a final interpretation of data analysis (Onwuegbuzie & Teddlie, 2003). The purpose of this final interpretation and inference was to use all points of data to create an in-depth understanding of the focal participants' experiences and actions as they related to SRL, and to identify strategies that can be used to assist learners in developing skills for academic success. The nature of this process is in an inferential relationship between the two types of data (quantitative and qualitative) and the potential for an overall pattern or inference (Miller, 2003). In this way, the mixed methods interpretation served to ultimately address this study's research questions.

Each of the three research questions were addressed through specific points of data, and interpretation of the results placed a larger emphasis on the qualitative data in following the design plan of the study. I found that the richest data came from interviews with the three focal participants, and much of the interpretation of qualitative data is taken from interview findings. Table 2 reviews the data sources which served to address each research question; this alignment is discussed in more detail in Chapter 3.

Table 2

Connection between research questions and data sources

RESEARCH QUESTION	DATA SOURCE
Q1: What is the experience of students in an online course who possess and/or lack self-regulation strategies?	• MSLQ Survey • Trace Log Data • Interviews • Observations
Q2: What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies?	• Interviews • Observations
Q3: What instructional methods or LMS environmental factors help students develop self-regulation skills to succeed in an online course?	• Interviews • Observations

Findings by Research Question

Research Question #1: What is the experience of students in an online course who possess and/or lack self-regulation learning strategies? The framework for addressing the first research question was determined by all four data sources: MSLQ survey, trace log data, interviews, and observations. It is important to note that a single individual does not entirely possess SRL skills or lack them. A student may have certain strong SRL strategies, while also lacking others. This is the reality seen through the three focal participants, Jess, Emily, and Daniel, where each student showed strengths in certain areas of self-regulated learning strategies while struggling in other areas. Illustrations of these students' varying SRL strengths and challenges is evident in instances of flexibility, group work, time and study space management, and effort regulation. The students in this study experienced satisfaction and appreciation of the flexibility provided in an online course, but this positive reaction was more apparent in

students who had a stronger ability to self-regulate time and study skills, effort, metacognitive skills. When a student showed a lesser ability to regulate these SRL strategies, or encountered situations which required an adaptation of SRL strategies, the flexibility of the online course created challenges and frustration.

Jess, Emily, and Daniel all indicated an appreciation for the flexibility that an online class provided, and this was especially true of those who held jobs outside of school and/or had a heavy course load. For example, both Jess and Daniel held jobs and expressed a deep satisfaction and appreciation for the ability to take online courses because it was easier to fit requirements for their degree into their schedule, while simultaneously holding a job and carrying a full course load. Emily also demonstrated an appreciation of the flexibility of online classes which stemmed from the ability to complete work on her own time, whenever it is most convenient for her throughout the week within her busy school schedule. However, while the flexibility of an online class might be one of the more appealing characteristics for students, it also presents challenges. When a student struggled with certain self-regulating learning strategies, the flexible nature of the course proved to be challenging. For example, out of the three focal participants, Daniel appeared to lack SRL strategies such as setting a dedicated time or place for studying or planning ahead with a calendar or lists. Daniel reported missing deadlines because he forgot about assignments that were due when he encountered particularly busy weeks; "I don't have a system, I'm not very good at how I record things, which is probably my problem, really." (Interview 1, Week 11). Additionally, when Daniel traveled out of town during Week 10 (which he appreciated he was able to

do due to the flexible nature of the online class), he in turn struggled to keep up with the work required and missed that week's deadlines.

A particular challenging point for all three focal participants in terms of SRL were group discussions and group project assignments. This frustration in part stemmed from the flexible nature of the course, where each student may find their own schedule and strategy for coursework each week, but encountered challenges when needing to work together through an asynchronous discussion, or through a synchronous means (such as through online video conferences). What is more, this frustration was something that was experienced no matter what level of SRL strategies were self-reported or observed. For example, Jess reported a high degree of self-regulating learning strategies in her study plans each week as she reported having a dedicated day and time to work on the course. However, when online group work required her to change her dedicated schedule, it was a point of particular frustration. It appeared as though her struggle to adapt to the challenges and changes in her schedule created frustration and dissatisfaction for her. She specifically pointed out the challenge of needing to meet synchronously with her group when she said, "When you attach a timeline to a group where people have to be present and face-to-face it can get a bit fuzzier. So, those are some of the negative experiences" (Interview 2, Week 14). Even though Daniel exhibited drastically different SRL strategies (with no dedicated time or place for working on coursework, and no calendaring system), he also experienced frustration when it came to group work. Daniel reported that online group discussions and projects were challenging, and said, "I wouldn't say the online experience is anything like the classroom the experience. I think the rules are even different" (Interview 1, Week 11). He continued in the same interview

by sharing that in the online environment, it is "very clear to see if someone hasn't met the expectations… I guess you could say that really only these four people are imperative to your success."

Time and study regulation, as well as effort regulation, played important parts in students' ability to stay on task throughout each week, remain engaged with the discussion content and conversations, and submit assignments on time. For instance, both Jess and Emily demonstrated stronger abilities in setting aside a specific time or place for course work (Jess blocked out time in her calendar for coursework, and Emily utilized the library or her desk and kitchen table for coursework), and in limiting distractions (Emily reported turning off her phone or logging out of social media). As evident through trace log data and observations, both students consistently posted discussions and submitted work either on time or a number of days ahead of the deadline. Additionally, both students also appeared to be more engaged with the content and group discussions each week. For example, Emily (who indicated a strong desire to see the responses of her group members each week) consistently logged in early in the week, and frequently visited the discussion forums, both for the previous and current week. For example, During Weeks 2, 5, and 6 her first action was to visit the previous week's discussion forums. She additionally logged in to the course site on four different days of each of the weeks observed, consistently accessing the course on four separate occasions between Tuesday and Sunday. The same was observed of Jess, who consistently logged in early in the week (on Mondays or Tuesdays) and posted in the discussion forums multiple times throughout the week. For example, during Week 5, she had already made her first post prior to the week's start on Monday, and additionally made response posts to classmates

on both Friday and Sunday. Daniel, however, appeared to have a very different experience and strategy for engaging with the weekly content. Per his own reported experience, in addition to trace log data and observations, he typically did not log into the Moodle site until later in the week when a discussion post or assignment was due, and occasionally missed the deadline for an assignment or posting. For example, Daniel reported struggling with missed Thursday deadlines and it was seen through trace log data and observations that he typically logged in sometime between Friday and Sunday for the first time in the week. The majority of his discussion posts were made on Sunday (on the final day of the course week), and he indicated that this in fact was part of his strategy - to gauge what others in the group were talking about, before jumping in with his own discussion post. However, through these strategies and lack of a consistent schedule he set for himself, Daniel often was unable to stay on task and on time with his course work. He indicated multiple counts of missed deadlines, and recounted how he tended to "forget" about the course and assignments due or tended to procrastinate on them. As he said, "It seems like if I don't have a chance to get to it in the beginning of the week, I'm much more likely to drop it, or just not even realize that I have something due" (Interview 1, Week 11). Because of Daniel's lower ability in SRL strategies for time and study management, it appears that he experienced lower engagement with both course material and group members throughout the week. However, one positive observation of Daniel's experience was that he in fact realized his own limitations and what strategies were necessary to improve performance in the class. This indicates that even though he did tend to struggle, perhaps his SRL strategies might have improved over time with additional experiences in online learning.

Connected to Daniel's experience is his intrinsic motivation, which was measured in the MSLQ survey. In the MSLQ survey Daniel scored high in intrinsic motivation, which, when compared against his interview responses, is corroborated. In the MSLQ subscale Intrinsic Motivation, Daniel scored a 6 (out of the 7-point Likert scale), which was higher compared to the participant mean of 4.98. Interestingly, this internal drive was not corroborated during his interview, and in fact Daniel's motivation appeared to be more external (an attempt to complete work in a short amount of time, and overall successful completion of the course) as opposed to an internal motivation of learning as the end goal. Daniel's perceived external motivator of time and course completion is an example of how motivation is only one small part of the equation for student success in online learning, and in fact SRL plays a large role in the ability of students to succeed and follow-through the strategies needed for success even in the light of perceived motivation.

Research Question #2: What are the perceived actions of students in an online course who possess and/or lack self-regulation strategies? The perceived actions of students in an online course who either showed strong SRL strategies or demonstrated a lack of them was investigated through the interview processes as well as observations of the focal participants in the course learning management system. The perceived actions among the participants included examples of time management strategies, study space management strategies, and metacognitive regulation.

Of the three participants, Jess exhibited the strongest SRL strategies when it came to time management for coursework. She indicated that she had a specific day and time that she worked on the course each week, and that this was reiterated through the time

that she blocked into her calendar each week for working on the course. During the interviews Jess reported that she tries to work on the course on Mondays or Tuesdays, and this was confirmed through the observations of her actions within the LMS. Additionally, Jess consistently submit assignments and discussion posts early, ahead of deadlines. Emily, too, was a proponent of setting aside a specific day and time of the week to work on the course. While she reported that she did not always stick to the schedule she had blocked for herself each week, she strongly recommended the practice. Emily, like Jess, was observed to log in early in the week, typically on Tuesdays. She, in particular, reported being primarily motivated by the discussions with her group and following up to see what others had posted in the week's forum. She said, "I'll do more follow up because I'm more interested in seeing what other people have commented back" (Interview 1, Week 10). This report was confirmed through observations within the LMS; she would often log in early in the week, and one of her first actions was viewing the previous week's discussions. Emily also appeared to succeed within the course by consistently turning in work on time and participating in discussions throughout the week. In contrast, Daniel did not report a dedicated time that he worked on the course during the week, although it was observed that he typically logged in later in the week compared to Jess and Emily. Daniel was observed to log into the course site for the first time between Wednesday and Sunday. He confirmed this as part of his strategy in participating in discussions, where he did not want to be the first one to post within the discussion, especially if he was short on time. He mentioned, "Especially when you're in a time crunch, being the first one to post is not necessarily advantageous, just because you can't reply right away" (Interview 1, Week 11). By this admission, Daniel

demonstrated his time management as quite different from Jess and Emily's, where he wanted to complete all discussion requirements at one time. The observations confirmed this strategy, as he often participated in discussions during late Sunday nights.

One indication of student success in the online course was the way both Jess and Emily treated the online class in this study like a face-to-face class, which impacted both their time and study space management. They both mentioned this on multiple occasions, that part of their success in time and space management was in how they viewed and treated their work for the course, which was in a similar way that they approached a face-to-face course. For example, they both suggested that blocking off time in a calendar (similar to blocking off time for going to class) was a successful strategy for them in maintaining discipline in the course. Additionally, Emily mentioned that the space she used to work on a course needed to be more "studious" and free of distractions, and compared the experience to sitting in a classroom and working on coursework. She said, "It just feels more formal if I'm sitting at a table; sometimes I sit at my desk also… there's a lot of distractions when you're working online" (Interview 1, Week 10). Daniel, on the other hand, indicated that he did not have a specific space dedicated to working on the course, and did not elaborate on any strategies for using specific space to study. While it was not clear whether the lack of dedicated study space hindered his ability to stay on task in the course, it remained a contrast to the other two participants who did exhibit more SRL strategies and success overall in the course than Daniel.

There were also metacognitive regulation strategies used by the participants. For example, Emily mentioned in both interviews that she often wrote lists and checked items off during each week. She said it was "a big motivator for me personally"

(Interview 1, Week 10). This metacognitive strategy of making a plan and lists appeared to have helped her in staying on task and on time with her course assignments. Additionally, both Emily and Jess mentioned their strategy to login early on in the week, complete the readings or check in on the discussions, and then move forward with the discussions and assignments for the week. These reports were corroborated by my observations of their logins and actions within the LMS. Daniel, too, reported his own strategy of logging in a couple times per week to "make sure I'm on task and that I have the deadlines under wrap" (Interview 1, Week 11) but then also mentioned later in his interview that he often would procrastinate and not log in until later in the week just before the deadlines. What is helpful about Daniel's report about his metacognitive regulation strategies is that although his process was not consistent and he seemed to struggle as a result in meeting deadlines, he did in fact realize the importance of such strategies in addition to time management. He shared:

> It's really about how ahead can I get in the beginning of the week. It seems like if I don't have a chance to get to it in the beginning of the week, I'm much more likely to drop it, or just not even realize that I have something due Thursday night. (Interview 1, Week 11)

In sum, Daniel often reflected weaker SRL strategies and did not appear to have a specific time, space, or consistent strategy in place for successful coursework. He demonstrated weaker SRL skills by indicating that he worked on the course "whenever," and by the observation that he sometimes did not log in to the Moodle site until the last couple of days of the week, occasionally missing Thursday deadlines and completing the weekly assignments in one evening. He commented on his login habits, "In classic procrastination fashion, I would login sometime Wednesday or Thursday and then, you know, again any time before Sunday to try and knock that [the assignment] out"

(Interview 1, Week 11). He additionally mentioned that his initial strategy for the week was to log in to get the lay of the land, "so I know how long I can put it off." While this perhaps might not be a detrimental strategy for all students, for Daniel the lack of weekly time management, planning and organization seemed to cause him to struggle in the course with missing deadlines and often forgetting about due dates for assignments. He did recognize this; "I don't have a system; I'm not very good at how I record things, which is probably my problem, really" (Interview 1, Week 11).

Research Question #3: What instructional methods or LMS environmental factors help students develop self-regulation skills to succeed in an online course? Through the process of interviewing the three focal participants, several instructional methods and factors within the LMS system were identified as helpful in strengthening students' SRL skills as well as motivating them towards better effort regulation. The findings pointed towards strategies such as creation and sharing of instructor videos, personalized and frequent instructor feedback, and providing or encouraging checklists as being helpful approaches for instructors to use in fostering student self-regulation.

One of the more prominent signs of appreciation that these students had for instructional strategies was in Mr. Smith's use of video. The instructor regularly recorded and posted introductory and overview videos each week, embedded in a weekly overview page. This practice was one of the most appreciated strategies of the instructor according to both Jess and Emily. One of Jess's statements summed up the appreciation by highlighting the perception of Mr. Smith's teaching style through the videos, while Emily noted that the videos helped her understand the requirements better and also gave a more personal feeling to the course. As Jess recounted, this was the first online course she had

taken that relied so heavily on video; “I think it's helped me a lot to visually see the instructor; I mean, I never understood a ‘teaching style’ before for an online instructor, but I have a perceived teaching style for him as an instructor” (Interview 2, Week 14).

In addition to Mr. Smith’s introductory videos each week, he also utilized video as a method for group work. This strategy was significant practice in improving the attitude of students towards online group work tasks due to the challenges that all three focal participants reported in navigating this process. One of the few positive reflections on the class group projects came from Jess, when she referred to the video posts and requirements of the group project; “We had a few times where we had the opportunity to do a video post, like we had to record a minute long video about ourselves at the beginning of the semester, which was great, but we were never mandated to watch each other’s videos, which would have been a good idea now reflecting back on it” (Interview 1, Week 10). She followed up this comment in the same interview by indicating that she looked forward to the additional opportunity to work with her group via a video presentation; “I think that will be an interesting dynamic to be on a module together with three other people, and to do a video presentation with them. That will be really interesting, I think.” Jess’s comments were helpful interpretations of the use of video in the class, and position this strategy as helpful in fostering group cohesion and relationship building in students’ online group work.

Another significant teaching practice that focal participants appreciated in the class was the personalized and frequent contact from the instructor, Mr. Smith. His attention to detail through feedback and assignment design were appreciated by all three focal participants, but it was Daniel who most recognized and highlighted the prompt and

frequent contact and feedback. This is significant to note because it was clear through Daniel's interview responses that Mr. Smith's individualized contact was an integral part in keeping him on track when he missed deadlines or fell behind in coursework. At one point during his interview, Daniel voiced his appreciation for Mr. Smith's "presence" in the course, and his individualized contact with Daniel when he fell behind. As Daniel reflected, "He's very 'present' I guess, for lack of a better word. I think that he's 'in there', like in the trenches. He knows when I hadn't posted something" (Interview 1, Week 11). What is illustrated through Daniel's experience in the course was that it was often the instructor's personalized attention and messages which helped to bring his tasks or goals back into focus and encouraged him to persist in completing an assignment.

Finally, there were some environmental elements and structural strategies within the LMS which proved to have a positive effect on students' SRL strategies. The most notable of these include utilizing Moodle's checklists as well as a logical order or progression of content and tasks within a week's module. The observations confirmed that Mr. Smith utilized the activity completion checkboxes available in the Moodle environment. This was a feature Emily mentioned during her interviews that she appreciated. Emily also mentioned that she likes making lists, and often took the time to write out lists and checklists for her course tasks; "I really like writing out lists and checking things off, so that's a big motivator for me, personally" (Interview 1, Week 10). This strategy demonstrated a skill of metacognitive regulation, and indicated that the activity completion checkboxes used in the course aid in her metacognitive strategy. Jess also mentioned the activity checkboxes as well during both interviews, and noted that Mr. Smith made it a point to call students' attention to the boxes, and encouraged them to use

them as they progressed through the week's tasks; "He kind of made it a point to bring those to our attention at the beginning of the course, which was really nice because I would have not have noticed that they were there. So that's been really helpful" (Interview 1, Week 10). Jess's statement not only indicates that the activity completion checkboxes were helpful, but also highlights the importance of the role of the instructor as well in guiding students to recognize key features of online learning environments which may help in task management or other SRL skills. Another helpful strategy used within the LMS that focal participants identified was the way that the instructor organized the content within modules each week. Participants found it helpful that Mr. Smith placed each week's tasks within the modules in the order that they were to be completed. This practice was helpful for students in understanding requirements for the week and making plans for accomplishing the tasks, which is another metacognitive strategy for SRL. Daniel illustrated this best when he said, "I feel that there's a very good logical progression in terms of how Mr. Smith has laid [the week] out. It doesn't really jump around a lot" (Interview 1, Week 11). Jess's comments also supported this appreciation. She shared, "The course is set up in such a way that they (the readings, tasks, and assessments) guide you through what you're doing" (Interview 1, Week 9). Additionally, all three focal participants indicated that part of their weekly strategy in planning was to look through the weekly module and determine what the requirements were for the week (readings, videos, discussions, and assignments). These comments from the focal participants illustrate the fact that not only does a consistent, weekly modular format help online students implement a metacognitive SRL strategy in planning

for the week, but that the instructor's choice of organization and logical progression of materials and assessments plays a key role as well.

Discussion

As demonstrated through this study, online learners encounter both challenges and benefits throughout an online course that require them to implement various skills and strategies in order to succeed in online learning. The SRL strategies used by and the experiences of the focal participants in this study are not uncommon and are supported and reiterated through the literature surrounding SRL in online learning environments. For example, time and study environment management, metacognitive regulation skills, and effort regulation are found to be essential skills for the online learning environment (Hart, 2012; Kauffman, 2015; Puzziferro, 2008; Yang, Baldwin and Snelson, 2017). Additionally, the perceived "presence" of the instructor was seen to be a point of satisfaction and motivation for participants in the study, which is corroborated by models in online learning, such as the community of inquiry framework (Armellini and De Stefani, 2016; Garrison, 2006; Garrison & Akyol, 2015; Garrison, 2017). Finally, this study demonstrated not only the benefit of online group collaboration, but also highlighted some of the inherent challenges that are present in this type of work as it relates to students' SRL skills.

Time management was one of the primary factors influencing student experience in this study's online course. In a comprehensive review of studies related to the persistence of online learners, Hart (2012) also found that time management was one of the most important factors in student satisfaction and persistence in online courses, and that this is especially true when coupled with the flexibility that learners often appreciate

through online classes. Hart's findings corroborate the similar experiences of the focal participants in this study, that even though flexibility was one of the most appreciated aspects of taking an online class, students' ability to regulate time management amidst the flexibility was an essential SRL skill that indicated either success or struggle. Jess and Emily, for instance, appeared to excel in their time management within the course, while Daniel struggled to manage his time for coursework and therefore often missed deadlines. The key difference among these focal participants was that Jess and Emily regularly set aside a day and time each week to complete coursework, while Daniel did not set aside a specific time, and often completed work in the final remaining hours before Sunday deadlines. The trace log data proved important in understanding the login actions of the focal participants, and confirms findings from Morris, Finnegan, & Wu (2005) who found that successful online students had greater login frequency and actions in the LMS than those who did not successfully complete the course. Kauffman (2015) also confirms that time management is an essential SRL skill online learning because more responsibility is placed on online learners (as opposed to face-to-face learners) to prioritize and complete tasks on their own time. She also states that this ability is especially important in asynchronous courses, such as the one in this study. Finally, although it was assumed (but not determined) that the focal participants in this study successfully completed the course, time management skills also play a role in overall course achievement and retention rates which reiterates the importance of this online learning skill (Lucey, 2018; Morris, Finnegan, & Wu, 2005; Puzziferro, 2008; Yang, Baldwin and Snelson, 2017). What is also confirmed in this study that it is important for online courses to incorporate both flexibility and interaction, and the challenge is in

striking the right balance. As Naidu (2017) asserts, "The goal in relation to this is about getting the mixture right between the degree of independence and interaction in the distance education transaction to achieve optimal balance between the two attributes. One size will not fit all" (p. 1).

In addition to time management, the regulation of one's study environment is a self-regulating learning skill that has been linked to student success in online courses (Pintrich et al. 1991; Puzziferro, 2008). This finding is corroborated in this study, where a key difference between Jess, Emily, and Daniel was their regulation of a study environment for course work. Emily largely demonstrated this skill by reporting that she often chose a specific study environment to work on course requirements, and that the environment was typically free of distractions, quiet, and more "studious." Daniel, however, indicated that the opposite was true and reported never having a specific place to complete coursework. In his own words, he worked on the coursework "whenever" and "wherever." Puzziferro's (2008) study confirms that both time and study environment positively correlated with student success and satisfaction. Her study correlated the MSLQ subscale of Time and Study Environment with student grades and completion within a course and found that the ability to regulate one's study environment was indeed a significant factor of student success and satisfaction (2008). Her findings are similar to the ones found in this study through the qualitative reports from focal participants, and specifically through the differences between Emily's and Daniel's reported study environment habits.

The effort regulation of the focal participants in the study were also varied and illustrated the experiences of each student. Effort regulation is an individual's ability to

manage tasks and persist in the face of obstacles (Pintrich et al 1991; Puzziferro, 2008) and similar to other SRL constructs investigated in this study, Daniel appeared to have a lesser ability to maintain effort regulation compared to Jess and Emily. For instance, Daniel reported often missing deadlines or not being able to keep up with course assignments because of instances or circumstances that arose in his busy schedule. In contrast, Emily made it a point when studying for the class to turn off her phone and log off of social media in order to limit distractions. These strategies are very clear indicators of effort regulation, and the difference between Emily's and Daniel's ability to stay on task was clear. Effort regulation has also been noted through the literature to not only have an impact on students' performance in online classes, but also on their satisfaction and attrition rates as well. For example, Puzziferro (2008) studied students' grades and attrition in an online course, and found that those who withdrew from the course or had grades lower than a C had reported lower effort regulation through the MSLQ survey.

A similar area of importance for SRL skills in online learning is metacognitive regulation, which incorporates strategies of planning activities, monitoring one's thinking and behavior, and regulation strategies (Pintrich, 1999). In this study, planning activities were largely the strategies studied among the three focal participants, which included setting goals for studying, skimming or summarizing tasks and requirements in order to make a plan, and task analysis. Pintrich (1999) outlines the importance of metacognitive regulation in learning and knowledge retention by confirming, "These activities seem to help the learner plan their use of cognitive strategies and also seem to activate or prime relevant aspects of prior knowledge, making the organization and comprehension of the material much easier" (p. 461). In this study all three focal participants utilized

metacognitive regulation strategies. For instance, all three participants indicated that one of their first strategies for the week was to log into the Moodle course site and get a "lay of the land" to understand what was expected for the week. Emily and Jess were observed to do this early on each week, while Daniel typically logged in for the first time in the latter half of the week. While each focal participant reported to have a similar metacognitive strategy, each indicated varying degrees of purpose for such as task. Jess and Emily both indicated that they utilized the strategy of assessing and task analysis in order to determine which activity to complete and when (i.e. completing a reading that tied to a specific discussion or group activity), and also incorporated these plans into their regular time that they worked on the course each week. This metacognitive practice is an essential piece of the SRL puzzle, with planning and forethought as a key step prior to activating the SRL strategies themselves (Winne & Hadwin, 2008). Daniel, while he indicated a similar strategy of assessing the requirements for the week, mentioned that his goal was to determine "how long I can put it off." This indicates a very different purpose and mindset from Jess and Emily, and perhaps illustrates the difference in intrinsic motivation among the focal participants.

Intrinsic goal orientation was a construct of SRL which was measured through the MSLQ survey, and one which all three focal participants scored highly on. Between a score of 1 being "Not at all like me" and 7 being "Very much like me", Jess scored 5, Emily scored 6, and Daniel scored 6 on the overall Intrinsic Goal Orientation constructed variable (which were all scores above the overall mean of 4.98). As Pintrich (1999; 2000) confirms, intrinsic motivation (and intrinsic goal orientation) is an important construct of SRL; he found that mastery goals as intrinsic motivating factors were positively

correlated to the cognitive strategies of self-regulated learning. However, in this study the interview process with Daniel illustrated that perhaps his motivation was perhaps more extrinsic rather than intrinsic. As Pintrich et al. (1991) states, intrinsic motivation is the degree to which a student believes they are participating in a task for reasons such as challenge, curiosity, and mastery. They add that the student's goal orientation "is an end all to itself, rather than participation being a means to an end" (p. 9). Daniel indicated that he planned for his week in order to see how long he could put off tasks for the class, so his motivation appeared to be of extrinsic nature, where the primary purpose for utilizing certain SRL strategies were to finish a task before a deadline (participation as a means to the end), and not necessarily for the long-term learning benefit (Alderman, 2008). This differentiation between intrinsic and extrinsic motivation is an important one for a students' SRL because an extrinsic orientation is in fact negatively correlated with self-regulated learning strategies (Cho & Heron, 2015; Pintrich, 1999). In this regard, in this study simple motivation was not enough in successfully implementing SRL skills, but the type of motivation (specifically intrinsic motivation) mattered more.

In addition to SRL skills, the instructor's "presence" and specific teaching strategies had a significant impact on the focal participants' ability to maintain success and stay on track throughout the course. Through interviews with focal participants, the most appreciated teaching strategies utilized by Mr. Smith were his weekly introduction videos, his creation of opportunities for students to learn with each other and develop a sense of community, and the quality of his individualized and prompt feedback to students.

Mr. Smith frequently utilized video frequently in the online course, which was appreciated by the focal participants. Specifically, Mr. Smith posted weekly introduction videos of himself each throughout the course, and required certain group discussions to take place within a video format rather than traditional text-based discussions. Through these practices, Mr. Smith had and designed a high degree of social presence in the course, which is the way in which one portrays his or herself within the online environment (Garrison, 2006). This type of presence in online courses is an important factor in student success due to the isolation often felt by learners online, which is one cause of online course attrition (Bawa, 2016; Croxton, 2014; Hart, 2012). Mr. Smith's strategy of incorporating weekly video introductions appeared to have an impact on students' understanding of the course material as well, which was evident in Emily's statement, "When he records it, I feel like I understand the requirements better, and it's more personal, so you feel more motivated that week" (Interview 2, Week 14). Additionally, the teaching strategy of incorporating video-based discussions and projects for student groups was a positive addition to the group work assignments in this study's course. While group work was identified as a point of frustration for all three focal participants, the element of video and synchronous discussion appeared to improve satisfaction with these tasks and helped to build the relationships and community among group members, perhaps more similarly to how a face-to-face meeting is experienced by students in a traditional classroom. This was most evident through Jess's report of appreciation of the use of video in her group discussion, "It was the first time that I had ever really seen these people face-to-face. All of my prior online discussions have happened via text, so it was a unique experience" (Interview 2, Week 14). The emphasis

on social presence within online learning environments cannot be understated, as it is one of the strongest factors of student satisfaction, engagement, and meaning construction in the online environment (Armellini and Stefani, 2016; Cho, Kim, & Choi, 2017; Dabbagh et al., 2015). The building of peer groups in this way is essential in increasing interactivity which in turn decreases students' feelings of isolation in the online environment, and creates more satisfaction and persistence to complete the course (Bawa, 2016; Croxton, 2014).

Mr. Smith's attention to prompt and individualized student feedback and contact was also a helpful teaching strategy in encouraging learners to stay on task and achieve success within the course. This was most evident through Daniel's recounting of the instance when he had been out of town and had forgotten about a due date for a discussion post; "Mr. Smith, he's very 'present' I guess, for lack of a better word. I think that he's in there, like in the trenches. He knows when I hadn't posted something" (Interview 1, Week 11). This interaction and attention from Mr. Smith was the example that Daniel referred back to multiple times during his interview, and was clearly a primary reason for his success in making up for and completing certain tasks or assignments. This appreciation for and emphasis on instructor feedback is reiterated through Gaytan and McEwen's (2017) assertion that in online learning environments, "The role of meaningful feedback cannot be overemphasized" (p. 117). This is yet another example from this study which reiterates Zimmerman and Cleary's (2009) SRL model which places a large emphasis for SRL success in a feedback loop, where the learner is able to reflect and adjust based on quality and constructive feedback. In this

study, this strategy can be applied successfully to feedback from an instructor not only for course content but for students' SRL skill building as well.

Summary

Through inferences made between the quantitative and qualitative results of this study, the research questions were answered through students' experiences and actions in an online course as it relates to SRL abilities, as well as the teaching strategies or LMS course environment factors which help or hinder students' SRL processes. It was found that while students appreciate the flexibility of an online course, no matter what level their SRL abilities are, flexibility can also lead to challenges. The flexible nature of a course appeared challenging when working with groups online, when a student is taking an online class for the first time, or is not used to the time management required for success online. It was also found that students exhibit varying actions within an online course, depending on their degree of SRL skills. Students with higher levels of SRL strategies tend to dedicate specific time and places to work on coursework, and demonstrated a propensity to log in to the course LMS earlier and more frequently during each course week. Conversely, it was found that a student with lower SRL abilities did not dedicate a specific time or place to studying for the course, and tended to miss group discussion deadlines. Finally, it was found through reports from focal participants that an online instructors' presence, frequent communication, use of video posts and discussions, and outlining weekly expectations were helpful teaching strategies which encouraged students to maintain a level of motivation and SRL skills within the course.

CHAPTER 8

IMPLICATIONS AND CONCLUSION

Introduction

An apt quote reiterates the importance of this dissertation research and overall purpose for supporting student success: "It is therefore particularly important that online learners compared to their traditional classroom peers, have the self-generated ability to control, manage, and plan their learning actions" (Broadbent & Poon, 2015, p.2). In online learning environments, a heavy emphasis is placed on the learner to plan, seek, and activate their learning processes. This study has contributed to the body of literature confirming that it is imperative in online education that students plan, seek, and activate a learning process (known as self-regulated learning strategies) by which to succeed online. As the introduction to this study asserted, the online learner must be self-directed.

One of the primary purposes of this study was to identify practical strategies and implications for educators in supporting student self-regulation and success in online education. As Hart (2012) noted, the topic explored in this research is of utmost importance in order to better understand the behaviors, attitudes, and skills that students need in order to be successful online; "Research is needed to develop and evaluate evidence-based interventions that can strengthen the phenomenon of persistence for the online student" (p. 39). Thus, it is important to take the findings from this study and place them in the context of pragmatic actions and takeaways for both students and instructors, and to make suggestions for further topics of study that can continually refine the understanding of student self-regulated learning.

The worldview orientation that this study was built upon is the idea of pragmatism, which searches for common ground between the two paradigms of quantitative and qualitative research. The essence of a mixed methods study is when the differing forms of inquiry are mixed and matched for the purpose of meaningful research (Maxcy, 2003). In illustrating this concept, Maxcy (2003) asserts, "For ideas to be more than simply airy theories, they must be connected to action. And because actions are manifestations of beliefs, examining ideas that may work turns out to be the essence of inquiry" (p. 76). From this standpoint, a mixed-methods research design served as the appropriate methodology for this study in order to gain a broader, more holistic understanding of students' SRL experiences online, and to identify key takeaways for educators. Pragmatism and mixed methods inquiry go hand-in-hand, and through this lens the research presented in this dissertation is intended to not only provide a better understanding of student self-regulated learning in online courses, but to also provide actionable items for improvements in quality online education and the persistence of online students.

Implications of This Study

It must be noted that it is not appropriate to transfer the experiences of the online students in this study to all online learners. Thus, it is important to remember that online learners certainly do not experience online courses or pursue SRL strategies in the same ways. Additionally, each course is designed and delivered very uniquely depending on the instructor, which in turn produces very different experiences for students. However, the findings of this research demonstrated common student experiences which were corroborated by the literature pertaining to online education and self-regulated learning,

and so there are implications for self-regulated learning in online education and key best practices that can be concluded.

For online students, the findings in this study indicate a number of strategies which can be helpful when learning online. These recommendations and strategies can be particularly useful for students who may be new to online learning, or have particularly busy schedules (such as jobs outside of school, and full course loads). For example, the participants in this study pointed towards successful SRL strategies such as a dedicated time, day and study environment for online coursework. The persistence in activating such strategies is paramount in student retention and success online. As Hart (2012) confirmed, "If persistence factors are not present in sufficient quantity, the student may be at risk of withdrawing from an online course." (p. 19). Additionally, the presence that students enjoyed from the instructor can also serve as a lesson for students, to maintain their own presence in the course. Being "present" is key in connecting and interacting with others in the course, building community and trust, and decreasing feelings of isolation in the online learning environment (Cho, Kim, & Choi, 2017). This type of community online is found over and over to be associated with student success online (Armellini & De Stefani, 2016; Croxton, 2014; Delen, Liew, & Willson, 2014; Garrison, 2006).

The implications for educators found from this study fit best into three primary recommendations: to meet students where they are at, guide students in improving SRL skills, and be present in the course as much as possible.

Meet students where they are at. The first key implication of this study is that it is beneficial for online instructors to recognize and meet students where they are at in

terms of their prior online learning experience, need for flexibility, and time required to learn the SRL skills that work for them. In other words, as educators we must be willing and able to adapt and understand where our learners are coming from. As evident in this study, there may be students in a class who have never taken online courses before, or are highly experienced online learners. Some students may hold full-time outside jobs in addition to full course loads. For these students, a teaching presence that includes understanding and offers of support and recommendations may help learners to develop the best SRL strategies to support course success and learning.

One key point in the literature which corroborates the findings in this study is that prior experience in online courses plays a critical role in the SRL skills and strategies used by students. Arbaugh (2004) found that students who take at least two online courses will experience large benefits of the flexibility of the online, asynchronous delivery method compared with those students who are inexperienced online and are not used to the flexibility. This explains the experience of the three focal participants in this study, where Jess and Emily had developed more successful SRL strategies than their counterpart, Daniel, who had not previously taken a fully online course. For instructors, this requires understanding and adaptation if the previous online experiences of the enrolled students in a particular class is unknown. Clear communication, expectations, and strategies for online student success are key examples of tips that could be included in orientations to help brand new online students (Lehman & Conceicao, 2014). In fact, orientations which provide both tips for technology use (Taylor, Dunn, & Winn, 2015) and learning management skills (Bozarth, Chapman, & LaMonica, 2004; Liu & Adams, 2017) have both been shown to have positive impacts on student retention and success in

online courses. Such orientations may be offered via brief modules, videos, or even as a full online course.

We cannot assume that all students have the same prior experiences or skills to succeed in online learning environments, but we can assume that students need time to develop and acquire these skills. Jess said it best when she reiterated the fact that her learned SRL skills were gained through a "trial by fire" in her previous online classes. For educators, this means that it is important to adapt a sense of patience and understanding toward our learners' situations, realities, and experiences. This can be done through providing opportunities for flexibility in deadlines or assignments, offering informal spaces for students to reach out for help either from each other or the instructor, and to encourage failure or mistakes as a part of the process and journey of learning in order to maintain self-direction online. An example from this study was Mr. Smith's flexibility and encouragement when he reached out to Daniel on multiple occasions, reminding him of deadlines or missed assignments. Of course, this example emphasizes that the idea of encouraging failure is not literally meant to allow students to fail the course, but to create spaces for students to learn from their mistakes and improve upon them. This is consistent with the recommendations and benefits of Zimmerman's (2008b) SRL feedback loop model which emphasizes the cyclical process of learning and improvement. Zimmerman and Cleary (2009) confirm that a feedback loop is essential to students' self-regulation because feedback from either an instructor or peer, or behavioral consequences provide contexts for learners to understand the relevance of certain actions. This is confirmed through Daniel's realization that after missing assignment or discussion deadlines and receiving feedback from Mr. Smith, he realized that a better "system"

would serve him better in managing his workload. Finally, Naidu (2017) reminds us of the importance of encouragement and interaction from the instructor in addition to allowing flexibility for student autonomy; "The goal in relation to this is about getting the mixture right between the degree of independence and interaction in the distance education transaction to achieve optimal balance between the two attributes" (p. 1). In this way, Naidu pays tribute to both the benefit of instructor interaction with the student for encouragement, but also in fostering the independence and self-directions students need to be successful in the online classroom.

Guide students in improving self-regulated learning skills. One of the most important takeaways from this study is that educators can play in important role in guiding students towards improved SRL strategies and improved success as online learners. As evident in this study, online learners do recognize that there is something different about study habits and learning strategies in online education contexts. Daniel illustrated this when he said, "I wouldn't say the online experience is anything like the classroom experience. I think the rules are even different." As educators, let us help students understand what these differences are and how they can navigate them towards success online. Winters, Greene, and Costich (2008) support the fact that educators play in role in SRL skills being taught and fostered among students, and assert that certain SRL processes (such as planning, monitoring, and goal setting) "are more often associated with academic success than others and that SRL skills can be supported" (p. 429, emphasis mine).

Through this study and the body of literature surrounding SRL in online learning environments, educators can use these findings to inform tips and guide students towards

best practices for success in an online course. Potentially through either a list of recommendations or a regular "tip of the week," instructors might suggest strategies to students such as putting away other distracting technologies, logging out of social media, creating a calendar block of time each week for coursework, and working in an environment that feels productive and is free of distractions. Winters, Greene, and Costich (2008) make similar recommendations in supporting students' SRL abilities, including adaptive scaffolding tutoring technologies (if available), encouraging students to use processes and strategies before engaging with a task, and using collaboration as a way for students to support and learn from each other. Ultimately, no matter what the instructor's strategy is, the key message for students is that even small steps in everyday habits can yield big returns in success online.

An additional strategy for instructors to take in promoting student success and learning strategies online is to take the time and effort in designing effective and efficient group collaborations. Building community is key to the success and satisfaction for students online, but this study showed how challenging such a task can be, even for students who are highly skilled in self-regulated strategies. However, the task of group work is still an essential task for students to take part in within online education, as online learning communities (both formal and informal) are a way to increase student motivation and retention (Cooper & Scriven, 2017; Lorenzo, 2012). For more formal (graded) group projects, it is up to educators to design the experiences well. Practical strategies to include in designing group assignments are to provide groups with their own autonomy and charter, adding diversity to the roles and tasks into team projects, and

making sure group tasks are authentic and similar to real-world experiences (Palloff and Pratt, 2007).

Another strategy for educators to implement in online courses to promote SRL strategies among students is to practice modeling or teaching effective SRL skills (Orange, 1999). While this current study found that students experienced very different strategies for learning success in the online environment, instructors also experience different teaching strategies and challenges within online courses (Cho & Tobias, 2016; Gaytan & McEwen, 2007). It can be helpful for instructors to voice these experiences and to model what success online looks like. Additionally, peer modeling has also been found to be helpful for students to develop more enhanced SRL skills, such as through teaching each other effective action plans and shared experiences together in social learning scenarios (Dabbagh et al., 2015; Orange, 1999). One example of modeling in the course studied here was when Mr. Smith pointed out the checkboxes embedded in the Moodle course that can help keep students on track. In communicating other success strategies to learners, instructors can aim to answer key questions such as: What are helpful strategies in managing a workload each week? What was your own experience as an online student, or as a new online instructor? These shared experiences helps put the instructor "in the trenches" with the students, and calls out the importance of continuing to develop SRL strategies for success.

Be present. Another key implication from this study is the benefit of an instructor's presence in the online course. All three focal participants confirmed that Mr. Smith's style of presence in the course was a key factor in their motivation, SRL strategies, and success. It was clear that learners appreciated the instructor's presence in

the course and it spurred them on in success and completion. Strategies for instructor presence may include instructor videos, clear and consistent communication, and personalized check-ins and feedback (especially for students who have fallen behind). Strategies such as these have also been found to increase student intrinsic motivation (Ryan & Deci, 2009), which in turn promote higher levels of SRL abilities (Cho & Shen, 2013; Pintrich, 1999)

One of the key appreciations voiced by focal participants in this study was the instructor's use of weekly announcement or introduction videos, which allowed learners to understand expectations and materials in a personalized way, more reminiscent of a face-to-face class. As Jess said, "I think it's helped me a lot to visually see the instructor. I mean, I never understood a 'teaching style' before for an online instructor, but I have a perceived teaching style for him as an instructor" (Interview 2, Week 14). Mr. Smith also created space for a large degree of social presence (Garrison, 2006) among learners when he required students to post their own videos for group introductions. Cho, Kim, and Choi (2017) have also pointed out the positive relationship between students' SRL skills and perceived level of presence within an online course. An additional strategy for utilizing video with the added benefit of limiting the temptation for distractions is by utilizing new technologies for video-based resources and assignments. More recent technologies such as web-based video discussions, video-based scaffolding, and embedded in-video quizzing have provided the ease and ability for increased student engagement with video content, which in turn helps to reduce mind-wandering and improves task-oriented activities, successful learning strategies, and retention (Delen, Liew, & Willson, 2014; Schacter and Szpunar, 2015).

Instructors can also demonstrate an active presence in the online classroom through consistent, clear communication and feedback that help eliminate confusion as a barrier to online student success. This is especially important as distance learning has long attempted to overcome the challenges of distance and separation between instructor and learner (Moore, 1972), but technology and ease of communication is making it more possible to bridge this gap (Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2010). Individualized feedback and frequent contact and attention to students' performance can provide a touch point with students who may be lacking SRL skills, helping them stay on track with assignments and encouraging persistence and success. This was evident through Daniel's experience when Mr. Smith would reach out to him after missed assignments, which was of significant help to him in getting back on track in the class after falling behind. These examples confirm Lucey's (2018) findings that instructor frequent and positive feedback, along with increased presence in the course, is a contributing factor to student persistence in an online course. This is significant because it again demonstrates how educators have a role in promoting student persistence and fostering student self-regulation and successful completion of an online course.

Strengths and Limitations of This Study

The strengths of this study are in its utilization of both quantitative and qualitative methods in order to gain a deeper understanding of the issue. For example, in using both observations of each focal participant in the LMS, as well as interviews with the same individuals at different points of the semester, a broader picture of their experiences was understood. Similarly, self-reports from the MSLQ survey and trace log data provided an additional dimension in understanding the overall SRL skills of the course participants as

well as a more holistic view of each of the focal participants. Another strength of the study is an attempt to gain a better understanding of students who do not possess many SRL skills in online learning contexts. Daniel did not possess key SRL strategies known for supporting success online, and it was insightful to speak with him about his experiences. I located little to no research in which studies which dive specifically into understanding students who lack SRL skills or "fail to self-regulate" (a term taken from clinical psychology) (Baumeister, Heatherton, & Tice, 1994), and this study barely scratches the surface of what could be very insightful into understanding similar students' SRL development, and what can be done to support them. My own recommendation is similar to that of Deimann and Bastiaens (2010), who suggest that more in-depth research is needed into understanding students' experiences who struggle to self-regulate their learning online.

Limitations of this study first include the purposeful selection of focal participants from the quantitative phase of the study for participation in the qualitative phase. This selection was hindered by the lack of volunteers available for qualitative interviews, and so a purposeful selection was made of the few volunteers available. Despite this limitation, the focal participants did appear to demonstrate a variety of SRL skills and so the qualitative phase continued to yield a rich amount of data for analysis, interpretation, and implications. It should also be noted that one of the focal participants, Daniel, only participated in one interview as compared to the other two focal participants who each completed two interviews. To this study's benefit, Daniel's one interview was quite in-depth and in many ways revealed just as much insight as the other two participants' interviews. For this reason it was decided to continue with the study rather

than search for an additional focal participant. Additionally, Daniel's in-depth interview was also insightful into his experiences and strategies as a student who had not taken an online course previously, and who also appeared to lack some key SRL strategies which the other two focal participants possessed.

A final limitation to this research was in the metacognitive self-regulation variable scale of the MSLQ survey, which was not viewed as reliable according to the Cronbach's Alpha score of -0.030. This could have been due to the very small number of participants in the quantitative phase (n=10), and will be something to consider in future similar work. The Alpha reliability scores of the other MSLQ subscales were considered reliable, but did not have as high scores as they did when piloted (North and Ellis, 2015).

Recommendations for Future Research

The topic of self-regulated online learning is a timely and important issue to continue studying as online enrollment in higher education continues to increase across the country (Seaman, Allen, & Seaman, 2018). One key recommendation for future studies is to investigate the experiences and SRL skills of students who are fully online students in fully-online programs. This angle would be helpful for a number of reasons. First, it may mitigate the challenge of students struggling in a single online course due to their inexperience with previous online courses. It could be assumed that in progressing through a fully online program, students would develop increased SRL strategies for success over time. Secondly, in this study the focal participants often used their experiences in face-to-face classes as a lens to reflect upon their online course because their online course was the exception in their education as opposed to the typical modality of their program.

Another area of future research is to use learning analytics and a much larger sample size to assess the LMS log data of students and their actions in an online course. This data would be helpful in comparing with final student outcomes and grades in determining whether successful online students log in more frequently or are more active and interactive with peers within an online course (You, 2016). Additionally, future studies should include the instructor as well as point of data collection. Because each instructor designs, develops, and interacts with their course in very different ways, it would be beneficial to further study the involvement of the instructor in the course and the relationship with students' self-regulated learning strategies, motivation, and success online.

A final area of interest to continue exploring SRL through is in the use of mobile devices for learning. For example, Tabuenca, Kalz, Drachsler, and Specht (2015) studied the use of a mobile device for tracking study time and found positive results in students' improved time management. Further continuation of this type of research would be helpful in better identifying how technologies such as mobile devices or time tracking apps can assist students in improving self-regulated learning strategies such as time management or effort regulation in limiting distractions and staying on-task.

Conclusion

The purpose of this study was to understand the experiences and actions of students who possess and/or lack self-regulated learning (SRL) skills in an asynchronous online learning environment, and to better understand what teaching strategies can be implemented by instructors or within the LMS to foster SRL. This study used an explanatory mixed-methods research design which first looked at students' self-reported

SRL skills and strategies through an adapted MSLQ survey and LMS trace log data in the quantitative phase. These results were used to inform focal participant selection and interview protocol development, after which the qualitative phase included interviews with three focal participants and observations of the same participants within the LMS. The analysis relied more heavily on qualitative results, and findings were triangulated in order to address the research questions.

Findings indicated that students, no matter the level of SRL abilities, appreciated the level of flexibility in the online course but also found the unstructured time to be challenging when collaborating with groups online. Students with higher degrees of SRL skills such as time and study management were more consistent in submitting assignments on time and participating in group discussions throughout the week rather than posting last-minute or late discussion posts. Also, students who intentionally limited distractions and planned out course work for the week (and adhered to their plan) were more likely to succeed each week without missing assignments. The perceived actions of students with higher SRL skills showed an ability for managing time appropriately using a calendar system, and treating the online course similarly to a structured, traditional face-to-face course for time management and study space. Finally, the most helpful teaching strategies for maintaining student interest and motivation towards SRL strategies was the use of weekly introductory videos, frequent and personalized feedback (especially when a student had fallen behind in coursework), and providing brief checklists for weekly tasks.

Through the lens of pragmatism, the implications for this study point to strategies for educators to play a role in fostering student self-regulated learning skills online.

Suggested strategies are to meet students where they are at and recognize the wide variety of SRL skills possessed by learners in the online environment, guide students in methods which may help improve SRL skills online, and to maintain an active presence in the course as much as possible through videos, communication, and frequent and individualized feedback. This study and its implications are significant in that they demonstrate that educators can indeed play a role in promoting student persistence and self-regulated learning towards successful completion of online courses.

REFERENCES

Adams Becker, S., Cummins, M., Davis, A., Freeman, A., Hall Giesinger, C., & Ananthanarayanan, V. (2017). *NMC Horizon Report: 2017 Higher Education Edition.* Austin, Texas: The New Media Consortium.

Alderman, M. K. (2008). *Motivation for achievement: Possibilities for teaching and learning (3rd ed.).* New York, NY: Routledge.

Arbaugh, J. B. (2004). Learning to learn online: A study of perceptual changes between multiple online course experiences. *Internet and Higher Education,* (7), 169 – 182.

Armellini, A. & De Stefani, M. (2016). Social presence in the 21st century: An adjustment to the Community of Inquiry framework. *British Journal of Educational Technology, 47*(6), 1202-1216.

Artino, A. R. , & Jones, K. D. (2012). Exploring the complex relations between achievement emotions and self-regulated learning behaviors in online learning. *The Internet and Higher Education*, *15*(3), 170–175.

Azevedo, R. (2005). Using hypermedia as a metacognitive tool for enhancing student learning? The role of self-regulated learning. *Educational Psychologist, 40*(4), 199–209.

Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S. L. (2009). Measuring self-regulation in online and blended learning environments. *Internet and Higher Education, 12*(1), 1–6.

Bannier, B. J. (2010). Understanding our adult, undergraduate learners: Designing courses for success. In *26th Annual Conference on Distance Teaching & Learning* (pp. 1–4). Board of Regents of the University of Wisconsin System.

Bawa, P. (2016). Retention in online courses: Exploring issues and solutions- a literature review. *SAGE Open, 6*(1), 1–11.

Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to the design of blended learning: A systematic literature review. *Educational Research Review, 22*, 1-18.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation.* San Diego, CA: Academic Press.

Bowyer, J. & Chambers, L. (2017). Evaluating blended learning: Bringing the elements together. *Research Matters, 23*(Spring), 17-26.

Bozarth, J., Chapman, D. D., & LaMonica, L. (2004). Preparing for distance learning: Designing an online student orientation course. *Educational Technology & Society*, *7*(1), 87–106.

Broadbent, J. & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *Internet and Higher Education, 27*, 3-5.

Chen, K. C. & Jang, S. J. (2010). Autonomy, affiliation, and ability: relative salience of factors that influence online learner motivation and learning outcomes. *Knowledge Management & E-Learning: An International Journal, 2*(1), 30-50.

Cho, M. H., & Heron, M. L. (2015). Self-regulated learning: the role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course. *Distance Education*, *36*(1), 80–99.

Cho, M. H., Kim, Y., & Choi, D. (2017). The effect of self-regulated learning on college students' perceptions of community of inquiry and affective outcomes in online learning. *The Internet and Higher Education*, *34*, 10–17.

Cho, M. H., & Summers, J. (2012). Factor validity of the motivated strategies for learning questionnaire (MSLQ) in asynchronous online learning environments (AOLE). *Journal of Interactive Learning Research*, *23*(1), 5–28.

Cho, M., & Tobias, S. (2016). Should instructors require discussion in online courses? Effects of online discussion on community of inquiry, learner time, satisfaction, and achievement. *The International Review of Research in Open and Distributed Learning, 17*(2).

Cho, M. H., & Shen, D. (2013). Self-regulation in online learning. *Distance Education*, *34*(3), 290–301.

Creswell, J. W. , & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research (2nd ed.).* Thousand Oaks, CA: SAGE Publications, Inc.

Crews, T. & Butterfield, J. (2014). Data for flipped classroom design: Using student feedback to identify the best components from online and face-to-face classes. *Higher Education Studies, 4*(3), 38-47.

Croxton, R. A. (2014). The role of interactivity in student satisfaction and persistence in online learning. *Journal of Online Learning and Teaching*, *10*(2), 314–325.

Cooper, T., & Scriven, R. (2017). Communities of inquiry in curriculum approach to online learning: Strengths and limitations in context. *Australasian Journal of Educational Technology, 33*(4), 22-37.

Corno, L. (2004). Introduction to the special issue work habits and work styles: Volition in education. *Teachers College Record*, *106*(9), 1669–1694.

Dabbagh, N., Kitsantas, A., Al-Freih, M. and Fake, H. (2015) Using social media to develop personal learning environments and self-regulated learning skills: A case study. Int. J. Social Media and Interactive Learning Environments, 3(3), 163–183.

Daniel, J. (2012). *Making sense of MOOCs: Musings in a maze of myth, paradox, and possibility* (pp. 1–22). Academic Partnerships.

Dembo, M. H. (2004). Don't lose sight of the student. *Principle Leadership, 4*(8), 3742.

Deimann, M. , & Bastiaens, T. (2010). The role of volition in distance education: an exploration of its capacities. *International Review of Research in Open and Distance Learning*, *11*(1), 1–17.

Delen, E., Liew, J., & Willson, V. (2014). Effects of interactivity and instructional scaffolding on learning: Self-regulation in online video-based environments. *Computers and Education, 78*, 312–320.

Dillon, D. R. , O'Brien, D. G. , & Heilman, E. E. (2004). *Literacy research in the 21st century: From paradigms to pragmatism and practicality*. In R. B. Ruddell & N. J. Unrau, (Eds.) (5th ed., pp. 1530–1556). Newark, DE: International Reading Association.

Dziuban, C. & Moskal, P. (2011). A course is a course is a course: Factor invariance in student evaluation of online , blended and face-to-face learning environments. *The Internet and Higher Education, 14*(4), 236-241.

Eccles, J. S. , Wigfield, A. , & Schiefele, U. (1998). Motivation to succeed. In W. Damon & N. Eisenberg (Eds.), *Handbook of Child Psychology* (5th ed. , pp. 1017–1095). Hoboken, NJ: John Wiley & Sons, Inc.

Gaytan, J. , Mcewen, B. C. , & Mcewen, B. C. (2017). Effective online instructional and assessment strategies. *American Journal of Distance Education ISSN:*, *3647*(May), 117–132.

Garrison, D. R., Anderson, T. & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*, 87–105.

Garrison, D. R. (2006). Online community of inquiry review: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks, 11*(1),61-72.

Garrison, D. R., & Akyol, Z. (2015). Toward the development of a metacognition construct for communities of inquiry. *Internet and Higher Education*, *24*, 66–71.

Garrison, D. R. (2017). *E-Learning in the 21st Century: A community of inquiry framework for research and practice* (3rd Edition) New York, NY: Rutledge.

Gaytan, J., Mcewen, B. C., & Mcewen, B. C. (2017). Effective online instructional and assessment strategies. *American Journal of Distance Education, 21*(3), 117–132.

Greene, J. C. (2007). *Mixed methods in social inquiry.* San Francisco, CA: Jossey-Bass.

Hadwin, A., Nesbit, J., Jamieson-Noel, D., Code, J., and Winne, P. (2007). Examining trace data to explore self-regulated learning. *Metacognition and Learning, 2*, 107-124.

Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, *11*(1), 19–42.

Hartnett, M. , St George, A. , & Dron, J. (2011). Examining motivation in online distance learning environments: Complex, multifaceted, and situation-dependent. *International Review of Research in Open and Distance Learning*, *12*(6), 20–37.

Hong, S. , & Jung, I. (2010). The distance learner competencies: A three-phased empirical approach. *Educational Technology Research and Development*, *59*(1), 21–42.

Huh, Y., & Reigeluth, C. M. (2018). Online K-12 teachers' perceptions and practices of supporting self-regulated learning. *Journal of Educational Computing Research*, *55*(8), 1129–1153.

Hung, M. L., Chou, C., Chen, C. H. , & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education*, *55*(3), 1080–1090.

Ivankova, N. V., & Stick, S. L. (2007). Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education*, *48*(1), 93–135.

Jacob, S. A., & Furgerson, S. P. (2012). The qualitative report writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report*, *17*(42), 1–10.

Jaggars, S. S. & Xu, D. (2016). How do online course design features influence student performance? *Computers & Education, 95*, 270-284.

Johnson, R. B. , Onwuegbuzie, A. J. , & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112–133.

Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology, 23*, 1-13.

Keller, J. M. (2007). Motivation and performance. In R. A. Reiser & J. V. Demsey (Eds.), *Trends and issues in instructional design and technology (2nd ed.).* (pp. 82-92). Upper Saddle River, NJ: Pearson Education, Inc.

Kim, K. , Liu, S. , & Bonk, C. J. (2005). Online MBA students' perceptions of online learning: Benefits, challenges, and suggestions. *Internet and Higher Education, 8*, 335 – 344.

Knowles, M. (1990). *The adult learner: A neglected species, (4th ed*). Houston, TX: Gulf Publishing.

Lederman, D. (June 20, 2018). Online options give adults access, but outcomes lag. Retrieved from https://www.insidehighered.com/digital-learning/article/2018/06/20/online-education-gives-adults-access-student-outcomes-lag

Lee, Y. , & Choi, J. (2011). A review of online course dropout research: Implications for practice and future research. *Educational Technology Research and Development*, *59*(5), 593–618.

Lehman, R. M., & Conceicao, S. (2014) *Motivating and retaining online students.* San Francisco, CA: Jossey-Bass.

Levy, Y. (2007). Comparing dropouts and persistence in e-learning courses. *Computers & Education*, *48*(2), 185–204.

Liu, J. C., & Adams, A. (2017). Design of online student orientation with conceptual and procedural scaffolding. In F.-Q. Lai & J. D. Lehman (Eds.), *Learning and Knowledge Analytics in Open Education* (pp. 41–68). Switzerland: Springer.

Lorenzo, G. (2012). A research review about online learning: Are students satisfied? Why do some succeed and others fail? What contributes to higher retention rates and positive learning Outcomes? *Internet Learning, 1*(1), 46-55.

Lucey, K. (2018). *The effect of motivation on student persistence in online higher education: A phenomenological study of how adult learners experience motivation in a web-based distance learning environment* (Doctoral dissertation). Duquesne University, Duquesne Scholarship Collection. (https://dsc.duq.edu/etd/1449)

Matuga, J. M. (2009). Self-regulation, goal orientation, and academic achievement of secondary students in online university courses. *Educational Technology & Society*, *12*(3), 4–11.

Maxcy, S. J. (2003). Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism. In A. Tashakkori & C. Teddlie (Eds), *Handbook of mixed methods in social and behavioral research* (pp. 51-89). Thousand Oaks, CA: SAGE Publications, Inc.

Maxwell, J. (2013). *Qualitative research design: An interactive approach (3rd ed.)*. Thousand Oaks, CA: SAGE Publications, Inc.

Mega, C., Ronconi, L., & De Beni, R. (2014). What makes a good student? How emotions, self-regulated learning, and motivation contribute to academic achievement. *Journal of Educational Psychology, 106*(1), 121-131.

Miller, S. (2003) Impact of mixed methods and design on inference quality. In A. Tashakkori & C. Teddlie (Eds), *Handbook of mixed methods in social and behavioral research* (pp. 423-455). Thousand Oaks, CA: SAGE Publications, Inc.

Mon, L. (December 15, 2010). A virtual graduation ceremony for online distance students. Retrieved from https://er.educause.edu/articles/2010/12/a-virtual-graduation-ceremony-for-online-distance-students

Moore, M. G. (1972). Learner autonomy: The second definition of independent learning. *Convergence*, *Fall*, 76–88.

Moore, M. (1997). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22-38). New York, NY: Routledge.

Morgan, D. (2014) *Integrating qualitative and quantitative methods: A pragmatic approach.* Thousand Oaks, CA: SAGE Publications, Inc.

Morris, L. , Finnegan, C. , & Wu, S. (2005). Tracking student behavior, persistence, and achievement in online courses. *Internet and Higher Education, 8*(3), 221-231.

Murphy, C. A. , & Stewart, J. C. (2017). On-campus students taking online courses: Factors associated with unsuccessful course completion. *Internet and Higher Education*, *34*, 1–9.

Naidu, Som (2017). Openness and flexibility are the norm, but what are the challenges? *Distance Education, 38*(1), 1-4.

Nicholls, J. G. (1979). Quality and equality in intellectual development: The role of motivation in education. *American Psychologist, 34*(11), 1071-1084.

Niglas, K. (2010). The multidimensional model of research methodology: An integrated set of continua. In A. Tashakkori & C. Teddlie (Eds), *Handbook of mixed methods in social and behavioral research* (pp. 215-236) (2nd ed.). Thousand Oaks, CA: SAGE Publications, Inc.

North, S. & Ellis, J. (2015). Investigating STEM teacher motivation in an online community of practice. In *Proceedings of Society for Information Technology & Teacher Education International Conference 2015* (pp. 375-380). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Onwuegbuzie, A. J. & Teddlie, C. (2003) A framework for analyzing data in mixed methods research. In A. Tashakkori & C. Teddlie (Eds), *Handbook of mixed methods in social and behavioral research* (pp. 423-455). Thousand Oaks, CA: SAGE Publications, Inc.

Orange, C. (1999). Using peer modeling to teach self-regulation. *The Journal of Experimental Education*, *68*(1), 21–39.

Palloff, R. M. & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom (2nd ed).* San Francisco, CA: Jossey-Bass.

Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd. ed.).* Thousand Oaks, CA: Sage.

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, *31*, 459–470.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (1st ed., pp. 451–502). San Diego, CA: Academic Press.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A Manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)* (Technical Report). Ann Arbor, MI: The Regents of The University of Michigan.

Putwain, D. W., Nicholson, L. J., & Edwards, J. L. (2016). Hard to reach and hard to teach: Supporting the self-regulation of learning in an alternative provision secondary school. *Educational Studies*, *42*(1), 1–18.

Puzziferro, M. (2008). Online technologies self-efficacy and self-regulated learning as predictors of final grade and satisfaction in college-level online courses. *American Journal of Distance Education*, *22*(2), 72–89.

Ryan, R. M. , & Deci, E. L. (2009). Promoting self-determined school engagement: Motivation, learning, and well-being. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 171-195). New York, NY: Routledge.

Sansone, C. , Fraughton, T. , Zachary, J. L. , Butner, J. , & Heiner, C. (2011). Self-regulation of motivation when learning online: the importance of who, why and how. *Educational Technology Research and Development*, *59*(2), 199–212.

Schacter, D. L. & Szpunar, K. K. (2015). Enhancing attention and memory during video-recorded lectures. *Scholarship of Teaching and Learning in Psychology, 1*(1), 60-71.

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States*. Babson Survey Research Group.

Simonson, M. (2003). Dan Coldeway: 1949-2003, professor and distance educator. *The Quarterly Review of Distance Education*, *4*(4), vii–viii.

Simonson, M., Schlosser, C. , & Hanson, D. (1999). Theory and distance education: A new discussion. *American Journal of Distance Education*, *13*(1), 60–75.

Simonson, M., Smaldino, S. , Albright, M. , & Zvacek, S. (2012). *Teaching and learning at a distance: Foundations of distance education (5th ed.).* Boston, MA: Pearson Education, Inc.

Stein, D. S., Wanstreet, C. E., Calvin, J., Overtoom, C., & Wheaton, J. E. (2010). Bridging the transactional distance gap in online learning environments. *The American Journal of Distance Education*, *19*(2), 105–118.

Streiner, D. L. (2003). Starting at the beginning : An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103.

Tabuenca, B. , Kalz, M. , Drachsler, H. , & Specht, M. (2015). Time will tell: The role of mobile learning analytics in self-regulated learning. *Computers & Education*, *89*, 53–74.

Tashakkori, A. , Teddlie, C. (2010). Overview of contemporary issues in mixed methods research. In A. Tashakkori & C. Teddlie (Eds), *Handbook of mixed methods in social and behavioral research (2nd ed.)* (pp. 1-41). Thousand Oaks, CA: SAGE Publications, Inc.

Taylor, J. M., Dunn, M., & Winn, S. K. (2015). Innovative orientation leads to improved success in online courses. *Online Learning Journal*, *19*(4), 112–121.

Wedemeyer, C. (1981). *Learning at the backdoor.* Madison, WI: University of Wisconsin Press.

Wentzel, K. & Wigfield, A. (2009). Introduction. In Wentzel, K. & Wigfield, A. (Eds.), *Handbook of Motivation at School* (pp. 1-8). New York, NY: Routledge.

Winne, P. H., & Hadwin, A. (2008). The weave of motivation and self-regulated learning. In D. Schunk & B. Zimmerman (Eds.), *Motivation and Self- Regulated Learning: Theory, Research, and Applications* (pp. 297–314). Mahwah, NJ: Erlbaum.

Winters, F. I. , Greene, J. A., & Costich, C. M. (2008). Self-Regulation of learning within computer-based learning environments: A critical analysis. *Educational Psychology Review*, *20*(4), 429–444.

Yang, D. ,Baldwin, S., & Snelson, C. (2017). Persistence factors revealed: students' reflections on completing a fully online program. *Distance Education*, *38*(1), 23–36.

You, J. W. (2016). Identifying significant indicators using LMS data to predict course achievement in online learning. *Internet and Higher Education*, *29*, 23–30.

Zimmerman, B.J. (1990) Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17.

Zimmerman, B. J. (2008a). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, *45*(1), 166–183.

Zimmerman, B. J. (2008b). Theories of self-regulated learning and academic achievement: An overview and analysis. In Zimmerman, B. J. & Schunk, D. H. (Eds.), *Self-regulated learning and academic achievement* (2nd ed.) (pp. 1-36). New York, NY: Lawrence Erlbaum Associates.

Zimmerman, B. J. , & Cleary, T. J. (2009). Motives to self-regulate learning: A social cognitive account. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 223-245). New York, NY: Routledge.

Zimmerman, B. J. , & Martinez Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal*, *23*(4), 614–628.

Appendix A
IRB Approval

Document Information

IRB
Project Number: 1404E49682
PI: North, Sarah
Title: Understanding Students' Self-Regulation in Asynchronous Online Learning

Protocol Type: (E) Exempt
Sub Type: General

Last Approval Date: 04/24/2014
Expiration Date:
Number of Subjects Approved: 100

Personnel:
North, Sarah (north225) Student PI
Scharber, Cassandra (scharber) Advisor

close window

Appendix B
Recruitment Announcement and Video Transcript

Hello!

My name is Sarah North, and I'm a PhD student here at the University of Minnesota in the Department of Curriculum & Instruction. With the support and approval from your instructor, I will be conducting my dissertation research within this online course during the fall semester.

The purpose of my study is to examine student motivation in online learning. The goal is to understand experiences and self-regulating learning strategies within an asynchronous online course, such as this, and shed light on whether certain instructional methods or the course environment influence the development of learning practices. As a student enrolled in CI 5301 this semester, I invite you participate in this study! You'll be able to indicate whether you want to participate or not within an online survey, available a few weeks from now.

If you would like to be part of this study, I would ask that you read through the Consent Information Sheet (provided here and on the course home page), which outlines the data collection methods I'll be using. Essentially, you will be asked to complete a brief online survey, and you may be invited to participate in a face to face interview with me (which may also be completed through Skype). If you do agree to participate in an interview, you will receive a $20 gift certificate to Amazon.com. Additionally throughout the semester, I may also be observing and analyzing the data of participants provided from Moodle, which traces logins and activity within the course site.

None of the data will be shared with your instructor, and your decision to participate is completely voluntary and does not in any way affect your performance in this course or your relationship with the department, or the University.

Thank you for considering participating in this study, and please email me directly at the email address listed here (north225@umn.edu) if you have any questions.

Thank you for your time!

Appendix C
Consent Information Sheet for Research

September 2, 2014

INFORMATION SHEET FOR RESEARCH

Understanding Students' Self-Regulation in Asynchronous Online Learning

You are invited to be in a research study of examining student's self-regulation in online learning. The goal of this study is to understand student experiences and self-regulatory strategies within an asynchronous, online course and shed light on whether certain instructional methods or the course environment influence the development of self-regulatory practices. You were selected as a possible participant because of your enrollment in CI 5301 "Foundations of Computer Applications for Business and Education" (section 004) during the Fall 2014 term. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Sarah North, a PhD candidate in the Department of Curriculum and Instruction at the University of Minnesota.

Procedures:

If you agree to be in this study, we would ask you to do the following things:

1) *Complete the online MSLQ Survey*: We ask that you complete the Motivational Strategies and Learning Questionnaire (MSLQ) once during the course, at approximately the fourth week of the term. The questionnaire is a Likert-scale survey, consisting of 26 questions. The survey takes approximately 10 minutes to complete.

2) *Potential Interviews*: Three students within the course will be asked to participate in two interviews each. If you are selected as an interview participant, you will be individually interviewed at approximately halfway through the course, and again at the end of the course. Each interview will last no more than 45-60 minutes. All attempts will be made to conduct the interview in-person, however if a face-to-face interview is not possible it will be conducted through Skype or Google Hangout, and will be recorded. You have the option to not answer any questions you do not wish to, and you are free to end the interview at any point. You will not be penalized for not completing the interview. If you are selected for interviews, you will receive a $20 gift certificate towards Amazon.com as compensation for your time.

The following data may also be collected during the course of the study:

1) *User Logs*: Data will be collected through user log reports produced by the course management system (Moodle). Simple descriptives and frequencies will be identified, such as number of times logged into the course each week, and number of posts created each week. The purpose of collecting user logs is to observe trends among students, highlight potential cases, and guide interview questions and observations. User logs will be collected a total of 4 times throughout the

course.

2) *Observations*: Observations of student activity and communication within the course will also be made. The goal of these "public" observations is to provide qualitative descriptions of activities, participation, interactions, and communications among students in the course, between students and the course environment, and students with the instructor.

3) *Final Course Grades*: With your prior consent, your final course grade will be collected by the researcher. The purpose for collecting final course grades is to determine whether or not there is a relationship between self-regulation strategies and course performance outcome. You have the right and the ability to opt in or out of this data collection, without penalty. Course grade data will be completely confidential (along with other data) as outline below.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Interview recordings will only be accessible to the researcher, and will only be used for the purpose of this study. The recordings will be erased one year following the study.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher(s) conducting this study is (are): Sarah North and her advisor, Dr. Cassie Scharber. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at 210 Learning & Environmental Sciences Building, 1954 Buford Ave, St. Paul, MN 55108, or at (303) 902-3150, or via email at north225@umn.edu. You may contact Dr. Cassie Scharber at the same address, or at (612) 625-7861, or via email at scharber@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

Please keep a copy of this information for your records.

Appendix D
Modified Motivated Strategies for Learning Questionnaire (MSLQ)

INTRODUCTION

Thank you for taking the time to complete this survey. Please read the following introduction before completing the survey. All questions should be directed to the researcher prior to completing the questionnaire.

The purpose of this survey is to understand your experience as a student within a fully online course (CI 5301). This is a 26-item questionnaire that should take you approximately 10 minutes to complete. There are no right or wrong answers. There are no known risks or direct benefits to participating in this study and completing the survey. However, your responses may help enhance online education design and experiences for future online learners.

The records of this survey will be kept private by the researcher, and will not be shared with the instructor. In any sort of report we might publish, we will not include any information that will make it possible to identify you as a participant. Research records will be stored securely and only researchers will have access to the records. Study data will be encrypted according to current University policy for protection of confidentiality.

Participation is completely voluntary. Your decision whether or not to participate will not affect your grade in this class, nor will it affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time.

The researcher conducting this study is Sarah North, a PhD candidate at the University of Minnesota. Her advisor is Dr. Cassie Scharber. If you have any questions, you are encouraged to contact either Ms. North or Dr. Scharber directly, prior to completing this questionnaire:

Sarah North, PhD candidate and Researcher: north225@umn.edu, (303) 902-3150.
Dr. Cassie Scharber, Advisor: scharber@umn.edu, (612) 625-6607.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

I have read the above information. I have asked any questions necessary, and have received answers.

- ○ Yes, I wish to complete this survey
- ○ No, I do not wish to complete this survey

DEMOGRAPHICS

The following questions ask you about yourself. Please choose the answer which best describes you.

How many online courses have you taken before? (Not including this course)

- ○ None
- ○ 1
- ○ 2
- ○ 3
- ○ More than 3

Where do you currently live while you are in school?

- ○ In the Twin Cities or metro area (within 1 hour)
- ○ Another location in Minnesota (more than 1 hour outside Twin Cities)
- ○ Outside of Minnesota

What is your age?

- ○ Under 18
- ○ 18-24
- ○ 25-35
- ○ 36-45
- ○ Over 45

I am a:

- ○ Freshman
- ○ Sophomore
- ○ Junior
- ○ Senior
- ○ Graduate Student

What is your gender?

- ○ Male
- ○ Female

Please give a unique personal "identifier".
This will be used to identify your responses, but not you individually. Examples include "I love apples" or "Vikings".

MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE

The following questions ask you about your motivation for and attitudes about this online course. Remember there are no right or wrong answers, just answer as accurately as possible.

Use the scale below to answer the questions. If you think the statement is very true of you, click "7". If the statement is not at all true of you, click "1". If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

Use the scale below to answer the questions. If you think the statement is very true of you, click "7". If the statement is not at all true of you, click "1". If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

	1=Not at all true of me						7= Very true of me
	1	2	3	4	5	6	7
When I become confused about readings or activities in this class, I go back and try to figure it out	○	○	○	○	○	○	○
If given the opportunity in this class, I like to choose course assignments that I can learn from even if they aren't graded	○	○	○	○	○	○	○
I have a regular time and place set aside for working on this course	○	○	○	○	○	○	○
When I approach new course material, I often skim it to see how it is organized	○	○	○	○	○	○	○
Even when course materials are dull and uninteresting, I manage to keep working until I finish	○	○	○	○	○	○	○
I make sure I keep up with the monthly readings, activities and assignments for this course	○	○	○	○	○	○	○
I usually work on course activities in a place where I can concentrate on my work	○	○	○	○	○	○	○
When coursework is difficult, I give up or only study the easy parts	○	○	○	○	○	○	○
I work hard to do well in this class even if I don't like what we are doing	○	○	○	○	○	○	○
In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn	○	○	○	○	○	○	○

I work hard to do well in this class even if I don't like what we are doing	○	○	○	○	○	○	○
In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn	○	○	○	○	○	○	○
When completing activities in this course I try to determine which concepts I don't understand well	○	○	○	○	○	○	○
I often feel so lazy or bored when I work on activities or assignments for this class that I quit	○	○	○	○	○	○	○
	1	2	3	4	5	6	7
I often find that I don't spend much time on this course because of other activities	○	○	○	○	○	○	○
When I participate in this class, I set goals for myself in order to direct my activities in each study period	○	○	○	○	○	○	○
I try to change the way I participate and complete assignments in order to fit the course requirements and the instructor's teaching style	○	○	○	○	○	○	○
I make good use of my study time for this course	○	○	○	○	○	○	○
In a class like this, I prefer course material that really challenges me so I can learn new things	○	○	○	○	○	○	○
I login to the course site multiple times each week	○	○	○	○	○	○	○
I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over for immediate purposes of this course	○	○	○	○	○	○	○
The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible	○	○	○	○	○	○	○
While completing readings or activities in a course like this, I often miss important points because I am thinking of other things	○	○	○	○	○	○	○
I find it hard to stick to a study schedule during a class like this	○	○	○	○	○	○	○

VOLUNTEERED DATA

The following questions ask about your willingness to let the researcher access your course data from this site. This is completely optional.

The goal of this study is to better understand your experiences and actions within an online course environment, so it is helpful to access some limited learner data. This data includes:

- *Trace Log Data:* Number of times you log in each week, and the number of posts you make.
- *Discussion Board Posts:* Observable, open communication among classmates and instructor.

If you agree to allow the researcher to access the above student data within the Moodle environment, please "sign" here by providing your first and last name:

One objective of this study is to understand the relationship between self-regulated learning strategies and performance outcome. To investigate this relationship, it is helpful to know participants' final course grade (A-F). According to FERPA guidelines, you have the right to provide consent to release this information, or you may decline to do so without penalty. (All grades are kept confidential, along with other data collected during the study).

Please indicate your consent for release of your final CI 5301 course grade to the researcher:

I agree to release my final course grade to the researcher for the purposes of this study.
(Please "sign" using your first and last name)

VOLUNTEER TO INTERVIEW

Based on your survey responses, you may be an optimal candidate for two brief interviews. The interview may take place either face-to-face or online, and would last no more than 45-60 minutes each. If selected for an interview, the researcher will contact you via email within the next two weeks to arrange a time.

*As a thank you for your time, you will be given a **$20 gift certificate to Amazon.com**.*

If you would like to participate in these 2 interviews, please provide your name (first and last):

Please also provide an email that you can be reached at:

Appendix E
Semi-Structured Interview Protocol

Hi _____, thank you for meeting with me today; I appreciate you taking the time to talk with me. This interview is a part of the research I'm doing for my dissertation, which looks at students in online courses, and their motivation within the course. So I really appreciate you talking with me today!

I anticipate our conversation to last about 25 minutes or so. As you know, we'll be conducting the interview online using Google Hangout. I will also be recording our conversation, using a tool call Camtasia, which simply records what's happening on my computer screen. The recording and anything we talk about here today will be kept only for my purposes and not shared with anyone else, including your instructor. Is this OK with you?

Remember that if at any time you're uncomfortable answering a question, just let me know and we'll either move on to the next question or we'll conclude the interview at that point.

Ok, I'm going to start recording now and we'll get started.

Ice Breakers:

1) Tell me a little about yourself – what's your major, and what year are you?
2) So tell me a little about your history in taking online courses. How many have you taken before?
    a. What reasons do you typically take an online course for?

Interview Questions:

So for the rest of the questions, we'll be talking specifically about the online course, [course number and name], that you're currently enrolled in.

- On an average week, how many times do you think you log into the course site on Moodle each week? (spread out on multiple days? Or all together on 1-2 days?)
- Overall, how do you feel about your ability to stay on task during this course?
- Tell me a little about how you manage your work time and space for this course… do you have a dedicated time and place you work on this course each week? **If so**, can you describe it for me? Why is it important for you to have this?
    - If not, tell me a little about your process each week, and how you accomplish the class tasks for the week.
- What drives you to log in to the course site, and to work on activities throughout the week? (how do you stay focused, given that that structure is that you direct your own study time with the course content throughout the week?)

- Is there anything you'd like to change about your management of your time, or effort in the course throughout the rest of the course?
- Have you ever experienced a week where other "life" activities got in the way of working on this class? What was that like, and how did you adjust?
- Tell me about an aspect of the course environment or structure that has helped you maintain motivation or focus within this class.
- Tell me about an aspect of the course environment or structure that has challenged you to maintain motivation, drive, or focus within this class.
- As the course progresses into the second half other semester, is there anything you would change about maintaining your motivation or focus/drive each week? Or your effort within the course?
- I would like to walk with you through a typical week. So let's look at this past week. You had some readings to complete, a discussion with your small group (the "Twitter style" discussion, and then you were finalizing your work on the Webinar project, correct?) So tell me a little about how you approach a week like that… for instance, when would you first read through the expectations, and how did you plan your time and work effort in order to complete each requirement for the week? Readings? Your own work for the webinar, and group discussions?
- Finally, I'd like to ask you about the course management system itself… have you used Moodle before in other classes?
- In this version of Moodle, I noticed there are the little check boxes next to each task. Is this something that you use? Does it help you in any way?

Appendix F
Categorical Coding Matrix

	Jess	Emily	Daniel	Divergent Examples	Researcher Notes
Theme 1: While students value the flexibility of online courses, it also creates challenges and is viewed as both a benefit and hardship. (YELLOW)					
Flexibility is a benefit in online courses	She wouldn't choose to take an online class over a regular class, but still really likes them. "I really like them. They afford a lot of flexibility. I'm working full days, part time, so it's nice that I can complete my assignments and, or my blog posts, and whatever it may be, when it fits within my schedule". (62-66) --- "But yes, it's provided a real flexible schedule within my online courses, so it's been great". (121-122) --- "I feel like maybe I'm contradicting myself a little bit, but year I think that I do like to have a schedule, but that is one thing that I love about online classes is that it doesn't mandate a specific schedule". (171-173 --- Week 6, Jess does not log in until Thurs (very late for her), yet still completes all work on time/early and with same substance and quality. (Observations)	Megan likes the opportunity to move through the week's content in whatever way she feels is best for her at the time "Some weeks, I guess it just depends on how I'm feeling on the day" (127)	Daniel's report on his overall experience of online classes: "Well I really like the flexibility, especially with 21-credits its nice to be able to work around and fill in the gaps with an online class. It doesn't have a structure necessarily that I have to read by a specific time or be in class at a specific time, so that's nice." (385-387). --- Daniel reports that he likes to go in and see the requirements, or overall tasks for the week. But, as he laughs, he then knows "exactly how long I can put it off" (126). The flexibility Daniel enjoys is in using his mobile phone for readings, assignments, and to monitor his grades. "I check it on my	Multiple deadlines during the week, it doesn't fit his schedule very well because he has work and class on most weekdays. (101-106). However, it is because his work/school life that makes online flexibility appealing. Daniel has never submitted an assignment on his phone, because of poor formatting.	Students are drawn to online courses due to the schedule flexibility. Flexibility is especially beneficial for students who are working as well (such as Jess and Daniel. Is Emily working?)

			phone all the time, like there's a grading update or if I know that I'm going to come in close in terms of time of assignments, sometimes I'll go on my phone." (150-152).		
Flexibility creates challenges in attempting to stay on task.	When faced with challenges of a busier than normal schedule, "…I most certainly have to deviate from my schedule, or find time to dedicate other time to do it, or do it separately, not just in the one time I've put in to my schedule. But that doesn't always happen, so I might change things throughout the week". (164-166). --- Even though flexibility is part of what she likes best about an online class, this can make challenges when working with a peer or group online: "Having to work around someone else's schedule is a little bit difficult, and perhaps not why I signed up for an online course". (184-185) --- The group work can be challenging because of the flexibility afforded in the online course. "I think it's the timeline… when you attach a timeline to a group where people have to be present and face-to-face it can get a little bit fuzzier. So, those are some of the negative experiences". (40b-42b) ---	When short on time, she tends to skip the readings or doesn't "read them as thoroughly". "It comes down to if there's a lot going on, I'll skim the readings and not really read them thoroughly" (155-158).	For Daniel, he doesn't like multiple deadlines during the week, it doesn't fit his schedule very well because he has work and class on most weekdays. "Occasionally I miss those Thursday deadlines. So personally, I think the Sunday thing works better for me because I either have class or work on most days so personally I would prefer it if was just Sunday" (101-106) When encountering scheduling challenges (or running out of time), it's a challenge for Daniel and he has to figure out how to juggle everything in the class "That's the name of the game at this point" (221). When Daniel went out of town for the week, he really fell behind: "I haven't really had my A-		Some of these may not be specific to online – i.e. skipping the readings when short on time.

	Flexibility can be a both a blessing and a curse… a contradiction of sorts. "Online classes can be great because they can be really flexible, but it's also easy to forget about. I mean I know that more than once in our text based discussions I was unable to complete a discussion because a group member had forgotten about it, forgotten to post". (113b-115b) --- Believes that some people just do not do well in online courses. The flexibility might not fit their personality or learning style. "I have some friends that will not take online courses unless it's required of them, like they just know that they are very kinesthetic learners, that they have to be in class, that they have to have someone in front of them driving what's happening. For some people it just doesn't fit their personality and their learning style". (125b-127b)		game since returning from Florida" (253) Daniel reports that he likes to go in and see the requirements, or overall tasks for the week. But, as he laughs, he then knows "exactly how long I can put it off" (126).		
	Jess	**Emily**	**Daniel**	**Divergent Examples**	
Theme 2: While students' study habits vary within a course, they recognize the importance and report strong confidence in their unique efforts. (PINK)					
Whether individual has a unique time or place	"Yeah, I think I do try to just pick a time and just devote, you know, how every many hours it takes, or	"Usually its 'this is my day', so I'll log in multiple times during that day."	Feels like his effort has tapered off over the semester. "It was kind of		Even though Emily tended to work at the same

dedicated to working on the class.	however long it takes, to do… like… my assignments, or my discussion posts and whatever". (86-87)… "So if I can devote just one specific time to it, but that's not always the case" (90-91). --- "I like to spend time to get all my work done at the same time, regardless of how long it takes me, if I can. And I like to schedule out my week, so I usually like to do my homework for [Course Name] on a Sunday or Monday" (113-116). "I definitely had to learn a work schedule for taking online classes. I learned that it helps me to have a specific day, or specific time during the week to devote to that class." (141-142) However, she does have to deviate from her dedicated time in order to make sure everything is accomplished… especially when other things in life get busy. "like during a week where I have exams, and a paper due, and a project due, and like my life is just… I mean , yes. I most certainly have to deviate from my schedule, or find time to dedicate other time to do it, or do it separately, not just in the one time I've put in to my schedule" (164-166)	"I'll usually log in initially on Tuesdays and do that initial post". (72-76) Making study time feel more formal, being aware of the setting: "It just feels more formal if I'm like sitting at a table, sometimes I sit at my desk also." (98-99) She says later that she would like to have an even more formalized time for working on the class: "I don't really have a designated time… I mean I usually end up doing it around the same time each week, but I would probably write it down in my schedule like "this block is for CI5301" – and you give it the time that it needs, and you're not just trying to rush through it." (165-168) (contradicts herself somewhat, from when she initially said she logs in on Tuesdays)	strong early on, like I would really buckle down and get things done, but now its really tapered off. So [I log in] probably only a handful of times, like 2-3 times per week just to make sure I'm on task and that I have the deadlines under wrap" (84-87) Discusses his procrastination: "[He] will have something due Thursday, and something due Sunday, so in classic procrastination fashion, I would login sometime Wednesday or Thursday and then, you know, again anytime before Sunday to try and knock those out." (91-93) One week he traveled out of state to attend a professional football game, and "missed that Thursday deadline… I hadn't even looked at it" (100-101). Regarding deadline preferences: "personally I would prefer if it was just Sunday. But I understand why he does that, he wants people to		time each week on the class, she still would like to have an even more formalized time for working on the class.

	"What works for me is to have a set pattern, and to treat it like an in-class class. And if you're struggling and forgetting about assignments and forgetting about being present for a video chat, then you have a set time carved out so that you don't forget about it." (116b-118b). Works ahead a lot, usually on Sundays of the week leading up. Regularly views all resources, discussion threads, assignments (Observations) Works at least a couple of weekdays, and rarely works on Saturdays.		read, and collaborate and stuff." (104-106) Does he have a dedicated place to work? "Not really… with the video feed I sort of have to make more plans for that I suppose. … So if there's a Thursday assignment I'll just go home and crank it out. There's not necessarily a specific location that I prefer." (130-141)		
Study methods or habits used for this or any online course.	"I feel really good about my ability to stay on task. I think because I do try and carve out specific time for [Course Name], its' like really easy to make that time, and stay on top of things". (96-97) --- "I don't know that anything I'm doing this semester is unconsciously done. Um, I have to carve out time for it, regardless of what the task is. Because it is my senior year, and I have so much going on, I would say it's something that I definitely have to be conscious about, but it is much easier because I have those routines" (129-131). "I actually do have a very distinct schedule for these online classes!" (121)	Making study time feel more formal: "It just feels more formal if I'm like sitting at a table, sometimes I sit at my desk also." "There's like a lot of distractions when you're working online, so I'll kind of like be working on it for a while, then be checking Facebook, then be working for a while, then get distracted with something, so I'll usually then be working on it throughout the day". (98-103) She has certain study methods to help minimize distractions, such as eliminating the social	About his ability to stay on task: "I feel pretty good about it. It was a couple of weeks ago when we had to record something and post it to YouTube, and that took significantly longer than usual. Like I usually try and log in and get the readings done and kind of understand what I'm doing, and try and log in and knock it out before the deadline. But in terms of that one week, I think my update was a little slow and it took me longer." (116-121)	This is divergent:	

	Developing these habits for online learning is a "trial by fire", finding what works best for each person. "I think it is more of a trial by fire thing... And I guess since I have had so many online classes I guess I found that's just what works best for me." (62b; 66b-68b)	network distraction, or distraction with her phone: "Close out of Facebook… Also if I'm texting people, I'll say like 'I have to go to homework now' and I'll put my phone away in my backpack or something. (109-111) Plays "study" music "And then I play instrumental music, it helps to create a more studious atmosphere for me personally" (111-112) Her strategy is to log in early in the week, to see what the requirements are for the week. Logs back in a few more times during the week, especially checking for responses to her posts. "I'll do more follow up because I'm more interested in seeing what other people have commented back"(224-238).	Likes go to in early in the week to get the lay of the land "… so I know how long I can put it off" (126) But "That's what I try to do. Like the week I went to Tampa I just totally, I lost it. But ideally, yeah, that's what I would do in a perfect world" (130-131). Regarding deadline preferences: "personally I would prefer if it was just Sunday. But I understand why he does that, he wants people to read, and collaborate and stuff." (104-106) Access on his phone is important, and is a strategy. "I don't have a tablet, but I check it on my phone all the time. Like if there's a grading update or if I know I'm going to come close in terms of time of assignments, sometimes I'll go on my phone" (150-152). Strategy is to read > post>read other's post> and "move on from there". "Just the way that time works out, if there	Daniel would like to do something a certain way, "in a perfect world". No evidence of this actually happening for him.	The social learning part is motivating for Emily- She checks back frequently to see what others have responded to her posts Daniel's main strategy in discussion forums is to read everyones, get a

			are readings, I'll always do that first. Just because, I think it not only supplements what's required in the posts, but often times its just a couple posts and a brief response. And then I'll kind of read what other people are posting, and get a feel for what's going on, and go from there." (165-170). Does not post early in the week, for a reason- wants to be able to post and reply in one sitting (not go back in later): "Especially when you're in a time crunch, being the first one to post is not necessarily advantageous, just because you can't reply right away" (177-178). Likes to post later on Sunday, so that "I kind of feel like to at least gauge what people are talking about, I like to go there instead of just regurgitating what's already said in the forum" (182-184). Does not go out of his way to see what other's have responded to him.		feeling for what people have said, and then be able to speak uniquely. This also fits with his desired timeline of Sunday posting/deadlines. A common theme with Daniel is that a lot of his work in the class revolves around watching football, or attending games. Offers flexibility to fit in with hobbies? But also has been challenging for

			"unless there were a bunch of 'Daniels' out there who are also posting at 11:00pm, and there are quite a few actually, I guess, yeah, I don't necessarily go out of my way though" (190-192) Puts all of his school deadlines in an online calendar. But sometimes confuses the deadlines with other classes? "I'll set a reminder to myself that I have things to do on Thursday night, because I either have checked that I have things to post, or I , like will not. I think I may have missed Thursday night because I had on my [calendar] that I had an online submission, but that was for another class" (241-253).		him to keep up in the midst of traveling to games.
Reflections on what they might do differently (if anything) in the course, in regards to study habits or effort.	"I think that I have a good handle on the work for the course, and I think that I 'm comfortable with my schedule at this point, and um I don't really see doing any deviations from that schedule." (228-229) "I took away everything that was intended for me to take away… I think that my efforts in my group	She feels like making a very dedicated time each week (on the calendar) would be helpful for studying and success: "I usually end up doing it around the same time each week, but I would probably write down in my schedule like "this block is for CI	"That's what I try to do. Like the week I went to Tampa I just totally, I lost it. But ideally, yeah, that's what I would do in a perfect world" (130-131). Has good intentions, and realizes his own struggles to meet deadlines		Emily-Even though tended to work at same time each week, would make it even more formal on the calendar in the future.

	discussions and in the projects was pretty solid." (85b).	5301",… just because it feels more structured and you give it the time that it needs" (166-168). Taking the time write out lists and checklists for tasks: "I really like writing out lists and checking things off, so that's a big motivator for me personally" (186)	(internal attribution): "I think my own capacity to miss the Thursday night [deadline] thing is frustrating,… I mean he posts it a week in advance so if I miss it, I miss it" (212-215). Did not have his "A" game after attending a football game in FL. "not my best outing" (255) "It's really about how ahead can I get in the beginning of the week. It seems like if I don't have a chance to get to it in the beginning of the week, I'm much more likely to drop it, or just not even realize that I have something due Thursday night." (255-257). Points out that he does not intentionally forget or ignore the work: "I didn't mindfully neglect it… its incredibly frustrating to me when I've checked, and I've logged what I needed to do, and then my logging turns out to be incorrect, and I have no one to blame but myself. But, I don't want to skimp on the process		Daniel's desires in his work effort are very similar to what Jess and Emily actually do! Recognition that it is a helpful strategy. Just needs to figure out how to do it.

			just because I've missed it." (247-275). One of his big problems is not having a system in place "I don't have a system, like I'm not very good at how I record things, which is probably my problem, really" (284-285). Realizes a need to better record tasks to be done "I'm on top of things most of the time, but yeah, lapses in my recording, or memory, are how I get into these situations" (293-294). What's interesting is that he is not using the same recording system (online calendar) for his f2f classes)… where he just remembers things mentally, it doesn't work for him online. (304-314)		Instructors or designers can try and build in, or model, strategies for time management and planning for students?
	Jess	**Emily**	**Daniel**	**Divergent Examples**	
Theme 3: Participants tend to compare the online course experience to face-to-face experiences and study methods. (GREEN) [Students often compare the face-to-face environment to the online environment, especially regarding group dynamics and study habits.]					
Often compares interactions with peers or groups to the	"I mean, whereas I mean in a face-to-face classroom, where I think there's	Online course readings are more difficult to get through, because of the	Uses an online calendar for online classes, but for the f2f classes uses a		One strategy for students might be to print out

experience of face-to-face equivalent	a little more accountability attached to classroom projects versus an online project, if that makes sense." (189-191). "So I mean, in addition to the technology like I mentioned, there were aspects of any other face to face groups, just like members being accountable, and not really following through with their expectations. I think that in previous classes where the discussions have been text-based there hasn't been that lack of accountability, or if there is, you're not invested in it as much." (37b-39b).	nature of the online environment. There's too many things pulling for your attention – Emily compares the struggle of working from home and needing to complete a long reading, vs doing the same thing "in the office". "Its definitely the online environment" that makes the difference for her (208).	hard copy planner. "I used it for 2 weeks, and for whatever reason I just fall off, like in terms of real hard-core undergrad organization. But the assignments I just kind of mentally keep track of, which is obviously a lot more susceptible to failure than a hard copy" (304-309) Regarding groups f2f vs online: "In an in-person you can easily take care of something like that, because well I find that the people that are motivated within the group or excel within the group will crowd out the work, or lack there of, of a bad member. And you can kind of feel the same dynamics at play… But it isn't as easy to judge [online]… it's clear who is aggressive [f2f] I guess (325-333). Continuing on discussing the differences btwn f2f and online groups. Poor members can be compensated for more in f2f than online. You can't hide your performance online: "If		articles? That may help eliminate the distractions?

			there's a 4 person group, 3 people can do all the work in an in-class project, then no one knows any different. Whereas this is very clear to see who… hasn't met expectations I guess" (343-350) Doesn't feel like he can get to know peers as well as in-person class: "As far as on a personal level, I don't think it comes close to the in-class experience, like interacting with people and really flushing out the personality to that end" (360-361). When talking about group discussion size: "I wouldn't really equate it to a classroom, so the limitations of the online forum are that, myself included, the group members only need to post; basically post and then reply to others. So it is essentially like a 4-person forum. I feel like it's a very different element… I wouldn't say the online experience is anything like the classroom the		

			experience. I think the rules are even different… I would definitely agree that really only these 4 members are imperative to your success" (368-375).		
Like to treat online course as a face-to-face as a strategy for better course performance.	"But it is something that I have to be cognizant about, because it's not like I'm going to class so, I have in the past forgotten about online courses." (131-133) "I learned that it helps me to have a specific day, or specific time during the week to devote to that class. Like, as if I were actually going to a classroom, because that is like making it a habit. Because otherwise…. I'm less cognizant about it, and it becomes less of a routine" (141-144). "I like the flexibility of an online class, but it's easier for me to manage if I treat it like a regular class." (68b-69b). "my recommendation would be to just treat an online class like an in-person class. Online classes can be great because they can be really flexible, but it's also easy to forget about." (112b-113b).	She feels like making a very dedicated time each week (on the calendar) would be helpful for studying and success: "I usually end up doing it around the same time each week, but I would probably write down in my schedule like "this block is for CI 5301",… just because it feels more structured and you give it the time that it needs" (166-168). "Just like for a normal class" (173).		Daniel did not report any strategies that he has for treating online like f2f for improved performance. Alternatively, he indicated differences in his study habits and that it may hinder his ability to stay on task (i.e. different calendars for online vs f2f classes).	

	What works for me is to have a set pattern, and treat it like an in-class class… then you have a set time carved out so that you don't forget about it. (117b-118b)				
	Jess	**Emily**	**Daniel**	**Divergent Examples**	
Theme 4: **Online group work presents both benefits and challenges to the learner, resulting in mixed feelings about the task.** (ORANGE)					
Positive experiences in online group work	Would have liked to be mandated to watch each other's intro videos, in order to really see each other all know each other. "We had a few times where we had to opportunity to do like a video post, like we had to record like a minute long video about ourselves at the beginning of the semester…. Which was great, but we were never mandated to watch each other's videos, which would have been a good idea now reflecting back on it!" (208-210). In referring to the group webinar project coming up: "I think that will be an interesting dynamic to be on a module together with three other people, and to do a video	Likes the peer feedback, and seeing what others' responses to her are: "I'll do more follow up because I'm more interested in seeing what other people have commented back"(238).	Daniel likes to see what others are talking about in a group discussion, before weighing in. He takes his cues for what to focus on, based on the discussion posts. "I kind of like to at least gauge what people are talking about, if there's something in the reading they're talking about, I like to go there instead of just regurgitating what's already said in the forum." Wants to be unique. (182-184) Is not overly concerned with what other's have posted in response to his posts. "I generally do try and see if there are	Some students are more interested in what others	

	presentation with them, that will be really interesting I think".(214-216) Whether a positive or negative experience, Jess appreciates the learning experience of the situation (since she has not done online group projects before): "it taught me a lot about working with and collaborating with others others via technology, both the positives and negatives, so its been a good learning experience". (16b-18b). "And it was the first time that I had ever really seen these people face to face. All of my prior online discussions have happened via text, so, it was a unique experience." (24b-26b) Again, enjoying the video element of the class, and seeing each other!(not necessarily academic focused, but just being to speak) "I liked a lot of the, um I might say the recognition? I see these people that I had been discussing with for the past, oh gosh like 13 weeks. Face-to-face it was nice to have a face with a name and to get to talk… I'm not really sure, I can't find the word right now… But just allowing us to get to know one another. That was nice." (47b-50b). "I learned a lot about working with groups online" (85b)		replies to my post. I guess, yeah, I don't necessarily go out of my way though." (192-193)	respond to them with in a discussion forum. Daniel does not feel motivated by this, however.	

	Appears involved in group discussions, and frequently "views" them, even prior to the current module. Responds substantively. On many occasions, posts her discussion responses multiple days early. (Observations)				
Challenging experiences in online group work	"One of the frustrations that I have with the course is…um, not the discussions, but the group project aspects. Because I mean if I have to wait for someone to make a post to comment on in a group discussion, then it's not that big of deal. But if I have to wait for someone to participate in a project, like to continue with my part, then like having to work around someone else's schedule is a little bit difficult, and perhaps not why I signed up for an online course, if that makes any sense." (180-184). "We had to pick a time that worked for all of us, and we had to be accountable for all being in this [Google] Hangout during that time, some of my group members really struggled with that, being on time, and with all 4 of us being in different places with different schedules." (32b-34b) The flexibility of an online course actually can create challenges and frustrations in group work: "There	Enjoys independent work mostly, as opposed to group work "Up to this point I felt really good, because its been independent work, but recently this week we've been doing more group work things, and so I don't feel as good about my ability to be up to where I should be during the group work parts of it. (81-83) She does not like relying on others for their part: "When you're relying on others to make, like a video, that you need to comment on, or you're relying on your peers to find a date that works for everyone to do a meeting or something, it's harder to feel like you've completed everything you should because sometimes there's not as much accountability within groups". (89-92)	In an online group, vs a f2f group, it's not as easy to gauge the group dynamics "I can feel the same dynamic at play, but it isn't as easy to judge. It's clear who is aggressive, I guess." (333-334). Indicates that online, a student cannot "hide" in an online group- the lack of work is more apparent. "If there's a 4 person group, 3 people can do all the work in an in-class project, then no one knows any different. Whereas this is very clear to see if someone hasn't met the expectations." (343-345) In terms of the group size, Daniel feels that he cannot compare it to f2f groups… they are too different. "I wouldn't really equate it to the classroom. The		The experience of these students were that the difficulty in online groups is that there's a combination of heightened accountability, coupled with dependence on others in the group for success in the project (or class!)

	were aspects of any other face to face groups, just like members being accountable, and not really following through with their expectations… I think it's the timeline, when you attach a timeline to a group where people have to be present and face to face it can get a bit fuzzier." (36b-41b). Any recommendations for students taking online classes for the first time? "I think I mentioned that in our group project we had a little bit of issues going on because some people just weren't being held accountable or willing to be accountable. So my recommendation would be to just treat an online class like an in-person class." (110b-112b) "I mean I know that more than once in our text based discussions I was unable to complete a discussion because a group member had forgotten about it, forgotten to post. And I'm not trying to be critical about it, because we all have lots of things to do. But what works for me is to have a set pattern, and to treat it like an in-class class." (112b-115b)		limitations of the online forum are that the group members only need to post… basically post their post and then reply to others. So it is essentially like a 4-person forum." (368-370) The social "rules" or understandings are different f2f than for online groups. There's a lot (more?) accountability in online groups: "I wouldn't say the online experience is anything like the classroom experience. I think the rules are even different. I guess you could say that really only these 4 people are imperative to your success" (372-375)		
	Jess	**Emily**	**Daniel**	**Divergent Examples**	

Theme 5: Learners enjoy practices by the instructor and design elements of the LMS environment which proved helpful for their self-regulation and motivation. **(BLUE)**					
Helpful teaching practices from instructor	Instructor crafted assignments where students posted video of themselves answering – She liked that because she got to get a better feel for group members. "We had the opportunity to do a video post, like we had to record a minute long video about ourselves at the beginning of the semester, which was great, but we but we were never mandated to watch each other's videos, which would have been a good idea now reflecting back on it!" (208-209) Instructor points out the helpful tools in the LMS that students may find helpful for their studying, planning, organizing, etc. "He actually pointed those [checkboxes] out that its something new offered, and he kind of made it a point to bring those to our attention at the beginning of the course, which was really nice because I would not have noticed that they were there. So that's bene really helpful." (256-260). Instructor purposefully setting up the group work and interactions in a way allow students the time and space to get to know each other (i.e. through video) "But just allowing us to get to know one another… that was nice" (49-51) Likes that instructor makes weekly videos, and understands his teaching style better. "This has been a new	Provides a weekly introduction, and makes suggestions as to the order in which to read the articles (125-128) She likes that the instructor does not leave it ambiguous, as to what is expected. "I think a good way that he helps us stay on track with what we're supposed to do, is with the little checkboxes he puts next to each, like article, I really like those" (135-137). Emily would recommend that other instructors use the checkboxes as well. It's a really nice feature, she feels like. When discussing the difference between the introduction each week from the instructor- either written out, or recorded on video as well: "When he records it, I feel like I understand the requirements better, and its more personal, so you feel more motivated that week" (182-184)	After missing an assignment deadline (following attending a football game out of state), he appreciated the follow-up from the instructor: "Mr. Smith actually emailed me, I hadn't even looked at it. And Mr. Smith was like 'Hey you're 2 days late', and I was like 'oh, sorry'… like I had just defaulted to just thinking of the Sunday deadline." (101-102) Again later on, Daniel indicates that Mr. Smith did not reach out to him after missing a discussion post deadline, and that seemed to contribute to his struggle to stay on top of the task, BUT at the same time because of the previous reminder from the instructor, Daniel felt he needed to reach out: "I know that I've been late with a couple posts, two Thursday posts specifically. And, well, Mr. Smith hadn't said anything to me, so I said		Emily feels like the personal touches from the instructor (like video recording welcomes) makes it feel more "personal", and creates more motivation. Example of connectedness and frequent communication serving as a driving factor behind student's self-reg, or self-awareness: because of the previous reminder from the instructor, Daniel felt he needed to reach out to him after

	learning experience this semester, and I've enjoyed it [first online course that relies heavily on video]. I think its helped me a lot to visually see the instructor, I mean I never understood a "teaching style" before for an online instructor, but I have a perceived teaching style for him as an instructor, which is kind of strange for me, because its an online class or instructor, it should just be a text box, you know?" (94-99)		"hey I totally missed this"… The moral of the story is that I emailed him… I think it was Friday when I finally posted." (251-253) In contradicting himself (about not liking Thursday deadlines), Daniel does report liking the window of time following first posts to the reply deadline, in group discussions: "Mr. Smith sets it up pretty well where you have to post your initial post by Thursday, and then respond by Sunday, so everyone has at least a solid window" (180-181). Daniel appreciates the "presence" of the instructor! "I like Mr. Smith, he's very 'present' I guess, for lack of a better word. I think that he's 'in there', like in the trenches. He knows when I hadn't posted something. And basically I think it's well-managed".		being late with a discussion post.
Helpful course design/development decisions	The readings are used to help guide students through other weekly tasks/assessments. "The course is set	She likes the checkboxes used "I think a good way that he helps us stay on	Daniel likes the flow, progression of the course. Likes that each		In a course where Daniel seemed to struggle with

	up in such a way that they guide you through what you're doing" (238-240). Readings that were meant to help facilitate/foster productivity in the group work. "... suggestions in these readings that were how to better collaborate online, and even when we were setting up our group details, we were using those to guide us, needing to offer comments or suggestions on how to work in group collaboration online." (242-245) It's helpful for students to see the tasks listed for each week: "I like to do the readings and see the tasks for the week, like the outline about what we're supposed to do for the week" (246-247)	track with what we're supposed to do, is with the little checkboxes he puts next to each, like article, I really like those" (135-137). Emily would recommend that other instructors use the checkboxes as well. It's a really nice feature, she feels like.	week builds on another, and that each week is a pre-req to the next: "I feel that there's a very good logical progression in terms of how Mr. Smith has laid it out. He kind of builds on his coursework, I guess, which makes a lot of sense. It doesn't really jump around a lot, so it's like every week is a pre-requisite for the next." "I think in terms of the flow of what it is that he's covering and what it it is that we're learning, I think it flows well, especially for computer technology like in this course I think it works really well, because not only is the stuff covered last week pertinent for this week, it's fresh in your mind so you can kind of build off of that experience" (201-207)		time management and staying on top of assignments, this is a big statement- the flow, design, progression of the course is something he really seems to like.
Challenging practices from instructor (?)	Wanted instructor to mandate that they watch each other's videos – she would have gotten a better sense of 'interaction' that way "We had the opportunity to do a video post, like we had to record a minute long video about ourselves at the beginning of the semester, which was great, but we but we were never mandated to watch	Asked what instructor does that does not engage students, or doesn't help pull them in cognitively: "Long articles, and sometimes too articles that feel like they're older and not as relevant… But long articles are just harder to	Daniel did not do well with the multiple due dates (Thursdays and Sundays): "I had defaulted to just thinking of the Sunday deadline, but occasionally I miss those Thursdays deadlines. So personally,		Even though the length of an article can't be avoided sometimes, the key takeaway is providing readings that are *relevant.*(see

	each other's videos, which would have been a good idea now reflecting back on it!" (208-209)	get through. Harder to stay engaged". (194-197). Additionally- it sometimes feels harder to get through the longer readings because it's the online environment – making it feel less formal: "You know, it's kind of like when you work from home, and you feel like you can go do dishes, and it's not like you're sitting down and working… *So it's definitely the online environment".* (205-206)	I think the Sunday thing works for me because I either have class or work on most days so personally I would prefer if it was just Sunday. But I understand why he does that, he wants people to read, and collaborate on stuff" (103-106). Daniel appreciates the current, relevant, authentic readings and content. Seemed to contribute to motivation to engage with material in the class: "I think its very useful material. The reading is actually really light and what there is is kind of, it's not scholarly literature, it's not academic writing. It's like, he'll post a 3-page Times article about Twitter last week. And it's all pertinent, relevant information." (399-403)		Emily's responses). Daniel also speaks to the desire for readings to be relevant, and current.
Challenging course design/development decisions(?)					Students did not report any negative or challenging aspects of the LMS or learning environment, or course design.

Chart adapted from Maxwell, 2013; p. 109-111 (A data analysis matrix)