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The Effects of Self-Regulated Learning Strategy Instruction and Structured-Diary Use on Students' Self-Regulated Learning Conduct and Academic Success in Online Community-College General Education Courses

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THE EFFECTS OF SELF-REGULATED LEARNING STRATEGY INSTRUCTION AND STRUCTURED-DIARY USE ON STUDENTS' SELF-REGULATED LEARNING CONDUCT AND ACADEMIC SUCCESS IN ONLINE COMMUNITY-COLLEGE GENERAL EDUCATION COURSES

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Dissertation Abstract

The Effects of Self-Regulated Learning Strategy Instruction and Structured-Diary Use on Students' Self-Regulated Learning Conduct and Academic Success in Online Community-College General Education Courses

Student success in community-college online courses remains a topic of concern within higher-education research. Online courses offer flexibility and opportunities for students to learn anytime and anywhere. Students who are not prepared for the anytime-anywhere format struggle in online courses. As enrollment in online courses increases, the rate at which students persist through courses with satisfactory academic success is inconsistent. Effective ways to promote student success in online courses is an area that remains under-researched. Self-regulated learning has been shown to promote online student success by supporting student engagement, learning strategy use, and consistent evaluation of academic performance through instructional interventions and practice adopting the self-regulated learning process.

The mixed-methods study examined the effect of self-regulated learning strategy interventions on students' self-regulated learning conduct and academic success in community-college online courses. Two intact classes of community-college online students participated in the studies in two subsequent quarters. Both curriculum-embedded interventions included instruction in a self-regulated learning strategic framework focused on, goal setting, actions, monitoring, and evaluation of self-regulated learning processes, followed by weekly implementation of the framework throughout the duration of online courses. Students' perceptions were assessed before and after

intervention and compared with academic performance, final course grades. Additionally, students completed structured-diary responses evaluating implementation of self-regulated learning process.

Results indicated that increases in students' self-regulated learning behaviors postintervention were statistically significant in Study 1 and not significant in Study 2. Increases in students' metacognition were statistically significant in both studies. Relationships between final course grades and students' perceptions postintervention were moderate and not significant. Structured-diary responses revealed that students set goals centered on completing course assignments and time management and employed several learning strategies in support of achieving goals. Students perceived the framework as straightforward, adaptable, and effective. Results suggest that self-regulated learning strategy intervention was successful in increasing the metacognitive awareness and self-regulated learning skill levels of community-college online students. Increased metacognitive awareness and self-regulated learning skills positively contributed to students' efficacy for academic success in online courses. Implications of these studies contribute to research examining self-regulated learning strategy instruction as a means for promoting online student success.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

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DEDICATION

My dissertation represents the intersection between my evolving research interests and commitment to ensuring that all students who wish to succeed in higher education have the right tools to do so. It is dedicated to my family:

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CHAPTER I

STATEMENT OF THE PROBLEM

Online learning as a method for course delivery has increased since 2006 (Allen & Seaman, 2011). Community colleges and universities will continue to transition into offering more courses online as the need for access to higher education grows (Artino, 2009). As online learning opportunities increase, so does student enrollment in online courses. Since 2006, overall student enrollment in online courses at community colleges and universities has increased by 31.3% (Allen & Seaman, 2011). Specifically, community colleges in California have increased their online course offerings by 72% to offer flexible options to a diverse student population and to accommodate growth in student enrollment (Allen & Seaman, 2011). Even with the rise in enrollment in online courses, students are more likely to drop out of online courses than their face-to-face equivalents (Beatty-Guenter, 2003). Recent literature in the area of online course retention at the community-college level reported that drop-out rates are 20% higher in online courses than in face-to-face courses (Aragon & Johnson, 2008; Doherty, 2006). Although online learning has gained increasing acceptance and popularity as an effective method for delivering instruction, the issue of student success in this environment remains under researched (Bocchi, Eastman, & Smith, 2004; Cronjé, Andendorff, Meyer, &Van Ryneveld, 2006; Harrell, 2008).

Student success in online courses at the community-college level is a complex issue that affects students, institutions, and society at large. For students, success in online courses is defined as satisfactory academic performance and persistence through course completion. As students enroll in online courses, the rate at which they complete courses with satisfactory academic performance is inconsistent. Online students are 20%

less likely to complete their courses than face-to-face students (Ee, Moore, & Atputhasamy, 2003). Students who are not successful in online courses often do not make progress toward their educational goals (Harrell, 2008). For institutions, student success in online courses directly influence student retention, progress toward degree completion and other measures that affect accreditation, reputation, and future enrollment (Liu, Gomez, Khan, & Yen, 2007). For society, in order to thrive in the current competitive workforce, postsecondary education is an essential component of economic self-sufficiency (Association of American Colleges and Universities, 2009). Student success in online courses is a vehicle for attaining the goal of postsecondary education for many students apart from their educational goals (Kuh, Kenzie, Schuh, & Whitt, 2010). Effective ways to promote student success in online courses is an area that remains under researched.

Promoting student success in online courses at the community-college level is also a complex issue (Aragon & Johnson, 2008; Doherty, 2006; Fike & Fike, 2008). Initiatives to promote student success at community colleges in California typically are focused on developmental education where students are offered services such as academic tutoring to enhance their basic skills and prepare them for college-level work (Allen, Altman, Becktold, & Sawyer, 2000). Basic skills services in support of student success include (a) learning communities, basic skills courses paired with counseling services, (b) bridge programs, designed to assist recent high-school graduates with the transition into college, and (c) tutoring assistance, organized supplemental instruction delivered one-on-one by paraprofessional, volunteers, or peers. Although the intent of these services is to promote overall student success, they are structured to focus on one

factor of student success: academic readiness. Additionally, these services typically are offered on campus, therefore utilized by students attending college face-to-face. Online students are less likely to participate in these services based on distance and lack of on campus attendance.

Achieving student success in online courses is equally as complex. Researchers agree that there are several key factors that influence student success (Bragg & Durham, 2012; Cronjé, Adendorff, Meyer, & Van Ryneveld, 2006; Harrell, 2008; Sunal et al., 2003; Tinto, 2006). Kuh et al. (2010) identified the following factors as key to achieving student success: (a) student engagement, (b) student-faculty interaction, (c) student learning, (d) institutional connection, (e) self-efficacy, and (f) academic readiness. Student engagement, student-faculty interaction, and institutional connection are all challenges that affect student success in the autonomous environment of online courses (Cronjé et al., 2006; Harrell, 2008; Sunal, Sunal, Odell, & Sundberg, 2003). Tinto (2006) posited that additional factors that contribute to student success are classroom practices such as utilizing pedagogical practices that support student learning as persistence, as well as faculty and staff development focuses in improving student learning outcomes. Both areas are currently under researched in the literature on student success in online courses. Due to the autonomous nature of online courses, students in online courses are responsible for their learning in ways that differ from traditional face-to-face courses. The increase in online learning environments creates greater need for students to develop self-regulated learning skills in support of their success. Whether through increasing students' engagement in learning or utilizing pedagogical perspectives that support

students' success, finding ways to better support student success in online courses continues to be an area for further research.

Online courses at community colleges offer flexibility that gives students opportunities to learn anytime and anywhere. Students' increased autonomy and responsibility for their own learning online differs from the direct or face-to-face interactions with their instructors or their peers experienced in traditional classrooms (Clegg, 2004). Transition to learning in the online environment requires greater learner autonomy, student engagement, self-regulation, and individual responsibility for academic performance (Andrade & Bunker, 2009; McBrien, Cheng, & Jones, 2009). Learners who are not prepared for the anytime-anywhere format often struggle in online courses (Artino, 2009; Bocchi et al., 2004; Harrell, 2008; Rossett, 2000; Thomas & Gadbois, 2007). Thomas and Gadbois (2007) posited that not all learners have the discipline and motivation required to be a successful online student. Thomas and Gadbois (2007) defined student success as retention and academic performance in an individual course. Thomas and Gadbois (2007) argued that if students have not learned how to regulate their learning, they are at a disadvantage and may jeopardize their success in an online learning environment.

Further, research posits that a student's success in online courses is based largely on previous behavior, attitudes, and intrinsic motivation that drive behavior through the formation of intent to learn (Artino, 2009; Artino & Stephens, 2009; Kim, 2009; Lin, Lin et al., 2008). The balance among intentions to learn, behaviors to learn, and preparation to learn can lead to student success (Artino, 2008; Artino & Stephens, 2009; Roeser &

Peck, 2009). Zimmerman and Schunk (1997) described the balance among intention, behavior, and preparation to learn as self-regulated learning.

Self-regulated learning is a self-directive process that assists learners and encourages awareness of their own strengths and weaknesses (Zimmerman, 1998). Learners are guided by personally set goals and task-related strategies. The construct of self-regulation refers to the degree to which the learner is metacognitively, motivationally, and behaviorally active in their own learning process (Schunk, 2005, 2008; Zimmerman, 1998;). Building on this definition of skills needed to be a self-regulated learner in traditional face-to-face classrooms, researchers have found that students who lack self-regulation skills are dependent learners and are less likely to succeed in online courses (Azevedo, 2005; Hsu, Ching, Mathews, & Carr-Chellman, 2009; Li & Irby 2008).

Zimmerman and Martinez-Pons (1986) hypothesized that through the use of self-regulated learning strategies, students can develop the ability to navigate unfamiliar learning environments, in this case, the environment of online courses. Several researchers have explored self-regulated learning theory and its effect on learner efficacy for learning in new environments (Boekaerts & Corno, 2005; Pintrich, 1999a; Winne & Hadwin, 1998; Zimmerman, 2002). Although theories vary in their suggested approach to developing self-regulated learning skills, they agree that learners can develop self-regulated learning skills that optimize the motivational, behavioral, and metacognitive processes using a variety of strategies. Self-regulated learning strategies are the actions and processes used to acquire information and skills. These strategies are purposeful and

deliberate and are chosen by the learners as an appropriate solution to attaining academic goals (Zimmerman, 1990).

Due to the autonomous and self-directed nature of online learning environments, effective use of self-regulated learning strategies is a skill necessary for student success in online learning environments (Barnard-Brak, Paton, & Lan, 2010). Unfortunately, not all students who participate in online learning environments have self-regulated learning skills (Arbaugh, 2004; Azevedo, 2005; Harrell, 2008; Hu & Gramling, 2009). Hu and Gramling (2009) found that some students have strong self-regulated learning skills and are motivated intrinsically to succeed in an online course. Not all students, however, use self-regulated learning skills and have the motivation required to be a successful online student. Azevedo (2005) argued that students who lack self-regulation skills are at a disadvantage when taking online courses. Further, this disadvantage can jeopardize their success in an online course (e.g., retention and academic performance). Students who are not prepared to manage their own learning in online courses are at risk for increased frustration, increased course withdrawal, and poor academic outcomes (Harrell, 2008). Because prior research has indicated that students who take online courses struggle to employ self-regulated learning strategies to support their learning goals, exploring how students can develop self-regulated learning skills remains an area for further research (Azevedo, 2005; Barnard, Paton, & Lan, 2008; Cho, 2004; Hu & Gramling, 2009; van Den Hurk, 2006).

The majority of current research in the area of online learning and self-regulation has focused primarily on assessment of students' self-regulated learning skills using instruments such as the Online Self-Regulated Learning Questionnaire (OLSQ) and the

Motivated Strategies for Learning Questionnaire (MSLQ), (Barnard, Lan, To, Paton, & Lai, 2009; Harrell, 2008; Puzziferro, 2008; Vighnarajah, Wong, & Bakar, 2009). Assessment of overall self-regulated learning conduct and identification of strategy use creates greater learner awareness about their learning processes. Raising learner awareness regarding their self-regulated learning conduct, however, is only one step toward developing self-regulated learning skills necessary for student success in online learning environments. Focusing on how students' self-regulated learning skills can be developed beyond general awareness of self-regulated learning conduct in support of their success in autonomous online learning environments is an area for further research. The current study investigated how students approach learning in an online course when given self-regulated learning instruction and tools to promote their success.

In traditional face-to-face classrooms, Schunk (2008) purported that instruction in self-regulation strategies can contribute to learners becoming active in their own learning process that positively affects students' academic performance and intrinsic motivation to learn. Research on developing self-regulated learners in traditional classrooms has used successfully several instructional strategies to promote self-regulated learning skills (Bail, Zhang, & Tachiyama, 2008; Cukras, 2006; Dabbagh & Kitsantas, 2005; DuBois, Staley, & Du Bois, 2007; Fleming, 2002; Gerhardt, 2007; Hattie, Biggs, & Purdie, 1996; Hofer & Yu, 2003; Huff & Nietfeld, 2009; Jakubowski & Dembo, 2004; Masui & De Corte, 2005; Nuckles, Hubner, & Renkl, 2009; Orhan, 2008; Stoeger & Ziegler, 2008). Schools and universities have supported students with developing self-regulated learning skills by using the following instructional strategies: (a) domain-specific interventions, (b) curriculum-embedded self-regulated learning, and (c) self-regulated learning strategy

courses. Specifically, researchers found success using domain-specific interventions to target students' self-regulated learning skills in mathematics, science, and reading comprehension (Hattie & Biggs, 1996; Huff & Nietfeld, 2009; Stoeger & Ziegler, 2008). As a result of targeted training in self-regulated learning skills, students developed improved skills in time management, learning goal orientation, self-efficacy, metacognitive monitoring, and overall academic performance that supported their overall student success.

In addition to investigating effects of domain-specific intervention on students' self-regulated learning skills and academic performance, several studies investigated embedding self-regulated learning strategies into existing curriculum to promote students' development of self-regulated learning skills in traditional classrooms (DuBois et al., 2007; Gerhardt, 2007; Masui & De Corte, 2005; Nuckles et al., 2009; Orhan, 2008). The general aim of these studies was to scaffold students' self-regulated learning skill development by prompting learners to reflect on their use of specific self-regulated learning activities that supported their learning goals. For example, scaffolding can include (a) goal setting (Fleming, 2002; Gerhardt, 2007; Kitsantas, Robert, & Doster, 2004), (b) monitoring (Arsal, 2010; Isaacson & Fujita, 2006; van Den Hurk, 2006), and (c) evaluation (Harrison & Prain, 2009; Kramarski & Michalsky, 2009). Research examining curriculum-embedded self-regulated learning produced many positive results including (a) higher grade-point averages, (b) increases in self-regulated learning strategy use, (c) increases in metacognitive awareness, (d) higher self-efficacy and motivation for learning, and (e) increased self-management skills. Overall, students whose self-regulated learning skills were influenced by metacognitive prompts became more aware of when

and how to use self-regulated learning strategies effectively to support their learning goals and adopted self-monitoring and self-evaluation strategies as part of their overall learning practice.

At the postsecondary level, several colleges and universities offer programs to assist students' with the social and academic transition into higher education institutions. In an effort to support student success, academic performance, student retention, and graduation rates, one strategy institutions have developed is self-regulated learning strategy courses delivered in traditional face-to-face classrooms (Bail, Zhang, & Tachiyama, 2008; Burchard & Swerdzewski, 2009; Cukras, 2006; Fleming, 2002; Hofer & Yu, 2003; Jakubowski & Dembo, 2004; Vanderstoep, Pintrich, & Fagerlin, 1996; Weinstein & Acee, 2011). These courses focused on domain-general self-regulated learning strategies to support learning. Specifically, the aim of these courses is to give students strategies that enhance study skills, motivation for learning, and self-regulation. In most cases, students learn to identify and use appropriate strategies effectively based on the learning objective of the task or course (Bail et al., 2008; Cukras, 2006; Ross, 1999; Weinstein & Acee, 2011).

At the community-college level, however, self-regulated learning skills courses typically are not offered. Because students have various distinct goals for attending community colleges that do not always include program completion or transfer to a bachelor's degree granting institution, community colleges tend to focus on solutions centered on academic program advising. For example, Derby and Smith (2004) examined the relationship between participation in an orientation course and several student success measures at a community college. Significant relationships were found between

orientation course enrollment and student success measures, for example, degree attainment, persistence, and drop outs (Derby & Smith, 2004). The focus of the orientation course, however, was not self-regulated learning skills. Course objectives were centered on orienting student to college resources, policies, organization, and career services.

Research, however, conducted with self-regulated learning strategy courses in traditional classrooms, has yielded many positive results including higher cumulative grade-point averages, higher graduation rates, increased strategy use, and self-efficacy for learning (Fleming, 2002; Hofer & Yu, 2003; Jakubowski & Dembo, 2004). Overall findings suggest that student's skill (cognitive) and will (motivation) for learning can improve as the result of domain-general self-regulated learning strategy instruction. Exploring how to achieve similar positive results with domain-general strategy instruction for online students is an area for further research (Barnard-Brak et al., 2010; Cennamo, Ross, & Rogers, 2002; Whipp & Chiarelli, 2004).

The domain-general approach to self-regulated learning instruction lends itself well to online learning environments. As Zimmerman (1988) asserted, learners who develop general self-regulated learning strategies can be purposeful and deliberate about when, where, and how to use strategies effectively to support their learning goals across varying contexts. General strategies that can be applied to different content can support learners' self-regulated skill development no matter the subject matter of the individual course (Zimmerman, 1998). In this case, the context for strategy application is an online learning environment. Additionally, Pintrich (1999) encouraged researchers to ensure that the individual freedom of learners' internalization of self-regulated learning strategies

remains authentic and is not compromised by the potential limitations of domain-specific strategies (Pintrich, 1999b). Individual freedom to engage in the self-regulated learning process where appropriate should remain at the discretion of the individual learner regardless of course content (Kollar & Fischer, 2006).

At community colleges in California, there has been much debate among college administration and practitioners about the shift in responsibility for student success from solely the burden of the individual student to the responsibility of the institution. Researchers argued that the responsibility of the institution extends beyond school policies and advising services into the classroom (Derby & Smith, 2004; Fike & Fike, 2008). As a result, a state-wide taskforce was created to investigate ways to promote student success at community colleges in California. The California Community Colleges Student Success Task Force recommended seven best practices for promoting student success of which included developing instructional strategies to support learning autonomy and promote overall student success (California Community Colleges Student Task Force [CCCSTF], 2012). Curriculum-embedded self-regulated learning strategies help to promote student success within an online course by providing opportunity for students to gain authentic practice in self-regulated learning strategy use while working through their course. Instructional strategies that can be implemented in community-college classrooms to support learner autonomy and promote student success remains an area that is under researched.

As of 2012, there is limited empirical research that focuses on self-regulated learning strategy instruction to develop learners' self-regulated learning skills and support student success within the context of an online course (Andertonn, 2006; Cennamo et al.,

2002; Cho, 2004; Dabbagh & Kitsantas, 2005; Kauffman, 2004; Kramarski & Michalsky, 2009; Yang, 2006). The few studies that exist focused on either the domain-specific instructional strategy (Azevedo & Cromley, 2004; Cho, 2004) or the curriculum-embedded instructional strategy (Andertonn, 2006; Cennamo & Ross, 2000; Kauffman, 2004; Yang, 2006) to develop self-regulated learning skills among online learners. Domain-specific strategies often limit learners' freedom to decide on appropriate strategy use needed to support individual learning goals (Cho, 2004; Kollar & Fischer, 2006). Strategies that assist learner outcomes within one subject area may not transfer to a different subject area, for example, mathematics strategies versus reading comprehension strategies (Fadlelmula & Özgeldi, 2010; Perels, Dignath, & Schmitz, 2009). Curriculum-embedded instruction requires careful analysis and implementation on the part of the individual instructor to achieve appropriate scaffolding to support effectively learners' self-regulated learning skill development. Researchers argued that scaffolding offered in curriculum-embedded instruction does not foster personal agency on the part of learners (Pintrich, 2004; Schunk, 2005).

The present study drew from research on domain-general self-regulated learning (SRL) strategy courses successfully implemented in traditional classrooms and examine the effects of a self-regulated learning strategy intervention on students' self-regulated learning conduct and academic success in an online course. Although the intervention was domain-general in terms of its subject matter and applicability to various academic subjects, implementation of self-regulated learning strategies were embedded within the curriculum of general education online courses to foster personal agency and authentic practice of self-regulated learning skills. As detailed in the Figure 1, by combining

domain-general SRL instruction with curriculum-embedded learning strategies students benefited from opportunities to develop general SRL skills not dependent on course content as well participate in authentic practice of those skills to promote success within the context of an online course.

This study contributed to community-college student success research, online education research, as well as self-regulated learning strategy research by offering an instructional approach that supports students' successful transition into learning effectively in an online learning environment. Implications of this research study may contribute positively to the student success in online learning environments research base by examining self-regulated learning strategy instruction as a prevention strategy for online dropout predictors, intrinsic goal motivation, self-efficacy for learning, and lack of self-regulation strategies.

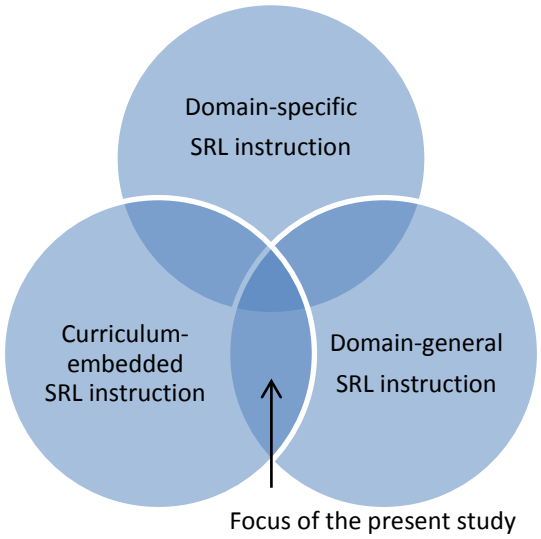

Figure 1. Intersection of SRL instructional approaches for the present study

Purpose Statement

The purpose of this mixed-method within subjects study was to examine the effect of self-regulated learning strategy intervention and structured-diary use on students' self-

regulated learning conduct and academic achievement in general education online courses at a large community college in Northern California. The independent variable was self-regulated learning strategy intervention using the GAME plan framework to introduce self-regulated learning theory, strategy use, monitoring, and evaluation of students' self-regulated learning processes throughout the duration of a 12-week online course. The acronym GAME stands for Goal, Action, Monitor, and Evaluate (Ross, 1999). The dependent variables were students' self-regulated learning conduct scores as measured by scales from the Survey of Academic Self-Regulation (SASR) postintervention as well as academic performance that was measured by the final course grade. Additionally, students completed structured weekly diary reflections, evaluating their self-regulated learning process and perceptions of the GAME plan strategy framework, which serves as the qualitative aspect of the study.

Educational Significance of the Study

Research on self-regulated learning (SRL) strategies has shown that self-regulated learning strategy instruction has a positive effect on academic performance in college and university courses (Greene & Azevedo, 2007; Kitsantas & Zimmerman, 2008). The primary goal of this study was to expand research beyond the positive effect of self-regulated learning strategy instruction on academic performance in traditional face-to-face classrooms and focus on its potential effect on students' self-regulated learning conduct and academic performance in online courses at the community-college level. Results of this study indicated that online learners can be taught to develop self-regulated skills that influenced student success in online learning environments and helped prepare students to learn on their own.

A secondary goal of this research study was to encourage institutions, faculty, and course developers to explore instructional strategies to assist in supporting student success in online courses. Online learning environments do not show any signs of decreasing occurrence frequency (Allen & Seaman, 2009). Allen and Seaman (2011) reported that over 6.1 million students were taking at least one online course during the Fall 2010 term; an increase of 560,000 students over the number reported the previous year (Allen & Seaman, 2011). Additionally, 31% of all higher education students now take at least one course online.

As community-college students continue to choose online learning as the platform to pursue their learning goals, universities are expanding their use of online courses and online programs to keep curriculum options open for current and future students. Allen and Seaman (2011) reported that 65% of all institutions indicated that online learning was a critical part of their long-term strategy. Based on the current trend of online course offerings at colleges and universities, students entering college in the next decade will likely enroll in either a completely online program or an individual online course. Because online learning environments are an educational trend that will continue, institutions need to commit to supporting learners' in their efforts to succeed (Ke & Xie, 2009). Results of this study may encourage intuitions to offer self-regulated learning strategy training to students as a precursor for enrollment in online courses or programs.

The last goal of this study was to raise awareness among online students about their learning process and encourage them to take a more active role in their learning experiences by consistently working through the adaptive process, SRL. Additionally, the research study seeks to inform students considering pursuing higher education in online

learning environments to prepare themselves for the transition to the learning environment that is online by way of building SRL skills to promote academic success, motivation, and self-efficacy.

Theoretical Rationale

Self-regulated learning theory is the prominent theory that supports the theoretical foundation for the present study. It will be described below, as well as a learning strategy framework called GAME plan that was based on self-regulated learning theory.

Self-Regulated Learning Theory

"Self-regulated learning (SRL) is not a mental ability or an academic performance skill; it is a self-directive process by which learners transform their mental abilities into academic skills" (Zimmerman, 2002, p.7). Self-regulated learners set goals, create plans to reach their goals, monitor progress toward their learning goals, and reflect on the effectiveness of their process once their learning goals have been achieved. Zimmerman (2002) argued that self-regulated learners are proactive in their efforts to learn by becoming aware of their strengths and limitations as learners and monitoring their behavior to improve effectiveness. Self-regulated learners are motivated intrinsically to improve their method of learning.

Research on self-regulated learning offers several process models that describe the actions that learners take to achieve their goals (Boekaerts, 1999; Butler & Winne, 1995; Greene & Azevedo, 2007; Perry & Hutchinson, 2008; Pintrich, 1999; Zimmerman, 1990). Although there are differences in process, there are five basic assumptions about learning and regulating that are shared by all SRL models: Learners are active, constructive participants in the learning process. They construct their own meanings,

goals, and strategies from the information available in their internal environment (cognitive system) and the external environment (task conditions, learning context).

Learners are capable of monitoring, controlling, and regulating aspects of their own cognition, motivation, behavior, and context.

Behavioral, developmental, contextual, and individual differences can inhibit learner's ability to monitor his or her cognition, motivation, behavior, or context.

The learning process is one in which the learner sets goals or standards to strive for, monitors the progress toward them and adapt (regulate) cognition, motivation, behavior, and context in order to achieve these goals. Self-regulatory activities are mediators between personal characteristics and contextual features, and actual performance in the learning process. Achievements and learning are influenced by the learner's self-regulation of his or her cognition and behavior, which mediates between his or her personal and the contextual (learning environment) characteristics.

For the purpose of the current study, Zimmerman’s (2001) operational and concise cyclical model of SRL phases epitomizes the operational aspects common among models, and at the same time it is simple enough to be understood by teachers, course designers, and learners alike, and thus can lend itself more easily to mindful and autonomous use. The details of Zimmerman’s (2001) model of SRL are included in Figure 2.

Figure 2 describes SRL theory as determined by Zimmerman (2001) that relies on learners completing a process that involves three phases: forethought, performance, and self-reflection. The forethought phase refers to processes that occur before efforts to learn aimed at enhancing performance. The forethought processes, which are done before

learning, include meta-cognitive processes such as task analysis, goal setting, and strategic planning, as well as self-motivation from sources such as task interest or values, self-efficacy beliefs, and intrinsic motivation.

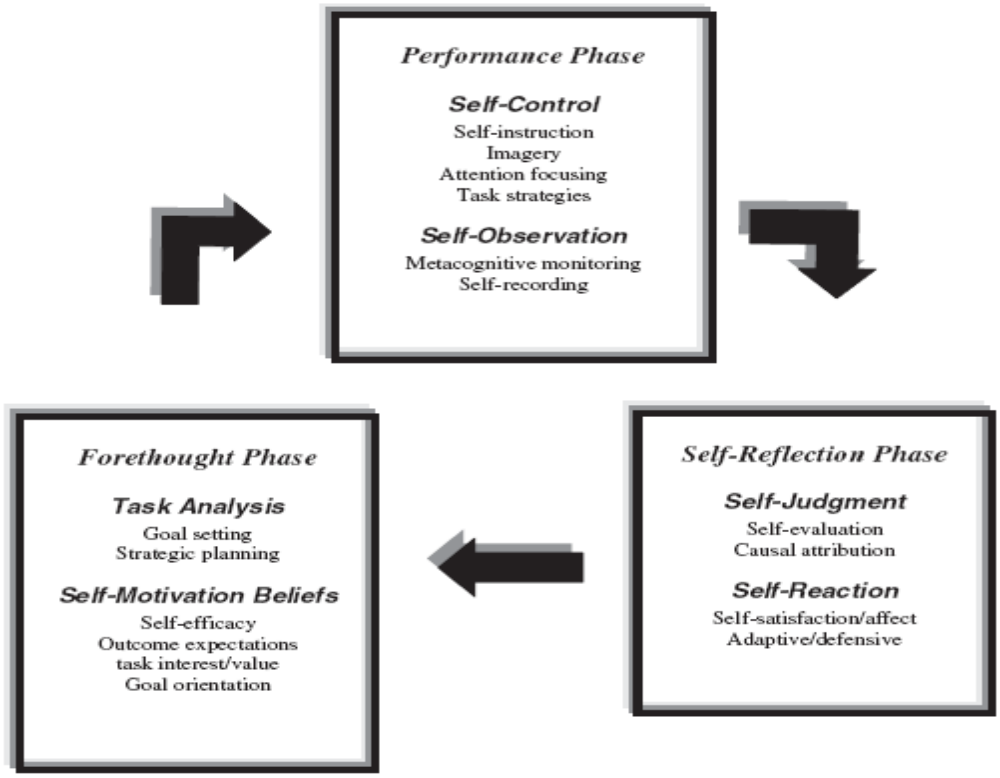

Figure 2. Phases and Sub processes of Self-Regulation. From B.J. Zimmerman and M. Campillo (2003), "Motivating Self-Regulated Problem Solvers." In J.E. Davidson and Robert Sternberg (Eds.), *The Nature of Problem Solving*. New York: Cambridge University Press.

The performance phase refers to processes that occur during learning aimed at enhancing the quality and quantity of the learner's performance. The performance phase includes the use of meta-cognitive and behavioral self-control strategies that were selected during the forethought phase such as strategies of imagery, self-instruction, attention focusing and task strategies, and self-observation strategies such as meta-cognitive monitoring and behavioral recording.

The self-reflection phase refers to the processes that occur after learning aimed at influencing forethought concerning subsequent learning efforts. The self-reflection phase involves meta-cognitive self-evaluation of the performance (comparison of self-observed performance against some standard, such as prior performance, others' performance, or a standard of performance), as well as affective and motivational reactions to the self-regulatory efforts, such as causal attributions to personal control, feelings of self-satisfaction or affect, and adaptive rather than defensive self-reactions. SRL theory promotes students' ability to become experts in moving through these phases to improve their learning process for optimum performance.

Self-regulated learning theory provides a theoretical foundation for examining the efforts of learners to succeed in online learning environments. SRL theory supports learners' efforts to shift from reactive learning strategies to proactive learning strategies. Proactive learning strategies can have a direct effect on learning outcomes. Student learning outcomes and preparation to learn on their own is related to their success in online learning environments (Schaffhauser, 2009). SRL theory further supports the exploration of the relationship between students' ability to increase self-regulated learning skills and learning outcomes that promote student success in online environments, which were examined in this study.

GAME Plan Learning Strategy Framework

There are several self-regulated learning strategies that can be used to support learners' development of self-regulated learning skills: self-evaluation, organizing and transforming, goal setting and planning, keeping records and monitoring, and elaboration (Zimmerman & Martinez-Pons, 1988). Additionally, many interventions have been

developed to implement instructional approaches aimed at developing students' self-regulated learning skills. Although there are differences in instructional approaches for developing self-regulated learning skills, researchers agreed that students benefit from self-regulated learning strategy instruction that includes goal setting and planning, applying appropriate strategies to learning goals, monitoring progress toward goals, and self-evaluation of one's learning process (Bail et al., 2008; Burchard & Swerdzewski, 2009; Cennamo et al., 2002; Cho, 2004; Dembo & Jakubowski, 2004; Fleming, 2002; Hofer & Yu, 2003). The comprehensive approach to teaching self-regulated learning skills supports learners' adoption of the forethought, performance, and reflection phases of the self-regulated learning process, outlined in models of self-regulated learning (Schunk & Zimmerman, 2007; Zimmerman, 1998). The GAME plan metacognitive strategy is a comprehensive approach that captures all aspects of the SRL model described earlier.

Ross (1999) developed the mnemonic learning strategy GAME plan to provide a clear reminder for students of the steps to follow in the self-regulated learning for the process. The acronym GAME stands for Goal, Action, Monitor, and Evaluate (Ross, 1999). Goal refers to the forethought phase of the SRL model that typically takes place before learning where task analysis, goal setting, and outcome expectations are set by the learner. Action or Monitor refers to the performance phase of the SRL model where learners engage in learning strategies and metacognitive monitoring of their progress toward goals. Evaluate refers to the self-evaluation phase of the SRL model in which learners reflect on outcomes in relation to their goals and make plans for adjustment as necessary.

Ross' (1999) initial interest in self-regulated learning was specific to utilizing course design and enhanced technology to support student learning. The GAME plan was used to structure learning activities in the course appropriate for each stage of the plan and provides tools for student use, for example, to support student goal setting, tools provided included topic outlines, study guides, and goal checklists used to create time-dependent goals identified by the individual student. Students were offered several practice tests and exercises to monitor their knowledge acquisition. Students were provided feedback regarding both right and wrong answers with prompts to ensure that the students knew where in the course material to reference accurate information. Finally, students evaluated their actions by completing an online quiz for credit and reviewing their grades.

Ross (1999) compared students' scores on the MSLQ from the beginning and end of the course, and the results indicated that students significantly increased their metacognitive self-regulation abilities, decreased their test anxiety, and increased their self-efficacy for learning and performance. No statistical data were provided, however, in this study to indicate the numerical statistical significance of these findings. In addition, qualitative data were collected through semi-structured interviews conducted by members of the course design team to assess the effectiveness of GAME plan as a useful strategy for increasing self-regulated learning competence and supporting learning in a web-based course. Students reported that the GAME plan strategy influenced their strategic approach to learning. Specifically, they perceived the Goal Checklist as an effective tool for planning their learning activities as well as the practice quizzes an effective tools for monitoring progress toward learning goals. Findings suggest that providing students with

a mnemonic strategy that reiterates a procedural framework to support their self-regulated learning competence can be beneficial for online learners. Within the context of the current study, the GAME plan was a precise strategy that targeted all phases of the self-regulated learning process. Students had opportunity to engage in goal setting, performance control (action), metacognitive monitoring, and evaluation of learning outcomes thus enhancing their overall strategic approach to learning in the online environment and overall success.

Background and Need

In this section, a background of online student success in community colleges, self-regulated learning in online learning environments and instructional approaches to developing learners' self-regulated learning skills will be provided as well as a justification as to why the current study was needed. To begin, an explanation of the importance of student success in online courses and the factors that influence student success in online courses is provided followed by information regarding best practices for developing online self-regulated learners. Next, several aspects of self-regulated learning instructional approaches are presented as follows: (a) instructional strategy tools, (b) course design, and (c) explicit strategy instruction. Features and benefits of each instructional strategy will be discussed within the context of online learning environments.

Restatement of the Problem

The frequency of courses delivered online has increased dramatically since 2006. Specifically, 72% of community colleges consistently offer courses in the online learning format (Allen & Seaman, 2009). As colleges continue to increase online learning course

offerings, student enrollment in online courses continues to rise. Over 6.1 million students were taking at least one online course during the Fall 2010 term, an increase of 560,000 students over the number reported the previous academic year (Allen & Seaman, 2011).

Students' transition to learning in the online environment is not always successful. Moore et al. (2003) analyzed archival data from student records over six semesters at a community college to assess differences in noncompletion rates of students enrolled in traditional face-to-face courses versus those enrolled in fully online courses. Non-completion rates in this study were defined Withdrawal (W) or Failure (F) of the enrolled course. Noncompletion rates in online courses were 10-20% higher than non-completion rates in traditional courses. Noncompletion rates for traditional courses ranged from 20.6% to 24%, whereas rates in online course sections ranged from 25.9% to 30.2%. Additionally, Moore et al. (2003) analyzed differences in successful completion rates in traditional face-to-face courses versus those enrolled in fully online courses. A grade of C or better was used to define successful course completion. Overall successful completion rates for online students were 13.9% lower than successful completion rates of traditional students.

The Importance of Preparedness for Student Success in Online Courses

Student success in online courses is important to ensure that students are persisting through courses and moving forward with their educational goals. Managing student success in online courses requires greater learner autonomy, academic readiness, and individual responsibility (Andrade & Bunker 2009; McBrien, Jones, & Rui Chang, 2009). Researchers have found that learners are not prepared for the transition into online

learning environments where the expectation is that learners' will self-regulate effectively their academic performance autonomously (Artino, 2009; Harrell, 2008; Hu & Gramling, 2006; Thomas & Gadbois, 2007). Additionally, researchers have found that lack of learner preparedness negatively influences student retention, progress toward degree completion, and academic performance (Allen & Seaman, 2006; Bol & Garner, 2011; Harrell, 2003; Lynch & Dembo, 2004; Sunal et al., 2003; Willging & Johnson, 2004). Lack of student preparedness for learning in online learning environments effect both individual students and institutions. For individual students, lack of preparedness for online learning can lead to frustration, potential course withdrawal, unfavorable academic outcomes, and delayed progress toward educational goals. For institutions, online course offerings give universities the opportunity to attract more students, but learner preparedness hinders their ability to retain these students until they achieve their educational goals (Diaz, 2002; Snyder, 2001). Community colleges and other institutions of higher education are required to retain students through graduation to maintain regional accreditation standards (Liu et al., 2007). Additionally, because online learning environments as methods for course delivery are an educational trend that will continue, the commitment of institutions to support learners' in their efforts to succeed in this environment is important (Ke & Xie, 2009).

Online Student Success at Community Colleges

At the community-college level, empirical studies focusing on student success in online courses is scarce. The few studies examining student success in online courses did so through the lens of retention (Aragon & Johnson, 2008; Doherty, 2006; Moore et al., 2003). Doherty (2006) investigated student demographics, student learning styles, course

communication, and external factors that influence student retention in web-based courses at two community colleges. Results indicated that time management; procrastination, student engagement, and motivation for learning are the primary reasons that community college students are not retained in web-based courses. Aragon and Johnson (2008) investigated differences in demographics, academics, and learning characteristics of completers and noncompleters of an online course at a community college. Aragon and Johnson (2008) found no statistically significant differences in demographics and learning characteristics between online course completers and non-course completers. There is contradictory evidence that suggests that there are indeed differences based on demographics at the community-college level particularly, gender, ethnicity, and, and financial circumstances, described in models of postsecondary student persistence (Hirschy, Bremer, & Castellano, 2011; Tinto, 2006). Aragon and Johnson (2008) found statistically significant differences were in academic readiness measured by grade point averages of online course completers and noncourse completers. Findings suggest that students' success in online courses at the community-college level is influenced by student attributes; however, the ways in which students approach learning in online courses in order to promote success (motivation, self-regulation, and academic performance) is an area for further research. The current study investigated how students approached learning in an online course when given self-regulated learning instruction and tools to promote their success.

Factors that Influence Student Success in Online Learning Environments

Student success in online learning environments research has focused primarily on exploring factors that influence student success (Bol & Garner, 2011; Bozarth,

Chapman, & LaMonica, 2004; Harrell, 2008; Stephens & Artino, 2009; Yukselturk & Bulut, 2007). Researchers found that the factors that influence student success are student readiness (Harrell, 2008), instructional design (Bozarth et al., 2004), time management (Roper, 2007), motivation for learning (Stephens & Artino, 2009), student characteristics (Waschull, 2005), and self-regulated learning skills (Whipp & Chiarelli, 2004; Yukselturk & Bulut, 2007).

Student Readiness for Online Learning

Harrell (2008) argued that institutions should use instruments to assess students' readiness to participate in online learning environments. Harrell (2008) posited that readiness instruments evaluate students' individual characteristics, such as learning style, locus of control, computer skills, and self-efficacy, to investigate if an individual's characteristics are congruent to the skills and abilities needed to be successful in the online environment. In a preliminary investigation, Harrell (2008) found that readiness instruments identified potential at-risk students based on the results of their assessment. Harrell (2008) made the recommendation that students' identified as "at-risk" for success in online learning environments should receive an orientation to knowledge, skills, and attitudes necessary for success in online courses sponsored by individual institutions. Institutional assessment of characteristics that contribute to student readiness for online learning is similar to self-report questionnaires such as the MSLQ and the Learning and Study Strategy Inventory (LASSI) often used in the self-regulated learning research to assess students' motivation, strategy use, and self-efficacy for learning. Therefore, the suggestion that institutions should evaluate students' readiness for online learning is in keeping with the established need to assess learners' approach to new learning

environments already established in self-regulated learning research. The key difference would be determining if the task of evaluating student readiness for online learning falls on the individual institution or the individual student.

Students' readiness for online learning or lack thereof directly affects student success (CCCSSTF, 2012). Students as individuals are stakeholders of their individual success. Additionally, institutions are stakeholders in student success. Student success in online courses affects student retention, revenue, and degree completion rates, all statistics relevant for maintaining regional or national accreditation. Therefore, institutions should remain vested in the success of their online students (CCCSSTF, 2012; Doherty, 2006; Morris et al., 2005). The current study approached student readiness for online learning by evaluating results of the Survey of Academic Self-regulation (SASR) that was completed by students before the self-regulated learning strategy intervention.

Instructional Design and Online Learning

In addition to assessing student readiness to promote student success in online courses, Bozarth et al. (2004) investigated how instructional design principles could be applied to design and develop the structure of an online education course to address the needs of novice online learners and promote student success (Bozarth et al., 2004). Preliminary analysis of learner needs prior to final course design indicated that learners needed to understand fully the commitment of autonomous learning and develop strong time-management skills. Further results from the survey conducted as part of their needs assessment indicated that the biggest risk for student success in online courses was students' ability to manage their learning in the new environment. Based on the results of

their needs analysis, the final proposed course design included a general orientation of learner expectations for online courses was composed of (a) time-management strategies, (b) online technology overview, and (c) learning strategy tips. Bozarth et al. (2004) posited that a general orientation to online learning clarifies student expectations for learning in online courses that in turn will promote their overall success. Much like Harrell (2008), Bozarth et al. (2004) suggested similar solutions for promoting student success online, student readiness, and managing expectations for the transition to online learning environments. Even though survey findings informed the design of the online orientation; final implementation of the completed orientation course did not take place. The suggested solutions for promoting student success online informed the instructional design of the self-regulated learning strategy instruction in the present study. Specifically, the study included time-management strategies and learning strategy tips as part of the self-regulated learning strategy intervention to promote student success.

Student Characteristics for Student Success in Online Courses

Waschull (2005) developed and administered a questionnaire to measure seven characteristics of student success in online courses (Waschull, 2005). The following characteristics were included in the questionnaire based on prior research assumptions of Schrum and Hong (2001): personal traits, lifestyle factors, motivation, study skills, a preference for text-based learning, access to technology, and technology experience. Waschull (2005) was interested in learning what student characteristics contributed to students' readiness to meet the performance demands of an online course defined by the following four measures: test score average, assignment average, final exam score, and final course average. Results indicated that only responses to the self-discipline or

motivation subscale statistically significantly correlated with test score average (r =.44), assignment average (r =.29), final exam score (r =.36), and final course average (r =.43). These findings differ from that of Schrum and Hong (2001) who found that the subscales of access to technology and technology experience were statistically significantly correlated with student success in online courses. Findings of this study were inconclusive based on the low reliability of subscales used to complete the analysis. Preliminary results, however, are in keeping with the original exploratory intent of this research study. In the online learning environment, elements of the self-regulated learning construct, in this case, self-discipline and motivation are important to student success online.

To investigate the relationship between online student success and the following variables: gender, age, educational level, locus of control, learning styles motivational beliefs, and self-regulated learning strategy use (cognitive, metacognitive, and resources strategies), Yukselturk and Bulut (2007) used the MSLQ in conjunction with semistructured interviews. Student success in this study was measured by academic scores on three assignments administered during the course and a final examination score for each study participant.

General findings indicated moderate statistically significant correlations between educational level and with student success, r =-.28, locus of control and student success r = -.34, intrinsic goal orientation and student success, r =.36, task value and student success r = .28, self-efficacy and student success r = .39, self-regulation and student success, r =.39, and cognitive strategy use and student success r =.24. To further analyze the relationship between student success and self-regulation, the research team conducted

a regression analysis with one variable, self-regulation, which explained 16.4% of the variance, R^2 =.16, adjusted R^2 =.15 F (1, 74) = 14.53, which is statistically significant. Yukselturk and Bulut (2007) posited that because the relationship between the self-regulation variable and student success was statistically significant, future research should consider how self-regulation among learners can be fostered within the context of online courses. Additionally, they suggested that the responsibility of ensuring student success online requires that teachers, course designers, institutions, and students all work together to set clear expectations for preparation and active participation in an online course.

In summary, within the context of research of online student success, there is an established need for further investigations of the following factors that contribute to overall student success: (a) assessment of student readiness, (b) student orientations emphasizing expectations for effective management of learning outcomes, (c) development of time-management skills, (d) development of appropriate learning strategies, (e) student motivation, and (f) promotion of self-regulated learning principles. Student preparedness for learning online is essential to student success. The self-regulated learning process can help students prepare an effective approach to learning in online courses and support their success. Several researchers have made suggestions on how to influence factors that contribute to student success online; yet despite the suggestions for future research, there has been little empirical support established for the results of implementing these factors in support of student success (Bozarth et al., 2004; Harrell, 2008; Roper, 2007; Stephens & Artino, 2009; Yukselturk & Bulut, 2007). All suggestions for future research imply that implementation is the next step. The current

study investigated the implementation of a self-regulated learning strategy intervention for online students to promote student success as measured by final course grades.

Developing Self-Regulated Learners in Online Courses

Developing online learners, researchers agree that self-regulation support is crucial to the development of students who are new to online learning environments (Bol & Garner, 2011; Jantz, 2011; Terry & Doolittle, 2006) . Additionally, strategic design of self-regulation support must focus on and simultaneously address content knowledge acquisition as well as self-regulated learning skill acquisition. Successful self-regulated learning support for online learners must include the following three attributes: (a) assist students with development self-regulatory strategies and behaviors, (b) help students transfer self-regulatory strategies and behaviors to different learning environments, and (c) address students' motivation for learning and adaptation to changes in the learning environment.

Jantz (2011) posited that the most effective way to support the development of self-regulated learning skills in online learners is through targeted instruction tutorials aimed at specific skill development followed by opportunities for students to practice their new self-regulated learning skills in "real-world" situations (Jantz, 2011). This integrated approach to supporting self-regulated learning helps students learn to transfer self-regulatory skills from the context in which they are taught to the context to which they can be applied directly. Terry and Doolittle (2006) agreed that the integrated approach of delivering targeted strategy development in conjunction with relevant skill practice is important to ensuring that students continue to use their skills to promote future success in online courses (Terry & Doolittle, 2006). Even though, the consensus on

approach to effective self-regulated learning development, neither Jantz (2011) nor Terry and Doolittle (2006) put forth any empirical support for the best practices. The present study will use an integrated approach to supporting self-regulated learning by introducing students to the GAME plan framework that includes learning strategies applicable to their online course. Additionally, the present study will provide students with opportunities to test their self-regulated learning strategies, monitor activity, and evaluate results within the context of their online course.

Self-Regulated Learning Strategy Instruction to Promote Student Success

In online learning environments, self-regulated learning strategy instruction used to develop self-regulated learners and promote student success has paid particular attention to the importance of metacognitive strategies as the preferred type of strategy most effective for promoting student success in online learners (Andertonn, 2006; Cennamo et al., 2002; Chang, 2007; Cho, 2004; Dabbagh & Kitsantas, 2005; Roper, 2007). Metacognitive strategies include planning, goal setting, monitoring actions, and evaluating progress. Researchers investigating online learning environments have examined teaching self-regulated learning metacognitive strategies in three ways: (a) utilizing curriculum-embedded instructional strategy tools to prompt metacognitive strategy use (Andertonn, 2006; Chang, 2007; Dabbagh & Kitsantas, 2005), (b) instructional course design with curriculum-embedded strategies (Cennamo et al., 2002; Cho, 2004; Ross, 1999), and (c) domain-specific explicit instruction in self-regulated learning strategies to influence students' self-regulated learning competence (Azevedo & Cromley, 2004; Cho, 2004; Fadlelmula & Özgeldi, 2010). All three approaches to

teaching self-regulated learning strategies focus on domain-specific or curriculum-embedded solutions that support self-regulated learning in isolated contexts.

Curriculum-Embedded Instructional Strategy Tools

Using instructional strategy tools to prompt metacognitive strategy use, Dabbagh and Kitsantas (2005) worked with undergraduate students (n=64) to investigate how web-based pedagogical tools (WBPT) could be used to promote students' self-regulated learning skill development. The specific SRL skills that were emphasized by the WBPT were self-reflection, self-observation, self-awareness, and social negotiation; all attributes used most frequently in the self-reflection phase of self-regulated learning in an online course. Four categories of WBPT were used in their investigation: assessment tools (e.g., checking grades), administration tools (e.g., calendar), content creation or delivery tools (e.g., course information and sample projects), and collaborative and communication tools (e.g., email, discussion boards). Overall, students reported that self-evaluation goal setting and task strategies were influenced most frequently by the above instructional strategy tools. Limitations from this study were related to the level of instructor competency and understanding of how to best integrate instructional strategy tools effectively into curriculum to support student learning. At the community-college level, many instructors are part-time adjunct instructors who are subject-matter experts hired specifically to teach certain course content. Instructional pedagogy of part-time adjunct instructors varies and is often not focused on promoting student success beyond content knowledge (Bonk & Dennen, 2003). Curriculum-embedded solutions require forethought and careful consideration of learners needs in order to promote student success in online courses. The time, preparation, and pedagogical perspective needed to execute

curriculum-embedded solutions effectively may be beyond the scope of part-time adjunct faculty (Gailbrath & Shedd, 1990). The current study utilized a domain-general approach to promoting metacognitive strategy use among online students that does not rely heavily on instructor competence or pedagogical perspective and can be utilized with varying course content.

Instructional Design with Curriculum-Embedded Strategies

Cennamo, Ross, and Rogers (2002) designed and developed a web-based course in human development for undergraduates to scaffold students' metacognitive self-regulated learning strategy use integrated with course curriculum. Consistent with the idea of scaffolding, they utilized the mnemonic learning strategy GAME plan to support students' implementation of the steps to follow in the self-regulated learning for the process. The acronym GAME stands for Goal, Action, Monitor, and Evaluate. GAME was used to structure learning activities in the course appropriate for each stage of the plan and provided tools for student use. Comparisons of students' scores on the MSLQ from the beginning and end of the course indicated that students statistically significantly increased their metacognitive self-regulation abilities, decreased their test anxiety, and increased their self-efficacy for learning and performance. Findings suggest that providing students with a mnemonic strategy that reiterates a procedural framework to support metacognitive strategy use supports their development of self-regulated learning skill. Details regarding statistical significance of these findings, however, were not provided. Therefore, it is difficult to assess the statistical significance of the results. Through semistructured interviews, students reported that the GAME plan strategy influenced their strategic approach to learning. Although the current research on GAME

plan utilizes the strategy framework as a curriculum-embedded solution for supporting SRL skill development in online learners, the present study extended the GAME plan strategy framework by investigating how it could be repurposed to support domain-general metacognitive strategy instruction as a means for developing self-regulated learning skill in support of student success in online courses.

Domain-specific explicit instruction in self-regulated learning strategies. Cho (2004) used a domain-specific approach to deliver explicit strategy instruction to undergraduates preparing for the Test of Written English (TWE). Cho delivered 12 individual lessons to students in the experiment group that featured activities on how to use each of the following self-regulated learning strategies: (a) goal setting, (b) self-monitoring, (c) self-evaluation, (d) rehearsal, elaboration, and organization, (e) time management, (f) help seeking, (g) self-efficacy, and (h) volition. Academic outcomes and self-regulated learning questionnaire scores from both the comparison group and the experimental group were compared. No statistically significant differences were found between groups in academic outcomes or self-regulated learning skill assessment.

Based on the results, the SRL intervention in the Cho (2004) study was ineffective. There were several limitations that may have affected the results. The first major limitation with the Cho (2004) study was the decision to not introduce students to the construct of self-regulated learning and emphasize how self-regulated learning can support their learning in an online course. Students were unclear on the benefits of learning self-regulated learning strategies and the connection between self-regulated learning skill practice and their success on the TWE exam. The second major limitation of the Cho study was the type of SRL activities embedded into the TWE curriculum. The

focus primarily was on cognitive strategies that included rehearsal and memory aids, organizing and transforming information, note taking, and test review. Researchers posited that rehearsal, memorization, and reviewing of flashcards, are considered low-level strategies that imply surface processing that focuses primarily on in-take of knowledge or memorization of knowledge for regurgitation (Bell, 2007; Jairam & Kiewra, 2010; Matuga, 2009; Whipp & Chiarelli, 2004). In contrast, high-level strategies that include self-evaluation, chunking material and study time, and using mnemonics, imply deep processing of material and focus primarily on construction of knowledge for meaning and application (Jairam & Kiewra, 2010; Matuga, 2009). The last major limitation of the Cho study was the lack of student autonomy and choice in utilizing the self-regulated learning process to support their individual goals. Students reported that the SRL activities felt forced and rigid in their construction that did not allow for students to tailor SRL skills practice to their individual needs. The rigid approach to SRL skill practice lead to student apathy and decreased motivation for learning TWE material.

The present study focused on extending Cho's (2004) research. Specifically, the self-regulated learning strategy intervention included an introduction to self-regulated learning as a construct that can assist learners managing their learning goals in an online environment. Additionally, the present study introduced a high-level SRL strategic framework that focused on goal setting, self-evaluation, and monitoring of activities in support of individual learning goals and that focused on domain-general self-regulated learning strategies that can be used to support student learning in varying course contexts. Last, the present study allowed for student autonomy and responsibility to make

individual decisions regarding which SRL strategies to use to support their individual learning.

Summary

The few studies that have focused on self-regulated learning strategy instruction to develop self-regulated learning skills and promote student success in online learning environments have utilized curriculum-embedded and domain-specific approaches to design and integrate applicable self-regulated learning strategies, scaffolds, and learner practice into the delivery of course material (Cennamo et al., 2002; Cho, 2004; Dabbagh & Kitsantas, 2005). The curriculum-embedded and domain-specific approaches, however, currently researched in self-regulated learning strategy instruction in online learning environments, are not in keeping with the suggested best practices to support self-regulated learning outside of isolated contexts (Jantz, 2011; Terry & Doolittle, 2006). Findings from these studies that utilized this approach indicated that students' transfer of self-regulated learning skills and behaviors were not always successful (Chang, 2007; Cho, 2004; Dabbagh & Kitsantas, 2005). Even though there is conflict in instructional approaches, students can benefit from domain-specific explicit instruction in self-regulated learning strategies (Azevedo & Cromley, 2004; Cho, 2004). Additionally, learning explicit strategies without exposure to the overall process of self-regulated learning and the rationale for how the process can support learning goals outside of the intervention is ineffective. In addition, careful consideration of how to provide opportunities for authentic practice outside of experiment conditions is an area for further research (Andertonn, 2006; Azevedo & Cromley, 2004). Overall findings suggest that the elements needed to develop effectively self-regulated learning skill in support of student

success for online learners includes course design, explicit strategy instruction, scaffolding, student evaluation of learning outcomes, and opportunities for “real-world” practice. Establishing empirical support for utilizing all of the above elements to promote student success in online courses remains an area for future research.

The focus of the present study incorporated utilizing the GAME plan framework to design a domain-general intervention to deliver explicit instruction of specific metacognitive strategies that promoted students’ development of self-regulated learning skill competence in online learning environments while keeping the focus on promoting transfer of self-regulated learning skills to different learning contexts outside the parameters of the present study. Effectiveness of this instructional approach to self-regulated learning strategy instruction for online students was determined by comparison of final course grade to student assessment of self-regulated learning skills after the instruction and authentic practice.

Research Questions

The current study investigated the following four research questions:

1. To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) pre-intervention (week 3) and the end of the intervention (week 11)?
2. To what extent is there a statistically significant relationship between students’ self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?

3. How are students utilizing the GAME plan framework to support their learning in an online course?
4. What are students' perceptions of the effectiveness of the SRL intervention?

Definition of Terms

This section includes the definitions of main terms and concepts that were used in the current study. Although, there may be alternative ways to define terms included in this section, the definitions provided in this section are the operational definition of terms in the study.

Cognitive learning strategies are intentional manipulation of information through processes like repetition, elaboration, and reorganization such that the new information can be stored in the learner's associate network and accessed for retrieval. It is goal directed, intentionally invoked, and effortful (Weinstein & Mayer, 1991).

Community College refers to a 2-year institution offering associate's level degrees, transfer credit to 4-year colleges and universities, certificates, and enrichment courses. Enrollment is open to high-school graduates of adults over the age of 18 with varying levels of academic proficiency (Bragg & Durham, 2012).

Curriculum-embedded self-regulated learning as defined within the context of the current study was when curriculum or course content has been designed to integrate applicable self-regulated learning strategies, scaffolds, and practice into the delivery of course material to promote development of self-regulated learning skills (Dabbagh & Kitsantas, 2004). In the study, the GAME plan framework was embedded into course curriculum as study- skills activities that students completed for course credit throughout the duration of their courses.

Domain-general self-regulated learning strategies refer to self-regulated learning strategies that are not specific to individual course content and can be repurposed with varying content, for example, goal-setting strategies can be used with mathematics content and science content (Boekaerts & Cascallar, 2006). In the study, domain-general self-regulated learning strategies were introduced as part of the GAME plan framework instruction video.

Domain-specific self-regulated learning strategies refer to self-regulated learning strategies that are specific to academic outcomes within a particular domain, for example, self-regulated learning strategies have been developed specific to support learners with the context of writing (Harris, Graham, & Mason, 2006) and in mathematics (Cleary & Zimmerman, 2004). In the study, domain-specific self-regulated learning strategies are discussed in the literature review to provide support for the instructional design of the current study.

Extrinsic Goal Setting is the process in which students translate their needs, expectations, and wishes into intentions while weighing the feasibility and desirability of their desired end state. For the purposes of this study, goal setting was focused on specific, measurable, action-oriented, realistic, and timely (SMART) goals that support learning outcomes. SMART goals are specific, measureable, attainable, realistic, and time-oriented (Locke & Latham, 1990).

Intrinsic motivation is defined as learners engaging in a chosen activity such as reading without obvious external incentives. Learners engage in this activity for no reward other than their own enjoyment (Stroud & Reynolds, 2006). An intrinsically motivated student, for example, may want to get a good grade on an assignment, but if the assignment does

not interest that student, the possibility of a good grade is not enough to maintain that student's motivation to put any effort into the project. In the study, learners' intrinsic motivation was assessed as part of the Survey of Academic Self-Regulation before and after intervention to determine changes in students' perceptions of their intrinsic motivation during their online courses.

Learning Strategies are thoughts, behaviors, beliefs, or emotions that a learner engages in during learning and that are intended to influence the learner's encoding process to facilitate the acquisition, understanding, or later transfer of new knowledge and skills (Weinstein et al., 2000). Strategies typically are purposeful and goal-oriented but are not always carried out at a conscious or deliberate level. Learning strategies can be lengthy or extremely rapid in execution that learners' often cannot recapture, recall, or even be aware that they has used a strategy. In the current study, students were asked to assess and evaluate the learning strategies that they implemented during use of the GAME plan framework to support their online learning goals.

Metacognitive learning strategies refer to learning strategies that support the facilitation and regulation of cognitive processes, specifically, goal setting, strategic planning, monitoring of strategy use, and self-evaluation (DuBois et al., 2007). In the study, the GAME plan framework was a comprehensive metacognitive learning strategy that learners used to support their academic success in an online course.

Metacognition is defined as the knowledge of one's knowledge, processes, and cognitive and affective states and as the ability to monitor and regulate consciously and deliberately one's knowledge, process, and cognitive and affective states (Flavel, 1979). In the current study, learners' metacognition and awareness of their self-regulated learning process took

place throughout the study as part of the weekly monitoring and evaluation of progress toward learning goals.

Monitoring in the current study referred to the degree to which students keep track of their level of mastery of materials and progress toward goals to regulate their behavior, strategy use, and motivation and to affect learning outcomes (Isaacson & Fujita, 2006). Students participate in weekly monitoring of their self-regulated learning process by completing structured diary responses.

Motivation for learning relates to learners' desire to learn. Motivation influences what learning strategies students used and the effort learners put forth to carry out learning strategies. Many factors influence learners' motivation in online learning environments including attribution for success, interest, and procrastination (Zimmerman, 2010).

Online course is defined as a course where most of all of the content is delivered online via the Internet. The typical portion of course content necessary to use the term online course is 80%. There typically are no face-to-face meetings between students and the course instructor (Allen & Seaman, 2011). In the current study, study participants were enrolled in sections of courses where 100% of the course material was offered online.

Online learning environment goes beyond the replication of learning events that have occurred traditionally in the classroom and are now made available through the Internet (Garrison, Anderson, & Archer, 2001). Within the context of the current study, online learning environments include online courses as well as web-based learning environments (WBLE), computer-based learning environments (CBLE), and hypermedia environments.

Online Program is defined as degree program where 100% of courses in the curriculum of the program are delivered online via the Internet (Allen & Seaman, 2011).

Self-efficacy is the conscious awareness of one's ability to be effective and to control actions or outcomes (Bandura, 1986). In terms of self-regulated learning, self-efficacy is the degree to which a person believes that he or she capable reaching his or her learning goals (Zimmerman et al., 1996).

Self-evaluation refers to degree to which students compare self-monitored information with a standard or goal and judge the adequacy of their performance relative to the standard or goal. Evaluation of learning outcomes (goals) in relation to the self-regulated learning process happens several times throughout learning scenarios for effective self-regulated learners (Boekaerts & Cascallar, 2006).

Self-regulated learning or Self-regulation consists of self-generated thoughts, feelings, and actions that are planned and systematically adapted as needed to affect one's learning and motivation (Schunk, 1994; Zimmerman, 2000)

Self-regulated learning conduct is described as the general effort that individuals purposefully enact to initiate, maintain, or supplement their willingness to start, to provide work toward, or to complete a particular activity or goal (i.e., their level of motivation). This form of regulation is achieved by deliberately intervening in, managing, or controlling one of the underlying processes that support learning. At a general level, self-regulated learning conduct encompasses those thoughts, actions, or behaviors through which students act to influence their choice, effort, or persistence for academic tasks (Wolters, 2003; Zimmerman, 2002) .

Self-regulated learning strategies are actions and processes that are directed at acquiring information and skills that involves agency, purpose, and perceptions by the learners. These actions encourage learners' active participation in their own learning process guided by meta-cognition, strategic action, and motivation to learn (Pintrich, 2000; Zimmerman, 1986).

Self-regulated learning strategy courses. Research in cognitive psychology had shaped a clear theoretical basis for teaching cognitive and affective learning strategies at the college level (Weinstein & Mayer, 1986). Undergraduate learning-to-learn or self-regulated learning (SRL) strategy courses assume that SRL is controllable and that students can learn to self-regulate, primarily through greater metacognitive awareness and through the implementation of cognitive and affective strategies in the academic situations they encounter (Bail et al., 2008; Hofer & Yu, 2003). Heavy emphasis is laid on students becoming more aware of their thoughts and behaviors while encountering typical academic tasks such as clarifying academic goals, monitoring their application of the strategies, evaluating their success with the strategies used, and modifying their approach as necessary. Self-report measures of SRL are administered at the beginning and end of the course, and students are encouraged to reflect on how they can best use the results to modify their control of various academic situations. Key concepts are introduced in the context of principles of cognitive psychology or motivational theories. Students practice the strategies and receive feedback on their attempts. Content areas within the course largely reflect those recurring academic tasks deemed critical for academic success: short-term goal setting, time management, note taking, text comprehension, planning and writing course papers, exam preparation, test taking, stress

management, resource identification and utilization, and self-management (Vanderstoep et al., 1996).

Student Retention is the rate at which universities are able to retain students' active enrollment from term-to-term once they have matriculated into degree-seeking programs. Student retention is reported typically in terms of a percentage. Retention can be specific to a course, semester, or degree program (Axmann, 2007; Hirschy et al., 2011; Tinto, 2006).

Survey of Academic Self-Regulation Scale – Extrinsic Motivation assesses the degree to which students focus on the outcomes of a task (e.g., grades or recognition). Extrinsic motivation is opposite of intrinsic motivation but has shown to be effective in the absence of intrinsic motivation, especially on mundane (rote memory) tasks (e.g., the multiplication tables), or when first engaging in complex tasks (e.g., writing a research paper), (Dugan, 2007). Items are reverse scores so that students' self-reported high scores indicate high levels of self-efficacy. The Extrinsic Motivation scale consists of 5 items; refer to Appendix C for survey questionnaire.

Survey of Academic Self-Regulation Scale – Intrinsic Motivation assesses the degree to which students indicate they are involved in learning for the sake of learning or mastery of the content. Intrinsic motivation is contrary to extrinsic motivation (learning for the sake of rewards), described above. Intrinsic motivation is a trait that is developed slowly over time and is enhanced by focusing less on assessment and more on the process of learning (Dugan, 2007). The Intrinsic Motivation scale consists of 9 items; refer to Appendix C for survey questionnaire.

Survey of Academic Self-Regulation Scale – Metacognition depicts a student's ability to "think about his or her thinking." It requires a students to plan (set realistic learning goals), monitor (track one's progress toward goals), adapt (change one's learning strategy when goal achievement is impeded), and evaluate (upon completion of task, compare one's performance with the initial goals). Both very low and very high scores in the *Metacognition* scale can interfere with actual progress toward a goal. Thus, moderate scores on the *Metacognition* scale are optimum (Dugan, 2007). The Metacognition scale consists of 18 items; refer to Appendix C for survey questionnaire.

Survey of Academic Self-Regulation Scale – Personal Relevance and Control is related to students' beliefs about the relevancy of the course content to their professional (or personal) lives, and to their ability to control the learning outcomes. It aligns with Expectancy-Value Theory, which generally states that if students perceive the learning outcomes as attainable and controllable, they are more likely to engage in the task (Wigfield & Eccles, 2000). If either one of these components is missing, there is less motivation exhibited by the student. Expectancy can be enhanced by identifying models similar to learners succeeding at a task. Value is enhanced when students can connect the course content to their personal and professional lives (Dugan, 2007). The Personal Relevance and Control scale consists of 11 items; refer to Appendix C for survey questionnaire.

Survey of Academic Self-Regulation Scale – Self-Efficacy assesses students' beliefs in their ability to succeed at a learning task or assessment. Self-efficacy is measured with items that indicate the *opposite* of self-efficacy (e.g., indications of anxiety and fear when it comes to learning or testing situations). Items are reverse scores so that students' self-

reported high scores indicate high levels of self-efficacy. Students' anxiety and fear can be reduced and even eliminated, when they realize effort, not pure ability, leads to successful performance. Self-praise and or rewards for time-on-task, assignment completion, and success (even partial success) on difficult tasks or assessments enhance students' self-efficacy. Students' beliefs are developed slowly over time with incremental success on increasingly difficult tasks (Dugan, 2007). The Self-Efficacy scale consists of 8 items; refer to Appendix C for survey questionnaire.

Survey of Academic Self-Regulation Scale – Self-Regulation assesses the actual learning and studying behaviors students report that they engage in while working through learning tasks. For example, students indicate whether they study before going out to socialize or whether they spend too much time with friends when they should be studying. Self-regulation skills tend to be one of the strongest predictors of achievement (Kitsantas & Zimmerman, 2008). Although students set high-level cognitive goals (e.g., metacognition), also focus on actual behaviors conducive to learning (using self-rewards, studying in quiet places, perseverance) contributes to their self-regulation (Dugan, 2007). The Self-Regulation scale consists of 12 items; refer to Appendix C for survey questionnaire.

Time management includes the techniques individuals use to structure time in effective ways to support their learning goals. As time in online learning environment is often not structured by synchronous class meetings, it is skill necessary for success in online courses (Harrell, 2008).

Traditional classroom is where course content is delivered solely through face-to-face interactions between student and instructor in a physical classroom.

Summary

Even though there is increasing acceptance and popularity of online learning as a method of course delivery, rises in student enrollment in online courses since 2006, and increased likelihood that students will participate an online course in their current pursuit of educational goals, research in the area is relatively sparse, and student success in this environment continues to be an area of concern (Bocchi, Eastman, & Smith, 2004; Cronjé et al., 2006; Harrell, 2008). Transition to learning in the online environment requires greater learner autonomy and individual responsibility for academic outcomes (Andrade & Bunker 2009; McBrien et al., 2009). Several researchers have found that students in online courses have difficulty with self-regulation of their learning (Artino, 2009; Bocchi et al., 2004; Harrell, 2008; Rossett, 2000; Thomas & Gadbois, 2007). Domain-specific strategic instruction in metacognitive self-regulated learning strategies has yielded positive results in traditional classrooms (Arsal, 2010; DuBois & Staley, 2007; Gerhardt, 2007; Hofer & Yu, 2003; Huff & Nietfeld, 2009; Sacks, 2007). Nonetheless, few studies have examined domain-general strategic instruction in metacognitive self-regulated learning strategies in online learning environments (Cho, 2004). The study examined the effects of a domain-general self-regulated learning strategy intervention and structured-diary use on students' self-regulated learning conduct and academic performance in online courses.

This chapter has outlined the purpose of the study, the research problem and its significance, general background, and the theoretical rationale for this study. Self-regulated learning theory and the GAME plan learning strategy framework have been described and presented as a means to enhance self-regulated learning skills and decrease

the student success challenges that community-college students face as they transition into the online learning environments. In addition, this study's research questions and definition of terms have been detailed in this chapter. The next chapter, the review of literature elaborates on the recent literature findings in the areas of metacognitive strategy use in self-regulated learning, self-regulated learning instruction, measuring self-regulated learning, and self-regulated learning and academic success. In Chapter III, the methodology for this study is explained and describes the research design, procedures for data collection, treatment, and data analysis. The results for this study are presented in Chapter IV. Discussions of findings are presented in Chapter V and include the limitations of the study, suggestions for future research, and implications for educational practice.

CHAPTER II

REVIEW OF LITERATURE

Students come to online courses with varying levels of self-regulated learning skills and learning strategies based on their previous educational experiences. Even though they are equipped with self-regulated learning skill and learning strategies, students struggle with adapting their learning strategies to develop new behaviors that increase their success in online environments (Harrell, 2008; Jaggars & Bailey, 2010). Learners as individuals are complex and have varying levels of inherent self-regulated learning skill (Zimmerman, 2002). Learners with high levels of self-regulated learning skill are able to quickly understand an existing problem, set realistic but challenging learning goals, create adequate plans to achieve those goals, enact appropriate learning strategies, and regulate their motivation, and continuously monitor their learning progress (Butler & Winne, 1995; Schunk & Zimmerman, 2007; Wolters, Pintrich, & Karabenick, 2005). Enabling an individual to become a self-regulated learner is one of the most challenging and idealistic goals in instructional psychology (Kollar & Fischer, 2006). The autonomy of online learning environments presents additional challenges in fostering self-regulated learning. In order to support learners' self-regulated learning skill development, it is important to review research in the area of developing self-regulated learners in traditional classrooms as well as online learning environments. Understanding how instruction can support students' development of self-regulated learning skill to support their success in online courses is the premise of the current study. The purpose of this mixed methods within-subjects study was to examine the effect of a self-regulated learning strategy intervention on students' self-regulated learning conduct and academic

success in general education courses offered online at a large community college in Northern California.

The purpose of this literature review is to present an overview of research related to self-regulated learning theory as an instructional strategy that can support students' development of self-regulated learning skills. The first section of this literature review provides an overview of the role of metacognitive strategies used to develop self-regulated learning skills. The second section of the literature review presents instructional approaches used to develop self-regulated learning skill. To conclude, the third section focuses on current measures used to assess self-regulated learning and academic success.

Metacognitive Strategy Use in Self-Regulated Learning

Prior research posits that self-regulated learners approach their learning goals with confidence, diligence, and resourcefulness (Boekaerts, 1999; Kitsantas, Winsler, & Huie, 2008; Zimmerman, 1998). Self-regulated learners are aware of when they possess the skill necessary to meet their goals and when they do not. Part of what separates students with strong levels of self-regulated learning skills from those with low levels of self-regulated learning are the actions that are taken to meet learning goals (Fleming, 2002; Hu & Gramling, 2009). Often, student actions taken to meet learning goals begin with strategy use: metacognitive and cognitive (Purdie, 2001). Metacognitive strategies include planning, goal setting, organization, monitoring, and self-evaluation. Cognitive strategy use includes rehearsal, effort regulation, critical thinking, and help-seeking. Research on self-regulated learning and strategy use has focused primarily on identifying which specific strategies contribute to students' self-regulation, differences in levels of strategy use between high- and low-achieving students, examining the relationship

between learner motivation and strategy use, and analyzing the process by which students engage in self-regulation throughout a course (Artino, 2009; Chang, 2007; Cleary & Zimmerman, 2004; Dembo & Jakubowski, 2004; Fadlelmula & Özgeldi, 2010; Mohd Kosnin, 2007; Zimmerman & Martinez-Pons, 1988). Overall, findings suggest that students as agents of their own learning can use effectively self-regulated learning strategies to affect positively their motivation for learning and academic success. Students' approach to self-regulated learning strategy use differs in different learning scenarios (Zimmerman, 1998). Even though there are the differences in approach, researchers have found that metacognitive learning strategies are the most effective for helping students develop self-regulated learning skill in support of student success (Arsal, 2010; Chang, 2007; Gerhardt, 2007; Heikkilä & Lonka, 2006; Hu & Gramling, 2009; van Den Hurk, 2006).

Metacognitive strategies emphasize learners' self-observation of cognitive processes and strategic actions used to support their academic success. Consistent monitoring of strategic actions taken to support learning goals supports learners' self-regulated learning skill by focusing on feedback, reflection, and adaption, which are all attributes of the self-regulated learning process outlined in Zimmerman's model (2002) of self-regulated learning. Since Borkowski and Carr's (1987) early research on metacognitive strategy use in children with disabilities, research indicates that students' metacognitive strategy use is an effective component in developing self-regulated learning skills in school-age children (Cleary & Zimmerman, 2004; Fuchs et al., 2003), secondary school-age students (Matuga, 2009; Tan, Dawson, & Venville, 2008; van Grinsven & Tillema, 2006), and adults (Arsal, 2010; Chen, 2002; Nuckles et al., 2009;

Orhan, 2008; Schmitz & Wiese, 2006; van Den Hurk, 2006; Vrugt & Oort, 2008), within several domains such as, mathematics (Cleary & Zimmerman, 2004; Fuchs et al., 2003), Teach English as a Second Language (TESOL) (Wang, 2004), and writing (Nuckles et al., 2009; Roman Sanchez, 2004), and several learning environments: traditional classrooms (Fleming, 2002; Gerhardt, 2007; Kramarski & Michalsky, 2009; Masui & De Corte, 2005; Ruban & Reis, 2006; van Den Hurk, 2006), hypermedia (Azevedo & Cromley, 2004; Greene & Azevedo, 2007; Nesbit, Winne, & Jamieson-Noel, 2006), and online learning environments (Andertonn, 2006; Cennamo & Ross, 2000; Hsu et al. 2009; Hu & Gramling, 2009; Tsai, 2009). Specifically, metacognitive strategies that fall under the categories of goal setting, taking actions toward goal, monitoring progress towards goal, and evaluating results were among those found to be most effective. For the purpose of the current studies, the focus of this section is on the effectiveness of learners' metacognitive strategy use in support of student success and self-regulated learning skill development among adults in both traditional classrooms and online learning environments. Studies presented are categorized by the four main metacognitive strategies found in previous research: (a) goal setting and planning, (b) taking actions toward goals, (c) monitoring progress toward goals, and (d) evaluating results.

Goal Setting and Planning For Self-Regulated Learning

Goal setting and planning for self-regulated learning as a metacognitive strategy is an essential part of the forethought phase of the self-regulated learning model (Fleming, 2002; Hulleman et al., 2008; Vrugt & Oort, 2008). Goal setting and planning learning activities are often the catalyst for actions that students take to work toward achieving academic success in their courses. Previous research in the area of goal setting

and planning has focused on outlining a process for developing achievable goals (Gerhardt, 2007; Young, 2005) and specifying goals and monitoring progress (Cennamo, Ross, & Rogers, 2002; Fleming, 2002; Kitsantas, Robert, & Doster, 2004). Overall findings suggest that clear goals and expectations will increase intrinsic motivation, the use of self-regulated learning strategies, and academic success. Specifically, Gerhardt (2007) found a statistically significant increase in students' overall self-regulated learning skill as a result of tutorials and guided practice using the characteristics of effective goals: specific, measurable, attainable, realistic, and time-oriented (SMART). Fleming (2002) found mixed results when examining the effectiveness of goal setting and monitoring activities on exam performance of both first-year psychology students and upper class psychology students. For first-year students, the treatment groups consistently outperformed the comparison groups on every exam. Although the upper class comparison group outperformed the upper class treatment group on the final exam.

Gerhardt (2007) examined goal setting as the key component for developing self-regulated learning in an undergraduate course (n=223). Students participated in four short tutorials to determine the effect of targeted training in self-management strategies. Of the four tutorials, goal setting was the second and most extensive tutorial. During the goal-setting tutorial, students were introduced to five standard characteristics of effective SMART goals. Students were asked to set two academic goals and were given opportunity to practice restructuring their goals to fit the standard SMART goal criteria. After setting effective goals, students worked actively to achieve the SMART goals that they set-out to achieve throughout the duration of the course. Progress toward goals was monitored individually as well as evaluation of results.

Gerhardt (2007) collected results from a 4-item custom assess to determine self-regulated learning skills before and after the tutorials. Results indicated a statistically significant increase in self-regulated learning scores following the self-management training, $t\ (222) = -3.55$, $\eta^2 = .06$, which is a medium effect. Additional information regarding means and standard deviations of scores before and after the tutorials was not provided. Goal setting as a skill taught was included in this general measure of self-regulated learning. Findings suggest that given instruction in goal setting, students' level of self-regulated learning skill significantly increased. Additional data collected from focus groups indicated that 47% of students actively pursued and achieved both SMART goals set at the beginning of the semester whereas 57% of students actively pursued and achieved one SMART goal. Students reflected that using the SMART goal characteristics to set effective goals positively contributed to accurate monitoring of their progress towards achieving their goals by providing specific and time sensitive elements of their goal that could be tracked. SMART goals assisted with "getting focused" on where to concentrate their efforts when working through complex learning goals.

One of the limitations of the Gerhardt (2007) study was the decision to use a general measure of overall skill development to measure the effectiveness of the self-regulated learning tutorials. Specifically, there were four individual tutorials and only one overall measure of effectiveness. Therefore, it is difficult to assess the individual effectiveness of the four tutorials and how the different levels of effectiveness might influence overall learning outcomes and increases in self-regulated learning skill development. Based on this decision, it is not clear what portion of the statistically significant increase in self-regulated learning skill development can be attributed solely

to the goal-setting tutorial. The second limitation of this study was the researcher's decision to only focus on the first two levels of training evaluation: reactions and learning after the training. There are two additional levels of training evaluation that were not explored in this study: learner behavior and organizational results. Adding investigation of the last two training evaluations would provide greater depth to assess the effect of the self-regulated learning tutorials and the success of students transferring and implementing the skills of self-regulated learning obtained during the tutorials.

The current study was connected to the Gerhardt (2007) study in several ways. First, both studies are interested in examining the effect of training and or tutorials in self-regulated learning on students' level of self-regulated learning conduct post instruction with undergraduates. Second, like the Gerhardt study, the present study introduced SMART goals and provided opportunities for guided practice throughout the duration of the course. Third, both studies provided instruction in other areas of self-regulated learning that build from the foundation of goals setting. The present study extended the work of Gerhardt (2007) by investigating the effects of self-regulated learning training with undergraduates in an online course and investigating all levels of training outcomes: reaction, learning, behavior, and organization of new skills to provide more in-depth analysis of the effect of training on students' self-regulated learning conduct.

Like Gerhardt (2007), Fleming (2002) examined goal setting as a key component of self-regulated learning skill development. Fleming (2002) was interested in whether teaching metacognitive learning strategies, specifically, goal setting, and performance reporting had positive effects on students' exam performance. Working with two sections

of undergraduates (n=65) in introductory Psychology courses, Fleming introduced goal-setting worksheets and monitoring-activity forms to one section (treatment group). Goal-setting forms queried students on daily goals and intended learning activities necessary to work toward their daily goals. Students indicated the number of minutes they planned to spend on each activity and circled the box containing the strategy they planned to use. Monitoring activity forms queried students about the actual learning activities utilized and the effectiveness of those activities on goal completion. Students in the treatment group completed both goal setting forms and monitoring activity forms consecutively for 5 days. The comparison group received standard course material without goal setting and monitoring learning strategies. Exam performance results of the two groups (treatment and comparison) from four exams taking throughout the duration of courses were compared and analyzed.

Results were reported based on a 2x2 Analysis of Variance (ANOVA) design in which the comparison group was split into first-year students and upper class students, and the treatment group results were split the same way. On the first exam, the first-year treatment group (M=39.70. SD=4.96) outperformed the first-year comparison group (M=35.82, SD=4.95). Similarly, the upper class treatment group (M=40.89, SD=6.96) outperformed the upper class comparison group (M=40.19, SD=3.96). For both treatment groups, the goal-setting and monitoring activities were introduced after the first exam. No statistically significant differences in exam scores were found between groups on the second and third exams. On the fourth exam, however, first-year students in the treatment group (M=44.40, SD=3.90) continued to outperform first-year students in the comparison group (M=39.20, SD=7.02). Whereas the upper class treatment group (M=43.23,

SD=5.60) underperformed in reference to the upper class comparison group (M=45.40, SD=4.36).

One of the limitations of Fleming's (2002) study was the decision not to measure self-regulated learning skills of both treatment and comparison groups prior to the goal-setting and monitoring strategy intervention. Although the goal of the study was to focus specifically at exam performance, without a baseline measure of self-regulated learning skills for both treatment and comparison groups, it is difficult to provide additional explanation of factors that may have contributed to the comparison group outperforming the treatment group on the final exam (exam 4). The second limitation was the length of time that the treatment groups received for completing their goal-setting and monitoring activities. Students were given only 5 minutes at the end of each class period to complete their goal-setting worksheets for a 5-day period. At the end of each class period, students needed to turn in their goal-setting worksheets for review. The short time period in which student were given to review their goals for the week and assess the actions necessary to support their academic success is not sufficient (Ley & Young, 2001; Terry & Doolittle, 2006). Goal setting as a metacognitive strategy for developing self-regulated learning skill is a reflective process in which students must consider goals and actions and reflect on their Self-regulated Learning (SRL) process before, after, and during the goal setting and planning process (Kitsantas et al., 2004). In the current study, after participating in the self-regulated learning strategy instruction, students completed weekly structured-diary forms that included goal setting specifications. The longer time period gave students the opportunity to reflect, adjust, and refine goals so that they accurately supported their academic success in their online course.

To investigate the significance of using goal planning and weekly monitoring and evaluation forms within an online class to promote the use of self-regulated learning strategies, Andertonn (2006) hypothesized that supporting learners in focusing on the behavioral, motivational, and metacognitive aspects of their learning processes in an online class would result in higher achievement at the end of the course. Andertonn (2006) also explored the relationship between students' academic achievement and their use of goal planning, weekly monitoring, and evaluation forms to promote self-regulated learning. Andertonn (2006) compared pre-Motivated Strategies for Learning Questionnaire (MSLQ) scores, postMSLQ scores, and average quiz scores of the two sections of undergraduate students (n=28) enrolled in Educational Measurement and Testing. Students enrolled in section one served as the comparison group (n=15) and did not participate in goal setting, weekly monitoring, or evaluation activities. Students enrolled in section two served as the experimental group (n=13) and were introduced to weekly monitoring, goal setting, and evaluation forms. Throughout the course, students in the experiment group were required to identify their goals for the course and the steps necessary to reach those goals using the Goal Planning form, chart their progress toward goals using the Weekly Progress Monitoring Input Form, and submit their Weekly Evaluation Form at the end of each week. There was a statistically significant difference in post MSLQ scores F (1, 25) = 8.31, η^2= .33, which is a large effect. Additional data regarding the specific means and standard deviations of pre- and postMSLQ scores were not provided. For the experiment group, using the goal setting, weekly progress monitoring, and weekly evaluation form accounted for 25% of the score variance on the posttest MSLQ. There was no statistically significant difference in average quiz scores

between course sections. To evaluate the relationship between average quiz grades and course section a one-way ANOVA was conducted. The result was not statistically significant. For the experiment group, goal setting form, weekly monitoring form, and weekly evaluation form use accounted for 7.7% of the variance of the in average quiz scores.

One of the limitations of the Andertonn (2006) study is the content of the weekly goal setting, weekly progress monitoring, and weekly evaluation forms. The weekly goal setting form asks students to specify their goal(s) and identify the steps necessary to complete each goal. The weekly progress monitoring form asked students to quantify (a) time spent studying or working on assignments, (b) number of pages read, (c) date assignment started, (d) date the assignment was completed, (e) confirm if the student worked ahead, and (f) the number of quality responses posted in discussion threads. The weekly evaluation form asks students to rate their course participation on a 5-point Likert scale. The issue is the lack of connection between the objectives of the weekly goal setting form, weekly progress monitoring form, and the weekly evaluation. Students were asked to monitor "assumed" activities necessary for supporting their goals. Students, however, were not asked to clarify the progress and monitor the individual goals that they set for themselves in the weekly goal setting form. The focus of this study was to investigate the effectiveness of using goal planning and weekly monitoring and evaluation forms within an online class to promote the use of self-regulated learning strategies. As part of the self-regulated learning process, the three phases of forethought, performance, and evaluation are in conjunction with one another to support fully students' learning outcomes. The forms used in Andertonn's (2006) study did not work in

conjunction with one another to assist students with the holistic nature of the self-regulated learning process. Similar to the Andertonn (2006) study, in the current study, after participating in the self-regulated learning strategy instruction, students completed a structured-diary form weekly. The content of the structured diary form guided students through evaluating all phases of the self-regulated learning process used to support the goals outlined for each week by asking students to specify their goals for the week, describe actions taken to make progress towards the goals, monitor actions taken toward their goals, and evaluate the results, thus connecting the goals to the actions and learning outcomes.

Cennamo, Ross, and Rogers (2002) designed and developed a web-based course in human development for undergraduates. The course was designed to scaffold students' online course experience while they learned self-regulated learning skills, critical for active, self-directed, autonomous learning. Their curriculum-embedded instructional approach included developing the mnemonic learning strategy GAME plan to provide a clear reminder for students of the steps to follow in the self-regulated learning process. The acronym GAME stands for Goal, Activities, Monitor, and Evaluation. GAME was used to structure learning activities in the course appropriate for each stage of the plan and provides tools for student use. Students were offered several practice tests and exercises to monitor their knowledge acquisition. Finally, students evaluated their actions by completing an online quiz for credit and by reviewing their grades. Comparisons of students' scores on the MSLQ from the beginning and end of the course indicated that students statistically significantly increased their metacognitive self-regulation abilities, decreased their test anxiety, and increased their self-efficacy for learning and

performance. The element of the Cennamo et al. (2002) study that was most relative to metacognitive strategy use was the goals checklist tool that students used to create their own time-dependent goals in support of their learning outcomes. To assist with facilitating self-regulated learning behaviors, the goals checklist was integrated into the online course management system and course email. Students who utilized the goal setting checklist, received email reminders to alert them to the due date of the goals they specified. Students perceived the goal-setting checklist as the most effective portion of the GAME course design that supported their learning goals.

One of the limitations of the Cennamo et al. (2002) study was the way in which the GAME course design was utilized to facilitate students' adoption of the self-regulated learning process within their course. The GAME course design mapped out course goals, activities, monitoring, and evaluation for students by the week much like a course outline. The course design itself did not focus on students' autonomy to develop their own goals and subsequent activities to succeed with course learning outcomes. Activities that allowed for student autonomy and decision making were embedded further into the content of the course such as the goals checklist. The current study extended the work of Cennamo et al.'s (2002) study and adapted the GAME acronym so that the focus was solely on promoting students' work through the self-regulated learning process in support of the goals that they determine are necessary for their success in their online course. For example, the G still stood for goals, however, the A represented actions taken toward goal, M remained for monitoring or progress toward goals, and E represented evaluation of goals. Students utilized a GAME plan framework to develop self-regulated learning skills and applied this strategy to their work in an online course.

Taking Action: Applying Self-Regulated Learning Strategies to Knowledge Acquisition

Within the research in the area of applying self-regulated learning strategies to knowledge acquisition or student success, the focus has been primarily on analyzing students' approach to various learning situations and how strategy use can influence the results of their learning outcomes (Chen, 2002; Heikkilä & Lonka, 2006; Ruban & Reis, 2006; Sorić, 2009; van Den Hurk, 2006; Whipp & Chiarelli, 2004). Researchers posited that successful self-regulators utilize a "deep approach" to learning that employed metacognitive strategies such as monitoring, time management, and evaluation to construct meaning and application of knowledge. Whereas unsuccessful self-regulators utilize a "surface approach" to learning that focuses on low-level cognitive strategies such as creating flashcards, reviewing notes, memorizing material routinely (Heikkilä & Lonka, 2006; Ruban & Reis, 2006). Successful and unsuccessful self-regulators are identified by differences in achievement: Grade Point Average (GPA) (Heikkilä & Lonka, 2006; Ruban & Reis, 2006) and unit tests (Van Den Hurk, 2006). Last, aside from learners' approach to specific learning situations, learners have the ability to adapt strategy use across platforms: traditional classrooms and online learning environments (Whipp & Chiarelli, 2004).

Specifically, Heikkilä and Lonka (2006) were interested in examining successful and problematic aspects of studying among university students (n=366) focusing on the relationships between students' approach to learning, self-regulated learning, and metacognitive strategy use because all constructs were studied previously as separate entities of learners' academic performance. For this study, the secondary research goal of

Heikkilä and Lonka's (2006) study was of primary interest, specifically how metacognitive strategies, learning approaches and self-regulatory skills related to study success as measured by academic performance (cumulative GPA of university studies).

Heiklala and Lonka (2006) found that results from the achievement strategies scales indicated that students' expectations for success correlated positively with deep approaches to learning (r =.28) and self-regulated learning (r=.30), and negatively correlated with surface approach (r= −.36), external regulation (r = −.24), and lack of regulation (r = −.56). In other words, students who rated high expectations for success also expressed a deep approach to learning and readiness to regulate their own learning processes. Students' reported mastery orientation had negative correlations with surface approach (r =-.28) and lack of regulation (r = −.31), and a low positive correlation with the deep approach (r =.15). Additionally, statistically significant relationships were found between students' cumulative GPA and deep approach to learning (r=.16) and self-regulation (r=.18). Findings suggest that students' approach to learning whether surface or deep is related directly to their strategy choices. In the current study, assessing students' approach to learning prior to instruction in self-regulated learning strategies raised their awareness to the type of strategies they utilized currently to support their learning and contributed to eliciting changes in strategy use throughout the duration of their online courses.

van Den Hurk (2006) was interested in investigating self-monitoring as a self-regulated learning strategy. van Den Hurk (2006) focused specifically on two self-regulated learning strategies to investigate undergraduates' (n=165) learning progress in problem-based learning curriculum. The first strategy, time planning, involved time

management and scheduling and planning of students' study time. The second strategy, self-monitoring, involved setting goals, focusing attention, and monitoring study activities. van Den Hurk (2006) was interested in assessing students' time planning and self-monitoring skills and investigating whether time planning and self-monitoring skills were related to actual individual study time, (un)prepared participation in the tutorial group and academic achievement. Data regarding students' time planning, self-monitoring, actual study time, and participation in tutorial group were collected using a custom 5-point Likert scale questionnaire where responses ranged from 1 *totally disagree* to 5 *totally agree*. The questionnaire contained two additional questions where students were asked to (a) indicate the mean time they spent of study time per week and (b) indicate how often they participated in tutorial meetings. Academic achievement was measured by using scores from two tests taken by students within the course of the study.

Descriptive results from the custom questionnaire for all participants for student responses were for time planning learning strategy skills (M=2.5, SD=.08), self-monitoring skills (M=2.8, SD=.08), individual study time (M=11.1, SD=6.3), frequency of participation in tutorials (M=2.7, SD=2.6), and average block test score out of 10 possible points (M=6.0, SD= 1.4). Additional analysis of results was reported in terms of four groups --very low, low, high, and very high-- based on scores reported for time planning skills and self-monitoring skills. For the first learning strategy, time planning, students who were characterized as having very-high time planning skills spent more time on planning study time and time management than on individual study time with the course content. The scores between the four groups were statistically significantly different [F (3, 162) = 4.05, η^2= .07, which is a medium effect]. For the second learning

strategy, self-monitoring, students who were characterized as having very-high self-monitoring skills spent more time setting goals and monitoring progress toward those goals and less time on individual study time with the course content. The scores between the four groups also were statistically significant [$F (3, 163) = 3.00$, $\eta^2=.05$, which is a medium effect]. Findings suggest that, while using both learning strategies, students were able to be strategic about time spent studying course content and to make the most out of their time by being prepared to utilize it to their advantage. No statistically significant differences were found between groups on time management and block test scores. Statistically significant differences, however, were found with the strategy self-monitoring and block test scores [$F (3, 161) = 3.48$, $\eta^2= .06$, which is a medium effect]. Students who spent more time monitoring their study activities had higher than average block test score.

Findings regarding students' time management, planning, and time spent on studying are of particular interest to the current study. Previous research posits that online students often "fit" course activities into their schedules while maintaining full-time jobs, families, and other responsibilities beyond their coursework (Yang, 2006). Therefore, time-management skills are essential for effective self-regulated learning during an online course. In order to make the most out of limited study time, students need to be deliberate about strategic planning, goal setting, and monitoring of learning activities that can be completed within allotted study time. The current study introduced time-management and self-monitoring strategies into the self-regulated learning strategy intervention instruction and emphasized their importance to student success in online courses.

To gain perspective on patterns of self-regulated learning strategy use among low-achieving and high-achieving university students (n=229), Ruben and Reis (2006) surveyed students regarding their prescription for student success in online courses based on their experience as online learners. Specifically, Ruben and Reis (2006) identified which strategies and methods were used by students in both groups and investigated what patterns of differences exist if any among students. Student strategy use data were collected based on closed- and opened-ended responses reported on the Learning Strategies and Study Skills survey (LSSS). Researchers had access to university GPA data and used participants from two specific groups: university intervention program students identified as "at-risk" based on low GPA (low achievers) and university program for honors students participants (high achievers).

Overall results from the LSSS are reported based on eight categories of strategy use that emerged from the qualitative data: self-evaluating, managing time and redistributing workload, organizing and transforming material, structuring environment, memorizing, rehearsing and retaining material, reviewing records and clustering material, utilizing support networks, and nonstrategic behavior. For the low-achieving group, the self-regulated learning strategy categories that were used most frequently were managing time and redistributing workload, organizing and transforming material, and reviewing records and clustering material. For the high-achieving group, self-regulated learning categories used most frequently included: self-evaluating, organizing and transforming material, memorizing, rehearsing, and retaining material. Both achievement groups used strategies in the category of organizing and transforming material. Findings suggest that given levels of achievement, students used strategies to support their learning goals that

fall into both the forethought and performance phases of the self-regulated learning process model (Zimmerman & Schunk, 2002). Additional analysis of strategy use between groups reported the top five individual strategies used by low- and high-achievement groups based on frequencies from the LSSS. In order from highest frequency to lowest frequency, the low-achievement group's strategy use was ranked as follows: creating flashcards, reviewing notes, memorizing material routinely, condensing notes, and using mnemonics and visual cues. The high-achievement group's strategy use was ranked as follows: condensing notes, creating flashcards, using mnemonics and visual cues, memorizing material routinely, and reviewing notes. Ruben and Reis (2006) posited that the types of strategies the low achievement group frequently reported were considered low-level strategies that imply *surface processing* that focuses primarily on in-take of knowledge or memorization of knowledge for regurgitation. Ruben and Reis (2006) referred to this learning orientation as the "survival model." In contrast, the high-achievement group frequently reported using more advanced *deep processing* strategies that support their hypothesis that high achievers are deep processors of material and focus primarily on construction of knowledge for meaning and application. Ruben and Reis (2006) refer to this learning orientation as the "enhancement model." This finding may provide support to the hypothesis that many low achievers are individuals who lack self-regulation (Borkowski & Thorpe, 1994) and who are unable for different reasons to use self-control effectively (Zimmerman, 2008).

The pattern of differences in strategy use between groups that emerged in this study relate specifically to the level of complexity of self-regulated learning strategies used not the overall frequency of strategy use as a whole. Based on qualitative data

collected from participants, Ruben and Reis (2006) speculated that one potential reason for the differences in self-regulated learning among low and high achievers "may not be related as much to how much time they spend studying, but to how effectively they study and what kinds of learning strategies they use in their academic work" (p.154).

In the current study, self-regulated learning strategy instruction provided a vehicle for teaching students how to study effectively in online learning environments by highlighting the challenges of learning online and emphasizing how the self-regulated learning process can assist with the common challenges of learning online and promote student success. Focus on strategy use that promotes deep processing and active construction of knowledge for meaning and application may have influenced learning outcomes such as academic achievement.

In another study focused on investigating students' self-regulated learning strategy use in support of knowledge acquisition, Whipp and Chiarelli (2004) investigated how self-regulated learning strategies could be interpreted in online learning environments. In addition, they sought to identify whether self-regulated learning strategies recommended for success in traditional classrooms could be repurposed for online environments. In this case study, graduate students (n=6) enrolled in an online education course were interviewed concerning their self-regulated learning strategy use as well as motivational and environmental influence on their strategy use in the online course. In addition, students kept reflective journals describing their self-regulated learning process in the online course. Content analysis of the data indicated that students used many traditional self-regulated learning strategies. They also found that there was a need to adapt radically their strategies in a web-based environment in order to succeed.

Specifically, students cited the need to adapt planning, organization, environmental structuring, help seeking, monitoring, record keeping, and self-reflection strategies in ways that were unique to the online learning environment. Students also cited the need for interaction with their peers as a strategy needed to maintain motivation in the autonomous learning environment the online course. Whipp and Chairelli (2004) summarized their findings by affirming that self-regulated learning can be helpful in facilitating learning in online environments. Findings confirm that learners come to online courses with a collection of strategies from their previous learning experiences. Therefore, self-regulated learning strategy instruction can focus on teaching students to adapt existing learning strategies to the new learning environment, in this case, an online course. In the current study, within the content of the self-regulated learning strategy instruction, students' were encouraged to evaluate which strategies they previously have used successfully in traditional classrooms and transfer them to their work in online courses to support their student success.

In summary, the present study drew from previous research by focusing on introducing strategies that supported a "deep approach" to learning and encouraged students to select appropriate strategies and adapt their use to best support academic success in an online course. Mainly, the content of self-regulated learning strategy instruction was informed by the findings of the research in this section.

Metacognitive Monitoring in Self-Regulated Learning Application

Research in the area of metacognitive monitoring as a self-regulated learning strategy has focused mainly on its effect on academic achievement (Arsal, 2010; Chang, 2007; Isaacson & Fujita, 2006) and ways to introduce learners to this strategy (Dabbagh

& Kitsantas, 2005; Yang, 2006). Researchers argued that monitoring as a self-regulated learning strategy positively affects academic achievement, specifically structured diaries (Arsal, 2010; Chang, 2007). Additionally, previous research has posited that in order to introduce learners to metacognitive monitoring as a self-regulated learning strategy is to intentionally embed strategy use into course curriculum (Dabbagh & Kitsantas, 2005; Yang, 2006).

Arsal (2010) focused on the effect of daily learning activity diary-reports on preservice teachers self-regulated learning strategy use and academic achievement in an Instructional Planning and Evaluation course for science teachers. Arsal compared self-regulated learning strategy use among preservice teachers in the comparison group (n=30) with those of the experimental group (n=30) who used daily diary-report forms to monitor their learning strategy use over a 14-week period. Using a modified version of the MSLQ to collect preexperiment and postexperiment data on self-regulated learning strategy use, and the Academic Achievement Test used to evaluate curriculum development concepts and processes, Arsal (2006) found that MSLQ pretest data showed no statistically significant differences between the comparison group and the experiment group in terms of strategies used to support intrinsic motivation, extrinsic motivation, task value, control of beliefs, self-efficacy, test anxiety, and effort. The results suggest that preexperiment both the comparison group and experimental group used strategies at similar levels. Posttest MSLQ data reported statistically significant differences between the comparison group and the experimental group on strategies used to support; intrinsic motivation t (58) =2.16, η^2= .07, task value t (58) =2.04, η^2= .07, metacognition t (58) =2.17, η^2= .08, and time management t (58) =2.36, η^2= .09, which are medium effect

sizes. Results suggested that the preservice teachers in the experimental group used motivation strategies such as intrinsic motivation and task value more, on average, than the preservice science teachers in the comparison group. In terms of metacognitive or self-regulating strategies (metacognition) and resource management strategies (time management), preservice teachers in the experimental group used these types of strategies more, on average, than the preservice science teachers in the control group. Findings suggest that diary reports that monitor motivation strategies, metacognitive or self-regulating strategies, and resource management strategies positively affect the strategy use of the preservice science teachers. Posttest Academic Achievement Test results indicated that there was a statistically significant difference in academic achievement between the experimental and control group t (58) =7.20, η^2= .47, which is a large effect. Results indicate that the experimental group had higher academic achievement levels, on average, than the comparison group. Findings suggest that utilizing diaries to monitor self-regulated learning strategies positively affected academic achievement. In the current study, metacognitive monitoring of self-regulated learning strategy use supported students' development of self-regulated learning skills and promotes academic success in their online course. Metacognitive monitoring through diary use was used to gain insight into how students' selected appropriate learning strategies and applied them to their work throughout the duration of their online course.

Like Arsal (2010), Chang (2007) investigated the effects of a self-monitoring strategy on undergraduates (n=99) achievement and motivational beliefs for learning in a web-based language learning course. In addition, Chang (2007) was interested in the interaction between the use of a self-monitoring strategy and the level of learners'

English proficiency. Students were assigned to two groups based on preliminary English language proficiency. Within proficiency groups, students were assigned randomly to a control group and an experimental group. All students received the same instructional material; however, the experimental groups of students were given a self-monitoring form for recording study time and environment, learning process, predicting test scores, and self-evaluating. Using the self-efficacy for learning and the comparison of learning beliefs subscales of the MSLQ to report motivational beliefs of learners, data were collected and reported by group: high proficiency control (HC), high proficiency treatment (HT), low proficiency control (LC), low proficiency treatment (LT). In addition, academic performance was reported as results of an English proficiency exam where the possible scores ranged from 0 to 100. Results for motivational beliefs indicate that the HT group obtained the highest average score on academic performance (M=70.69, SD=13.08) and Group LT received the highest average score on motivational beliefs (M=3.73, SD=0.43). Results indicated that for both academic performance [F (3, 98) = 5.07, η^2= .13] and motivational beliefs [F (3, 95) = 3.05, η^2= .09], the differences among four groups were statistically significant and with large measure of practical and a moderate measure of practical importance, respectively. Overall, results indicate that students who applied the self-monitoring strategy obtained higher scores, on average, on their course English proficiency test and the measure of motivational beliefs than those who did not apply the self-monitoring strategy regardless of their English proficiency level. Findings imply that encouraging students to develop self-regulated learning skills through use of a self-monitoring strategy could increase academic success in online learning environments. In the current study, the relationship between metacognitive

strategy use and academic success was of particular interest as it pertains to student success in online courses. The current study focused on investigating the relationship between self-regulated learning strategy use postintervention and academic success at the end of the online courses. Analysis of this data provided additional empirical data about the relationship between self-regulated learning and academic success in online courses.

Isaacson and Fujita (2006) were interested in further examining the effect of metacognition in the self-regulated learning process and its relationship to academic achievement. Isaacson and Fujita (2006) posited that effective self-regulated learners are "skillful at monitoring their learning and comprehension which has a direct effect on each step in the self-regulation process" (p. 39). In order to test the premise that students' ability to monitor their learning is one of the key building blocks in self-regulated learning, they used undergraduate students (n=84) in an introductory psychology course to examine the learning strategy Metacognitive Knowledge Monitoring (MKM). The overarching question that the researchers were hoping to address was "are students able to make academic choices and adjust learning goals based on their metacognitive knowledge monitoring?" (p. 44).

Results for the group of high achievers (A students) indicated the smallest differences in examination points between preexamination identified goal points, expected points, and actual points. Results for the low-achievers group indicated the largest differences between preexamination identified satisfaction and pride goal points (high), expected points (high), and actual points (low). The intermediate achievers (C students), above average achievers (B students) had similar differences between the two extremes (actual points and pride goals). Findings imply that for the group of low-

achieving students' metacognitive monitoring did not result in students adjusting their satisfaction or pride goal points or their expected points to the reality of their actual points, whereas for the group of high achievers, their actual test scores were much closer in numerical value to their satisfaction goals, expected points, and pride goals. Findings suggest that high-achieving students use of metacognitive monitoring as a learning strategy to support their learning goals more effectively than their low-achieving counterparts. High-achieving students in this study were more aware of their level of mastery of the course material and potentially able to adjust their study time and strategies as applicable.

Based on the findings of this study, it is not clear whether metacognitive knowledge monitoring directly affected the students' use of strategies to support their learning goals. One of the limitations of this study is that Isaacson and Fujita (2006) did not provide sufficient evidence that accurate prediction of learning outcomes was the result of students' "course correction" or adaptation of strategy use. Metacognitive knowledge monitoring within the context of this study was specific to quantitative data used to monitor mastery of course material. To strengthen the results of the study, monitoring should include qualitative elements, such as open-ended questions, to better understand how quantitative predictions and learning outcomes (results) influenced students' learning process. In the current study, the focus was on investigating students' individual decisions regarding their strategy use and the self-regulated learning process throughout the duration of their online courses as described in their weekly diary responses. The content of the diary forms included qualitative data to provide further

insight into students' self-regulated learning process at several points during their online courses.

In an online course, Yang (2006) investigated the effects of embedded strategies on self-regulated learning strategy (SRLS) use in an online environment. The strategies investigated include performance control strategies (self-instruction and self-monitoring), cognitive strategies (elaboration and organization), and self-efficacy strategies (peer feedback and attribution feedback). The strategies of particular interest in this section are the performance control strategies (self-instruction and self-monitoring). Preservice teachers (n=34) participated in the study over an 8-week period. Learning activities were designed to elicit aspects of the self-regulated learning process and encourage deep understanding and engagement in online discussions. Students completed the SRLS questionnaire before and after the course specifying their strategy use during the online course. Pretest and posttest scores of the SRLS questionnaire were reported and analyzed.

Results indicated that self-monitoring as a performance control strategy improved at the end of the online course. In terms of the individual components of SRLS, mean differences of pretest and posttest scores for performance control strategies were statistically significant $t(33)=2.35$, d=.40, a medium effect), as well as mean differences of pretest and posttest scores for cognitive strategies were statistically significant $t(33) = 2.85$, d=.49, a medium effect). Findings suggest that when performance control strategies and cognitive strategies were embedded into learning activities, scores improved at the end of the course. Embedded strategies provided deliberate practice of self-regulated learning strategies within the course. In the current study, self-monitoring as a

performance control strategy was implemented as part of the guided self-regulated learning skill development. Self-monitoring took place as part of the structured diary forms utilized by students weekly after initial instruction. The intent was to determine if self-monitoring as a performance strategy improves over time throughout the duration of the online courses.

In summary, previous research on metacognitive monitoring in self-regulated learning application posited that monitoring actions that support learning goals contributes positively to outcomes of academic success (Arsal, 2010; Chang, 2007; Yang, 2006). The present study investigated the role of metacognitive monitoring as part of the self-regulated learning process. Online students utilized structured diaries to monitor their performance and progress towards learning goals. Results were analyzed and compared with academic success at the end of the online courses.

Evaluating Learning Processes

Previous research on students evaluating learning processes involves having students compare their performance with a standard or norm and adjusting their learning activities depending on their informed perceptions of the quality of their work (Cleary & Zimmerman, 2004; Dabbagh & Kitsantas, 2005; Kramarski & Michalsky, 2009; Orhan, 2008). Zimmerman (2000) posited that self-evaluative judgments are not only closely linked not only to achievement outcomes but also to individual self-satisfaction. Self-satisfaction, which involves satisfaction or dissatisfaction with performance outcomes, is critical because people who are satisfied with their performance will continue pursuing the task (Zimmerman, 2000). Previous research has focused on investigating tools that promote self-evaluation (Dabbagh & Kitsantas, 2005), using self-evaluation to promote

self-efficacy (Orhan, 2008), and instruction in self-evaluation as a metacognitive approach to self-regulated learning (Kramarski & Michalsky, 2009).

Orhan (2008) investigated self-regulated learning strategy use of preservice teachers in a Teaching Practicum course. The study incorporated self-regulated learning strategies designed to assist students to self-observe and evaluate their own teaching effectiveness and to self-monitor the changes during the course. As part of the course to support the self-evaluation phase, students recorded themselves while executing teaching practice to compare their performance with the state standards and intended goals outlined in the forethought phase of the SRL model.

Using MSLQ subscale control of learning belief to measure changes in student scores pre- and postinstruction, statistical significance was found on three out of four items in this scale. Findings indicated that students believed that learning outcomes mainly depended on their own efforts. Orhan (2008) posited that the findings of the study demonstrated that self-evaluation enhanced preservice teacher self-efficacy perception and that the positive effects of the self-evaluation conditions were the results of students who self-evaluated their own teaching behaviors as they proceeded through the teaching practice program were able to identify and correct any misguided teaching behavior. In the current study, students had the opportunity to evaluate their progress toward goals in the structured diary form completed at the end of each week during the intervention. By doing so, students had the opportunity to correct or amend their self-regulated learning process and implement new strategies as necessary in future weeks during their online courses.

Dabbagh and Kitsantas (2005) took a different approach to investigating self-evaluation as a self-regulated learning strategy with undergraduate students (n=64) participating in an online course. Dabbagh and Kitsantas (2005) investigated utilizing web-based pedagogical tools (WBPT) to enact students' self-regulated learning processes specifically self-reflection, self-observation, self-awareness, and social negotiation, all attributes used most frequently in the self-reflection phase of self-regulated learning. Four categories of WBPT were used in their investigation: assessment tools (e.g., checking grades), administration tools (e.g., calendar), content creation or delivery tools (e.g., course information and sample projects), and collaborative and communication tools (e.g. email, discussion boards). Dependent measures as outlined by the Web Supported Self-Regulated Learning Questionnaire (WSSRQ) were goal setting, task strategies, self-monitoring, self-evaluating, time management or planning, and help seeking. Additionally, they examined student perceptions of the usefulness of WBPT in supporting completion of course assignments and their influence on the self-regulated learning process.

Dabbagh and Kitansas (2005) found that for the WBPT content creation or delivery tools (e.g., course information and sample projects), students reported that self-evaluation (M=4.5, SD=.35), was most frequently influenced by the WBPT. For the administration WBPT tools (e.g., calendar), students reported that self-monitoring (M=4.4, SD=.10) and self-evaluation (M=4.75, SD=.09) were most frequently influenced by the WBPT. For the collaborative and communication tools (e.g. email, discussion boards), students reported that self-evaluating (M=3.70, SD=.50) was influenced most

frequently by the WBPT. Last, for the assessment tools (e.g., checking grades) self-evaluation (M=3.25, SD=1.14) was influenced most frequently by the WBPT.

Additional analysis was conducted to investigate the overall differences in the means among the four WBPT categories for each of the 6 processes of self-regulation. Results were reported separately by self-regulated learning process. Specifically self-evaluation, effect sizes for statistically significant comparisons ranged from d=.32 to .45.The present study took place within the context of online courses where features of the course management system were utilized in a similar way. Moderate effect sizes in the self-evaluation process in this study suggest that similar results would be achieved.

Kramarski and Michalsky (2009) investigated instructing preservice teachers (n=144) to use metacognitive approaches to course work to foster self-regulated learning during phases of learning technological pedagogical content knowledge (TPCK) in a web-based learning environment. The three types of metacognitive approaches were included in the study: planning, action and performance, and reflection. Students participated in 14 workshops that focused on implementing specific theoretical approaches and learning methods for TPCK activities. Additionally, students were introduced to question prompts based on the IMPROVE self-questioning model developed to foster self-regulated learning skills (Kramarski & Mevarech, 2003). After the workshops, students participated in guided practice implementing TPCK activities into course curriculum scenarios. Two SRL questionnaires were administered (pre and post) during the study: (a) 50-item Likert scale MSLQ assessing cognition, metacognition, and motivation for learning TPCK strategies (Pintrich et al., 1991) and (b) MAI questionnaire, assessing preservice teachers' SRL behavior, specifically, planning,

monitoring, and evaluation. Two additional measures of TPCK comprehension and design skills as a measure of content knowledge were administered.

Mixed quantitative and qualitative analyses showed that fostering students' SRL through the evaluation phase was the most effective for the preservice teachers' perceived SRL in both the learning and teaching contexts and for their TPCK (comprehension and design lessons). Furthermore, students from the planning approach outperformed the students from the action approach in most of the SRL and TPCK measures. The current study incorporated similar self-questioning prompts into the weekly structured-diary reflection to encourage students to evaluate consistently their results as they work through the self-regulated learning process.

In summary, this section reviewed metacognitive strategy use in self-regulated learning research, specifically, goal-setting, taking actions toward goals, motoring activity, and evaluating results, as an important part of the self-regulated learning process. Students as agents of their own learning use several types of metacognitive strategies to support their academic success and motivation for learning. An overview of research that has previously investigated metacognitive strategy use in self-regulated learning was detailed as well as at the rationale for choosing the four specific strategies included in the strategic framework for the present study. The next section presents self-regulated learning instruction research and provides rationale for the instructional strategies that were used in the current study.

Self-Regulated Learning Instruction

Colleges and universities have supported students with developing self-regulated learning skills in support of their student success by concentrating on self-regulated

learning strategy instruction. Self-regulated learning strategy instruction has focused on three specific types of instruction: (a) domain-specific interventions, (b) curriculum-embedded self-regulated learning, and (c) domain-general self-regulated learning strategy courses. Overall, even though the different instructional approach, students benefit from instruction in self-regulated learning strategies (Ley & Young, 2001; Perry & Hutchinson, 2008) . When given instruction, students develop improved skills in time management, learning goal orientation, self-efficacy, metacognitive monitoring, and overall academic performance in supported of their overall student success (Dignath & Buttner, 2008; Kistner et al., 2010; Sacks, 2007).

Previous research in the area of self-regulated learning instruction has taken place with elementary (Camahalan, 2006; Cleary & Zimmerman, 2004; Huff & Nietfeld, 2009; Perels et al., 2009; Stoeger & Ziegler, 2008), secondary (Kitsantas, Robert, & Doster, 2004; Pape, Bell, & Yetkin, 2003), and postsecondary students (Bail, Zhang, & Tachiyama, 2008; DuBois et al., 2007; Hofer & Yu, 2003). Research in elementary and secondary schools has focused primarily on domain specific strategy instruction within the contexts of mathematics, writing, reading comprehension, and science (Camahalan, 2006; Cleary & Zimmerman, 2004; Huff & Nietfeld, 2009; Perels et al., 2009; Stoeger & Ziegler, 2008). Instruction interventions include programs for students with identified academic struggles (Bail et al., 2008; Hofer & Yu, 2003), self-regulated learning coaching (Cleary & Zimmerman, 2004), direct instruction in applicable learning strategies (Azevedo & Cromley, 2004; Camahalan, 2006; Perels et al., 2009), and strategy instruction integrated into current curriculum standards (Cennamo et al., 2002; Cukras, 2006; Kauffman, 2004; Orhan, 2008). In postsecondary settings, research

focused primarily on training of self-regulated learning theory and learning strategies and the effect of instruction on short-term and long-term academic success, future academic attainment, and transferability of self-regulated learning strategies to new learning contexts (Bail et al., 2008; DuBois & Staley, 2007; Hofer & Yu, 2003). Overall findings suggest that self-regulated learning can be facilitated in both traditional classrooms and online learning environments through scaffolding that supports learners' development and acquisition of self-regulated learning competence in support of their academic success. In this section, research in the areas of domain-specific self-regulated learning strategy instruction, curriculum-embedded self-regulated learning strategy instruction, and domain-general self-regulated learning strategy instruction.

Domain Specific Self-Regulated Learning Strategy Instruction

Domain-specific self-regulated learning strategy instruction focuses on increasing self-regulated learning skills in conjunction with academic success within a specific content area in both classroom and laboratory settings. Students engage in the process of self-regulated learning that includes the forethought or planning phase, the performance or action phase, and the reflection or self-evaluation phase; however, the application of learning strategies are focused on enhancing learning content in the specific domains and the product of the self-regulated learning process is domain-specific content knowledge. Previous research in domain-specific self-regulated strategy instruction posits that students' self-regulated learning behavior is guided by their goal mastery orientation and academic task value (Pintrich & De Groot, 1990; Wolters et al., 2005). Students' academic task value is often related to their short-term and long-term academic performance (Zimmerman, 2010). Battle and Wigfield (2003) found that when students

value the importance of a task or activity, they are more likely to engage in the task and have better performance outcomes. Additionally, researchers have found that students' task value is related to their cognitive strategy use and self-regulated learning processes and posited that, if students do not value their academic tasks and believe that they are capable of attaining them, they will be less likely to set clear goals or plan necessary strategies for accomplishing them (Wolters, Yu, & Pintrich, 1996; Zimmerman, 2008). Thus, enhancing students' task value through explicit instruction in self-regulated learning strategies that can be applied directly to specific domains likely will lead to better regulation and achievement outcomes. Although the current study investigated the effects of domain-general self-regulated learning instruction on academic success in online courses at the community-college level, a few key studies that examined domain-specific strategy instruction in both Kindergarten through 12th grade (K-12) and postsecondary settings were reviewed and discussed. In K-12 settings, instruction focuses on short, targeted interventions meant to develop students' self-regulated learning skill and promote academic success in specific domains that provide support for the design of instruction that was used in the current study.

Domain Specific Self-Regulated Learning Strategy Instruction in K-12 Settings

In K-12 settings, domain specific self-regulated learning instruction takes place in the classroom and typically consists of short, targeted interventions meant to develop students' self-regulated learning skill and promote academic success in specific domains. The focus of these studies typically examines the effect of instruction and or intervention on students' academic success on a specific task.

Perels, Dignath, and Schmitz (2009) developed a self-regulated learning mathematics intervention for sixth-grade students (n=53) to investigate the effect of instruction on learners self-regulated learning competence and achievement in mathematics. Using a quasi-experimental comparison group design with both pretest and posttest measures, the intervention was administered to the treatment group over a 7-week period. The training consisted of nine self-regulated learning sessions taught in conjunction with mathematics curriculum; categories of applicable strategies for mathematics included goal setting, self-efficacy, motivation, volition, problem solving, resource management, monitoring, attribution, and handling mistakes. Overall, findings indicated that, when students were taught explicitly the self-regulated learning processes and mathematics strategies that helped them acquire content knowledge and skills, they were more likely to persist through learning tasks and use effective strategies to increase content knowledge.

Like Perels, Dignath, and Schmitz (2009), Camahalan (2006) designed and delivered the Mathematics Self-Regulated Learning Program intervention for fourth-grade mathematics students to improve student achievement based on the premise that low mathematics achievement is associated with poor study habits. Camahalan (2006) was interested in fostering active learning and realizing students' role as self-initiators who can "exercise personal choice and control of the methods needed to attain the learning goals they have set for themselves" (p.194). The self-regulated learning training included four components: knowledge and beliefs of the subject (to activate personal agency and motivational beliefs), explicit instruction of specific learning strategies, opportunities to practice the SRL strategies, and monitoring of performance outcomes.

Study participants were 60 elementary-school students from grades fourth and sixth. Participants in each grade level were selected randomly to participate in the comparison group (no instruction) and the treatment group (instruction). Instruction took place over 6 weeks with a total of 30 lessons delivered. Lessons 1-11 included instruction on the first two components of the program, whereas lessons 12-30 were facilitated for the participants to apply the self-regulated learning strategies in their mathematics lessons.

Results reported statistically significant differences in the mathematics achievement between treatment groups [F (1, 56) = 15.51, η^2= .21, a large effect] and comparison groups, and between fourth graders and sixth graders, [F (l, 56) = 7.26, η^2= .11, a moderate effect]. Additionally, there were significant differences in the Mathematics Self-Regulated Learning between treatment groups and comparison groups [F (1, 56) = 132.99, η^2= .70, a very large effect], and between fourth graders and sixth graders, [F (1, 56) = 5.59, η^2= .09, a moderate effect]. Lastly, no statistically significant difference in the mathematics school grades between treatment and control groups. There was a statistically significant difference, however, between fourth graders and sixth graders, [F (1, 56) = 32.02, η^2= .36, a very large effect]. Results indicate that, after the Mathematics Self-Regulated Learning Program intervention, statistically significant practical improvement in mathematics achievement and Mathematics Self-Regulated Learning were achieved. Findings imply that, when students were taught to focus attention on the self-regulated learning processes and strategies that help them acquire knowledge and skills, they were more likely to engage in activities they believed enhanced learning, such as exert effort, persist, and use of effective strategies.

Stoeger and Ziegler (2008) studied the effectiveness of a training program on self-regulated learning to focus on classroom implementations of self-regulated learning while working with fourth graders (n=219; n=115 training group and n=104 comparison group). The training took place over a 5-week period and focused specifically on addressing the abilities associated with time management, self-regulated learning, and the preparation of classroom materials at home within the context of mathematics. The first week focused on self-evaluation and monitoring, where students were asked to identify their own personal strengths and weaknesses in homework behavior. Through the remainder of the training, students denoted (a) the goals they set for themselves, (b) the strategies they chose to practice in order to attain these goals, and (c) daily scores on the exercise sets. Instructor feedback after submissions was centered on how well the implementation of the chosen learning strategy supported the attainment of the set goals.

Students completed a questionnaire before and after the 5-week training period. Scales of the questionnaire included time-management and self-reflection of own learning, self-efficacy, helplessness, effort, motivation, and interest. For academic achievement, three measures were examined: scholastic achievement tests, daily mathematics exercises, and homework handouts. Because the main purpose of the training was to promote time-management skills and reflections of one's own learning to support self-regulate learning competence, only the results pertaining to this component of the training are presented. Using a 2x2 repeated measures Analysis of Variance (ANOVA) of pretest and posttest data showed a statistically significant main effect of time management: [$F(1,217) = 2.27$, $MSE = 0.69$, $\eta 2 = .01$] and self- reflection of own learning: [$F(1,217) = 6.70$, $MSE = 0.55$, $\eta 2 = .03$)]. The effect sizes, however, were small in

size for both the pretest and posttest. Independent-sample *t* tests were conducted to examine the differences between conditions at the pretest and the posttest. For time management, independent sample t-tests found no statistically significant differences between the conditions at the pretest, but statistically significant differences were found at the posttest, t (218) =2.42, η^2= .01, which is a small effect. Results indicate the training met its immediate goals. Following the training, the students in the training group reported improved time-management skills and self-reflection of own learning in comparison with the comparison group. Much like domain specific self-regulated learning in K-12 settings, the present study utilized a short-targeted instructional intervention to introduce self-regulated learning followed my guided practice over a 4-week period to determine the effectiveness of the instruction.

Domain-Specific Self-Regulated Learning Strategy Instruction in Postsecondary Settings

Although not frequently, domain-specific self-regulated learning instruction takes place in postsecondary settings. Like in K-12 settings, domain-specific self-regulated learning strategy instruction takes place in both the traditional classrooms and online learning environments. Similar to in K-12 settings, instruction focuses on short, targeted interventions meant to develop students' self-regulated learning skill and promote academic success in specific domains. Additionally, the effect of instruction is determined by students' academic success on a specific task. For example, Using Pintrich's four phase model of self-regulated learning (planning, monitoring, control, and reflection), Fadlemula and Ozgeldi (2010) examined how learners participate in self-regulated learning while participating in the specific task of reading academic text. Through observation, video data, and semi-structured interviews with graduate students

reading academic text, Fadlemula and Ozgeldi (2010) observed that their case study participant effectively used components of Pintrich's model to regulate her learning while engaging in the reading task. Specifically, the participant performed several forethought, planning and activation activities, such as activating prior content knowledge and metacognitive knowledge, and planning time and effort for the task. Additionally, the participant, implemented different kinds of monitoring and controlling activities, such as judgments of learning, self-observation of behavior, and persisting on finishing the task. As a final step, the participant made various judgments and evaluations regarding the comprehension of the academic text. Researchers, however, found it difficult to observe the participants' self-regulation strategies specific to the monitoring (phase 2) and control phases (phase 3). Both these phases involve reflection of an individuals' thinking process that may not have occurred explicitly in direct observation. Findings from this study suggest that students' application of self-regulated learning strategies may vary in terms of their direct relation to the order of phases in self-regulated learning process models. Throughout the learning task, however, all phases of the SRL model are represented and self-regulated learning strategies applied holistically to achieve the specified learning goal.

Domain-Specific Self-Regulated Learning Instruction in Online Postsecondary Settings

Unlike domain specific self-regulated learning strategy instruction in face-to-face courses, domain specific self-regulated learning strategy instruction in online post-secondary settings takes place in both the classroom and in laboratory settings. Just like K-12 settings, instruction still focuses on short targeted interventions meant to develop students' self-regulated learning skill and promote academic success in specific domains.

The effect of instruction is still determined by students' academic success on a specific task.

For example, Azevedo and Cromley (2004) investigated the effects of training in self-regulated learning on students' facilitation of learning and conceptual understanding of the circulatory system in a hypermedia environment. Undergraduate students (n=131) were assigned randomly to a comparison group (n=68) or treatment group (n=63). The comparison group completed a content knowledge pretest prior to working independently to complete a 45-minute task of learning the comprehensive knowledge of the circulatory system. The treatment group received 30-minutes of SRL training that consisted of three sections: (a) introduction to the construct of SRL, (b) discussion of the complex interrelationships between students' knowledge, beliefs, and strategic approach to learning, and (c) introduction and operational definitions of 17 SRL strategies specific to enhancing comprehensive knowledge of the circulatory system focusing on five main categories of SRL: planning, monitoring, strategy use, task difficulty, and interest.
To investigate if students were successful in increasing their conceptual understanding of the circulatory system, Azevedo and Cromley (2004) examined both academic performance data and self-regulated learning process data. Academic performance data focused on assessing students' mental models, matching tasks, and labeling tasks, before and after learning as measured by scores on pretest and posttest measures. Results indicated that overall the SRL training group outperformed the comparison group on measures of mental models, matching tasks, and labeling tasks on the pretest and the posttest. A statistically significant difference in students' mental models was found between treatment and control conditions at the posttest t (130) = -3.86, η^2 = .02. The

effect size of the intervention was small. Students in the SRL training condition scores increased an average of 4.4 (SD = 2.9) on mental models from pretest to posttest. In contrast, students in the comparison group increased considerably less (M = 2.7, SD = 2.6). No statistically significant difference in matching tasks was found between conditions at the posttest. A statistically significant difference in students' labeling tasks was found between condition at the posttest, t (129) = -4.42, η^2 = .-13. The effect size is large. Additionally, Azevedo and Cromley examined how learners regulated their learning of the circulatory system by calculating how often they used each of the variables related to the five main SRL categories related to planning, monitoring, strategy use, handling task difficulty and demands, and interest. Within the five main SRL categories, individual strategized were observed and calculated. To investigate whether there were statistically significant differences in the distribution of students' use of SRL variables across the two conditions, results were presented in a series of a series of chi-square analyses. In the categories of planning, monitoring, strategy use, and interest, students in the treatment condition made the greatest contributions to the chi-square variables. In the handling task difficulty and demands category, students in the comparison condition made the greatest contribution to the chi-square variables. Overall, findings indicate that students in the SRL training condition more frequently employed SRL strategies to regulate their learning in a hypermedia environment that led to significant increases in conceptual understanding of the circulatory system.

To investigate how to promote students' self-regulated learning skills in an online course, Cho (2004) used course design to train and develop self-regulated learning competence among undergraduate students. Four design principles for promoting

students' SRL were applied to the design of instruction for the experimental group: (a) SRL activities were explicitly delivered to students, (b) students were provided opportunities to utilize learned SRL strategies in real learning situations, (c) intervention to promote students' SRL skills was strongly structured, and (d) provide relevant experience in SRL skills needed for application outside of the experiment. Seven self-regulated learning strategies were embedded into the context for learning the Test of Written English (TWE). Learners were required to practice every designed SRL skill in each chapter and report activity results to their instructor. No statistically significant differences were found in pre- and posttest scores on the 84-Likert item Self-Regulated Learning Strategies Questionnaire (SRLSQ) that measured students' SRL level based on cognitive, metacognitive, motivation, and behavior strategies. Students' TWE essay-skill levels were measured before and after the treatment. No statistically significant differences were found between groups. Semistructured interviews indicated that students had mixed feeling regarding the integration of SRL skills into their regular assignments. Specifically, students responded that the reporting of SRL activity was a chore and did not contribute to their potential application of similar skills outside of the experiment. Findings suggest that to support individuals' development toward becoming self-regulated learners requires certain amounts of scaffolding. Cho (2004) suggested that careful consideration should be paid to scaffolds to ensure that individual freedom of learners' internalization of self-regulated learning strategies remains authentic and is not compromised by forced structure. Individual freedom to engage in the self-regulated learning process where appropriate should remain at the discretion of the individual learner (Kollar & Fischer, 2006).

Overall the results of short, targeted, domain-specific instructional interventions meet the training needs of the studies discussed based on the statistically significant results of students' academic success as measured by performance postintervention. There are a few limitations, however, to the domain-specific approach to self-regulated learning strategy instruction. The first limitation is that training in laboratory environments lacks practical implications for academic success beyond the task completed (Azevedo & Cromley, 2004). The second limitation is that not all examples of research on domain-specific instruction provided students with an overview of the self-regulated learning process and its potential relationship to academic success in addition to applicable strategy instruction (Cho, 2004). The third limitation of domain-specific self-regulated learning strategy instruction is lack of transferability of self-regulated learning strategies to other domains. In relation to the present study, domain-specific instructional interventions provide empirical support for short targeted interventions that highlight the self-regulated learning process and applicable strategy use. The current study utilized the short targeted intervention framework format to facilitate successfully domain-specific instruction to implement domain-general self-regulated learning strategy instruction in online courses.

Curriculum-Embedded Strategy Instruction

Curriculum embedded strategy instruction focuses on scaffolding students' self-regulated learning skill development by introducing strategies and embedding self-regulated learning strategies use into existing curriculum. Research on curriculum-embedded strategy instruction has investigated many instructional solutions for promoting students' self-regulated learning skills and academic success within a given

course. Specifically, the following curriculum solutions have been investigated: instructional prompts (Kauffman, 2004; Maclellan & Soden, 2006), mnemonic study processes (Cukras, 2006), implementation of strategy use (Chang, 2005; Masui & De Corte, 2005; Orhan, 2008), modeling SRL into lesson planning (DuBois et al., 2007), course design (Cennamo et al., 2002), and monitoring self-regulated learning processes through structured diary responses (Andertonn, 2006). Overall results imply that students' engagement with self-regulated learning behaviors in support of their learning goals increased when strategy instruction was embedded into course curriculum. When given the opportunity to reflect on their individual self-regulated learning process, students reported increased perceptions of ownership of their entire learning process and the flexibility to modify actions and adjust strategies for future performance.

For example, Maclellen and Soden (2007) investigated whether self-regulated learning curriculum-embedded instructional prompts delivered to undergraduate students (n=75) during an instructional module could influence students' goal-setting, strategy implementation, and monitoring of their learning. As a preintervention measure, students completed a 45-item questionnaire that specified their self-regulated learning conduct in the areas of goal-setting, strategy implementation, and monitoring of activities in support of their learning goals, prior to participating in the instructional module. During the instructional module, students were given self-regulated learning instructional prompts derived from the modified version of the Five-Component Scale of Self-Regulation (Martinez-Pons, 2000) to support students' implementation of self-regulated learning behaviors. Instructional prompts were specific to the areas of goal-setting, strategy implementation, and monitoring. Examples of instructional prompts provided to students

during the instructional module included (a) Have I set an achievable goal for this task? (b) Is this goal presenting me with a challenge or going beyond what I've already achieved?, (c) Am I taking notes during class or using the library to get information? (d) Am I being flexible in the use of alternate working methods, and (e) Am I checking that my method of working is helping me toward my goals? At the conclusion of the two-semester instructional module, students completed the 45-item questionnaire as a post-intervention measure. Maclellen and Soden (2007) found statistically significant differences in preintervention and post-intervention scores for all three subscales: Goal Setting, t (148) = −17.56, d=1.44, Strategy Implementation, t (148) = −17.89, d=1.47, and Monitoring, t (148) = −18.97, d=1.56. All of the above reported effect sizes are large. Students reported increased awareness of and engagement with self-regulated learning behaviors in support of their learning goals. It is unclear; however, how much of the difference in scores can be attributed to the self-regulated learning instructional prompts. The current study employed a pretest-posttest design to examine changes in online students' self-regulated learning conduct before and after the intervention. Additionally, the current study expanded on the use of instructional prompts and incorporated their content into structured weekly diary responses to keep students engaged in active self-regulated learning throughout the duration of their online courses.

Cukras (2006) was interested in examining the study processes and strategies that community-college students used to become self-regulated learners after participating in extensive training in study processes and self-regulated learning strategies. Over the first 7 weeks of the reading and study skills course, students were introduced to a study process in which they learned to encode relevant meaning from the text (E); organize

information (O) by developing outlines, concept maps, and notes, monitor progress (M) by self-testing, question and answer, and predicting strategies; and employ study plans based on the LETME study process, linking prior knowledge (L), extracting information (E), transform information (T), monitor their progress (M), and expand knowledge (E). After the initial training period, students engaged in the four study processes by applying strategies in class to work through assignments in various academic areas such as history and psychology. The objective was for students to choose the strategies most appropriate to support their learning outcomes and academic success based on the task. Students' chosen set of strategies were collected and analyzed for their quality and appropriateness. Cukras (2006) focused on determining the relationships between study processes or combination of study processes used by students in the course and their test performance. In relation to the history test, the study processes of monitoring and employing study plans were statistically significantly related to students' history test performance. In relation to the psychology test, the study processes of extracting, monitoring, and employing study plans were significantly related to students' psychology test performance. Last, overall, monitoring and employing a study plan were the two study processes what were consistently statistically significant in relation to test performance. Additionally, students were given the opportunity to discuss their test performance in conjunction with the study process and strategies they selected during class time in groups with other classmates as well as meet individually with the instructor. The class discussion and reflection of learning outcomes based on chosen strategies served as the evaluation process of the self-regulated learning cycle. Overall findings suggest that students' employment of a study plan enabled them to take control and ownership over

their entire learning process allowing for modifications and adjustments on future tasks once results were compared with actual performance.

One of the limitations of the study was the researcher's decision not to report specific correlational data to provide clarity regarding the strength of the statistically significant relationships between study processes and test performance. A second limitation of the Cukras (2006) study was the instructor's direct participation in the students' evaluation of study processes and learning outcomes. Because the self-regulated learning process requires personal agency and decision making necessary for success with personal goals, there is potential for the instructor's participation to intimidate students and influence their study process decisions. One of the strengths of the Cukras (2006) study was the researcher's decision to focus on introducing study processes that served as self-regulated learning strategies where the students were given freedom to choose which process was most effective for their individual learning goals. At the community-college level, student autonomy and choice regarding their learning outcomes is a core competency all students are encouraged to achieve (CCTFAS, 2012). Similar to the Cukras (2006) study, the present study worked with students at the community-college level and introduced the self-regulated learning framework and study process in which students chose appropriate learning strategies to support their academic success.

Like Cukras, Orhan's (2008) approach to curriculum-embedded instruction included a preexperimental method of application of self-regulated learning strategies throughout the curriculum of the Teaching Practicum course. Orhan (2008) investigated self-regulated learning strategy use of preservice teachers in a Teaching Practicum course. The study incorporated self-regulated learning strategies designed to assist

students to self-observe and evaluate their own teaching effectiveness and to self-monitor the changes during the course.

Throughout their work in the teacher preparation course, students focused on using strategies that supported the three phases of self-regulated learning: forethought, performance, and self-evaluation. To support the forethought or preplanning phase, students set specific process goals for themselves and the course. In addition, students were encouraged to use a time-management matrix, as well as, calendars and organizers to plan the timing of their teaching practice activities. Last students prepared set goals and general plans for each course designed as part of their 15-lesson unit project. To support the performance phase where learners focus on the task and optimize their performance, students were encouraged to manage their instructional materials to improve performance. Specifically, students took notes on lectures, during teacher observations, and during actual teaching episodes to catalogue actions taken to make progress on previously outlined goals. Last, students kept diaries about their teaching performance, lesson planning, and class atmosphere. To support the self-evaluation phase, students recorded themselves while executing teaching practice to compare their performance against the state standards and intended goals outlined in the forethought phase.

Using subscales of the MSLQ to measure changes in student scores pre- and postinstruction, the researchers found no statistically significant difference in scores for the extrinsic goal orientation scale. Goal orientation refers to the type of standard by which individuals judge their performance or success (Pintrich & Schunk 1996). In this study, students were asked to set performance goals for the semester. Orhan (2008),

posited that “performance goals foster the belief that intelligence is fixed” (p. 309). Specifically, if a student believes that intelligence is fixed, then adapting or regulating his or her learning to improve achievement would not change academic outcomes. On the task value scale, statistical significance was found on five out of six items in this scale. Findings suggest that, in general, preservice teachers perceived course content to be relevant in terms of interest, importance, and utility for their future career in teaching. On the control of learning belief scale, statistical significance was found on three out of four items in this scale. Findings indicated that students believed that learning outcomes mainly depended on their own efforts. Student perceptions about their responsibilities to succeed in learning the course material improved as well postinstruction. Student’s belief that intelligence is malleable can be a key motivational factor in self-regulated learning strategy use in autonomous learning environments. Students’ capacity to evaluate progress toward learning goals is influenced by their volition and overall belief in their efficacy for learning. In the present study, students assessed self-regulated learning conduct before and after the intervention. Part of the assessment includes evaluating students’ personal relevance and control of learning outcomes. If students perceive the learning outcomes as attainable and controllable, they are more likely to engage in the academic success (Zimmerman, 1998).

As previously discussed, DuBois and Staley (2007) developed self-regulated learning strategy instruction and structured application of SRL strategies for preservice teachers in an educational psychology course. Students participated in an instructional unit for five self-regulated learning topics: academic motivation, metacognition, volition, and cognitive strategies. The instruction included a series of events: presented theories

and research findings on the particular topic followed by student assessment of competence in the particular topic, presented results of the assessment and initiated student reflection on their current functioning in the topic area, demonstrated corresponding learning strategies and provided students with the opportunity to practice the strategies and monitor their performance, and last, demonstrated how preservice teachers could embed the teaching of strategies in different subject areas. The above series of events was repeated for each individual self-regulated learning topic.

Through postcourse formative evaluations, findings indicated that students' examination of their own learning characteristics and beliefs in the effectiveness of the SRL process and appropriate learning strategies directly affected the students' design of future curriculum. DuBois and Staley (2007) reported that they engaged in informal formative evaluations of the instruction provided to pre-services teachers. Formal evaluations, however, were limited to surveys of student satisfaction. Details regarding students' satisfaction with the instructional delivery were not reported. DuBois and Staley (2007) suggested that next steps include evaluations that focus on improvement of course components and follow-up assessments of how the course affects students' learning strategies after they complete the course. Findings confirm that course design can be manipulated effectively to focus on self-regulated learning strategies and concepts separately and within the context of specific learning scenarios without compromising learners' overall self-regulated learning competence. The current study incorporated a post-intervention formative evaluation that asked students to assess the effectiveness of the SRL intervention and provide feedback on how components of the intervention could

be improved to better support their adoption of the self-regulated learning process and online academic success.

Curriculum-Embedded Strategy Instruction in Postsecondary Online Courses

Research in curriculum-embedded strategy instruction in post-secondary online courses has investigated instructional solutions for promoting students' self-regulated learning skills and academic success within a given course similar to those used in traditional classrooms. The focus, however, has been on utilizing instructional prompts (Kauffman, 2004), implementation of strategy use (Andertonn, 2006; Orhan, 2008), course design (Cennamo et al., 2002; Cennamo & Ross, 2000), and monitoring self-regulated learning processes through structured diary responses (Andertonn, 2006). Findings suggest students benefited from course design that promoted authentic practice of the self-regulated learning process within the context of their course. Providing students with a mnemonic strategy that reiterates a procedural framework to support their self-regulated learning competence was beneficial for online learners and increased their metacognitive strategy use and increased their self-efficacy for learning and academic success performance.

Cennamo, Ross, and Rogers (2002) initial interest in self-regulated learning was specific to utilizing course design and enhanced technology to support student learning. Cennamo et al. (2002) designed and developed a web-based course in human development for undergraduates to capitalize on the emerging technology accessible through teaching courses online. They intended to develop the course with the principles of active learning to support students' transition to the autonomous learning environment. The web-based course was designed to scaffold students while they learned the skills of

self-regulated learning, critical for active, self-directed, and autonomous learning. Consistent with the idea of scaffolding, the support for developing strategies of self-regulated learning, they developed the mnemonic learning strategy GAME plan to provide a clear reminder for students of the steps to follow in the self-regulated learning for the process. The acronym GAME stands for Goal, Action, Monitor, and Evaluate. GAME was used to structure learning activities in the course appropriate for each stage of the plan and provide tools for student use. For example, to support student goal setting, tools provided included topic outlines, study guides, and goals checklists used to create time-dependent goals identified by the individual student. Students were offered several practice tests and exercises to monitor their knowledge acquisition. Students were provided feedback regarding both right and wrong answers with prompts to ensure that the students knew where in the course material to reference accurate information. Finally, students evaluated their actions by completing an online quiz for credit and reviewing their grades.

After the first 2 weeks of the course, students completed the MSLQ to assess their self-regulated learning competence. Based on their responses, the instructor provided feedback on strengths and weaknesses of student SRL strategy use. The web-based course included a supplemental tips section where students' were provided additional information on increasing their skills in needed areas specifically intrinsic motivation; extrinsic motivation; interest in topic; task value; expectancy for success; time and resource management; use of cognitive strategies such as rehearsal, elaboration, organization, and metacognitive skills; and decreasing test anxiety. At the end of the course (week 16) students were readministered the MSLQ. Comparisons of students'

scores on the MSLQ from the beginning and end of the course indicated that students statistically significantly increased their metacognitive self-regulation abilities, decreased their test anxiety, and increased their self-efficacy for learning and performance. No statistical data were provided in this study to indicate the numerical statistical significance of these findings. In addition, qualitative data were collected through semi-structured interviews conducted by members of the course design team to assess the effectiveness of GAME plan as a useful strategy for increasing self-regulated learning competence and supporting learning in a web-based course. Students reported that the GAME plan strategy influenced their strategic approach to learning. Specifically, they perceived the Goal Checklist as an effective tool for planning their learning activities as well as the practice quizzes and effective tools for monitoring progress toward learning goals. Findings suggest that providing students with a mnemonic strategy that reiterates a procedural framework to support their self-regulated learning competence can be beneficial for online learners. Within the context of the current study, the GAME plan was a precise strategy that targeted all phases of the self-regulated learning process. Students had the opportunity to engage in goal setting, performance control (action), metacognitive monitoring, and evaluation of learning outcomes thus enhancing their overall strategic approach to learning in the online environment. The current study repurposed the GAME plan mnemonic to introduce the self-regulated learning process to online learners and structured course activities that promoted students' self-regulated learning skill development and academic success in an online courses.

To investigate the statistical significance of using goal planning and weekly monitoring and evaluation forms within an online class to promote the use of self-

regulated learning strategies, Andertonn (2006) hypothesized that supporting learners in focusing on the behavioral, motivational, and metacognitive aspects of their learning processes in an online class would result in higher achievement at the end of the course. Additionally, Andertonn (2006) explored the relationship between students' academic achievement and their use of goal planning, weekly monitoring, and evaluation forms to promote self-regulated learning. Working with two sections of undergraduate students (n=28) enrolled in Educational Measurement and Testing, Andertonn (2006) compared pre-MSLQ scores, post-MSLQ scores, and average quiz scores of the two sections of students. Students enrolled in section one served as the comparison group (n=15) and did not participate in goal setting, weekly monitoring, or evaluation activities. Students enrolled in section two served as the experimental group (n=13) and were introduced to weekly monitoring, goal setting, and evaluation forms. Throughout the course, students in the experiment group were required to identify their goals for the course and the steps necessary to reach those goals using the Goal Planning form, chart their progress toward goals using the Weekly Progress Monitoring Input Form, and submit their Weekly Evaluation Form at the end of each week. There was a statistically significant difference in post-MSLQ scores [F (1, 25) = 8.31, η^2=.33, a very large effect]. For the experiment group, using the goal setting, weekly progress monitoring, and weekly evaluation form accounted for 25% of the score variance on the posttest MSLQ. There was no statistically significant difference in average quiz scores between course sections. No statistically significant differences were found when evaluating the relationship between average quiz grades and course section**.** For the experiment group, goal setting form, weekly monitoring form, and weekly evaluation form use accounted for 7.7% of the variance of

the in average quiz scores. The current study adapted the curriculum-embedded approach detailed in Andertonn's (2006) study by incorporating aspects of the goal planning form, weekly progress monitoring input form, and the weekly evaluation form into the content of the weekly structured diary reflections.

Domain-General Courses in Self-Regulated Learning in Postsecondary Settings

Research in domain-general self-regulated learning strategy instruction in post-secondary settings courses has focused on implementing *Learning to Learn* as an instructional solution for developing students' self-regulated learning skills and academic success (Bail et al., 2008; Burchard & Swerdzewski, 2009; Dembo & Jakubowski, 2004; Hofer & Yu, 2003; Reeves & Stich, 2010; Schapiro & Livingston, 2000). All of these types of courses have taken place in traditional classrooms. Researchers posited that students who participate in *Learning to Learn* courses have increased understanding of the mental process involved in learning thus building conditional knowledge about why and when to use various strategies (Dembo & Jakubowski, 2004; Hofer & Yu, 2003). Additionally, learners' overall effectiveness and long-term academic performance is influenced by the repertoire of learning strategies developed in these courses. Findings suggest that the students who participate in domain-general self-regulated learning courses experience long-term benefits such as higher cumulative GPAs, increased graduation rates, and self-efficacy for learning.

Hofer and Yu (2003) studied the effect of a *Learning to Learn* course designed to teach undergraduate psychology students (n=78) how to be self-regulated learners. Based on the assumption that students actively can regulate their cognition, motivation or behavior and, through self-regulated learning processes, enhance performance and

achieve educational goals, there were two specific goals of the study: increase understanding of mental process involved in learning thus building conditional knowledge about why and when to use various strategies and increase learners' effectiveness by developing a repertoire of learning strategies. Target participants of this course were first- and second-year students who desired to improve their academic performance based on previous difficulties. Students participated in 4 hours of class time weekly, which included 2 hours of lecture and 2 hours of lab environment where self-regulated learning skills were practiced and applied to different learning contexts. Students' responses to the Motivated Strategies for Learning Questionnaire (MSLQ) were collected before and after instruction.

Findings reported address changes in motivation and cognition from the beginning of the course. Specifically, paired-sample *t* tests showed significant increases in three motivation variables: intrinsic goal orientation t (70) = -3.20, d=.38, utility t (70) = -3.15, d=.38, and self-efficacy t (70) = -4.55, d=.54. The reported effect sizes for the three motivation variables were both medium and large, respectively. In regard to cognitive variables; memorization $t(70)$= -4.23, d=.51, elaboration $t(70)$= -4.75, d=.57, organization $t(70)$= -3.89, d=.46, deep processing $t(70)$= -5.11, d=.61, planning $t(70)$= -3.96, d=.47 , and metacognition $t(70)$= -2.61, d=.31; all showed statistically significant increases. The reported effect sizes for the cognitive variables were both medium and small, respectively. Additionally, findings reported relationships between motivation and cognitive variables in terms of Time 1 (preinstruction) and Time 2 (post-instruction). Findings suggest that students' skill (cognitive) and will (motivation) for learning can improve as the result of domain general self-regulated learning strategy instruction.

One of the limitations of this study is the length of time that students participate in the *Learning to Learn* course. The course is a semester long in length and requires both lecture and laboratory hours in a traditional classroom. The second limitation to this study is the lack of a qualitative measure to provide additional data regarding the development of self-regulated learning strategy use and process adoption throughout the duration of the semester. The current study used domain-general self-regulated learning strategy instruction and offered a condensed version of domain-general strategies that were introduced to online students to support their academic success in online courses. Additionally, the current study employed both quantitative and qualitative measures to assess both the product and the process of self-regulated learning.

Bail, Zhang, and Tachiyama (2008) explored the effects of completion of a self-regulated learning course on long-term academic outcomes of underachieving undergraduate students (n=157). Study participants consisted of two groups: self-regulated learning course enrollees (n=78) and additional students that were members of an academic support program (n=79). Bail, Zhang, and Tachiyama (2008) hypothesized that self-regulated learning is controllable and that undergraduate students can learn to self-regulate, primarily through greater metacognitive awareness and through the implementation of cognitive and affective strategies in the academic situations they encounter. The self-regulated learning course was designed to support metacognitive awareness and strategy use to support learning goals. Students in the course assessed overall learning goals for the semester in which they were enrolled in the self-regulated learning course. Students then developed three specific strategies to attempt in one or more of their other courses over the semester that became the topic of the reflection paper

in the course. To measure the effectiveness of participation in the SRL course, data collected and analyzed included cumulative GPA before and after the course; number of academic credits obtained, number of transfer credits, cumulative GPA before the semester of SRL course enrollment or nonenrollment; number of transfer credits; number of prior credit hours; gender; number of semesters subsequent to enrollment in which the student received one or more F grades; number of subsequent semesters in which the student achieved a GPA lower than 2.0; whether the student was put on probation, suspended, or dismissed in any subsequent semester; cumulative GPA at the end of the fourth semester following course enrollment; whether the student graduated within 7 years of enrollment in the SRL course; whether the student had subsequently been accepted to graduate degree program within the university system; and whether the student attained a graduate degree within the university of system.

Even though there were multiple data points in this study, the results of most interest for the current study are the longitudinal measures of academic performance and educational attainment postparticipation in the course in comparison with students who did not participate in the SRL course. Overall results indicated that students who took the course had statistically significant higher cumulative GPAs four semesters afterwards, statistically significantly higher odds of graduation, and significantly lower odds of receiving one or more F grades in subsequent semesters. Findings suggest that a single SRL course can have an effect on the long-term academic performance of underprepared college students.

One limitation of the Bail, Zhang, and Tachiyama (2008) study was the sole focus on long-term academic outcomes of students who were enrolled in the course. There was

no data provided regarding the academic success of students in the actual course, e.g. final course grade. Additionally, there was no data exploring the current GPA of students at the end of the semester in which they were enrolled in the SRL course. Therefore, it was difficult to gauge the short-term effectiveness of participation in the SRL course. The aim of the current study was to influence overall self-regulated learning competence and academic performance in general education courses in which students currently were enrolled, by comparison of final course grade with the postintervention self-regulated learning product assessment through strategy instruction.

Measuring Self-Regulated Learning

Research in the area of measuring self-regulated learning as a construct that supports student success has focused on assessing both the product and the process of self-regulated learning (Azevedo & Cromley, 2004; Bail et al., 2008; Cennamo et al., 2002; Cho, 2004). The product of self-regulated learning has been assessed through self-report measures, increasingly referred to as “aptitude” measures; typically require students to report on conduct at the school or domain level across learning situations by way of surveys or questionnaires (Winne & Perry, 2000). Self-report measures are thought to capture effectively more domain-general learning tendencies, motivation for learning, and students’ knowledge of strategy-use. Self-report measures have been used to assess students’ self-regulated learning conduct both before and after instructional intervention (Boekaerts et al., 2000). Current self-regulated learning methodologies call for the calibration between students’ self-reported domain-general self-regulated learning conduct and the actual use of self-regulated learning processes throughout actual learning tasks (Pintrich, 2004; Schraw, 2010). The process of self-regulated learning within the

research base is often referred to as self-regulated learning events (Hadwin et al., 2008; Winne & Perry, 2000). Researchers in the area of self-regulated learning have used several self-regulated learning event measures to assess students' self-regulated learning processes while engaged in learning tasks. Some of the event measures used include think-a-loud protocols (Azevedo & Cromley, 2004; Azevedo, 2005; Moos & Azevedo, 2008; Nash-ditzel, 2010), computer traces (Nesbit et al., 2006), structured diaries (Arsal, 2010; Perels et al., 2009; Schmitz & Wiese, 2006; Stoeger & Ziegler, 2008), and semi-structured interviews (Cennamo et al., 2002; Cho, 2004; Whipp & Chiarelli, 2004). This section reviewed literature involving instruments used to assess both the product of self-regulated learning as well as the process of self-regulated learning.

Assessment Instruments for the Product of Self-Regulated Learning

To assess the product of students' self-regulated learning conduct in both traditional classrooms and online learning environments, there are four primary instruments featured most prominently in the research: (a) Motivated Strategies for Learning Questionnaire (MSLQ), (b) the Online Self-Regulated Learning Questionnaire, and (c) the Survey of Academic Self-Regulation. All three instruments are administered as self-report instruments before and or after instruction interventions. Each instrument consists of individual scales that collectively assess aspects of individual students' self-regulated learning conduct that includes but is not limited to intrinsic and extrinsic goal orientation, time management, task value, motivation for learning, self-efficacy, and learning strategy use.

Specifically, the MSLQ is an 81-item, self-report instrument designed to measure college students' motivational orientations and their use of various learning strategies

(Pintrich, Smith, Garcia, & McKeachie, 1991). The MSLQ was developed using a social cognitive view of motivation and self-regulated learning (Pintrich, 2003) to assess domain-specific academic self-regulation. The self-report items divided into two broad categories: a *Motivation* section and a *Learning Strategies* section. The motivation section consists of 31 items to assess students' goal orientation, task value and beliefs about their skill to succeed in a course, mainly test anxiety. The learning strategies section consists of 50 items and assesses both cognitive and metacognitive strategy use as well as items concerning students' management of their learning. Students rate themselves on a 7-point Likert scale, from 1 to 7 where 1 represents strongly disagree (*not at all true of me*) and 7 represents strongly agree (*very true of me*). Scores from the MSLQ have been used extensively for empirical research in the areas of motivation and self-regulated learning. Specifically, scores have been used to (a) investigate the nature of student motivation and learning strategies use and (b) evaluate the motivational and cognitive effects of instructional interventions, including different course structures and various educational technologies (Artino, 2005; Duncan & McKeachie, 2005). MSLQ scales can be used together or individually, depending on their specific research needs.

The Online Self-Regulated Learning Questionnaire (OSLQ) was created in support of the context-specific nature of online learning environments and in response to inconsistent results achieved by other instruments such as the MSLQ (Barnard, Paton, & Lan, 2008; Lan, Bremer, Stevens, & Mullen, 2004). The intent of the OSLQ is to assess the product of self-regulated learning and the self-regulatory learning skills of students within the environment of online courses where self-regulation becomes a critical factor for success in online learning (Barnard et al., 2009). The OSLQ was developed originally

from an 86-item pool and then examined for its internal consistency and exploratory factor analyses results from data collected. The current version of the OSLQ is a 24-item instrument with six subscale constructs including environment structuring, goal setting, time-management, help seeking, task strategies, and self-evaluation. Students rate themselves on a 5-point Likert scale, from 1 (*strongly disagree*) to 7 (*strongly agree*). Internal consistency of scores by subscale, values for Cronbach's alpha ranged from .67 to .90, which are acceptable to excellent.

The Survey of Academic Self-Regulation (SASR) was created in response to the need for a domain-general instrument to measure self-regulated learning behavior and study strategies used in an academic course to support learning. The SASR also was created to better address the ongoing validity and reliability issues related to self-regulated learning and improve psychometrics over those of existing self-report instruments such as the LASSI and the MSLQ. The audience for the SASR is college-level students developing self-regulated learning skills in both traditional classrooms and online learning environments. The SASR consists of 63 items with six different scales: (a) Metacognition, (b) Personal Relevance and Control, (c) Intrinsic Motivation), (d) Self-Regulation, (e) Self-Efficacy, and (f) Extrinsic Motivation. Students rate themselves on a 6-point Likert scale where a score of (1) represents *Strongly Disagree* and a score of (6) represents *Strongly Agree*. The SASR was pilot tested and administered to relatively large samples of college students in an effort to meet this purpose. Guidelines for questionnaire development and establishing construct validity meticulously were followed by the author, Dugan (2007), so that the SASR, with its improved

psychometrics over those of existing instruments, might better address the ongoing validity and reliability issues related to Academic Self-Regulation.

Research Using the Motivated Strategies for Learning Questionnaire (MSLQ)

Research in the area of self-regulated learning and instructional interventions have primarily used the Motivated Strategies for Learning Questionnaire (MSLQ) as the instrument of choice to measure self-regulated learning conduct among secondary-school students and college or university students in both traditional classrooms (Andertonn, 2006; Arsal, 2010; Hofer & Yu, 2003; Mohd Kosnin, 2007; Orhan, 2008; van Den Hurk, 2006; Weinstein & Acee, 2011) and online learning environments (Bell, 2007; Chang, 2005; Chen, 2002; Matuga, 2009; Yukselturk & Bulut, 2009). The MSLQ has been used to assess students' self-regulated learning conduct before and after instructional interventions, predict academic achievement, assess motivational beliefs, and self-regulated learning strategy use. For example, with secondary-school students (n=40), Matuga (2009) used 30 items of the MSLQ to investigate the use of self-regulated learning to navigate the completion of online courses taken through a local university-bridge program. The abbreviated MSLQ that consisted of motivation scales and self-regulation scales was administered to students at the beginning and end of the course. Results were compared with students' final course grades. There were statistically significant differences in student scores on the motivation subscale before and after the online course, [F (1, 37) = 4.00]. Students in this study scored statistically significantly higher on motivation subscale items before the online course (M=57.5, SD=9.88) than at the conclusion of the course (M=51.25, SD=9.21).There were no statistically significant differences in scores on the self-regulation subscale before and after the course, and there

were no statistically significant interactions found between achievement and pre- and post-means on the self-regulation subscale. Low-achieving students, however, had the highest scores on the self-regulation subscale items before the online course started (M=93.5, SD=14.15) and after the course ended (M=95.0, SD=9.20) than either the high-achieving or average-achieving students at the start or conclusion of the course. Additionally, the scores on the self-regulation subscale of low-achieving students increased from pre- to post-test whereas the scores of both high-achieving and average-achieving students decreased on the self-regulation subscale. Findings suggest that the MSLQ did not provide sufficient information regarding students' self-regulated learning conduct to explain the differences in results between the students with varying levels of achievement.

As previously discussed, Andertonn (2006) investigated the relationship between academic success and use of goal planning, weekly monitoring, and evaluation forms within an online class to promote the use of self-regulated learning strategies with two sections of undergraduate students (*n*=28). Andertonn (2006) administered the MSLQ preintervention and postintervention and compared results with average quiz scores of the two sections of students. The strength of the relationship between the worksheets and the participants' perceived ability to self- regulate in an online course was strong, as assessed by the partial $\eta^2 = .25$. The goal analysis sheets and self-regulated worksheets accounted for 25% of the score variance on the posttest MSLQ. Based on these results, Andertonn (2006) posited that participants in the experimental group of this study appeared to increase their ability to self-regulate as measured by the increase in their scores on the final MSLQ. Although students with higher self-regulatory skills had higher average quiz

scores, they were not statistically significantly higher than those participants in the comparison group who did not show increased ability to use self-regulatory skills based on their post-MSLQ scores. Findings in this area were not statistically significant to support the literature which argues that increased self-regulated learning ability leads to academic success (Zimmerman & Martinez-Pons, 1986).

Like Andertonn (2006), Hofer and Yu (2003) used the MSLQ to measure changes in students' motivation and cognition for self-regulated learning after participation in instruction, particularly a *Learning to Learn* course designed to teach undergraduate psychology students (*n*=78) to develop self-regulated learning skills. Additionally, Hofer and Yu (2003) were interested in the relationship between the change in students' motivation and cognition and their academic success as measured by their final course grade. Students participated in instruction where self-regulated learning skills were practiced and applied to different learning contexts. Hofer and Yu (2003) collected students' MSLQ responses before and after instruction. Results indicated statistically significant increases in motivation variables: intrinsic goal orientation, utility, and self-efficacy and in cognitive variables: memorization, elaboration, organization, deep processing, planning, and metacognition. The only variable from the MSLQ, however, that statistically significantly correlated with final course grade was the motivation variable, self-efficacy *r*=.25.

To predict academic achievement between low- and high-achieving undergraduate students in Malaysia (n=460), Mohd Kosin (2007) investigated the ability of students' self-regulated learning as measured by scales on the MSLQ. Student achievement was measured by the first-year cumulative GPA (CGPA). Using stepwise

multiple regression analysis, Mohd Kosin (2007) found that aspects of self-regulated learning as measured by the MSLQ were statistically significant in predicting academic achievement. Overall, results show that self-regulated learning explains 35.2% of the variance in GPA [F (4, 326) =45.78]. Specifically, resource management strategies, test anxiety, metacognitive learning strategies, and lack of self–efficacy scales were the statistically significant overall predictors (β = 0.40, 0.14, 0.28, and -0.17, respectively). Separate stepwise multiple regression analyses were then completed for both the high- and low-achievement groups. The results indicated that students MSLQ scores predicted CGPA for the high achievers (33.6% of the variance) to a greater degree compared with the low achievers (13.7% of the variance). Among the low-achievement group, metacognitive learning strategies had positive statistically significant effects on CGPA (β = 0.38). Additionally, Mohd Kosin (2007) found that based on results from the MSLQ metacognitive learning strategies appear to be more important for the low achievers compared with the high achievers. Low achievers reported lower levels of metacognitive strategy use compared with the high achievers. Findings suggest that the MSLQ scores helped the researcher understand how self-regulated learning strategy use varies among students with different levels of achievement, important to consider when designing self-regulated learning strategy instruction (Sacks, 2007).

To investigate motivation and self-regulated learning strategy use, Artino (2009) surveyed undergraduate military students enrolled in a self-paced aviation survival training course offered online. Using the elaboration scale (e.g., paraphrasing and summarizing) and metacognition scale (e.g., planning, setting goals, monitoring one's comprehension, and regulating performance) from the MSLQ to assess self-regulated

learning strategy use, Artino found moderate positive correlations between self-efficacy and metacognition (r =.18) and between self-efficacy and elaboration (r =.27). In addition, results indicated statistically significant strong relationships between task value and metacognition (r =.61) and task value and elaboration (r =.56). Results indicate that students' self-efficacy in an online course although related to both cognitive and metacognitive strategy use resulted in a relationship that is moderate at best. Students' task value, however, in this study was highly correlated to both cognitive and metacognitive strategy use. Findings suggest that it is not sufficient for students to have knowledge of cognitive and metacognitive strategies; students' motivation to utilize strategies to improve learning and performance are important components of self-regulated learning in online courses. Additionally, the strength of the relationship between task value and both elaboration and metacognition suggests that positive task value beliefs may be critical in online learning environments.

In summary, the MSLQ as a measure to assess the product of self-regulation was developed specifically to explore the link between motivation and learning strategies in traditional classrooms with focus on interest within domain-specific learning contexts (e.g. mathematics, science, english, writing); (Artino, 2005). Although several SRL studies in online learning environments have used the MSLQ to measure self-regulated learning conduct that was not the original intent of the instrument. Results are not consistent across studies, particularly those looking to obtain empirical evidence of the relationship between self-regulated learning strategy use, motivation for learning, and academic achievement. Last, the MSLQ has been criticized for scale overlap, uneven distribution of items across 15-subscales, as well as reliability and validity issues (Artino,

2005; Dugan & Andrade, 2011; Rotgans & Schmidt, 2009). The current study did not utilize the MSLQ because of its reliability and validity issues and the instrument was not intended for use with domain-general instruction in online learning environments to assess the product of self-regulated learning and its relationship to academic success.

Research Using the Online Strategies for Learning Questionnaire (OSLQ)

Researchers in the area of self-regulated learning in online environments have begun to use the OSLQ to assess students' self-regulated learning behaviors specific to online or blended learning courses. The OSLQ is a relatively new instrument that has been tested and validated at a large public university in the Southwestern United States that serviced online students from around the continental United States. So far, the OSLQ has been used to develop profiles of self-regulated learners (Barnard-Brak, Lan, & Paton, 2010), and assess the self-regulated learning skills development of online students across time (Barnard et al., 2009; Barnard-Brak et al., 2010).

To examine the existence of self-regulated learner profiles with two different samples of undergraduate students enrolled in online degree programs, Barnard-Brak et al. (2010) used latent class analysis and data from subscales of the Online Self-Regulated Learning Questionnaire (OSLQ). Based on student responses to the OSLQ, results were categorized into five profiles of self-regulated learners using latent class analyses: super self-regulators, competent self-regulators, forethought-endorsing self-regulators, performance or reflection self-regulators, and non- or minimal self-regulators. Additionally, in most cases profile membership was synonymous with level of academic performance based on calculated GPA. Minimal self-regulated learning profile membership was associated with poorer academic outcomes, in this case, lower GPAs.

Barnard-Brak et al. suggested (2010) that the profiles found in this analysis contribute to understanding individual differences apparent in adoption of self-regulated strategies specifically in the online learning environment. Findings suggest that the OSLQ scores contributed to identifying individual differences in the self-regulated learning skill levels of online learners; however, the implications for instruction to promote academic success were not clear.

In their study examining the self-regulatory skills of first-generation online learners during their first online course, Barnard-Brak et al. (2010) used the OSLQ to survey students pre- and postonline course using the following subscales: environment structuring, goal setting, time-management, help-seeking, task strategies, and self-evaluation of their self-regulatory skills. Barnard-Brak et al. (2010) found decreases in students' use of task strategies and self-evaluation postonline course. Overall results indicated no statistically significant differences in the self-regulatory skill development of online learners across two points in time, pre- and postonline course completion. Findings from this study indicate that simply examining self-regulatory skills in the online environment without intervention did not increase skill development.

In summary, although the OSLQ was developed to assess self-regulated learning specifically with online students at the college level, it does not meet the assessment needs of the current study. The few studies that have used the OSLQ were not focused on self-regulated learning and strategy instruction in support of academic success. Out of the six available scales, only the goal setting, time management, and self-evaluation scales coincide with the scope and purpose of the current study. The 12 items specific to the

above scales are not sufficient to assess changes in students' self-regulated learning conduct in online courses and its relationship to academic success.

Research Using the Survey of Academic Self-Regulation (SASR)

As previously stated, the SASR was created in response to the limitations of the MSLQ and the Learning and Study Strategies Inventory (LASSI) with a focus on academic self-regulation in domain-general contexts in both traditional classrooms and online learning environments. Researchers in the area of self-regulated learning and academic success have begun to use the SASR to assess college students' academic self-regulation that includes students' self-regulated learning behaviors, specifically metacognitive strategy use, motivation for learning, and academic performance (Dugan, 2007; Dugan & Andrade, 2011). The SASR is a relatively new instrument that was developed, pilot tested, and retested on large samples of college students from semi-urban institutions of higher education located in upstate New York. To date, the SASR has been used to assess college students' academic self-regulation (Dugan, 2007) and to assess the predictive validity of SASR scores on academic success, namely grade point average and final course grade (Dugan & Andrade, 2011).

Specifically, extending the work of Dugan's (2007) previous study, Dugan and Andrade (2011) used the SASR to measure self-regulated conduct among a diverse sample of undergraduates (N=491) and assess the predictive validity of SASR scores on students' academic achievement as measured by GPA and course grades. Results of the regression indicated that five SASR scales with the exception of Extrinsic Motivation were statistically significant predictors of GPA. The Self-Regulation scale (β=.37) scale had the strongest predictive validity followed by Self-Efficacy (β=.19), Intrinsic

Motivation (β=.14), Personal Relevance and Control (β=.13), and Metacognition (β=.06), respectively. Overall, five SASR scales explained 25% of the variance in GPA. In terms of linear regressions using course grade, only reported Self-Regulation (β=.46), Self-Efficacy (β=.14), and Personal Relevance and Control (β=.09) were found to be statistically significant positive predictors, respectively, in descending order of variance accounted for. All three scales accounted for 15% of the variance in course grades. Together the SASR scales accounted for more variation in GPA than in course grade. Findings imply that students' scores on the SASR were effective in predicting final course grade. The current study utilized the SASR to assess students' academic self-regulation before and after instruction and compare results with their academic outcomes measured by final course grade.

Assessment Instruments for the Process of Self-Regulated Learning

To assess the process of students' self-regulated learning conduct in both traditional classrooms and online learning environments, there are two primary instruments featured most prominently in the research: (a) semistructured interviews and (b) structured-diary responses. Both types of instruments have been administered through either face-to-face interactions with researchers or student-reported reflections before, after, and or both for instructional interventions. Each type of instrument has been customized to assess collectively aspects of individual students' self-regulated learning process that includes but is not limited to goal setting or planning, learning strategy use, performance management, motivation for learning, and evaluation of learning outcomes in relation to self-regulated learning process. Additionally, both types of instruments have been used to evaluate instruction. Semistructured interviews have been used with

secondary students (Nota, Soresi, & Zimmerman, 2004; Zimmerman & Martinez-Pons, 1986) and college or university students (Cho, 2004; Fadlelmula & Özgeldi, 2010; Hsu et al., 2009; Whipp & Chiarelli, 2004; Yukselturk & Bulut, 2007). At the college or university level, semistructured interviews have been used in both traditional classrooms (Fadlelmula & Özgeldi, 2010; Hsu et al., 2009) and online courses (Cho, 2004; Whipp & Chiarelli, 2004; Yukselturk & Bulut, 2007). Structured-diaries have been used with secondary students (Harrison & Prain, 2009; Perels, Gurtler, & Schmitz, 2005; Schmitz & Wiese, 2006) and college or university students (Arsal, 2010; Masui & De Corte, 2005; Reeves & Stich, 2010) to gain insight into students' self-regulated learning process.

Research Using Semistructured Interviews

To assess students' self-regulated learning strategy use and academic achievement in six learning contexts, Zimmerman and Martinez-Pons (1988) used semistructured interviews to validate a strategy model of self-regulated learning by exploring high-school students (n=80) reported self-regulated learning strategy use, teacher perception of students' self-regulated learning strategy use, and academic achievement in six learning contexts. The interview strategy model used by Zimmerman and Martinez-Pons (1988) was later coined the Self-Regulated Learning Interview Schedule (SRLIS). For each learning context, students were asked to indicate the methods that they used to accomplish the task at hand. If the student failed to offer an answer, he or she was asked, "What if you are having difficulty? Is there any particular method you use?" If the student mentioned one or more strategies, the interviewer asked the student to rate the consistency with which each strategy was used according to a 4-point scale with categories ranging from *seldom* (1) to *most of the time* (4). Students participated in a 15

minute interview conducted by one or more of the researchers. Through the semistructured interviews, students reported use of 14 specific self-regulated learning strategies to support their learning goals: self-evaluation, organizing, goal setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking peer assistance, seeking teacher assistance, seeking adult assistance, reviewing tests, reviewing notes, and reviewing texts. Of the 14 strategies reported, the four strategies used most frequently included reviewing notes (M=3.57, SD=7.94), seeking information (M=2.91, SD=5.54), keeping records and monitoring (M=2.82, SD=5.66), and organizing-transforming (M=2.57, SD=5.35). The student reported strategies with the highest statistically significant correlations to teacher ratings (through observation) were as follows: rehearsing and memorizing (r =.48), organizing-transforming (r =.36), seeking peer assistance (r =.31), seeking information (r =.28). Both students and teachers in this study identified similar strategies used to support learning goals. Researchers agreed that the set of strategies identified by both teachers and students in this study support adoption of self-regulated learning (Boekaerts & Corno, 2005; Pintrich, 1999; Winne, & Hadwin, 1998; Zimmerman, 2002). Specifically, organizing-transforming and seeking information typically take place during the forethought phase of the self-regulated learning process (Zimmerman & Campillo, 2003). Whereas rehearsing and memorizing typically take place during the performance phase. Last, keeping records and monitoring typically take place in the self-reflection or evaluation stage. Findings from this study suggest that teachers' awareness of their students' self-regulated learning strategy use can contribute to their ability to develop instruction in self-regulated learning strategies. The

semistructured interviews provided researchers and participating teachers accurate knowledge of students' self-regulated learning strategy use that can in turn inform future instruction (Paris & Paris, 2001; Schunk, 2005). Even though teacher observation of self-regulated learning strategy use is important in primary and secondary education, postsecondary education does not allow for the same level of teacher observation due to larger class size and greater learner autonomy, particularly in online learning environments. Therefore, the current study focused solely on learner reflections and evaluation of their self-regulated learning strategy use throughout the duration of their online courses.

To examine the process by which learners self-regulate their learning while reading academic text, Fadlemula and Ozgeldi (2010) used observation, video data, and semistructured interviews with a graduate student reading academic text. Fadlemula and Ozgeldi (2010) observed that their case study participant effectively used components of the self-regulated learning process to regulate her learning while engaging in the reading task. Specifically, the participant performed several forethought, planning, and activation activities, such as activating prior content knowledge and metacognitive knowledge, and planning time and effort for the task. Additionally the participant, implemented different kinds of monitoring and controlling activities, such as judgments of learning, self-observation of behavior, and persisting on finishing the task. As a final step, she made various judgments and evaluations regarding the comprehension of the academic text. Fadlemula and Ozgeldi (2010), however, found it difficult to observe the participants' self-regulation strategies specific to the monitoring (phase 2) and control phases (phase 3). Both these phases involve reflection of an individuals' thinking process that may not

have occurred explicitly in direct observation. Through structured interviews, the researchers were able to gather qualitative data about how the student worked through phases of the self-regulated learning process and why the student made specific decisions regarding her strategy use in support of her learning goals. Findings from this study suggest that students' application of self-regulated learning strategies may vary in terms of their direct relation to the order of phases in self-regulated learning process models. Throughout the learning task, all phases of the SRL model are represented and self-regulated learning strategies applied holistically to achieve the specified learning goal.

In order to learn more about undergraduate online students' motivation for learning and evaluate the self-regulated learning process undertaken by students after strategy instruction, Cho (2004) used semistructured interviews to solicit information from students who participated in the treatment group. Interview results indicated that students did not have thorough understanding of how to apply effectively the self-regulated learning strategies taught in their online TWE course to their work. Lack of thorough understanding of the self-regulated learning process and strategy use made students less motivated to learn and engage in authentic application of the process to their own work. Findings suggest that conducting structured interviews with students after instruction gave researchers further insight into the effectiveness of their instruction, design of their study, and the effect on the student's experience.

In a qualitative case study conducted with online undergraduate students, Whipp and Chiarelli (2004) conducted semistructured interviews with six students to gain insight into their experience with curriculum-embedded self-regulated learning instruction and its effect on their self-regulated learning process. Online students participated in three

face-to-face interviews with the secondary research. The first interviews took place during the 3rd week of the course followed by interviews in the 7th week of the course and 2 weeks after the completion of the course. In each interview, students were asked to describe how they completed assignments for the previous week, what strategies they used, their challenges, and what supported them. Additionally, students were asked to describe their thoughts, feelings, and motivations while learning online and to evaluate their performance in the course. Sample interview questions are as follows: (a) What methods did you use to get ready to do last week's assignments?, (b) Describe your typical weekly schedule for working on this course, (c) How has that schedule been working for you? Have there been any changes?, (d) Have there been any obstacles or challenges to you in this course so far? If yes, please explain what strategies you have used to cope with these challenges, (e) In what ways did monitor your progress in this course?, and (f) How would you evaluate your work in the course? General findings extracted from the semistructured interviews indicated that while working through the self-regulated learning process, students often adapted strategies previously used in traditional classrooms to support their learning in their online course. For example, during the forethought or planning phase, students commented on their need to login daily to their course to stay on top of assignments and course activities as well as coordinate online work with offline work. During the performance phase, students commented in their need to adapt their process for monitoring progress by utilizing the online grade book. Last, during the reflection phase, students commented on utilizing responses of their peers to shape their discussion responses. Semistructured interviews allowed students to share insights regarding their self-regulated learning process in their

own words that provided the researchers with rich data to analyze and inform future instruction.

In summary, semistructured interviews as an instrument to assess students' self-regulated learning process are effective and provide researchers with insightful qualitative data that can inform course design, strategy instruction, and the overall student experience (Cho, 2004; Whipp & Chiarelli, 2004; Zimmerman & Martinez-Pons, 1986). Although previous researchers have found success using this type of instrument, details regarding the execution of semistructured interviews are not always discussed thoroughly in the literature. For example, few studies provide sample logistic details or sample interview questions. Additionally, previous research has focused on conducting the interviews face-to-face even when students have participated in an online course. Conducting semistructured interviews is challenging in online courses due to the logistics coordinating researcher and student exchanges virtually. In the present study, semistructured interviews were not be used to assess the process of self-regulated learning. The current study, however, drew from sample questions provided to evaluate effectiveness of strategy instruction and to assess the self-regulated learning process of online students post intervention.

Research Using Structured-Diaries

Previous research on diary use posited that students can monitor and evaluate their self-regulated learning behaviors and overall competence level by means of diaries (Harrison & Prain, 2009; Masui & DeCorte, 2005; Perels & Schmitz, 2005; Reeves & Oliver, Schmitz, & Weise, 2006). Findings suggest that diaries enable relationships between self-regulation cycle (i.e., students are asked for their goals, their strategies and

their results) and the learning goals of the students (Weber et al., 1993). Notwithstanding, previous research, however, Arsal (2010) was solely interested in diaries used as a tool in self-regulation training.

Arsal (2010) focused on the effect of daily learning activity diary-reports on preservice teachers self-regulated learning strategy use and academic achievement in an Instructional Planning and Evaluation course for science teachers. Arsal (2010) compared self-regulated learning strategy use among preservice teachers in the comparison group (*n*=30) versus those of the experimental group (*n*=30) that used daily diary-report forms to detail their learning strategy use over a 14 week period. Using a modified version of the MSLQ to collect preexperiment and postexperiment data on self-regulated learning strategy use, and the Academic Achievement Test used to evaluate curriculum development concepts and processes, Arsal (2010) found that pretest data reported no statistically significant differences between the comparison group and the experiment group in terms of strategies used to support intrinsic motivation, extrinsic motivation, task value, control of beliefs, self-efficacy, test anxiety and effort. The results suggest that pre-experiment, both the comparison group and experimental group used strategies at similar levels. Postquestionnaire data had statistically significant differences between the comparison group and the experimental group on strategies used to support intrinsic motivation t (58) =2.16, η^2=.04, task value t (58) =2.04, η^2=.03, metacognition t (58) =2.17, η^2=.04, and time-management t (58) =2.36, η^2=.04. All of the above reported effect sizes are small in terms of their practical importance. Results suggested that the preservice teachers in the experimental group used motivation strategies such as intrinsic motivation and task value more than the preservice science teachers in the comparison

group. In terms of metacognitive or self-regulating strategies (metacognition) and resource management strategies (time management), preservice teachers in the experimental group used these types of strategies more than the preservice science teachers in the comparison group. Findings suggest that diary-reports about motivation strategies, metacognitive or self-regulating strategies, and resource management strategies may affect positively the strategies use of the preservice science teachers.

Schmitz and Wiese (2006) utilized a standardized diary approach with time-series analysis methods to investigate the process of self-regulated learning after an instructional intervention developed to increase self-regulated learning skills. Working with undergraduate civil engineering students (n=40) students answered questions in standardized diaries over a 5-week period. Schmitz and Wiese (2006) posited that the diary format allows for questioning all components of the self-regulation cycle, among them goal setting, monitoring, and self-evaluation. Regarding monitoring, the process of repeatedly answering questions in a learning diary can be conceptualized as a kind of self-monitoring of one's learning behavior. Examples of questions posed in the structured diary response are as follows:

Formulate your individual learning goal for today. Please be as specific as you can.

How do you evaluate your learning results?

To achieve tomorrow's learning goals, what could you do better than today?

Results of the structured-diary responses indicated that self-regulated learning at home outside of the classroom plays a considerable role within university learning specifically, students spent an average of 4 hours daily learning outside of the classroom. Results show that students chose to study on some days, but they did not study each day.

Additionally, Schmitz and Wiese (2006) gained insight into students' motivation for learning and how it affects the consistency in which students work through the self-regulated learning process. The effectiveness of the intervention was demonstrated using trend analyses that evinced statistically significant improvements in self-regulatory behavior over time. In addition, interrupted time-series analyses and comparison group comparisons confirmed essential treatment effects. The results demonstrate the advantages of using standardized diaries to obtain data about how students engage in the process of self-regulated learning before and after instruction.

In summary, structured-diary use has been shown to support students' self-regulated learning competence during all phases of the self-regulated learning process. In the forethought phase, diaries can be used to support student goal orientation, strategic planning, and outcome expectations. As students move on to the performance phase, diaries can be used to support task strategies and metacognitive monitoring. Last during the self-reflection phase, diary use can support evaluation of learning outcomes based goals and actions taken by the student during the learning scenario. Diary use is flexible and can be adapted to work in both traditional classrooms and online learning environments. The current study incorporated diary use as a self-regulated learning strategy to benefit students' self-regulated learning competence in online learning environments.

In summary, as a result of the review of literature in this section, the current study employed a mixed-methods research design utilizing instruments that assess both the product and the process of self-regulated learning. A mixed-methods research design lends itself to the current study based on the affective elements of self-regulated learning

(SRL) as well as the perceived implications of self-regulated learning conduct and academic performance. Self-report instruments for self-regulated learning present several validity issues: (a) underreporting of strategy use, (b) over reporting of strategy use, (c) inaccurate student recall, and (d) response bias (Zimmerman, 2010). Therefore, solely using self-report instruments was not sufficient to capture both the product of overall self-regulated learning conduct and the event self-regulated learning processes that take place within learning contexts. Researchers have acknowledged that it is necessary to combine procedures to measure self-regulated learning (Winne et al., 2006; Zimmerman, 2010). Due to the complex nature of capturing accurate self-regulated learning measures among online learners, it was necessary to use multiple measures in the present study. Mixed methods integrated the strengths of both qualitative and quantitative data to address thoroughly the research problem (Creswell & Clark, 2007).

Self-Regulated Learning and Academic Success

Research in the area of measuring self-regulated learning and academic success or achievement has focused on assessing the performance outcomes of students engaging in the self-regulated learning process, specifically, GPA (Bail et al., 2008; Barnard et al., 2008; Hofer & Yu, 2003; Kitsantas et al., 2008; Mohd Kosnin, 2007), course assignments such as quizzes, essays, and or projects (Andertonn, 2006; Chang, 2007; Cho, 2004; DiBenedetto & Bembenutty, 2011), as well as final course grades (Bell, 2007; Bembenutty, 2007; Cobb, 2003; Matuga, 2009). In terms of utilizing GPA as a measure of academic success, researchers have found that is it unclear whether students' GPAs are influenced by other factors such as motivation, course specific interest, variations in academic demands between courses, and other individual differences (Bail et al., 2008;

Hofer & Yu, 2003). For course assignments such as final exams or essays, researchers have found no statistically significant relationships between self-regulation and academic performance on course assignments (Cho, 2004; DiBenedetto & Bembenutty, 2011). In using final course grades as a measure of academic success, researchers have found statistically significant relationships between aspects of self-regulated learning and final course grades such as intrinsic motivation, self-efficacy, metacognition, task value, and control beliefs (Bell, 2007; Bembenutty, 2007; Cobb, 2003). This section reviewed literature focused on academic performance outcomes of self-regulated learning specifically, grade point average, course assignments, and final course grades.

Self-Regulated Learning and Academic Success, GPA

Research in the area of self-regulated learning and academic success as measured by GPA has taken place within both traditional classrooms (Bail et al., 2008; Hofer & Yu, 2003; Kitsantas et al., 2008; Mohd Kosnin, 2007) and online learning environments (Barnard et al., 2008). Self-regulated learning and GPA have been investigated in various ways. Most prevalent in the research are studies in which self-regulated learning has been investigated as a predictor of academic success in this case GPA (Kitsantas et al., 2008; Mohd Kosnin, 2007). Equally as prevalent in the research are studies where the relationship between self-regulated learning strategy use and cumulative GPA has been investigated (Bail et al., 2008; Hofer & Yu, 2003). Last, the effects of self-regulated learning instruction on students' GPA have been investigated (Bail et al., 2008; Hofer & Yu, 2003).

As previously reviewed, Bail et al. (2008) compared the long-term effects of self-regulated learning instruction on cumulative GPA results of two groups of low-achieving

undergraduates: one treatment group (*n*=78) and one control group (*n*=79). The SRL course group (M = 2.81, SD = 0.44) had statistically significant higher cumulative GPAs 4 semesters after enrollment than the comparison group (M = 2.59, SD = 0.50). Additional comparison measures of academic performance investigated in this study were negative academic action (academic probation, suspension, or dismissal) had been taken against students; one or more F grades in any subsequent semester; any subsequent semester in which students' GPA fell below 2.0, and acceptance into a graduate degree program; and, if so, whether or not students obtained a graduate degree. Overall, the SRL group outperformed the comparison group on all additional measures of academic performance. Findings suggest that participation in SRL instruction can significantly affect academic performance and graduation rates of low-achieving undergraduates. In addition, students in the SRL group were less likely to have negative academic outcomes. Bail et al. (2008) discussed instructional implications necessary to achieve similar results. The researchers posited, however, that the results were achieved based on the courses focus on increasing students' sense of agency in their college career and learning to establish new proactive approaches to learning in their college careers and beyond. Although these results provide support for the present study in which self-regulated learning instruction was provided to undergraduate online students, it is not clear what other factors may have contributed to the positive academic outcomes beyond participation in an SRL course, for example, motivation, course specific interest, variations in academic demands between courses, and other individual differences.

As previously presented, Mohd Kosin (2007) investigated the ability of students' self-regulated learning as measured by the (MSLQ) to predict academic achievement

between low- and high-achieving undergraduate students in Malaysia. Academic achievement was measured on the basis of the students' GPA scores for the semester in which the study took place. Mohd Kosin (2007) found that aspects of self-regulated learning were statistically significant in predicting academic achievement. Overall, results show that self-regulated learning explained 35.2% of the variation in GPA [F (4,326) =45.78]. The results indicated that self-regulated learning predicted GPA for the high achievers (33.6% of the variance) to a greater degree compared with the low achievers (13.7% of the variance). Among the low-achievement group, metacognitive learning strategies had statistically significant positive effects on GPA ($\beta = 0.38$). Additionally, self-regulated learning was found to have a statistically significant effect on Malaysian university students' academic achievement. Findings from this study reflected differences in strategy use between groups of students with different levels of achievement. In this study, high achievers were better users of self-regulated learning than low achievers. Overall, resource management strategies, test anxiety, metacognitive learning strategies, and self–efficacy were found to be the statistically significant predictors. All these variables had a positive influence on academic achievement, with the exception of self-efficacy. Findings provide support for the direction of the current study in which academic success was a dependent measure of self-regulated learning instruction.

Kitsantas, Winsler, and Huie (2008) examined how much variance in first-year students' (n=243) academic success as measured by cumulative GPA was explained by prior ability (high-school GPA, SAT scores), self-regulation (metacognitive and time-management strategies), and motivational beliefs (task value and self-efficacy). Students

completed the MSLQ at the end of the semester. Results were compared with students' prior ability scores, and students' GPA at the end of their year and again in their second year. Because the interest for the current study was self-regulated learning and academic achievement, only results for self-regulated learning variables are be reported. Of the self-regulation variables, the strongest statistically significant correlation with first-year academic performance was time management and study environment structuring (r = .35) followed by metacognition (r =.21). Results for motivation variables, the strongest statistically significant correlation with first-year academic performance was self-efficacy (r =.44), followed by task value (r =.30), and an indirect relationship with test anxiety (r =-.20). Similar statistically significant results were reported between second-year academic performance: time management and study environment structuring (r = .32) followed by metacognition (r =.22). Results for motivation variables indicated that the strongest statistically significant correlation with second-year academic performance was self-efficacy (r =.37), followed by task value (r =.32), and an indirect relationship with test anxiety (r =-.19). Additional analysis reported that self-regulated learning strategies explained 45% of the variance in first-year academic performance, whereas motivation variables explained 47% of the variance in first-year academic performance. For the subsequent year, self-regulated learning strategies explained 46% of the variance in second-year academic performance, whereas motivation variables explained 47% of the variance in second-year academic performance. Based on the above findings, Kistantas et al. (2008) posited that student motivation and academic self-regulatory skills can be further developed through intervention. Additionally, since metacognitive self-regulation did not play significant role predicting first-year or second-year academic performance,

they suggest that examining metacognitive self-regulation strategies (planning, monitoring, evaluating) separately within the context of an individual course may produce different results. The aim of the present study was to design and deliver a self-regulated learning intervention that influenced academic performance.

Barnard, Paton, and Lan (2008) examined whether self-regulated learning behaviors mediate the relationship between student perceptions of online course communication and collaboration with academic achievement as measured by GPA. Undergraduate, graduate, and postbaccalaureate students enrolled in online courses were surveyed (n=204). Students who participated in the study had GPAs that ranged from 2.00 to 4.00, (M= 3.73, SD=0.41). Results indicated that the relationship between student self-regulated learning in online courses and academic achievement (e.g., GPA) was positive and statistically significant yet weak in strength, r =.18. As students' self-regulated learning scores in online courses are higher, their GPAs appeared to be better as well. Although online self-regulated learning behaviors, although not strongly associated with academic achievement in and of them, do mediate the positive relationship between student perceptions of online course communication and collaboration with academic achievement.

In summary, aspects of self-regulated learning have been found to predict effectively academic success as measured by students' GPA. These studies, however, have either focused on the long-term effects of self-regulated learning strategy use among students or the self-regulated learning process behavior of students after participating in instruction. The intent was to examine the transfer of self-regulated learning skills over time, beyond the duration of an individual course. Based on the concept of over time, it is

not clear how other factors such as interest, task value, instructor bias, variance in academic skills across subjects, and motivation mediate the relationship between self-regulated learning skills and students' GPA. The current study investigated the effects of self-regulated learning strategy instruction on students' self-regulated learning conduct within the context of an online course; therefore the investigation focused on adoption and authentic practice of the self-regulated learning process and compared results with academic success at the end of online courses.

Self-Regulated Learning and Academic Success as Measured by Course Assignments

Like research in the area of self-regulated learning and academic success measured by GPA, self-regulated learning and academic success measured by course assignments has taken place within both traditional classrooms (DiBenedetto & Bembenutty, 2011; Kitsner et al., 2010) and online learning environments (Andertonn, 2006; Chang, 2007; Cho, 2004; Yukselturk & Bulut, 2007). Researchers have focused primarily on the relationships between self-regulated learning and performance on specific course outcome, specifically, final exams, essays, quizzes, and language proficiency tests (Andertonn, 2006; DiBenedetto & Bembenutty, 2011; Kitsner et al., 2010). Other research includes studies in which self-regulated learning has been investigated as a predictor of academic success, in this case, course assignments (Yukselturk & Bulut, 2007). Last, the effects of self-regulated learning instruction on students' performance on course assignments has been investigated (Chang, 2007; Cho, 2004; Kitsner et al., 2010). Overall results have been inconsistent. On short-term learning outcomes, such as academic success on course assignments, both statistically significant

and non-statistically significant relationships have been reported between self-regulated learning and students' performance on course assignments.

For example, DiBenedetto and Bembenutty (2011) sought to examine the associations between self-regulated learning and science achievement among undergraduate biology students (n=57), specifically, self-efficacy beliefs, delay of gratification, and adaptive help-seeking. These specific variables were chosen based on the researchers' interest in students' persistence in science and mathematics courses beyond introductory science courses. DiBenedetto and Bembenutty (2011) hypothesized that students who do not use self-regulated learning processes in their science courses, would perform poorly and, therefore, do not persist through advanced science courses. Students completed custom survey instruments detailing their perceptions on self-efficacy for science, self-regulation for learning in science, frequency of help-seeking resources, and academic delay of gratification. Results were then compared with their final exam grade of the science course enrolled in throughout the duration of the study where a grade of F was worth 0 points and a grade of A was worth 12 points. Mean final exam grade for the study participants was reported as M=7.85(SD=3.34). Statistically significant relationships were reported between final exam grade and academic delay of gratification (r =.30) and self-efficacy (r =.28). No statistically significant correlation was found between final exam grade and self-regulation (r =.21). A statistically significant relationship was reported between self-regulation and self-efficacy (r =.63). Findings suggest that students' level of self-efficacy regarding their learning for science was directly related to their final exam grade. Additionally, their level of self-efficacy was related to their use of the self-regulated learning process. Although the direct relationship

between final exam grade and self-regulation was not statistically significant, students' self-efficacy for science learning was related directly to self-regulated learning. Additionally, findings imply that increasing students' self-regulated learning competency, positively influences their self-efficacy for learning in science which in turn positively affects their final exam grades. The current study sought to further investigate the connection between self-regulated learning and academic achievement by way of instruction.

Kitsner et al. (2010) worked directly with mathematics teachers (n=20) to investigate teachers' direct and indirect promotion of self-regulated learning and its relation to the development of students' performance. Kitsner et al. (2010) videotaped mathematics teachers deliver a three-lesson unit on the Pythagorean Theorem to all students in ninth grade (*n*=538). Kistner et al. (2010) hypothesized that (a) teachers' direct and indirect instruction of self-regulated learning is positively related to students' gain in performance over time, and (b) explicit strategy instruction is related to increases in performance over time, whereas implicit strategy instruction is not. In reference to academic achievement, on the first measure pre- and posttest scores on the Pythagorean Theorem, no statistically significant relationships were found between gains in performance and direct promotion of strategy instruction, while with indirect promotion of self-regulated learning, for example, structuring the learning environment, statistically significant gains in performance were reported between constructivism (r =.71) and transfer (r =.56). Students who learned in a more constructivist and transfer activating learning environment showed a higher increase in their understanding of the Pythagorean Theorem after the video unit. On the second measure of academic achievement, proof of

understanding (gain scores from the initial test to the follow-up test), statistically significant relationships were found between gains in performance and instruction in organization strategies (r =.47) and in explicit direct instruction of strategies (r =.52). Overall, findings suggest that teaching certain kinds of strategies (organization) as well as arranging a supportive learning environment (constructivism, transfer) is strongly related to students' improvement in mathematics achievement. The implicit assumption that underlies the hypotheses of Kitsner et al.'s (2010) study is that teachers' promotion of self-regulated learning results in an enhancement of students' self-regulated learning which in turn leads to increased cognitive outcomes. Based on the results, however, it is not possible to verify the assumption of the mediating role of students' application of self-regulated learning in the relationship between teachers' promotion and gains in student performance. The current study investigated students' strategy use post-intervention and its effect of academic performance at the end of online courses.

Chang (2007) investigated the effects of a self-monitoring strategy on learning English proficiency in an online learning environment. Students' academic performance as measured by scores on an English proficiency test and their motivational beliefs were investigated. The interaction between the use of a self-monitoring strategy and the level of learners' English proficiency also was examined. Comparative results indicated that the self-monitoring strategy had a statistically significant main effect on students' academic performance and their motivational beliefs. Students who participated in the self-monitoring strategy treatment outperformed students in the comparison group. Additionally, the influence of self-monitoring was greater on the lower English level students than on the higher English level students. Findings suggest that developing self-

monitoring skills as an aspect of the self-regulated learning process helps increase success of online learning environments.

As previously presented, Andertonn (2006) explored the relationship between students' academic achievement as measured by quiz scores and their use of goal planning, weekly monitoring, and evaluation forms to promote self-regulated learning. Andertonn (2006) compared pre-MSLQ scores, post-MSLQ scores, and average quiz scores of the two sections of students. There was a statistically significant difference in post MSLQ scores [F (1, 25) = 8.31, η^2= .25, which is a very large effect] for the group of students that participated in the use of goal planning, weekly monitoring, and evaluation forms to promote self-regulated learning; however, there was no statistically significant difference in average quiz scores between the control group and the treatment group. Additionally, a one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between average quiz grades and groups. The results were not statistically significant, [F (1, 23) = 1.91]. The strength of the relationship between the use of the self-regulated learning forms and quiz grade, as assessed by η^2, was moderate, with the SRL forms accounting for 7.7% of the variance of the dependent variable, quiz grades.

In summary, research in the area of self-regulated learning and academic success measured in terms of students' performance on course assignments has been inconsistent. In some cases, statistically significant relationships have been found between SRL and students' academic success on course assignments (Chang, 2007; DiBenedetto & Bembenutty, 2011). In other cases, no statistically significant relationships were found between self-regulated learning and students' academic success on course assignments

(Andertonn, 2006; Yukselturk & Bulut, 2007). Researchers posited that developing and perfecting self-regulated learning skills so that they improve academic performance does not take place in the short-term, in this case during the completion of a task or course assignment (Boekaerts & Cascallar, 2006; Pintrich, 1999). Therefore, inconsistent results may be attributed to length of time in which students were given to develop and improve self-regulated learning skills. In the current study, students' participated in an instructional intervention during the first few weeks of their online courses, followed by opportunities to practice utilizing a SRL strategic framework to support various learning goals and academic performance throughout the duration of online courses. Therefore, analyzing task performance such as quizzes or essays was judged as inappropriate for the current study.

Self-Regulated Learning and Academic Success as Measured by Final Course Grade

Few studies have investigated previously the relationship between self-regulated learning and academic success measured by final course grade (Bembenutty, 2007; Puzziferro, 2008). Of the few studies that exist, the focus has been the same, investigating the relationship between self-regulated learning strategy use and academic outcomes, in this case, and final course grade. Bembenutty (2007) posited that there are differences in the academic success of undergraduate students based on gender and ethnic background. Overall findings indicated that there were statistically significant differences in the relationship of academic success and self-regulated learning (Bembenutty, 2007; Puzziferro, 2008). Specific results, however, varied between gender and ethnic group.

Specifically, Bembenutty (2007) investigated individual differences in undergraduate psychology students (n=364) motivational beliefs, use of cognitive and

self-regulatory strategies, willingness to delay gratification, and academic performance in relation to their gender and ethnicity. Bembenutty (2007) investigated whether students from diverse gender and ethnic groups differed with regard to their use of self-regulation, motivation, delay of gratification, and academic performance. Self-regulated learning strategy use was measured by students' scores on the MSLQ. Final course grades from the courses in which students were enrolled in during the course of the study were used as a measure of academic performance. Grades were converted to an 11-point scale, ranging from E=1 to A=11 where E represents a failing grade and A represents the highest possible grade.

Group associations were reported in terms of four groups: Caucasian males, Caucasian females, minority males, and minority females. For male Caucasian students, statistically significant relationships were found between final course grades and motivation variables -- intrinsic motivation (r =.30), extrinsic motivation (r =.21), task value (r =.41), and self-efficacy (r =.62) -- and resource management variables: elaboration (r =.30), critical thinking (r =.26), metacognition (r =.26), time management (r =.43), and effort regulation (r =.44). For male minority students, statistically significant relationships were found between final course grades and motivation variables; extrinsic motivation (r =.33), task value (r =.35), and self-efficacy (r =.51). For both male groups, statistically significant relationships between final course grades and motivation variables: extrinsic motivation, task value, and self-efficacy were found in common. Findings suggest that academic performance for males in general was statistically significantly related to their motivation for self-regulated learning.

For female Caucasian students, statistically significant relationships were found between final course grades and motivation variables -- task value (*r* =.23) and self-efficacy (*r* =.62) -- and resource management variables: time management (*r* =.24), and effort regulation (*r* =.41). For female minority students, statistically significant relationships were found between final course grades and motivation variables -- intrinsic motivation (*r* =.27), extrinsic motivation (*r* =.32), task value (*r* =.38), control beliefs (*r* =.44), and test anxiety (*r* =.-40) -- and resource management variable: effort regulation (*r* =.42). For both female groups, statistically significant relationships were found between final course grades and the motivation variable task value and the resource management variable effort regulation.

Overall results indicate that Caucasian students both male and female outperformed minority students on the academic measure of final course grades. Self-efficacy, task value, effort regulation and other specific strategies used to support learning differed among all four groups making the findings inconclusive. Because all data elements of this study were qualitative in nature, the connection between self-regulated learning and academic achievement is not clear. The current study incorporated qualitative data elements to learn more about the connection between students' self-regulated learning competence and academic success as measured by final course grade from the perspective of the individual students.

Like Bembenutty (2007), Puzziferro (2008) was interested in examining academic performance specifically self-efficacy for online technologies and self-regulated learning strategies of community college-students (n=815) enrolled in liberal arts online courses during a single semester. Data from subscales of the MSLQ obtained through electronic

survey were compared with students' final course grades. The following MSLQ subscales were included in the study: rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation, time and study environment, effort regulation, peer learning, and help seeking. Time and study environment and effort regulation were statistically significantly related to grade performance. Results indicated statistically significant differences in mean scores for final grades and time and study environment, [F (4, 810) = 4.41, η^2=.02, which is a small effect] and for effort regulation, [F (4, 810) = 5.46, η^2=.03, which is a small effect]. Findings suggest that students who received higher grades in the online course were more likely to manage the scheduling, planning, and managing of their study time, as well as their study environment, than those who received lower grades or withdrew from their online course. Effort regulation refers to the management of academic tasks and also reflects the level of commitment students maintain when faced with obstacles or difficulties (Pintrich & Garcia, 1991).

One of the limitations to the Puzziferro (2008) study was the decision to only use the cognitive strategies portion of the MSLQ as opposed to both the cognitive strategy scales and the motivation scales. Utilizing both parts of the MSLQ may have led to different results. Information regarding the subjects or categories of online courses in which the large sample of students were enrolled would have provided additional information for analysis. Last, demographic information about the students in the sample would have assisted with interpreting the practical significance of the results. In the current study, final course grade was used as the measure of academic success in the online course. Additionally, demographic information from the sample was collected to

provide additional analysis regarding the self-regulated learning behaviors and measure of academic success.

Summary of Literature Review

The current study presented literature in support of self-regulated learning strategy instruction and authentic practice of self-regulated learning skills for community-college students in support of their academic success in online courses. Specifically, the research has demonstrated that metacognitive learning strategies are the most effective for helping students develop self-regulated learning skill in support of student success (Arsal, 2010; Chang, 2007; Gerhardt, 2007; Heikkilä & Lonka, 2006; Hu & Gramling, 2009; van Den Hurk, 2006). Metacognitive strategies presented included planning, goal setting, organization, monitoring, and self-evaluation. Overall, metacognitive strategies emphasize learners' self-observation of cognitive processes and strategic actions used to support their academic success (Fleming, 2002; Gerhardt, 2007; Kramarski & Michalsky, 2009; Masui & De Corte, 2005; Ruban & Reis, 2006; van Den Hurk, 2006). Students' metacognitive strategy use positively influences their self-regulated learning skills (Cennamo et al., 2002; Gerhardt, 2007; Whipp & Chiarelli, 2004) , academic performance (Chang, 2007; Fleming, 2002; Heikkilä & Lonka, 2006; Isaacson & Fujita, 2006), and motivation for learning (Arsal, 2010; Kramarski & Michalsky, 2009; Orhan, 2008). Encouraging students to develop self-regulated learning skills through use metacognitive strategy use can increase academic success in online learning environments (Chang, 2007). The current study examined students' development of self-regulated learning skills through metacognitive strategy use in support of their academic success in online courses.

Research has demonstrated that when given self-regulated learning strategy instruction, students develop improved skills in time management, learning goal orientation, self-efficacy, metacognitive monitoring, self-evaluation, and overall academic performance in support of their overall student success (Dignath & Buttner, 2008; Kistner et al., 2010; Sacks, 2007). Research for three instructional approaches to self-regulated learning strategy instruction was presented: (a) domain-specific strategy instruction (Camahalan, 2006; Cleary & Zimmerman, 2004; Huff & Nietfeld, 2009; Perels et al., 2009; Stoeger & Ziegler, 2008), (b) curriculum-embedded strategy instruction (Cennamo et al., 2002; Cukras, 2006; Kauffman, 2004; Orhan, 2008), and (c) domain-general strategy instruction (Bail et al., 2008; Burchard & Swerdzewski, 2009; Dembo & Jakubowski, 2004; Hofer & Yu, 2003; Reeves & Stich, 2010; Schapiro & Livingston, 2000). Through domain-general strategy instruction, students benefit from the introduction to learning strategies that are focused on enhancing learning content in the specific domains. The product is increased domain-specific content knowledge. When students were taught explicitly the self-regulated learning process and content specific learning strategies that helped them acquire content knowledge and skills, they were more likely to persist through learning tasks and use effective strategies to increase content knowledge (Azevedo & Cromley, 2004; Camahalan, 2006; Cleary & Zimmerman, 2004; Fadlelmula & Özgeldi, 2010; Perels et al., 2009). Even though the positive effects of short targeted intervention within the domain-specific approach to strategy instruction on students' self-regulated learning skill development, it is limited by the lack of transferability of self-regulated learning strategies to other domains. Through curriculum-embedded strategy instruction, students' engagement with self-regulated

learning behaviors in support of their learning goals increased (Cennamo et al., 2002; Cukras, 2006; DuBois et al., 2007). Students' benefited from the opportunity to engage in authentic practice of self-regulated learning skill development within their individual course (Andertonn, 2006; Kauffman, 2004). Additionally, students reported increased perceptions of ownership of the self-regulated learning process and the flexibility to modify actions and adjust strategies for future performance (Chang, 2005; Orhan, 2008). The current study incorporated curriculum-embedded course activities that promoted students' self-regulated learning skill development and academic success in online courses. Through curriculum-domain-general strategy instruction, students have increased understanding of the mental process involved in self-regulated learning thus building transferrable knowledge about why and when to use various strategies (Dembo & Jakubowski, 2004; Hofer & Yu, 2003). Additionally, learners' overall effectiveness, self-efficacy for learning and academic performance is influenced by the repertoire of learning strategies developed through participation in domain-general instruction. The present study combined the curriculum-embedded approach and the domain-general approach to self-regulated learning strategy instruction by utilizing domain-general learning strategies that were incorporated into course curriculum that allowed online students to practice self-regulated learning skill development in support of their academic success during participation in online courses.

The last sections of the literature review presented research discussing measurement of both self-regulated learning and academic success. Research demonstrated that self-regulated learning is measured in terms of both the product (Artino, 2009; Barnard et al., 2009; Dugan & Andrade, 2011) and process of self-

regulation (Arsal, 2010; Azevedo & Cromley, 2004; Zimmerman & Martinez-Pons, 1988). The product of self-regulated learning has focused on self-report measures thought to capture effectively more domain-general learning tendencies, motivation for learning, and students' knowledge of strategy use. Self-report measures have been used to assess students' self-regulated learning conduct both before and after instructional intervention (Boekaerts et al., 2000). The process of self-regulated learning has focused on collectively assessing aspects of individual students' self-regulated learning process through structured diary responses and semistructured interviews. Conducting semistructured interviews in online courses presents logistical challenges. Research present confirmed that structured-diaries are flexible and enable researchers to gain insight effectively into relationships between students' self-regulation cycle (e.g., students are asked for their goals, their strategies, and their results) and the learning goals of the students (Weber et al, 1993). The current study employed both types of instruments to assess both the product and the process of self-regulated learning. Research demonstrated that academic success in relation to self-regulated learning has been measured by GPA, course assignments, and final course grades. There have been inconsistent results overall. Research presented confirmed no statistically significant relationships between GPA and self-regulated learning. Students' GPAs are influenced by other factors such as learners' motivation, course specific interest, variations in academic demands between courses, and other individual differences (Bail et al., 2008; Hofer & Yu, 2003). Researchers presented also confirmed no statistically significant relationships between self-regulation and academic performance on course assignments (Cho, 2004; DiBenedetto & Bembenutty, 2011). Research presented has confirmed statistically

significant relationships between aspects of self-regulated learning and final course grades such as intrinsic motivation, self-efficacy, metacognition, task value, and control beliefs (Bell, 2007; Bembenutty, 2007; Cobb, 2003). The current study utilized final course grade as the measure of academic success in online courses. The next chapters will detail the specific research design of the current study including its methodology, instructional design, sample population, procedure, and statistical tests that used to analyze both quantitative data and qualitative data.

CHAPTER III

METHODOLOGY

The purpose of this mixed methods pretest-posttest study was to examine the effect of a self-regulated learning strategy intervention on students' self-regulated learning conduct and academic achievement in a general education online course at a large community college in Northern California. The independent variable was self-regulated learning strategy intervention using the GAME plan framework to introduce self-regulated learning theory, strategy use, monitoring, and evaluation of students' self-regulated learning processes throughout the duration of a 12-week online course. The dependent variables were students' self-regulated learning conduct scores as measured by scales from the Survey of Academic Self-Regulation (SASR) postintervention as well as academic performance that was measured by the final course grade. Additionally, students completed structured-diary reflections weekly, evaluating their self-regulated learning process, and providing their perceptions of the GAME plan strategy framework, which served as the qualitative aspect of the study.

Research Design

The study employed a mixed-methods within-subjects pretest-posttest design to obtain both quantitative and qualitative data from study participants for the intended purpose of triangulating quantitative and qualitative data (Creswell & Clark, 2007). Both quantitative and qualitative data were gathered to assess the effectiveness of a self-regulated learning strategy intervention on students' self-regulated learning conduct and academic performance. In the current study, quantitative data were collected by way of a

self-report survey, and qualitative data were collected through self-reported structured-diary responses.

The study implemented a pretest-posttest design with intact groups of community-college students enrolled in general education online courses over two different quarters. The first study used students enrolled in two intact online classes during the Fall 2012 quarter. The second study used students enrolled in two intact online classes during the consequent Winter 2013 quarter. Quantitative data were used to compare students' self-regulated learning conduct preintervention and postintervention at the end of the online courses. Additionally, postintervention scores were compared with academic performance. Qualitative data were gathered through the weekly structured-diary reflections detailing students' application of self-regulated learning processes used to support their learning throughout the duration of the online courses. In the current studies, qualitative data were used to enhance and confirm quantitative data by providing rich insights into students' weekly engagement in self-regulated learning processes throughout the duration of the 12-week online course. See Table 1 for an overview of the methodological protocol for the current studies.

A comparison of the pretest and posttest SASR scores determined if there were statistically significant differences in students' self-regulated learning conduct, after participation in the self-regulated learning intervention GAME plan. Additionally, scores from the SASR were compared with students' final course grade to assess the degree of relationship between students' self-regulated learning conduct postintervention and their academic achievement measure at the end of their online course. Thematic analysis of students' perceptions regarding the effectiveness of the GAME plan framework and

application of the self-regulated learning process provided insight into the effectiveness of the self-regulated learning intervention.

Table 1
Methodological Protocol

Quantitative Data Preintervention	**Qualitative Data**	**Quantitative Data Postintervention**
Instrument: SASR **Products** SASR scales scores: metacognition, personal relevance and control, intrinsic motivation, self-regulation, self-efficacy, extrinsic motivation, and comprehensive self-regulation	**Instrument:** Structured-diary forms Impact and Outcome evaluations for SRL intervention **Products** Weekly reflections on self-regulated learning process based on the GAME plan framework; G – goal setting A – actions taken toward goal M – monitoring of activities E – evaluation of process achieved Evaluative open-ended question responses	**Instrument:** Academic performance SASR Impact and Outcome evaluations for SRL intervention Demographic survey **Products** Final course grade SASR scales scores; metacognition, personal relevance and control, intrinsic motivation, self-regulation, self-efficacy, extrinsic motivation, and comprehensive self-regulation Audiobook evaluation and Couse evaluation scores Demographic data: gender, age, ethnicity, educational background, enrollment status, employment goals for education, experience with online courses, obstacles experienced during online course.

Research Study Context

The general education courses at the community college in Northern California were Child Development, The Early Years (0-5) (CD 10G), and Child Development, The Middle Childhood and Adolesence Years (CD 10H). CD 10G and CD 10H are 3-unit courses offered through the Child Development and Early Care and Education department and cross-listed with Pscyhology courses. CD 10G and CD 10H are courses that count toward general education requirements for nonmajors and are required courses for all students obtaining an Associates of Arts degree in Early Childhood Education. As

required courses, CD 10G and CD 10H are offered every quarter in both traditional face-to-face classrooms and in online learning environments. CD 10G and CD 10H when offered in the semester format are offered as one course. Because the community college where the study took place offers courses on the quarter system, the courses were offered seperately. Historically, however, 25% of students enroll concurrently in both courses during the same quarter of enrollment. The course objectives of CD 10G and CD 10H are to provide students who plan to pursue work in early childhood environments with an examination of human growth and development from conception to middle childhood with particular attention given to current theoretical and research perspectives within a diverse society. The subject matter for the courses included the study of history and research in child development applicable to the age group and analysis of factors influencing development including conditions that put children at risk. The scope and sequence of CD 10G and CD 10H typically includes four units: (a) genetic and environmental foundations, (b) physical development, (c) cognitive development, and (d) emotional and social development. Both courses culminate with a large research project in which students must analyze and critique key concepts necessary for understanding the different developmental stages of students in an early childhood education classroom. Students taking CD 10G and CD 10H online accessed the courses through the community-college's web-based course management system, Catalyst. Students interacted with the CD 10G and CD 10H course materials, instructor and fellow students through the Catalyst course management system. Community-college technology requirements are that students have regular access to a computer with Internet access to

complete course assignments and fully participate in an online course. For the present study, both courses were taught by the same instructor.

Study Participants

Since the study was administered twice during subsequent quarters at the local community college, in this section, data regarding study participants will be presented separately. Data regarding the participants in Study 1 will be presented first, followed by data from participants in Study 2.

Participants in Study 1

During the Fall 2012 quarter, a total of 62 students enrolled in online sections of 10G and 10H at a community-college in Northern California participated in the present study over a 12-week period. Of the 62 students, 29 students were enrolled in 10G, 28 students were enrolled in 10H, and 5 students were concurrently enrolled in both online sections of 10G and 10H. After reviewing all of the pieces of student data collected over the course of the study, it was determined that not all students completed all pieces of required data for data analysis. The study asked students to complete 9 data elements throughout the duration of the study. Out of the 62 students enrolled, 35 students completed all 9 data elements that included preassessment SASR, postassessment SASR, GAME plan reflections 1-4, GAME plan audiobook evaluation, demographic survey, and GAME plan course evaluation. Completion of all nine data elements is imperative to compare the change in both the product and process of students' self-regulated learning conduct during the intervention and address the research questions posed for the present study. Therefore, for the purposes of data analysis, only the complete data sets of the 35 students who submitted all 9 data elements of the GAME plan intervention were analyzed

and discussed. Due to the significant amount of data loss experienced during the first round of data collection, a second round of data collection was initiated and completed during the following quarter, Winter 2013. Results of this second set of data will be discussed and analyzed following the presentation of results from Study 1.

Demographic Survey Results for Study 1 Participants

In this next section, demographic information collected from Study 1 participants will be discussed. Demographic information was collected specifically in two areas, individual differences for example, gender, age, and ethnicity, as well as the educational factors of students such as educational background, and goals for pursuing education at the community college.

Survey results for individual differences. In order to provide more information about the individual differences of the students who participated in the study, demographic information was collected regarding their, gender, age, ethnicity, and employment status. The 35 student participants consisted of 28 females and 7 male. There was a wide range of ages ranging from 19 to 59 in the first study sample. The majority of the students ranged in age from 19 to 24, representing 66% of the group. 14% of students' ages ranged from 25 to 29 and 30-39, respectively. The remaining 6% of student participants ranged in age from 50-59. The largest ethnic group represented within the sample is Asian or Asian American with 34%, followed by White, which represented 23% of the sample, and Hispanic or Latino, which represented 20%. In terms of the employment status of the student participants, 37% of the students reported that they work between 20 to 39 hours per week. Twenty nine percent of students reported that they worked fulltime (40+ hours per week), followed by 26% of students who

reported that they are not currently employed. Additional demographic information regarding individual differences of the students is presented in Table 2.

Table 2
Demographic Survey Results for Individual Differences of GAME Plan Study 1 Participants

Individual Differences	*Frequencies (f)*	*Percentages (%)*
Gender		
Female	28	80
Male	7	20
Age		
19 to 24	23	66
25 to 29	5	14
30 to 39	5	14
50 to 59	2	6
Ethnicity		
Native American or Alaska Native	1	3
Hawaiian or Other Pacific Islander	1	3
Asian or Asian American	12	34
Black or African American	1	3
Hispanic or Latino	7	20
White	8	23
Other Non-White	5	14
Employment		
Full time (40+ hours per week)	10	29
20-39 hours per week	13	37
Fewer than 20 hours per week	3	9
Not currently employed	9	26

Survey results for educational factors for Study 1. Additional information regarding students' educational background, goals, and experience with online courses was collected. Students were asked their current enrollment status at the community college in Northern California. While enrolled in the current quarter, 89% of students were continuing students, indicating that they were currently enrolled at the community college for one or more consecutive quarters. Six percent of students were first-time transfer students, indicating that they were enrolled in their first quarter of study at the community college with the intention of transferring from the community college to another institution, for example, 4-year college or university. Last, 6% of students

indicated that they were returning students, readmitted to the community college after a break in enrollment.

In terms of educational background, the highest level of education received at the time of the study varies from high-school completion or General Education Development Test (GED) to advanced degrees beyond baccalaureate studies. Specifically, 46% of students previously have attended some college or technical school indicating that they have completed college-level units at some point in their postsecondary studies. Forty percent of students indicated that the highest level of education received at the time of the study was a high-school diploma or GED equivalent followed by 11% of students reporting that the highest level of education received as completing a BA or BS degree. The variance in educational background of the study sample is representative of the diversity of students who attend community college at any given time.

When asked to report their current educational goals while attending community college, 54% of students reported that their educational goal at the community college was to transfer to a 4-year institution to further pursue baccalaureate studies after receiving their Associate of Arts (AA) or Associate of Science (AS) degree. Twenty-nine percent of students reported that their educational goal was to transfer to a bachelor's degree granting institution without completing AA or AS degree requirements. Six percent of students reported their intention to complete their AA or AS degree without plans to transfer to a bachelor's degree granting institution. Last, 3% of students reported their educational goals as job advancement, educational development, improvement of basic skills and undecided, respectively.

Based on the educational goal that students reported at the time of the study, students were asked to predict their likelihood of persistence through their studies to achieve the goal that they identified. Overall, the students were very motivated to achieve their educational goals. Results of indicated that 49% of students reported that they were *"very likely"* to persist through their studies and achieve their educational goals. Additionally, 40% of students reported that they were *"likely*" to persist and achieve their educational goals. Further detail regarding student reported educational factors are presented in Table 3.

In addition to reporting their educational background, goals, and intent to achieve their educational goals, students reported their previous experience with college-level online courses and the significant obstacles encountered while working through the online course in the present study. Overall, students reported varying levels of experience with online courses. Specifically, 37% of students reported that they had never taken an online course prior to enrollment in 10G, 10H, or both. Twenty-six percent of students, however, reported having previously completed 2 to 3 online courses, followed by 17% of students reported having previously completed 4 to 5 online courses. In addition to reporting experience with online courses, students outlined their perceptions regarding the significant obstacles faced with working through the online course in the present study. Students were encouraged to report any and all obstacles presented on the list provided. Specifically, five obstacles were reported as the most significant obstacles faced while learning online: (a) balancing school, work, and home life, (b) managing time for school, (c) staying on task, (d) faculty-student interaction, and (e) maintaining motivation for learning. The majority of students reported that the most significant

obstacle faced while enrolled in an online course was balancing school, work, and home life, representing 71% of students followed by the obstacle managing time for school, represented by 49%. Twenty-six percent of students reported that the staying on task and faculty-student interaction were significant obstacles encountered while learning online, followed by 23% of students reported that maintaining motivation for learning was a significant obstacle while learning online. The least significant obstacle was feeling isolated while learning online. Further details are presented in Table 3.

Table 3
Demographic Survey Results for Educational Factors of Study 1 Participants

Educational Factors	*Frequencies (f)*	*Percentages (%)*
Enrollment Status		
First-time Transfer Student	2	6
Returning Student (Re-admit)	2	6
Continuing Student	31	89
Educational Background		
High School Graduate (Grade 12 or GED)	14	40
Some college or technical school	16	46
College graduate (BA or BS degree)	4	11
Advanced Degree (MA or MS degree)	1	3
Educational Goal		
Transfer after AA/AS	19	54
Transfer without AA/AS	10	29
AA/AS Degree	2	6
Job advancement or New career	1	3
Educational development	1	3
Improve basic skills	1	3
Undecided	1	3
Educational Goal Persistence		
Very unlikely	1	3
Somewhat unlikely	1	3
Somewhat likely	2	6
Likely	14	40
Very Likely	17	49
Online Course Experience		
Never taken an online course	13	37
Enrolled in an online course, dropped	2	6
Completed 1 online course	4	11
Completed 2-3 online courses	9	26
Completed 4-5 online courses	6	17
Completed a degree fully online	1	3
Significant obstacles learning online		
Feeling isolated	1	3
Lack of student community	6	17
Managing time for school	17	49
Balancing school, work, and home life	25	71
Organizing your work flow	6	17
Staying on task	9	26
Using school resources	3	9
Managing expectations for online learning	4	11
Maintaining motivation for learning	8	23
Using appropriate study skills	3	9
Level of comfort with technology	3	9
Faculty-student interaction	9	26
Course content	4	11

Participants in Study 2

During the Winter 2013 quarter, a total of 64 students enrolled in online sections of 10G and 10H at a community college in Northern California participated in the second study over a 12-week period. Of the 64 students, 31 students were enrolled in 10G, 27 students were enrolled in 10H, and 6 students were concurrently enrolled in both online sections of 10G and 10H. The courses in the second study were the same two courses used in Study 1, taught by the same instructor. After reviewing all of the pieces of student data collected over the course of the second study, it was determined that not all students completed all pieces of required data for data analysis. The second study asked students to complete nine data elements throughout the duration of the study. Out of the 64 students enrolled, 45 students completed all nine data elements that included: preassessment SASR, postassessment SASR, GAME plan reflections 1-4, GAME plan audiobook evaluation, demographic survey, and GAME plan course evaluation. Completion of all 9 data elements is imperative to compare the change in both the product and process of students' self-regulated learning conduct during the intervention and address the research questions posed for the present study. Therefore, as in Study1, in Study 2, only the complete data sets of the 45 students who submitted all nine data elements of the GAME plan intervention were analyzed and discussed.

Demographic Survey Results for Study 2 Participants

In this next section, demographic information collected from participants in Study 2 will be discussed. As in Study 1, in Study 2 demographic information was collected specifically in two areas, individual differences for example, gender, age, and ethnicity,

as well as the educational factors of students such as educational background, and goals for pursuing education at the community college.

Survey results for individual differences. As in Study 1, in Study 2 demographic information was collected regarding students' gender, age, ethnicity, and employment status. The 45 student participants consisted of 39 females and 6 male. There was a wide range of ages ranging from under 18 to 59 in the second study sample. Six percent of the students were 18 or younger. The majority of the students ranged in age from 19 to 24, representing 59% of the group. 11% of students' ages ranged from 25 to 29 and 30 to 39, respectively. Seven percent of students ranged in age from 40 to 49. The remaining 4% of student participants ranged in age from 50 to 59. The largest ethnic group represented within the sample is White with 36%, followed by Asian American, which represented 29% of the sample, and Hispanic or Latino that represented 20%. In terms of the employment status, of the Study 2 participants, 27% of the students reported that they work between 20 to 39 hours per week, 24% of students reported that they work fulltime (40+ hours per week), 24% worked fewer than 20 hours per week, and 24% of students who reported that they are not currently employed. Additional demographic information regarding individual differences of the students in Study 2 is presented in Table 4.

Survey results for educational factors. Additional information regarding students' educational background, goals, and experience with online courses was collected for Study 2. Students shared their current enrollment status at the community college in Northern California. While enrolled in the Winter quarter, 62% of students were continuing students, indicating that they were enrolled currently at the community college for one or more consecutive quarters. Sixteen percent of students were first-time transfer

students, indicating that they were enrolled in their first quarter of study at the community college with the intention of transferring from the community college to another institution, for example, 4-year college or university. Last, 13% of students indicated that they were returning students, readmitted to the community college after a break in enrollment.

Table 4
Demographic Survey Results for Individual Differences of GAME Plan Study 2 Participants

Individual Differences	*Frequencies (f)*	*Percentages (%)*
Gender		
Female	39	87
Male	6	13
Age		
18 or younger	4	9
19 to 24	26	59
25 to 29	5	11
30 to 39	5	11
40 to 49	3	7
50 to 59	2	4
Ethnicity		
Native American or Alaska Native	1	2
Asian or Asian American	13	29
Black or African American	3	7
Hispanic or Latino	9	20
White	16	36
Other Non-White	3	7
Employment		
Full time (40+ hours per week)	11	24
20-39 hours per week	12	27
Fewer than 20 hours per week	11	24
Not currently employed	11	24

In terms of educational background, the highest level of education received at the time of the Study 2 varies from high-school completion or GED equivalent to college graduate (BA or BS degree). Specifically, 51% of students have attended previously some college or technical school indicating that they have completed college-level units at some point in their post-secondary studies. Thirty-one percent of students indicated that the highest level of education received at the time of Study 2 was a high-school

diploma or GED equivalent followed by 18% of students reporting that the highest level of education received as completing a BA or BS degree. The variance in educational background of the Study 2 sample is representative of the diversity of students who attend community college at any given time (Doherty, 2006; Fike & Fike, 2008).

When students in Study 2 reported their current educational goals while attending community college, 44% reported that their educational goal at the community college was to transfer to a 4-year institution to further pursue baccalaureate studies after receiving their Associate of Arts (AA) or Associate of Science (AS) degree. Twenty-nine percent of students reported that their educational goal was to transfer to a bachelor's degree granting institution without completing AA or AS degree requirements. Thirteen percent of students reported their educational goals were centered on educational development. Last, seven percent of students reported their intention to complete their AA or AS degree without plans to transfer to a bachelor's degree granting institution. Based on the educational goals that students reported at the time of Study 2, students were asked to predict their likelihood of persistence through their studies to achieve the goal that they identified. Overall, the students were very motivated to achieve their educational goals. Results of indicated that 69% of students reported that they were *"very likely"* to persist through their studies and achieve their educational goals. Additionally, 22% of students reported that they were "*likely*" to persist and achieve their educational goals. Further detail regarding student reported educational factors are presented in Table 5.

In addition to reporting their educational background, goals, and intent to achieve their educational goals, students in Study 2 reported their previous experience with

college-level online courses and the significant obstacles encountered while working through the online course in the present study. Overall, as in Study 1, students in Study 2 reported varying levels of experience with online courses. Specifically, 31% of students reported that they had never taken an online. Data, however, shows that the majority of students in Study 2 had previous experience with online courses. Specifically, 27% of students reported having previously completed 4 to 5 online courses, followed by 20% of students reported having previously completed 2 to 3 online courses.

Table 5
Demographic Survey Results for Educational Factors of Study 2 Participants

Educational Factors	*Frequencies (f)*	*Percentages (%)*
Enrollment Status		
First-time Student	7	16
First-time Transfer Student	4	9
Returning Student (Re-admit)	6	13
Continuing Student	28	62
Other	1	2
Educational Background		
High School Graduate (Grade 12 or GED)	14	31
Some college or technical school	23	51
College graduate (BA or BS degree)	8	18
Educational Goal		
Transfer after AA/AS	20	44
Transfer without AA/AS	13	29
AA/AS Degree	3	7
Vocational Degree/Certificate	2	4
Job advancement or New career	1	2
Educational development	6	13
Educational Goal Persistence		
Very unlikely	4	9
Likely	10	22
Very Likely	31	69
Online Course Experience		
Never taken an online course	14	31
Enrolled in an online course, dropped	2	4
Completed 1 online course	8	18
Completed 2-3 online courses	9	20
Completed 4-5 online courses	12	27
Significant obstacles learning online		
Feeling isolated	3	7
Lack of student community	9	20
Managing time for school	17	38
Balancing school, work, and home life	28	62
Organizing your work flow	13	29
Staying on task	19	42
Using school resources	4	9
Managing expectations for online learning	6	13
Maintaining motivation for learning	10	22
Using appropriate study skills	12	27
Level of comfort with technology	3	7
Faculty-student interaction	8	18
Course content	4	9
Other	1	2

Last, after reporting experience with online courses, students outlined their perceptions regarding the significant obstacles faced with working through the online course in the present study. Students were encouraged to report any and all obstacles presented on the list provided. Specifically, five obstacles were reported as the most significant obstacles faced while learning online: (a) balancing school, work, and home life, (b) staying on task, (c) managing time for school, (d) organizing work flow, and (e) using appropriate study skills. The majority of students reported that the most significant obstacle faced while enrolled in an online course was balancing school, work, and home life, representing 62% of students followed by the obstacle staying on task, represented by 42%. Thirty-eight percent of students reported that managing time for school, followed by 29% of students reported that organizing work flow was a significant obstacle while learning online. The least reported significant obstacles were feeling isolated while learning online and level of comfort with technology. Further details regarding student reported online course experience and significant obstacles encountered while learning online are presented in Table 5.

Contextual Variations between Study 1 and Study 2

Although Study 1 and Study 2 were administered using the same research design and procedures, there were contextual variations between the two studies that contributed to differences between the groups. Historical anecdotes provided by the instructor suggest that students' approach to learning differs across subsequent quarters. For example, students in Study 2 experienced several obstacles while working through their online courses centered on health and wellness. In general, the health and wellness obstacles of students in Study 2 influenced students' ability to stay on track with assignments and

timely submissions of GAME plan activities. Health and wellness obstacles were not prevalent among students in Study 1. Additionally, through the replication of the study in a subsequent quarter, the participating instructor gained more exposure to the self-regulated learning process and understanding of the relationship between students' adoption of the self-regulated learning process and their academic successes. As a result, the informal feedback that students received regarding implementation of the GAME plan framework differed in Study 2. Therefore, the data from Study 1 and Study 2 in the next chapters will be analyzed and discussed separately.

Protection of Human Subjects

Recruitment for the study took place in two parts: (a) recruitment for instructor participation and (b) recruitment for individual subject participation. Recruitment procedures for an intact online course class consisted of outreach to the Instructional Designer and Distance Education Coordinator at the Distance Learning Center and Associate Vice President of Instruction to obtain general permission to conduct research on the campus of the community college. Additional information regarding the scope, sequence, procedure, and intended outcomes of the studies were provided to the Instructional Designer and Distance Education Coordinator at the Distance Learning Center and Associate Vice President of Instruction and the Institutional Researcher in the Office for Institutional Research and Planning for review. After materials were reviewed, the study was approved by the Office of Institutional Research and Planning at the community college in Northern California (Appendix A). Once approved by the Associate Vice President of Instruction and the institutional researcher, outreach to instructors scheduled to teach general education courses for the upcoming quarter

commenced. Instructors were provided with the same scope, sequence, procedure, and intended outcomes information about the present study. The intention was to receive institutional permission first and secondary permission from the individual instructor to conduct research in his or her online general education courses.

Once permission from the community-college administration and individual instructor were obtained, students enrolled in the general education online course were given a consent form asking for their participation in the present research study (Appendix B). Informed consent was obtained for all study participants prior to the beginning of the self-regulated learning intervention. Because activities from the research study were embedded into course content, all students enrolled in the course participated in the research activities as part of their required coursework; however, the informed consent obtained from students was a request to use their data submitted from course activities. All online students enrolled in both CD 10G and CD 10H at the time of the Study 1 and Study 2 were offered the opportunity to participate in the study.

The study did not anticipate potential risks to study participants as they did not participate in an intervention that caused physical harm or mental anguish. There was one potential risk or discomfort; however that may have occurred due to participation in the study. It is possible that some of the questions on the Survey of Academic Self-Regulation, learning strategies survey, may have made students feel uncomfortable or self-conscious regarding their approach to academic success. To address the potential risk, students could have withdrawn from this research project at any time without penalty. If students had decided to withdraw, they would not have lost course points or been penalized in any way. The procedure if a student decided to withdraw from the

research study prior to completion was to notify the online course instructor via email. The online instructor would then have notified the researcher. There were no student withdrawals from any of the online courses that participated in the study.

Students benefitted from participation in the study by receiving exposure to the theory of self-regulated learning and instruction in a self-regulated learning strategy framework that will promote metacognitive awareness and support their transition into online learning environments. The GAME plan framework provided students with a concrete strategy with which to practice application of their self-regulated learning process within the context of the present study. The GAME plan strategy, however, was domain general and could be used to support the learning goals of student participants after the completion of the study. After the study, students will be able to continue applying the GAME plan framework to support their learning goals in future online courses.

Students were informed prior to study participation that the research results would be reported confidentially. To address the confidentiality of research results, the research assigned a unique identification number to each student to report data collected from study participants. For example, as soon as the first surveys were collected, student names were replaced with unique identification numbers. All data tied to each individual student was synced up with their unique identification number. The data collected as part of the present research study is currently stored securely on a secure server owned by the researcher that requires login and password information. The data are only accessible by the researcher.

Instrumentation

Two primary instruments were used in the study to measure self-regulated learning conduct: one quantitative instrument and one qualitative instrument. Additionally, study participants completed a short evaluation of the GAME plan intervention demographic questionnaire, at the end of the research study, and a follow-up course evaluation. The quantitative instrument was the Survey of Academic Self-Regulation (SASR) developed to measure self-regulated learning conduct among college and university students during academic tasks (Appendix C). The qualitative instrument was a custom structured-diary form developed to measure students' self-regulated learning process and application of materials covered during the self-regulated learning intervention (Appendix D). Prior to the intervention, the SASR was administered as a pretest to assess students' self-regulated learning conduct that included metacognition, self-regulation, personal relevance and control, intrinsic motivation, extrinsic motivation, and comprehensive self-regulation that was the total of all SASR scales.

General Survey Description of the SASR

The SASR is a measure of self-regulated learning conduct and study strategies used in an academic course to support learning. The SASR contains 63-Likert items scored on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. The SASR consists of six different scales: Metacognition (*META*, 18 items), Personal Relevance and Control (*PRC*, 11 items), Intrinsic Motivation (*INTR*, 9 items), Self-Regulation (*SR*, 12 items), Self-Efficacy (*SE*, 8 items), and Extrinsic Motivation (*EXTR*, 5 items). Additionally, the SASR provides a total Self-Regulation

Score (*SASR SUM*, 63 items), which is comprised of the raw score sum of all the items. The sum SASR scales are detailed in Table 6.

Table 6
Sums of Survey of Academic Self-Regulation Scales

SASR Scale	***# of Items***	***Sum of Scale***
META (Metacognition)	18	108
SR (Self-Regulation)	12	72
PRC (Personal relevance, control)	11	66
INTR (Intrinsic motivation)	9	54
SE (Self-efficacy)	8	48
EXTR (Extrinsic motivation)	5	40
SASR SUM (Total Self-regulation)	63	378

The scales of the SASR represent several elements that exist as part of the self-regulated learning cycles that students work through continuously to support their learning goals. Researchers support the inclusion of the following scales as they represent students' self-regulated learning conduct in an academic course (Boekaerts &Corno, 2005; Winne & Jamison-Noel, 2002; Zimmerman, 2002). The Metacognition (META) scale depicts a student's ability to "think about his or her thinking." It requires students to plan (set realistic learning goals), monitor (track one's progress towards those goals), adapt (changes one's learning strategy when goal achievement is impeded), and evaluate (upon completion of a task, compare one's performance with the initial goals). Researchers posited that both very low and very high levels of META can interfere with actual progress toward a goal (Dugan, 2007; Dugan & Andrade, 2011).

The Personal Relevance and Control scale is related to students' beliefs about the relevancy of the course content to their professional (or personal) lives and to their ability to control the learning outcomes. It aligns with task value, which generally states that if students perceive the learning outcomes as attainable and controllable, then they are more likely to engage in the task (Arsal, 2010; Orhan, 2008; Stoeger & Ziegler, 2008). The

Intrinsic Motivation scale assesses the degree to which students indicate they are involved in learning for the sake of learning or mastery of the content. Dugan (2007) posited that INTR is a trait that is developed slowly over time and is enhanced by focusing less on assessment and more on the process of learning. The present study investigated changes in intrinsic motivation scores pre- and postintervention that took place over the span of 10 weeks. The Self-Regulation scale deals with the actual learning and studying behaviors students report that they engage in. The Self-Efficacy (SE) scale assesses students' self-reported beliefs in their ability to succeed at a learning task or assessment. On the SASR, SE is measured with items that indicate the *opposite* of SE (e.g., indications of anxiety and fear when it comes to learning or testing situations). The Extrinsic Motivation *(EXTR) scale* requires students to indicate the degree to which they focus on the outcomes of a task (e.g., grades or recognition). The SASR provides a Total Self-Regulation (SASRSUM) score that is a composite score made up of the raw score sum of the six scales described above.

Validity Evidence of the SASR

The method for developing construct validity evidence of the SASR involved a three-step process based on existing theory, research, and measures (content validity), using reliability and factor analyses to establish a stable, internal structure for the instrument (factoral validity), and then checking the correlations of the resulting factors with external criteria (criterion-related validity; Winne & Perry, 2000). Dugan (2007) established a stable internal structure of the SASR by administering a pilot test with a convenience sample of college students (N =205) to assess its initial reliability and validity. It was then re-administered to a larger sample (N = 491) from the same

institution to further obtain reliability and validity evidence. Correlational, factor, multiple regression, and reliability analyses were conducted in both studies (Dugan, 2007; Dugan & Andrade, 2011). To obtain criterion-related validity evidence, the SASR factors were compared with those of similar instruments: namely – the Learning and Study Strategies Inventory (LASSI; Weinstein et al., 2002) and the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1991). Additionally, group differences were examined and compared from groups known to differ on the construct of self-regulated learning. Groups included in the analysis were age, discipline, ethnicity, gender, and grade level based on findings in recent research (Chapell et al.2005; Robbins et al., 2006; Rogers & Hallman, 2006). Because construct validity is supported by relationships to events outside of the measure (Thorndike, 2005), the SASR factors were used in multiple regression analyses to assess their concurrent and predictive relationship with achievement measures.

Reliability Evidence of the SASR

Dugan and Andrade (2011) used the SASR to measure self-regulated conduct among a diverse sample of undergraduates (N=491) and assess the predictive validity of SASR scores on students' academic achievement as measured by grade point average (GPA) and course grades. The sample included students from both private and public universities with varying academic majors and class levels. The SASR was assessed for internal consistency by subscale. Values for Cronbach's coefficient alpha ranged from .71 to .86, revealing sufficient score reliability on the subscale level. Table 7 details Cronbach's coefficient alpha by individual scale of the SASR.

Table 7
Cronbach's Coefficient Alpha Consistency Reliabilities SASR Scales (N = 491)

SASR Scale	***# of Items***	***α***
META (Metacognition)	18	.86
SR (Self-Regulation)	12	.86
PRC (Personal relevance, control)	10	.79
INTR (Intrinsic motivation)	10	.83
SE (Self-efficacy)	5	.75
EXTR (Extrinsic motivation)	5	.71

Results of the regression indicated that five SASR scales with the exception of Extrinsic Motivation were statistically significant predictors of GPA. The Self-Regulation scale (β=.37) scale had the strongest predictive validity followed by Self-Efficacy (β=.19), Intrinsic Motivation (β=.14), Personal Relevance and Control (β=.13), and Metacognition (β=.06), respectively. Overall, five SASR scales explained 25% of the variance in GPA. In terms of linear regressions using course grade, only reported Self-Regulation (β=.46), Self-Efficacy (β=.14), and Personal Relevance and Control (β=.09) were found to be statistically significant positive predictors, respectively, in descending order of variance accounted for. All three scales accounted for 15% of the variance in course grades. Together the SASR scales accounted for more variation in GPA than in course grade. The present study will look at postintervention follow-up SASR scores in relation to final course grade.

General Description of the Structured-Diary Form

The second instrument for data collection was a structured-diary form that was employed to understand how students were utilizing the GAME plan framework to support their learning in online courses throughout the duration of the present study. Diary forms were collected from study participants weekly to assess the individual progression of the GAME plan framework implementation.

The structured-diary forms used in the study were modeled after the structured-diary forms used by Arsal (2010) to assess self-regulated learning strategy use and academic achievement of preservice teachers and by Schmitz and Wiese (2006) who used diaries to evaluate the effectiveness of an intervention designed to increase self-regulated learning. The structured-diary form created for the present study adapted best practices from the above diary examples to be specific to the GAME plan framework. Direct emphasis is placed on students' utilization of materials presented during the GAME plan intervention, for example, goal setting, actions taken to support learning goals, strategy use, time management, monitoring of planned actions, and evaluation of results on the weekly basis (Appendix E). Some examples of questions from the structured-diary form are as follows:

What are your learning goals for the week?

What learning strategies did you use this week to support your learning goals?

How did you monitor progress toward this week's goals?

What obstacles if any stood in the way of you achieving this week's goals?

To achieve next week's goals, what changes would you make to improve your effectiveness?

Additional Instruments

In addition to the SASR and the structured-diary form, the study used three additional instruments to obtain both qualitative and quantitative data from study participants. Study participants were asked to complete a short demographic survey that provided additional information about the sample for potential secondary analysis. Students were asked to complete an affect evaluation following the self-regulated

learning instruction providing feedback regarding the effectiveness of the instruction itself. Further, the students completed a course evaluation at the end of the study in which students evaluated the effectiveness of the GAME plan framework in support of their success in an online course.

Demographic Survey

Study participants provided demographic information specific to their gender, age, ethnicity, educational background, enrollment status (part-time or full-time), goals for education (degree pursuant versus vocational training), and previous experience with online courses (Appendix E). The demographic information was posed as multiple-choice questions, with predefined answer choices and space provided for "Other" if the categorical choices did not apply to the individual student. Collecting demographic information provided details about the study participants that can be used for secondary analysis.

Intervention Evaluation

Directly after watching the self-regulated learning video, students completed a short evaluation survey assessing their perceptions of the effectiveness of the instruction (Appendix F). This type of evaluation is referred to as a reactive participant questionnaire (Eseryel, 2002). The focus of this evaluation was on outcome, to assess whether or not desired results of applying new self-regulated learning skills in their impending online courses were achieved in the short term. For example, at the end of the intervention, were study participants able to (a) develop their own goals and (b) develop an action plan for a specific learning goal. The questions were posed in terms of statements, in which the study participants selected a response to Likert items on a 6-point scale, where (1)

represents *Strongly Disagree* and (6) represents *Strongly Agree*. Additionally, two open-ended items were included asking study participants for recommendations for improvement: (a) what are the three most important things you learned during the SRL intervention and (b) if you were given the task of redesigning the SRL intervention, what would you change?

Course Evaluation

The study participants completed an evaluation at the end of the study that focused on the effect of the SRL intervention on applied self-regulated learning conduct in the online course (Appendix G). The course evaluation was intended to measure study participants' perceptions of whether or not the SRL training affected their self-regulated learning conduct and academic performance in the online course (Eseryel, 2002). For example, at the end of the study, "how did what was taught in the SRL intervention affect your self-regulated learning conduct?" The questions were posed in terms of statements, in which the study participant will select a response to Likert items on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*.

Treatment Description

The treatment administered was the same for Study 1 and Study 2 with the exception of two minor updates to audiobook content and structured-diary reflection form in Study 2. Study participants watched a 30-minute SRL strategy instruction audiobook presentation that was converted into video accessible through YouTube by the end of the third week of the online course. Videos are used frequently in online courses to deliver course content, guest speaker presentations, and orientations (Landi, 2011). YouTube was chosen as the platform to distribute video content over the Internet based on problems

encountered when distributing the video directly to students in various file formats. Varying file formats were not reliable for all of the devices that students planned to access the course content, for example, smart phones, PC and MAC platform computers, and iPads. As the focus of the intervention was new material for the study participants, having the platform of instruction in video format allowed students to pause where necessary, and emphasize points of instruction to strengthen study participants' understanding of material. The video converted audiobook presentation was prerecorded and accessible through a private YouTube URL for future reference for study participants as needed throughout the duration of the study and beyond. The video developed for the study was archived in chapters so that study participants could access applicable sections to support their self-regulated learning conduct during the online course. The delivery logistics of the private YouTube URL was determined in consultation with the instructor of the general education online courses prior to student access.

The video introduced the three phases of self-regulated learning: forethought, performance, and self-reflection. The self-regulated learning framework GAME plan that encompasses goal setting, time management, task strategies, monitoring, and self-evaluation was introduced. Examples were provided of how to incorporate the GAME plan framework and subsequent strategies into their work throughout the duration of their online general education course. Students were prompted to implement the GAME plan framework weekly to support their individual learning goals. While using the GAME plan framework, students participated weekly in structured-diary responses to assess their self-regulated learning process. In Study 2, the content of the audiobook was updated to

highlight additional obstacles commonly encountered when learning online. The change affected two slides out of 47 of the audiobook presentation.

Scope and Sequence of Instruction

The design of the instructional intervention in the present study was modeled after the GAME plan framework developed by Cennamo and Ross (2000) to design instruction that promotes self-regulated learning conduct among students in a web-based course. The content for the present study's intervention was developed based on best practices from the literature on "learning to learn" courses (Burchard & Swerdzewski, 2008; Cho, 2004; Dembo & Jakubowski, 2004; Fleming, 2002; Hofer & Yu, 2003). The current study condensed common course content into six sections that were delivered during the 30-minute video during the third week of the online general education courses. The sections for the video were as follows: introduction of self-regulated learning process, GAME plan framework, learning strategy tools, skill + will, and the GAME plan in action. An overview of the topic scope and sequence of the intervention as well as instructional objectives and activities is provided in Table 8.

Based on the scope and sequence of topic materials, the instructional intervention in the present study addressed three overarching goals: (a) focus on how individual students' self-regulated learning conduct can be enhanced through introduction and implementation of the GAME plan framework, thus preparing students to learn in autonomous online learning environments, (b) exploring how results can be achieved with online students by providing guided implementation of the GAME plan framework, and (c) develop metacognitive awareness among students that influences their self-regulated learning conduct in online learning environments. Additionally, overarching

goals of the instructional intervention were developed to support the following intended learning outcomes of study participants: (a) KNOWLEDGE and understanding of self-regulated learning theory and the GAME plan strategy framework, (b) SKILL in using the GAME plan strategy framework to improve individual learning outcomes, and (c) ATTITUDE in taking ownership over their learning process and being proactive about monitoring progress toward learning goals.

Table 8
Scope, Topic Sequence, Instructional Objective, and Activities of the GAME Plan Intervention

Scope	Topic Sequence	Instructional Objectives & Activities
Introduction:	Common pitfalls of online learning environments	Identify common pitfalls in online learning environments.
	What is self-regulated learning?	Define self-regulate learning
	Why self-regulated learning within the context of online learning	Discuss importance of SRL online
Part One:	Self-Regulated Learning: Phases and beyond	Identify and discuss phases of SRL
	Defining successful learners in online learning environment	Discuss example of SRL phases applied to online learning environments
Self-regulated learning process	The role of the personal agency in active learning process	Emphasize the importance of "self" in the regulation process
Part Two:	Understanding the components of SRL; introduction of GAME plan framework	Discuss and connect GAME plan to SRL process
		Discuss the value of goal setting
The GAME plan framework	G – goal setting	Model SMART goal setting activity
	A – actions towards goals	Discuss the value of taking actions and time management
	M – monitoring of activities	Discuss the value of metacognitive monitoring
	E – evaluation of process achieved	Identify and discuss self-evaluation and reflection
Part Three:	GAME Plan strategic tools	Model goal setting worksheet, weekly action plans,
Learning strategy tools	G – Goal setting worksheet	monitoring tool, and self-evaluation worksheet
	A – weekly action plans	Discuss examples of applicability to work in online course
	M – metacognitive monitoring tool	Provide guided practice with tools
	E – Self-evaluation worksheet	
	Guided practice with strategic tools	
Part Four:	Putting it all together; the "skill" and the "will" to learn	Identify and discuss challenges of self-regulated learning
		Discuss the balance between skills and will to learn
Skill + will	Exploring effective strategy use vs. ineffective strategy use	
	Working through challenges of self-regulated learning	
Part Five:	Putting the GAME plan framework into action	Review GAME plan and accompanying tools
	Implementation of SRL strategies	Discuss scenarios for implementation of GAME plan
The GAME plan in action	Introduction of study objectives	Identify and discuss next steps for study participants
	Diary Forms – weekly monitoring	
	Evaluation of instruction section	

Overarching goals for the instructional intervention and intended learning outcomes are further supported by the intended instructional objectives and activities for each of the six sections. Table 8 includes an overview of instructional objectives and activities to support objectives of each individual section. See Appendix H for section scripts and accompanying visual materials.

GAME Plan Tools for Guided Practice

Section four of the instructional intervention introduced four learning strategy tools that can be used to support students' individual implementation of the GAME plan framework throughout the duration of the general education online course. The first tool that was introduced was the goal-setting worksheet developed by Andertonn (2006) to provide support for students' weekly goal-planning and adapted for use with the present study's intervention (Appendix I). Students were encouraged to use the goal-setting worksheet as appropriate to support their individual implementation of the GAME plan framework. The second tool introduced was the weekly action plans developed by Cho (2004) to aid time management and link students' intended goals with the actions necessary to achieve their goals (Appendix J). The third tool was the metacognitive monitoring tool developed by Andertonn (2006) to help students identify progress made on working toward goals by detailing time spent studying, number of pages read, discussion thread activity, and assignment completion (Appendix K). The fourth tool introduced was the weekly self-evaluation developed by Andertonn (2006) to assess and reflect on weekly activity (Appendix L). The tools presented during the video were optional and not requirements of the GAME plan framework. The intention was to provide students with sample tools that have been used in previous research to support

students' self-regulated learning development. Students were encouraged to utilize the tools as they find them appropriate to support their individual implementation of the GAME plan framework.

Procedures

Both Study 1 and Study 2 followed the same set of procedures described below. The research materials were embedded into the curriculum of the online courses as study activities. All students enrolled in the online courses completed study materials. Only those students who agreed to share their complete data sets with the researcher were official study participants. Based on the sample of study participants from a Northern California community-college online general education courses, students had access to all general education online courses through the course management system Catalyst, one week prior to the start of the quarter. Once the courses became available through Catalyst, students were notified that the course they were enrolled was participating in a research study in the announcements section of the course platform. Students received a message on the Announcement page (front page) inside of the course management system, Catalyst, which online students logged into to participate in the online courses. Within the text of the message, students were given a statement about the purpose of the study and its intended outcomes as well as features and benefits of participating in the present study. Included in the message was an external URL link to the electronic version of the study participant consent form housed on Survey Monkey (Appendix B). Students were asked to indicate whether they planned to opt-in or opt-out of the research study. Students who chose to opt-in completed the electronic study participant consent form online and submitted it once the electronic form had been read and understood. Once the

consent form was submitted through Survey Monkey, the study participant received email confirmation from the researcher.

As part of the online course curriculum, all students enrolled in CD 10G and CD 10H were introduced to the GAME framework and corresponding activities beginning in Week 4 of the online course. Week 3 was chosen as the first week for study activities to allow time for students who enroll in the course within the first 2 weeks of the quarter to participate in the study. There were a total of 10 activities associated with the GAME plan framework. Students could receive up to 3-points for each activity completed and submitted for a total of 30 points. Points received for completing GAME plan activities were included in the calculation of students' final course grades. Only data from students who agreed to participate was reviewed and analyzed by the researcher. The study used a unique identification number to report data collected from study participants. For example, as soon as the consent forms were collected, student names were replaced with unique identification numbers by the researcher. All future data tied to each individual student was matched up with their unique identification number.

The first piece of data collected as part of this research study prior to watching the SRL intervention video was the responses to the Survey of Academic Self-Regulation (SASR) to collect a preassessment of self-regulated learning conduct prior to the intervention. Although students accessed the online course via Catalyst, the course management system used by the community college, for the purposes of current studies all data were collected using Survey Monkey. Using Survey Monkey allowed the researcher to have access to data from the present study confidentially without interfering with the internal record keeping for the online course.

During Week 4, students accessed the GAME plan video by logging into the course management system, Catalyst. The private YouTube URL was provided in the course materials section of their online course inside of Catalyst. Because YouTube is a free video distribution website accessible to the public via the internet, providing a private URL that can only be accessed by students with Catalyst login information for CD 10G and CD 10H protected the intellectual property of the researcher and limited public access to the GAME plan audiobook on YouTube. To address fidelity issues regarding whether or not students actually watched the GAME plan video, students completed a short GAME plan audiobook evaluation of the instruction delivered. The questions on the evaluation referred to material covered in the video. Ideally students were not able to answer effectively evaluation questions without watching the video. The students' submissions of the audiobook evaluation served as the fidelity measure to ensure that students actually watched the GAME plan video content.

During the 5th week of the online course, students began submitting their completed structured-diary forms. Forms were submitted weekly at the end of the assigned week. Forms were coded with participants' individual unique identification number to maintain confidentiality and track submissions by participant. With the study population, the specified end of the week in general education online courses was Sunday at midnight. Therefore, the beginning of the week began on Mondays at 12:01am and ended the following Sunday at 11:59pm. Students submitted structured-diary forms subsequently in weeks, 5, 6, 7, and 8 of the online course for a total of four structured-diary submissions by the end of the study.

During week 10 of the course, students completed the SASR to obtain end of intervention scores 8 weeks after the SRL intervention. In week 9, students completed the short demographic survey detailing their gender, age, ethnicity, educational background, enrollment status (part-time or full-time), goals for education (degree pursuant versus vocational training), and previous experience with online courses. To complete GAME plan course activities, students submitted responses to the final GAME plan course evaluation electronically through Survey Monkey. Two weeks after the end of the online courses, the researcher obtained final course grades for those participating in the studies. Table 9 provides a general timeline for data collection utilized in both Study 1 and Study 2.

Table 9
Data Collection Timeline for Study 1 and Study 2

Week	**Quantitative Data**	**Qualitative Data**	**Researcher Actions**
3	None	None	Collect study participant consent (electronically)
4	Preintervention SASR scores	None	Complete data entry for preassessment SASR scores Sync student unique ID#s with data
5	Audiobook Evaluation		Make GAME plan video YouTube URL available to students Tabulate responses from the video outcome evaluation
6, 7, 8, and 9	None	Structured-diary responses	Complete bi-weekly thematic analysis of diaries
10	Postintervention SASR scores (8 weeks)	None	Complete data entry for post-intervention SASR scores (8 weeks post)
11	Course Evaluation Demographic Survey	None	Tabulate responses from the intervention outcome evaluation Complete data entry for demographic survey and sync entries with unique ID#'s
After Week 12	Final Course grades	None	Complete data entry for final course grades

Data Analyses

The studies investigated the following research questions:

1. To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) preintervention (week 3) and at the end of the intervention (week 11)?
2. To what extent is there a relationship between students' self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?
3. How are students utilizing the GAME plan framework to support their learning in an online course?
4. What are students' perceptions of the effectiveness of the SRL intervention?

To address the first research question, quantitative data analysis included both descriptive and inferential statistics. Descriptive statistics included means and standard deviations calculated for each scale of the SASR preintervention and postintervention. Paired sample *t* tests were calculated on each scale of the SASR to analyze the mean differences between SASR scores of students at two given points in time. The dependent variables were pre-assessment SASR scores obtained before the GAME plan intervention, and SASR scores at the end of the intervention. Additionally, Cohen's *d* was computed to measure effect sizes and determines practical significance.

To address the second research question, Pearson product-moment correlation coefficients were computed to obtain the relationship between participants' postintervention SASR scores and final course grades that were converted to numerical

representations based on a 4-point scale where a grade of “A” represents 4 points. Pearson product-moment correlation coefficient *r* estimated the strength and direction of the relationship between participants’ postintervention SASR scores and final course grades. The study used the significance level of .05 when testing the statistical significance of correlations between postintervention follow-up SASR scores and final course grades.

To address the third research question, thematic analysis of student responses to open-ended questions regarding their use of GAME plan strategy was compiled and presented. Thematic analysis is historically a conventional practice in qualitative research that involves searching through data to identify any recurrent patterns. The process for analyzing themes of qualitative responses includes (a) initial reading of responses, (b) sorting of responses into preliminary categories, (c) re-examining data for final construction of each theme, and (d) finalize the name of each theme, describe it, and provide a few quotations from the original responses to communicate meaning to the reader (Creswell & Clark, 2007). In both studies, recurrent themes were used to develop a coding scheme used to analyze and categorize all student responses. Using the developed coding scheme for student responses, the primary researcher and a colleague with self-regulated learning research experience independently coded the students’ responses across the four GAME Plan reflections submitted weekly. In Study 1, overall agreement between the two coders was 93.7%. In Study 2, overall agreement between the two coders was 95.2%. In instances where there was a disagreement in thematic coding, the discrepancy was discussed and resolved.

To address the fourth research question, frequencies detailing the numerical responses to the statements posed in the SRL intervention outcome evaluation were provided. Additionally, thematic analyses of participants' responses to open-ended questions posed in the impact evaluation were included.

Qualitative student reflections were compiled and analyzed. Apparent themes from student reflections were included in the final analysis of the study. Student responses were analyzed by the researcher to generate themes apparent across all responses. Recurrent themes were used to develop a coding scheme used to categorize all student responses. Using the developed coding scheme for student responses, the primary researcher and a colleague with self-regulated learning research experience independently coded the students' responses from the GAME Plan audiobook evaluation. Overall agreement between the two coders was 96.2%. Frequencies were reported for survey data obtained from the impact evaluation at the end of the studies.

CHAPTER IV

RESULTS

The purpose of this study was to examine the effect of a self-regulated learning strategy intervention on students' self-regulated learning conduct and academic performance. This study examined differences in self-regulated learning conduct preintervention and postintervention as well as the self-regulated learning process undertaken to support their academic success in two intact general education online courses at a community-college in Northern California. Students' postintervention self-regulated learning conduct was analyzed in comparison to their academic performance in online courses. At the beginning of the study, students were given a preassessment to determine perceptions of current self-regulated learning conduct. During the self-regulated learning strategy instruction phase, students were introduced to the GAME plan framework, a comprehensive metacognitive strategy aimed at promoting self-regulated learning skill development and academic success. After completion of the instruction, students evaluated the instruction and began utilizing the GAME plan framework to support their learning goals during their online courses. Students evaluated their progress through weekly submission of structured diary responses in which they outlined their goals, discussed the actions they took to attain their goals, monitored goal progress, and evaluated results. At the conclusion of the intervention, students were given a postassessment identical to the preassessment to measure perceptions of their self-regulated learning conduct. In addition, after the postassessment students completed a summative evaluation of the GAME plan framework, and application of the metacognitive strategy in support of their academic success. To conclude the study,

students completed a demographic survey detailing information regarding their educational background, educational goals, and previous experience with online courses.

Two primary instruments were used to measure both the product and process of self-regulated learning. The self-regulated learning assessment that was used to measure the product of self-regulated learning before and after intervention was the Survey of Academic Self-Regulation (SASR) created by Dugan (2007). The SASR, a self-report instrument was created to assess college students' academic self-regulation that includes self-regulated learning behaviors, specifically metacognitive strategy use, motivation for learning, and academic performance. The SASR consists of 63-Likert items scored on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. The SASR consists of six different scales: Metacognition (*META*, 18 items), Personal Relevance and Control (*PRC*, 11 items), Intrinsic Motivation (*INTR*, 9 items), Self-Regulation (*SR*, 12 items), Self-Efficacy (*SE*, 8 items), and Extrinsic Motivation (*EXTR*, 5 items). Additionally, the SASR provides a total Self-Regulation Score (*SASR SUM*, 63 items), which is comprised of the raw score sum of all the items. Mean and standard deviation of students' responses were calculated preassessment and postassessment and reported in terms of overall sum and individual scale scores.

The self-regulated learning assessment that was used to measure the process of self-regulated learning during the intervention was a structured-diary form referred to in the study materials as the GAME Plan Reflection. Students completed a reflection weekly, over a 4-week period after participating in initial self-regulated learning instruction and introduction to the GAME plan framework. There were a total of four GAME Plan reflections collected per student. The GAME Plan Reflection created for the

present study adapted best practices from diary examples to be specific to the GAME plan framework. Direct emphasis was placed on students' utilization of materials presented during the GAME plan intervention, for example, goal setting, actions taken to support learning goals, strategy use, time management, monitoring of planned actions, and evaluation of results on the weekly basis. Student responses to the weekly GAME Plan Reflection forms were analyzed by the researcher to generate themes apparent across all responses. Recurrent themes were used to develop a coding scheme used to analyze and categorize all student responses. Using the developed coding scheme for student responses, the primary researcher and a colleague with self-regulated learning research experience independently coded the students' responses across the four GAME Plan reflections. Overall agreement between the two coders was 93.7%. In instances where there was a disagreement in thematic coding, the discrepancy was discussed and resolved.

The study used three additional instruments to obtain both qualitative and quantitative data from study participants. Students completed a short demographic survey that provided additional information about the sample for secondary analysis. Students also completed an affect evaluation, the GAME Plan audiobook evaluation, following the self-regulated learning instruction providing feedback regarding the effectiveness of the 30-minute self-regulated learning instruction itself. Student responses to the GAME plan audiobook evaluation included qualitative data. Student responses were analyzed by the researcher to generate themes apparent across all responses. Recurrent themes were used to develop a coding scheme used to categorize all student responses. Using the developed coding scheme for student responses, the primary researcher and a colleague with self-

regulated learning research experience independently coded the students' responses from the GAME Plan audiobook evaluation. Overall agreement between the two coders was 96.2%. In instances where there was a disagreement in thematic coding, the discrepancy was discussed and resolved. Further, the students completed a course evaluation at the end of the proposed study in which students evaluated the effectiveness of the GAME plan framework in support of their success in an online course.

Results from Study 1

Since the research study was administered twice during two consecutive quarters at a local community college results of the two studies will be presented separately. This next section contains results of Study 1 which are presented in response to the research questions. The two quantitative research questions are presented first, followed by the two qualitative research questions.

Research Question 1

To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) preintervention, and postintervention?

The first research question was designed to investigate whether there was a significant effect of self-regulated learning and implementation of the GAME plan framework on students' perceptions of their self-regulated learning conduct as measured by their responses to the Survey of Academic Self-Regulation before and after intervention. At the beginning of the study, all students completed the 63-item SASR assessing their perceptions of self-regulated learning conduct preintervention. The SASR consists of six different scales: Metacognition (*META*), Personal Relevance and Control

(*PRC*), Intrinsic Motivation (*INTR*), Self-Regulation (*SR*), Self-Efficacy (*SE*), and Extrinsic Motivation (*EXTR*) scored on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. Following 30-minute SRL instruction and 6 weeks of guided practice utilizing the GAME plan framework, students completed a postintervention assessment of self-regulated learning conduct using the same 63-item SASR used preintervention. Overall, the mean and standard deviation of the total preintervention SASR scores of students was 271.71 and 21.21 respectively. It was expected that the students' postintervention mean scores would be higher than the preintervention mean scores after participating in self-regulated learning instruction and 6 weeks of authentic practice implementing the GAME plan framework during their online course. The data in Table 10 illustrate that there was an increase from mean preintervention scores to postintervention scores for the Study 1 sample group. A paired-sample *t* test was conducted using the preintervention and postintervention scores of the SASR. The results showed that there was a statistically significant difference between overall SASR responses preintervention and postintervention (t (34) = -2.93, p = .006, d =.50).

Table 10
Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Scores

	Pretest			Posttest				
SASR Scores	*n*	*M*	*SD*	*n*	*M*	*SD*	*t*	*df*
Total	35	271.71	21.21	35	278.49	23.56	-2.93	34

*Indicates a statistically significant difference (p<.01) between pretest and posttest scores.

The 63-item SASR assessment included 18 items that assessed students' perceptions of the role of metacognition in their self-regulated learning conduct, specifically, it assess students' ability to think critically about his or her learning. Eleven

items of the SASR assess students' perceptions of their personal relevance and control, specifically, students' beliefs about the relevancy of the course content to their professional (or personal) lives, and their ability to control the learning outcomes. Twelve items of the SASR assess students' perceptions of their self-regulation, specifically the actual learning and studying behaviors students report that they engage in. Nine items assess students' intrinsic motivation, specifically, the degree to which students indicate they are involved in learning for the sake of learning, or mastery of the content. Eight items assess students' self-efficacy, students' self-reported beliefs in their ability to succeed at a learning task or assessment. Last, 5 items assess students' extrinsic motivation in which students indicate the degree to which they focus on the outcomes of a task (e.g., grades or recognition). It was expected that the students' postintervention mean scores on each scale would be higher than the preintervention mean scores after participating in self-regulated learning instruction and 6 weeks of authentic practice implementing the GAME plan framework during their online course. Table 11 illustrates that there were increases from mean preintervention scores to postintervention scores for all scales. Because the number of items varies by scale, both the raw mean responses and weighted mean responses are presented for the purpose of comparison across scales. Paired-sample *t* tests were conducted using the preintervention and postintervention responses to the SASR on all six scales. The results showed that there was a statistically significant difference between overall SASR responses preintervention and postintervention on the metacognition scale (t (34) = -3.90, p = .000, d = .66). There were no statistically significant differences found between preintervention and postintervention SASR responses on any of the other scales.

Table 11
Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Scores by Scale

	Pretest			Posttest				
SASR Scale	*n*	*M raw (SD)*	*M weighted (SD)*	*n*	*M raw (SD)*	*M weighted (SD)*	*t*	*df*
Intrinsic Motivation	35	40.89 (4.57)	4.54 (0.51)	35	41.63 (5.36)	4.63 (0.60)	-1.03	34
Extrinsic Motivation	35	21.46 (3.37)	4.29 (0.68)	35	21.77 (3.26)	4.35 (0.65)	-0.81	34
Personal Relevance & Control	35	51.89 (5.05)	4.72 (0.46)	35	52.89 (4.29)	4.81 (0.39)	-1.78	34
Metacognition	35	76.83 (9.34)	4.27 (0.52)	35	80.97 (11.03)	4.50 (0.61)	-3.90*	34
Self-Efficacy	35	32.34 (4.07)	4.04 (0.51)	35	32.86 (3.74)	4.11 (0.47)	-1.11	34
Self-Regulation	35	48.31 (4.46)	4.03 (0.37)	35	48.67 (4.86)	4.06 (0.41)	-0.09	34

*Indicates a statistically significant difference between pretest and posttest scores when overall error rate controlled at .05 level.

Research Question 2

To what extent is there a statistically significant relationship between students' self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?

The second research question aimed to investigate the relationship between students' perceptions of their self-regulated learning conduct measured by responses to the SASR postintervention and the final course grade earned in their online courses. Students' completed the SASR after participating in initial self-regulated learning instruction that included introduction to the GAME plan framework followed by 6 weeks of authentic practice implementing the GAME plan framework while working to complete their online course. Students' final course grades were awarded in terms of letter grades, A-F where A represents excellent work and F represents failing work. Final course grades were converted into numerical representations based on a 4-point scale.

Numerical representations of final course grades were based on the grading definitions policy of the community college where the study took place. Table 12 details the standard numerical grade representations.

Table 12
Final Course Grade Letter Grades and Numeric Conversions

Letter Grade	*Grade Points*
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
D+	1.3
D	1.0
D-	0.7
F	0.0

The community college where the study took place does not award the letter grades "A+" or "C-". After students' final course grades were converted into numbers, the mean final course grade was 3.32 (SD = .98).

A correlation was computed using students' postintervention SASR totals and numeric grades. Based on Pearson product-moment correlation, results indicate that there was a weak positive correlation of $r = .16$, between students' final course grades and SASR postintervention scores. The correlation was not statistically significant. Total SASR scores explain 3% of the variance in final course grades. Next, correlations were computed using the final course grades and SASR postintervention scores by individual scale. Results indicated that the relationships between final course grades and SASR postintervention scores by individual scale were all weak and not statistically significant. The strongest relationship found was between final course grade and the metacognition scale, $r = .21$. Students SASR responses to the metacognition scale questions explain

4.4% of the variance in final course grade. The weakest relationship was between final course grade and the extrinsic motivation scale, r = .02. Students' SASR responses to the extrinsic motivation scale questions explain <1% of the variance in final course grade. Table 13 provides additional details regarding the correlations between final course grade and SASR total and individual scales. Additionally, the matrix provides the correlations between SASR total and individual scales.

To investigate if additional correlations could be computed based on individual groups of final course grades; the distribution of final course grades was examined. Sixty percent of students received an "A" grade or an "A-" grade. Twenty percent of students received a final course grade of "B+" or "B". It was found that the distribution of grades was skewed toward the mean of 3.32 (SD =.98), equivalent to the letter grade of "B+". Based on the small sample size of the individual grade groups, no additional correlations between SASR responses postintervention and individual grade groups could be computed. Figure 3 details the complete distribution of final course grades received.

Table 13
Pearson Correlation Matrix of Course Grades and Posttest SASR Scale Scores (n=35)

Variable	*SASR Total*	*IM*	*EM*	*MC*	*PRC*	*SE*	*SR*	*Course Grade*
SASR Total	-							
Intrinsic Motivation (IM)	.84*	-						
Extrinsic Motivation (EM)	.57*	.35	-					
Metacognition (MC)	.92*	.77*	.39	-				
Personal Relevance & Control (PRC)	.57*	.55*	.15	.52	-			
Self-Efficacy (SE)	.54*	.34*	.15	.52	-.14	-		
Self-Regulation (SR)	.55*	.22	.28	.35	.09	.45*	-	
Course Grade	.16	.09	.02	.21	-.16	.16	.18	-

*Statistically significant when overall error rate controlled at .05. Control error rate .002.

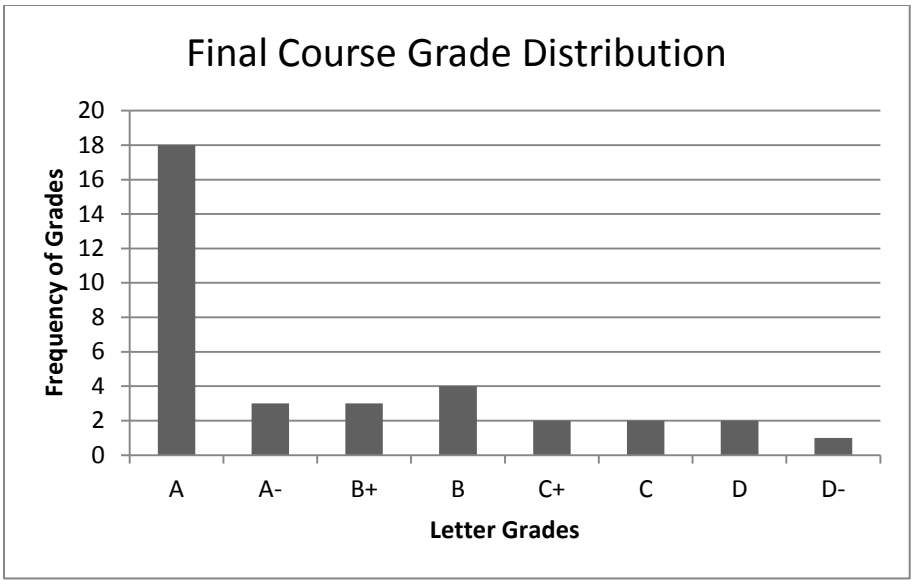

Figure 3. Final grade distribution of students enrolled in 10G & 10H online courses

Research Question 3

How are students utilizing the GAME plan framework to support their learning in an online course?

The third research question was designed to gain insight into how students use the GAME plan framework to support their learning while working through an online course. Students completed the GAME plan reflection form every week, over a 4-week period after participating in initial self-regulated learning instruction and introduction to the GAME plan framework. Four GAME plan reflections were completed for each student participant. The GAME plan reflections were intended to provide qualitative data highlighting the process that students underwent to adopt and implement the GAME plan framework into their studies. The GAME plan reflections consisted of 10-open ended questions segmented into four sections to reflect the 4 phases of the GAME plan framework; goals, actions, monitoring, and evaluation. Each section's questions asked students to share their perceptions about their authentic practice with the GAME plan

framework as it pertains to the phase of the framework. For example, in reference to the goals phase, students were asked to share their goals each week as well as the potential benefits of each goal if achieved. Students' responses to the weekly GAME Plan Reflection forms were analyzed by the researcher to generate themes apparent across all responses. Recurrent themes were used to develop a coding scheme used to analyze and categorize all student responses. A coding scheme or themes representative of student comments was developed for each phase of the GAME plan framework. Using the developed coding schemes for student responses for each phase of the GAME plan, the primary researcher and a colleague with self-regulated learning research experience independently coded the students' responses across the four GAME Plan reflections. Overall agreement between the two coders was 93.7%. In instances where there was a disagreement in thematic coding, the discrepancy was discussed and resolved. The qualitative themes found in student responses to the GAME plan reflections will be presented by phase in the following order: goals, actions, monitoring, and evaluation.

Thematic Analysis for the Goals Phase

During the Goals phase of the GAME plan framework, students were focused on learning to adopt best practices for goal setting in support of their work in their online course. The goals phase mirrors the forethought phase of the self-regulated learning model that typically takes place before learning and includes metacognitive processes such as task analysis, goal setting, and strategic planning. Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of four weeks.

1. What are your learning goals for the week?

2. How did you benefit from achieving these goals?

Students' responses to the above questions regarding the goals phase were analyzed by the primary researcher and the second coder, and categorized into themes derived from the responses to all four GAME plan reflections. For the first target question in the goals phase, eight themes were derived from student responses. For the second target questions in the goals phase, nine themes were derived from student responses. All themes derived from students' responses to the target questions in the goals phase are presented in Table 14. Additionally, Table 14 provides specific exemplars of the student responses used to determine each theme. Target questions for the goals phase are included in the left column, themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 15 presents the percentage of themes by frequency of responses found in the goals phase of the GAME plan based on the two target questions posed in Reflections 1-4. Target questions for the goals phase are listed on the left and themes are in order of frequency percentage derived from student responses and grouped by Reflection. Overall, students' learning goals were centered on general performance measures such as completing and staying on top of assignments in their online course. Students' learning goals were least frequently centered on comprehending course material and establishing balance between school and or work and other responsibilities. Additionally, students perceived the benefit of achieving their goals was better academic performance in their online course, and the ability to stay on task and follow through with completing coursework.

Table 14
Themes found in *Goals* Phase of the GAME Plan Framework Reflections 1-4

	Themes	Sample Student Responses
What are your learning goals for the week?	Balance workload between courses	*"My learning goals this week were to balance work for all of my class. I want to read about emotional and social development in middle childhood for child development class, to study different functions in my precalculus class, and to create a program about selection statements in my computer programming class."*
	Complete assigned reading and take notes	*"My learning goals for this week were to read 10 pages a night of my book and to write down on a piece of paper all the important information I remembered from those pages."*
	Complete course assignments (discussion posts, essay questions, papers, observation)	*"This week, I want to make sure that I am going to finish the concrete operational experiment paper before its deadline last Wednesday. I also I want to finish reading the chapter assigned for this week, as well as doing all the homework for this week."*
		"I wanted to finish chapter 8, do the discussion question, raise my virtual child, answer the virtual child questions, and do this reflection."
	Forecasting time for studying	*"I had an essay due in another class and my learning goals were to figure out when I will have the time to study. I want to set up an outline and time plan for the essay and follow it."*
	Planning and organization of tasks	*"This week, I spread out chapter 6 evenly throughout Monday to Sunday. I also planned when I would do discussion question 6, raise my virtual child up to 19 months, answer those questions, and do this reflection."*
		"Split readings/reviews/quizzes into chunks to do so I don't get overwhelmed."
	Prepare for tests/quizzes	*"My learning goals for this week was to have my study guide ready for my chapter 5,6,7, test next Sunday"*
		"I need to go through all the chapters again and prepare myself for quiz."
	Time management	*"I wanted to keep my first goal very simple, so I chose to give myself enough time to complete my assignments without having to rush through them at the end of the day."*
		"My learning goals were to start my projects sooner and give myself little amounts of time throughout the week to complete everything."
	Strive for content mastery	*"My learning goal for this week was to understand about languages and how speaking different language can help us later on in the future."*
		"Understanding what I read better."
How will you benefit from achieving these goals?	Feel more prepared for quiz/tests/assignment	*"I benefited from achieving this goal by being able to give myself a good week and a half to study for the test, and to better prepare myself."*
		"I felt more accomplished and ready for the test."
	Improved performance in online course	*"I got good grade in my quiz and was able to finish my work on time."*
		"I benefit from achieving these goals hopefully by being given a good grade for my hard work."
	Increased self-efficacy for managing online learning	*"I benefited from accomplishing this goal because I felt more confident when raising my child. I knew I was making a well informed decision."*
	Increased understanding/retention of course material	*"…review what I learned in those three chapters in an organized and comprehensive way."*
	Limited stress	*"When I achieved most goals on time, I benefited by not having to stress about being behind, get sufficient sleep, and by having time to do my other homework for other classes but also play with my son and get things done I need to do around the house and have a social life."*
	Managed time well	*"I have my weekend free to work and be social without worrying about assignments and have less stress trying to finish it all."*
	More time for school/life balance	*"I had much more time to finish other things I needed to do and had more time to study for other classes because I used my time efficiently."*
	Moved ahead with coursework	*"I caught up and read past where I needed to be in the book."*
	Stayed on task (completed assignments)	*"I benefited from these goals because I accomplished all the assignments due which means I don't have any assignments missing and I will get full credit for turning in the assignments on time."*

Table 15
Percentage Frequency of Themes Found by Frequency of Responses in *Goals* Phase, Reflections 1-4

	Themes			
Target Questions	*Reflection 1(%)*	*Reflection 2 (%)*	*Reflection 3(%)*	*Reflection 4(%)*
What are your learning goals for the week?	Complete assigned reading and take notes (35) Complete course assignments (29) Planning and organization of tasks (11) Time management (9) Prepare for tests/quizzes (5) Balance workload between courses (4) Strive for content mastery (4) Forecasting time for studying (4)	Complete course assignments (26) Complete assigned reading and take notes (23) Prepare for tests/quizzes (17) Time management (17) Planning and organization of tasks (8) Balance workload between courses (6) Strive for content mastery (2) Forecasting time for studying (2)	Complete course assignments (29) Complete assigned reading and take notes (24) Time management (18) Strive for content mastery(8) Planning and organization of tasks (6) Staying on task (6) Prepare for tests/quizzes (4) Balancing workload between courses (2) College applications (2)	Complete course assignments (37) Complete assigned reading and take notes (22) Time management (18) Striving for content mastery(10) Planning and organization of tasks (4) Balancing workload between courses (4) College applications (2) Staying on task (2) Work/life balance (2)
How will you benefit from achieving these goals?	More time for school/life balance (22) Increased understanding/retention of course material (18) Moved ahead with coursework (18) Limited stress (13) Improved performance in online course (9) Managed time well (9) Stayed on task (completed assignments) (9) Increased self-efficacy (2)	Improved performance in online course (30) Feel more prepared for quiz/tests/assignments (20) Increased understanding/retention of course material (15) Managed time well (15) More time for school/life balance (7) Moved ahead with coursework (7) Increased self-efficacy (4) Limited stress (2)	Increased self-efficacy (19) Increased understanding/retention of course material (16) Stayed on task (completed assignments) (16) Feel more prepared for quiz/tests/assignments (11) Improved performance in online course (11) Limited stress (8) Managed time well (8) More time for school/life balance (5) Moved ahead with coursework (5)	Improved performance in online course (26) Stayed on task (completed assignments) (21) Increased self-efficacy (13) Managed time well (13) Feel more prepared for quiz/tests/assignments (10) Increased understanding/retention of course material (10) Limited stress (3) More time for school/life balance (3) Moved ahead with coursework (3)

Specifically, when asked to provide their learning goals for the week, the most common theme derived from student responses across three out of four reflections was *complete course assignments*, represented by 26% of responses in Reflection 2, 29% of responses in Reflection 3, and 37% of responses for Reflection 4. For the online courses in the present study, major course assignments included discussion posts, course papers, essay questions, and an observation project that required students to coordinate with outside sources. Along the same lines, in Reflection 1, *complete assigned reading and take notes*, was the most common theme derived from student responses, represented by 35% of the responses. Findings imply that students were focused on ensuring that they completing course assignments and readings for their online course as assigned in support

of their overall academic performance. In addition to completing course work and assigned reading, another common learning goal across three out of four reflections was *time management* represented by 17% of responses in Reflection 2, 18% of responses in Reflection 3, and 18% of responses for Reflection 4. Findings show that students focused on managing the time set aside for school with the time allotted for other responsibilities such as work, and family. The least common themes derived from students responses across reflections were *forecasting time for studying*, only represented in Reflections 1 and 2 with 4% of responses and 2% of responses respectively and *balancing workload between classes* represented in Reflections 1-4 with 4%, 6%, 2%, and 4% of student responses, respectively. Findings suggest that the above elements of time-management were not the primary goal choices of students in the present study.

Frequency patterns of the thematic goal categories that represent students' responses to target questions varied across reflection submissions. For example, the frequency of the thematic category *striving for content mastery* was inconsistent across reflections. In Reflection 1, *striving for content mastery* represented 4% of the responses. The frequency percentage dropped to 2% in Reflection 2, then rose to 8% and 10% respectively in Reflections 3 and 4. Another example of varying frequency patterns takes place in Reflection 2 where students' goals were centered on *preparation for tests/quizzes*, represented by 17% of the responses, and in other reflections; *preparation for tests/quizzes* was not a common goal. Findings show that while utilizing the GAME plan framework, students' remained flexible in setting goals relevant to their individual needs.

In the goals sections of the GAME plan reflection form, in addition to providing

their weekly learning goals, students were also asked to indicate the perceived benefits of achieving their goals for the week. The most common theme derived from student responses across two out of four reflections, was *improved performance in online course*, represented by 30% of responses in Reflection 2, 26% of responses in Reflection 4. In Reflection 1, the most common theme was *more time for school/life balance*, represented by 22% of responses, while in Reflection 3, the most common theme was *increased self-efficacy for learning online,* represented by 19% of responses. Findings show that students' perceived the primary benefit of achieving their goal was related to the immediate validation of their academic success in the online course. At the beginning of the course, however, the primary benefit of achieving one's goals was an element of time management, specifically, by achieving their academic performance goal; students perceived that they would have more time to devote to maintaining balance between their school work and other life responsibilities. The least common themes regarding perceived benefits of achieving their learning goals across reflections were *moving forward with coursework,* only represented in Reflections 3 and 4 with 5% of responses and 3% of responses, respectively. In Reflection 1, *increased self-efficacy* was the least common theme represented by 2% of student responses while in Reflection2, *limited stress* was the least common theme represented by 2% of student responses. Findings suggest that overall; students did not perceive reduced levels of stress and higher levels of efficacy for learning online as benefits of achieving their goals.

Thematic Analysis for the Actions Phase

During the Actions Phase of the GAME plan framework, students were focused on discerning appropriate learning strategies and implementing specific actions in support

of achieving their weekly learning goals. The actions phase mirrors part of the performance phase of the self-regulated learning model in which learners use behavioral self-control strategies that support goals selected during the forethought phase. The actions phase typically takes place during learning and includes strategies such as organization, self-instruction, attention focusing, and task strategies. Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of 4 weeks aimed at uncovering details about the process students undertook during the actions phase.

1. What learning strategies did you use this week to support your learning goal(s)?
2. What are the specific actions that you tool this week to achieve this goal?

Students' responses to the above questions regarding the actions phase were analyzed and categorized into themes derived from the responses to all four GAME plan reflections. For the first target question in the actions phase, 14 themes were derived from student responses. For the second question in the actions phase, 12 themes were derived from student responses. All themes derived from students' responses to the target questions in the actions phase are presented in Table 16 and 17. Additionally, Table 16 and 17 provide specific exemplars of the student responses used to determine each theme. Questions for the actions phase are included in the left column, themes are presented in the center column, and exemplar student responses are presented in the right column.

Using the themes outlined in Tables 16 and Table 17, Table 18 presents the percentage of themes by frequency of responses found in the actions phase of the GAME plan based on the two target questions posed in Reflections 1 to 4. Themes are in order of frequency of percentage derived from student responses and grouped by Reflection.

Overall, students selected strategies that focused on time management, organization tools used to synthesize course materials, and reading comprehension strategies. Students' learning strategies were least frequently centered on seeking out external resources to support learning goals, and use of strategies such as repetition, practice, and memorization. Additionally, students shared the specific actions taken each week in conjunction with their chosen learning strategies to achieve their goals. In general, students took actions to map out study plans and created task lists to track goal steps.

Table 16
Themes Found in *Actions* Phase of the GAME Plan Framework, Question 1

Target Questions	Themes	Sample Student Responses
What learning strategies did you use this week to support your learning goal (s)?	Changed study environment	*"I chose a quiet place (not my home). I chose to go to the library. I also designated time for it".*
	Created Flashcards	*"I utilized the GAME plan as well as using flash cards to study."*
		"I need to make my flash cards and create a concept map to understand the textbook."
	Goal setting (daily, weekly)	*"I set goals for myself and I followed them. I set a sufficient amount of time."*
	Highlighted for quick reference	*"I would highlight anything in the book that I thought would come up in the virtual child questions, and would refer back to my highlighted paragraphs when answering a question."*
	Memorization	*"I would study what I needed to know and memorize the important facts so I can memorize them for the future."*
	Note taking	*"A learning strategy that I used was I took some notes on the important facts from the chapter like definitions, theories and concepts."*
	Organize / map out course material (concept map, check list, outlines)	*"I will use concept maps to organize the information form textbook."*
	Personal integrity, follow-through with study plans	*"The learning strategy that I believed helped me the most with this task was integrity. I knew that I had a job that I wanted to accomplish and didn't put it off until the last minute."*
	Reading for understanding	*"While reading I would stop and summarize after each topic to understand the material. I also took notes on the chapter to refer back to them while completing the other assignments."*
	Repetition/practice	*"Because all my midterms were math, and physics related, the best way I found to study for these subjects is to sit down and practice as much as I can. So in short I would say repetition."*
	Sought out external resources	*"To be informed, I also read the extra articles the professor provided."*
	Study group/peer support	*"I also used a small study group and flash cards to help support y studying."*
	Time management (chunking study time)	*"I used time management and planning ahead."*
		"I wrote out a schedule and stuck to it, made a goal to get to bed early so that I wasn't too tired after work to work on it."
	Utilize study guide to test knowledge acquisition (practice tests)	*"I strategy that was most effective this week for making my study guide for my next test was organization. I outlined that most important part of the text from the book, and but a vocab box on each page of my study guide. I outlined each chapter and color coated each term that I knew well, or didn't know at all."*

Table 17
Themes Found in *Actions* Phase of the GAME Plan Framework, Question 2

Target Questions	Themes	Sample Student Responses
What were the specific actions that you took this week to achieve your goals?	Chunked reading into smaller sections to read a little bit daily	*"Divide the chapter into three parts and try to finish reading each part on Monday, Tuesday, and Wednesday respectively"*
	Created a list of goals/tasks and checked them off after completion	*"The action I took was to keep a "to do list" and marking off the things I have done to keep track what is left to do."*
		"I made a list of all of the things I needed to accomplish and next to each one I wrote the due date and the specific time that I would work on it. That way I had a clear plan and avoided procrastination."
	Focused on perseverance	*"I used persistence and made sure I started my goals way before the deadline. If I couldn't make my deadline due to circumstances that were out of my control I made sure I communicated to the teacher my situation."*
	Found new study environment (quiet, free from distractions)	*"…most importantly, I went to the library. I was on the seventh floor (quiet floor), and I did my work. I decided to do my homework and study in an environment where I felt comfortable. I took my time and had plenty of time. It felt good because I could stay on task, and not once was I interrupted."*
	Limited distractions (turn off phone, no social media, set boundaries w/family)	*"I didn't let any distractions come in my way when studying, which I usually do…told my loved ones I need quite uninterrupted time."*
	Managed time well	*"Slowed down and took my time."*
	Mapped out specific times to study	*"Every day during a specific down time at work I would use the opportunity to some of an assignment, as well as any down time I had at home where something wasn't scheduled. 1 hour here, 20 minutes there, etc."*
	Monitored progress with tools; calendar, cell phone, timer, reminders, etc.	*"I will make several alarms in each time to notice what I should do now to me. I will divide my time and I will regulate the working time on each assignment."*
	Reviewed course materials to check for understanding	*"I highlighted and reread everything I felt I didn't understand."*
	Sought help for instructor	*"Another specific action I took this week was go to my professors for help. Whenever I was stuck on a problem, I asked them to help me solve it."*
	Used discipline to follow through and finish assignments on time	*"To achieve my goals, I tried to start on my homework and studying as soon as I could. I would work on what was due the soonest and concentrate on that until I was done and worked on the next assignment that was due after."*
	Used practice test/study guides to guide note taking.	*"As I went through the practice tests, I would highlight and write in notes straight into my textbook - which really seemed to work!"*

Specifically, when asked to share their chosen learning strategies, the most common theme derived from student responses across three out of four reflections, was *time management*, represented by 36% of responses in Reflection 1, 31% of responses in Reflection 3, and 39% of responses for Reflection 4. In Reflection 2, *reading for understanding*, was the most common theme derived from student responses, represented by 33% of the responses. Findings show that students were focused on planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. In the middle of the online course, students were also focused on ensuring comprehension of material in the textbook and external readings. In addition to reading comprehension and time management, another common theme across two out of four reflections was *goal setting (daily, weekly)*, represented by 20% of responses in Reflection 1, and 16% of responses for Reflection 4. Findings show that students utilized goal setting as a learning strategy to support their overall larger learning goals. Larger learning goals were segmented into smaller goals and tasks that could be completed in short amounts of time throughout the week.

In terms of learning strategies, the least common themes derived from students responses differed across reflections. In Reflection 1, the least common themes were *highlighted for quick reference, memorization, repetition/practice, sought out external resources, utilize study guide to test knowledge acquisition* only represented by 2% of responses respectively. In Reflection 2, in addition to the theme, *sought out external resources, personal integrity/ follow-through with study plans, study group/peer support,* and *changed study environment* were the least common themes represented by 3% of the

responses respectively. In Reflection 3, the least common themes were *flash cards*, *memorization,* and *reading for understanding,* each represented by 3% of the responses. In Reflection 4, the least common themes apparent in students' responses regarding their chose of learning strategies were, *highlighted for quick reference*, *repetition/practice*, *sought out external resources*, and *reading for understanding*, each represented by 3% of the student responses. Findings show that students were least likely to choose types of strategies that were considered low-level strategies focused primarily on in-take of knowledge or memorization of knowledge for regurgitation.

Frequency patterns of the thematic actions categories that represent students' responses to learning strategies used varied across reflection submissions. For example, the frequency of the thematic category *reading for understanding* was inconsistent across reflections. In Reflection 1, *reading for understanding* represented 7% of the responses. The frequency percentage raised to 33% in Reflection 2, then dropped to 3% and 3%, respectively in Reflections 3 and 4. Another example of varying frequency patterns takes place with the theme, *goal setting (daily, weekly).* In Reflection 1 *goal setting (daily, weekly)* represented 20% of the responses. The frequency percentage dropped to 0% in Reflection 2, then rose to 9% and 16%, respectively in Reflections 3 and 4. Findings show that while utilizing the GAME plan framework, students' remained flexible in choosing appropriate learning strategies to support their weekly learning goals. As the goals changed each week, so did the learning strategies used to support them.

Table 18
Percentage of Themes by Frequency of Response Found in *Actions* Phase of the GAME Plan Framework Reflections 1-4

	Themes			
Target Questions	*Reflection 1(%)*	*Reflection 2 (%)*	*Reflection 3(%)*	*Reflection 4(%)*
What learning strategies did you use this week to support your learning goal (s)?	Time management (36) Goal setting (daily, weekly) (20) Note taking (11) Organize / map out course material (9) Reading for understanding (7) Flash cards (5) Highlighted for quick reference (2) Memorization (2) Repetition/practice (2) Sought out external resources (2) Utilize study guide to test knowledge acquisition (2)	Reading for understanding (33) Flash cards (13) Highlighted for quick reference (10) Repetition/practice (10) Memorization (8) Organize / map out course material (5) Utilize study guide to test knowledge acquisition (5) Time management (5) Sought out external resources (3) Personal integrity, follow-through with study plans (3) Study group/peer support (3) Changed study environment (3)	Time management (31) Personal integrity, follow-through with study plans (17) Note taking (11) Organize / map out course material (9) Utilize study guide to test knowledge acquisition (9) Goal setting (daily, weekly) (9) Sought out external resources (6) Flash cards (3) Memorization (3) Reading for understanding (3)	Time management (39) Goal setting (daily, weekly) (16) Organize / map out course material (6) Utilize study guide to test knowledge acquisition (6) Note taking (6) Memorization (6) Personal integrity, follow-through with study plans (6) Highlighted for quick reference (3) Repetition/practice (3) Sought out external resources (3) Reading for understanding (3)
What are the specific actions that you took this week to achieve this goal?	Mapped out specific times to study (20) Created a list of goals/tasks and checked them off after completion (17) Monitored progress with tools (10) Reviewed course materials to check for understanding (10) Used discipline to follow through and finish assignments on time (10) Used practice test/study guides to guide note taking (10) Focused on perseverance (7) Found new study environment (7) Limited distractions (5) Chunked reading into smaller sections (2) Managed time well (2)	Mapped out specific times to study (17) Created a list of goals/tasks and checked them off after completion (14) Used practice test/study guides to guide note taking (14) Chunked reading into smaller sections (14) Reviewed course materials to check for understanding (14) Found new study environment (9) Limited distractions (9) Focused on perseverance (6) Sought help from instructor (3)	Mapped out specific times to study (26) Used practice test/study guides to guide note taking (16) Focused on perseverance (13) Limited distractions (10) Monitored progress with tools (10) Chunked reading into smaller sections (6) Found new study environment (6) Managed time well (3) Created a list of goals/tasks and checked them off after completion (3) Reviewed course materials to check for understanding (3) Used discipline to follow through and finish assignments on time (10)	Mapped out specific times to study (17) Chunked reading into smaller sections (14) Focused on perseverance (14) Reviewed course materials to check for understanding (14) Monitored progress with tools (11) Found new study environment (8) Limited distractions (8) Used practice test/study guides to guide note taking (6) Created a list of goals/tasks and checked them off after completion (3) Managed time well (3) Sought help from instructor (3)

In the actions sections of the GAME plan reflection form, in addition to sharing their weekly learning strategies, students also were asked to share the specific actions taken to move forward with their goals for the week. The most common theme derived from student responses across all four reflections, was *mapped out specific times to study*,

represented by 20% of responses in Reflection 1, 17% of responses in Reflection 2, 26 % of responses in Reflection 3, and 17% of responses in Reflection 4. Findings show that students' specific actions taken to achieve their goals were congruent to the selected learning strategies. Specifically, the most common theme of chosen learning strategy was *time management* and the most common theme for specific actions taken to achieve learning goals was *mapped out specific times to study.*

The least common themes regarding specific actions taken to achieve learning goals across reflections were *managing time well,* represented in Reflections 1, 3 and 4 with 2% of responses, 3% of responses, and 3% of responses, respectively. Additionally, another least common theme in terms of specific actions taken was *sought help from instructor,* represented by 3% of student responses in Reflection 2, and 3% of responses in Reflection 4. Findings suggest that overall, while utilizing the GAME plan framework, students were least likely to take action on learning to manage their time well and seek out help when necessary from the instructor of their online courses.

Thematic Analysis for the Monitoring Phase

During the Monitoring Phase of the GAME plan framework, students were focused on determining how to monitor progress toward achieving learning goals outlined in previous phases. The monitoring phase mirrors the second part of the performance phase of the self-regulated learning model in which learners engage in self-observation and metacognitive monitoring of actions. The monitoring phase typically takes place during learning and includes self-observation strategies such as meta-cognitive monitoring and behavioral recording of behaviors associated with utilizing learning strategies in support of achieving goals. Using the GAME plan reflection form, students responded to the following three target questions weekly for a period of four

weeks aimed at discovering how students monitored progress towards achieving goals during their online course.

1. How did you monitor progress toward this week's goals?

2. How much time did you devote to studying this week?

3. What obstacles if any stood in the way of your achieving this week's goals?

Students' responses to the questions 1 and 3 regarding the monitoring phase were analyzed and categorized into themes. Students' responses to question 2 were only grouped into numerical categories based on the nature of the data received. For question 1, 8 themes were derived from student responses. For target question 3 phase, 11 themes were derived from student responses. All themes derived from students' responses in the monitoring phase are presented in Table 19 and Table 20. Additionally, Tables 19 and 20 provide target questions in the left column, themes in the center column, and exemplar student responses are presented in the right column.

Table 19
Themes Found in *Monitoring* Phase Reflections 1-4, Question 1

Target Questions	Themes	Sample Student Responses
How did you monitor progress towards this week's goals?	Chunking strategy (Set up review chapter points)	*"After every four page I will review what I have learned so far, that will help me to memorize that chapter."*
	Created/executed a study plan	*"I set aside specific time in my schedule to study. I was able to keep track of whether I used this time to study or not."*
	Reflected on previous week, made adjustments	*"I actually looked back on how I did last week. I made a lot of progress compared to last week. Last week, I was rushing through my notes and homework, and didn't get the full concept of my homework down. This week, I actually took time to learn. Most importantly, I wasn't rushed."*
	Used a calendar to manage time	*"I used my calendar and set deadlines (date, time) for myself and checked them off as I go. Also blogged about what I need to accomplish and what I have accomplished."*
	Used a goals/tasks checklist	*"I kept a checklist of everything I wanted to accomplish and checked off each task as I completed them."*
	Used a planner/organization tool to manage tasks	*"I did so by monitoring my progress in my planner. Each day takes up a whole page so I can be very specific for what needs to be done for each of my classes."*
	Used reward to motivate progress	*"I told myself that it was not possible for me to miss any homework and I could not go out on weekend if I didn't finish my assignment."*
	Used self-explanation to gauge understanding of material	*"Every assignment I had I questioned myself to make sure I was using my three goals in my answers. Also, I kept up with my grades and made sure all assignments were done on time, using the calendar."*

Table 20
Themes Found in *Monitoring* Phase Reflections 1-4, Question 3

Target Questions	Themes	Sample Student Responses
What obstacles, if any, stood in the way of you achieving this week's goals?	Balancing school, work, home/social life	*"The only obstacle I faced was my friends wanting to watch the game. I had to reject this offer, because my school life is more important to me than my social life. It was very tempting, but I knew that if I had watched the game, I wouldn't have finished my homework or studied."*
	Course content (textbook, lecture, discussion, learning activities, course structure)	*"The other obstacle was not understanding some of the material. I could not finish some of my assignments due to the inability of not understanding some of the concepts. After I received some help, I was able to understand and finish my homework."*
	Health (Personal illness or family member illness, lack of sleep, low energy)	*"One major obstacle that stood in my way to complete all my goals was that I was sick and didn't have the energy to complete the assignments when I wanted to but completed still completed but late."*
	Lack of quiet study environment	*"It is very hard to focus on studying at home for me."*
	Language barriers	*"As a second language learner, there are many new words for me when I am reading the book."*
	Maintain motivation for learning/studying	*"Since there were a lot of chapters to review, I didn't complete all the practice quizzes at the end of every chapter because it was a lot of time and this week for me seemed like a lazy week and I didn't have the motivation to complete those practice tests."*
	Managing time for school	*"An obstacle that stood in the way was that most of the days I didn't have the time to read and had to find a way to do my reading that were assigned for that specific day."*
	No obstacles	*"This week, surprisingly I did not have any obstacles. Last week, my friends were calling and texting, but it didn't happen this week."*
	Staying on task	*"I did get a little distracted by going on Facebook and social networking sites, but as soon as I realized what I was doing, I got off. I also received some phone calls and texts from friends"*
	Technology Problems (internet access, computer issues, software viruses)	*"As I went to upload a paper to be turned in, my computer virus (computer has been struggling with this for some time) struck again. Thankfully, I was able to email my teacher immediately using my phone and was able to turn in the assignment the very next day."*

Using the themes outlined in Table 19 and Table 20, Table 21 presents the frequency of themes found in the monitoring phase of the GAME plan based on target questions 1 and 3 posed in Reflections 1-4. Percentages of themes are in order of frequency percentage derived from student responses and grouped by Reflection. Overall, students utilized tools such as calendars and planners to organize time, track progress, and manage tasks. Students' devoted chunks of time to studying several days a week resulting in an average of 8 to 10 hours per week. In general, common obstacles that stood in the way of students achieving learning goals were centered on balancing their

commitments to school, work, and home life. The methods students used to monitor progress towards goals were least frequently centered on using benchmarks in course material such as chapter reviews and using social rewards to motivate progress along the way.

Table 21
Percentage of Themes by Frequency of Responses Found in *Monitoring* Phase of the GAME Plan Framework Reflections 1-4

	Themes			
Target Questions	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
How did you monitor progress towards this week's goals?	Used a calendar to manage time (34) Used a planner/organization tool to manage tasks (23) Used a goals checklist (20) Chunking strategy (Set up review chapter points) (9) Created/executed a study plan (6) Used reward to motivate progress (3) Used self-explanation to gauge understanding of material (3) Reflected on previous week, made adjustments (3)	Used a goals checklist (26) Used a calendar to manage time (17) Used a planner/organization tool to manage tasks (17) Chunking strategy (Set up review chapter points) (14) Created/executed a study plan (14) Note taking (9) Used reward to motivate progress (3)	Used a calendar to manage time (24) Used a goals checklist (24) Created/executed a study plan (21) No monitoring (12) Chunking strategy (Set up review chapter points) (9) Used a planner/organization tool to manage tasks (9)	Used a goals checklist (31) Created/executed a study plan (19) Used a calendar to manage time (16) Used a planner/organization tool to manage tasks (16) No monitoring (13) Chunking strategy (Set up review chapter points) (6)
How much time did you devote to studying this week?	Over 10 hours per week (34) 4-6 hours per week (28) 6-8 hours per week (25) 8-10 hours per week (9) 0-2 hours per week (3)	Over 10 hours per week (41) 6-8 hours per week (19) 4-6 hours per week (16) 8-10 hours per week (16) 2-4 hours per week (6) 0-2 hours per week (3)	8-10 hours per week (25) Over 10 hours per week (22) 4-6 hours per week (19) 6-8 hours per week (16) 0-2 hours per week (9) 2-4 hours per week (9)	Over 10 hours per week (24) 6-8 hours per week (21) 0-2 hours per week (17) 8-10 hours per week (17) 2-4 hours per week (10) 4-6 hours per week (10)
What obstacles if any stood in the way of you achieving this week's goals?	Balancing school, work, home/social life (28) Managing time for school (18) Maintain motivation for learning/studying (13) Health (10) Course content (8) No obstacles (8) Lack of quiet study environment (5) Staying on task (5) Technology Problems (5) Language Barriers (3)	Balancing school, work, home/social life (32) No obstacles (24) Health (12) Maintain motivation for learning/studying (10) Staying on task (7) Course content (5) Technology Problems (5) Language Barriers (2) Managing time for school (2)	Balancing school, work, home/social life (36) No obstacles (18) Maintain motivation for learning/studying (15) Managing time for school (10) Health (8) Staying on task (8) Course content (3) Language Barriers (3)	Balancing school, work, home/social life (42) Health (13) No obstacles (13) Managing time for school (11) Staying on task (11) Maintain motivation for learning/studying (5) Course content (3) Technology Problems (3)

In more detail, when asked to share methods used to monitor progress toward achieving weekly goals, one common theme derived from student responses across two out of four reflections, was *used a calendar to manage time*, represented by 34% of responses in Reflection 1 and 24% of responses for Reflection 3. The theme *used a goals/task checklist*, was the most common theme derived from student responses in

Reflection 2 and 4, represented by 26% of the responses and 31% of the responses, respectively. Findings show that students were attentive to tracking awareness of the steps taken in route towards achieving learning goals. The least common themes derived from students' responses to methods used to monitor progress differed across reflections. In Reflection 1, the least common themes were *used reward to motivate progress, using self-explanation to gauge understanding of material, reflected on previous week, and made adjustments* only represented by 3% of responses respectively. In Reflection 2, additionally, the theme, *used reward to motivate progress,* was the least common theme represented by 3% of the responses. In Reflection 3, the least common themes were *chunking strategy (set up chapter review points)* and *used a planner/organization tool to manage tasks*, each represented by 9% of the responses, respectively. Like in Reflection 3, in Reflection 4, the least common theme apparent in students' responses regarding methods used to monitor progress was *chunking strategy (set up chapter review points)*, represented by 6% of the student responses. Findings indicate that students were less likely to choose monitoring methods related to the presentation of the material in the textbook, and less likely to use measures of extrinsic motivation or rewards to entice progress toward goals.

The frequency patterns of thematic monitoring categories that represent students' responses to methods used to monitor progress varied across reflection submissions. For example, the frequency of the thematic category *created or executed a study plan* was inconsistent across reflections. In Reflection 1, *created or executed a study plan* represented 6% of the responses. The frequency percentage rose to 14% in Reflection 2, and increased to 21% in Reflection 3, and 19% in Reflection 4. Another example of

varying frequency patterns takes place with the theme, *no monitoring*, In Reflections 1 and 2 the theme was not represented at all; however, in Reflections 3 and 4, *no monitoring* represented 12% of the responses and 13% of the responses, respectively. Findings show that while utilizing the GAME plan framework, students' remained flexible in selecting methods to monitor progress toward weekly learning goals. As the goals, and learning strategies changed each week, so did the methods used to monitor progress. Additionally, some students did not engage in monitoring progress, particularly in Reflections 3 and 4 that took place later in the quarter of the online courses.

In the monitoring section of the GAME plan reflection form, along with sharing methods used to monitor weekly progress, students specified how much time was devoted each week to studying. Most students reported that they regularly devoted chunks of times to studying several times a week. In Reflections 1, 2, and 4, the most common category of time spent studying was *over 10 hours per week* represented by 34% of responses in Reflection 1, 41% of responses in Reflection 2, and 24 % of responses in Reflection 4. In Reflection 3, the most common category of time spent studying was *8-10 hours per week* represented by 25% of responses. Some students, however, reported that they spent 0-2 hours studying per week, particularly in Reflections 3 and Reflection 4, represented by 9% and 17%, respectively. Findings show that overall, the amount of time that students devoted specifically to studying varied particularly toward the end of the quarter.

Last, in the monitoring section of the GAME plan reflection form, students were asked to specify obstacles that stood in the way of achieving learning goals in their online courses. The most common theme derived from student responses across all four

reflections, was *balancing, school, work, home/social life*, represented by 28% of responses in Reflection 1, 32% of responses in Reflection 2, 36% of responses in Reflection 3, and 42% of responses in Reflection 4. Another common theme across three out of four reflections was *no obstacles,* represented by 24% of responses in Reflection 2, 18% of responses in Reflection 3, and 13% of responses in Reflection 4. The least common themes regarding obstacles that stood in the way of students achieving learning goals across reflections were *language barriers*, represented in Reflections 1, 2, and 3 with 3% of responses, 2% of responses, and 3% of responses respectively and *technology problems*, represented by 5% of student responses in Reflection 1, 5% of responses in Reflection 2, and 3% of responses in Reflection 4. Findings suggest that overall, while utilizing the GAME plan framework; students were least likely to encounter problems with technology related to Internet access, computer viruses, or functionality of the course management system, and least likely to have language barriers stand in the way of achieving their goals.

Thematic Analysis for the Evaluation Phase

During the Evaluation Phase of the GAME plan framework, students concentrated on practicing self-evaluation skills in reference to their work in their online course. The evaluation phase mirrors the final phase of the self-regulated learning model, the self-reflection phase, in which learners reflect on their previous performance and compare the results of their performance with the goals, actions, and monitoring that took place to support their performance efforts. The evaluation phase takes place after learning has occurred and includes comparison of learners' self-observed performance against some standard, such as prior performance, others students' performance, or a standard of

performance, as well as affective and motivational reactions to the self-regulatory efforts. Additionally, during the evaluation phase, students make judgments about their current performance and consider adapting processes to improve future results. Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of 4 weeks aimed at learning more about students' reactions to implementing the GAME plan framework and evaluating results in relation to achieving their desired performance during their online courses.

1. What was the GAME plan process like for you?

2. To achieve next week's goals, what changes would you make to improve your effectiveness?

Students' responses to the two target questions regarding the evaluation phase were analyzed and categorized into themes derived from the responses to all four GAME plan reflections. From students' responses to question 1 in the evaluation phase, 9 themes were derived. For target question 2 in the evaluation phase, 12 themes were derived from student responses. All themes derived from students' responses to the target questions in the evaluation phase are presented in Table 22 and Table 23. In both tables, specific exemplars of the student responses used to determine each theme are presented. Target questions for the evaluation phase are included in the left column, themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 22

Themes Found in *Evaluation* Phase of the GAME Plan Framework, Question 1

Target Questions	Themes	Sample Student Responses
What was the GAME plan process like for you?	Difficult to adopt the process	*"The GAME plan process was a little stressful at first. It is my first time doing something like this. I had to find time to do the GAME plan toolkit plus all of my other assignments. I think once I start doing it more, I will get the hang of it and it will become second nature."*
	Helped me stay organized and manage work flow	*"The GAME plan process helps me to stay organized and not fall behind in classes."*
	Increased self-efficacy for managing online learning	*"It was pretty easy compared to the first time. I am aware now of what helps me, and what doesn't. I am well aware of my distractions and I know how to overcome them."*
	Less stressed about online course	*"The GAME plan process went well. I feel it helped alleviate some stress."*
	Process gets easier with repetition	*"The GAME plan was easy to understand because I have been doing it for the last couple of weeks and have gotten a feel of how to do it."*
	Process was tedious/time consuming	*"The process was tedious, but it was worth it because I get to see my schedule visually which helped me plan things better."*
	Routine helped me stay on track/avoid procrastination	*"I think that this tool is very useful and could keep me on track. I will use it to its fullest in the upcoming weeks to help me stay on track and succeed."*
	Similar to students' current learning process	*"I think I was already sort of doing a GAME plan process prior to learning about it. However, GAME plan is more in-depth then the casual process I usually follow."*
	Simple, effective, easy to adapt/adopt	*"The process for me was easy. Easy to adapt to and carry out."*

Table 23

Themes Found in *Evaluation* Phase of the GAME Plan Framework, Question 2

Target Questions	Themes	Sample Student Responses
To achieve next week's goals, what changes would you make to improve your effectiveness?	Avoid procrastination	*"Some changes I would make to improve my effectiveness are to finish all my work ahead of time no matter what and avoid procrastination."*
	Change study environment	*"The changes I would make would be to try to study in a new environment like a library so I wouldn't have anything to distract me."*
	Gain understanding of course material	*"Continue improving on what I lack to have better understanding on what I am learning."*
	Improve study plan/adjust time management	*"I'm actually going to improve my effectiveness by setting aside time, and not wearing myself out. I felt a little drained last week because I decided to study in the morning, and I was tired and hungry. This week, I want to set aside a more reasonable time and eat so I'm not hungry and falling asleep."*
	Log-in to the course management system more frequently	*"I am going to try to log into catalyst more often. Many times, I will do my work and then log into catalyst at the end of the week to get my assignments to submit and get my next assignments to work on. My calendar dates were wrong in my bedroom, but if I logged into catalyst more I would have also noticed that the quiz was due the day my relatives arrived and worked around it."*
	Monitor progress	*"I will make a monitoring progress checklist and set the goals more early."*
	No changes, keep doing what I am doing	*"None. I feel I did what I needed to do in order to succeed and I plan to maintain that."*
	Organize work flow	*"Start studying earlier in the week, so I can work a little bit each day."*
	Revise goals (level of detail, checklist)	*"For next week's goal I will spend more time in planning out my goal and finding a way to make it easy for me to accomplish my goal and make more goals for the week instead of having one goal a week."*
	Solicit peer support for accountability	*"Next week I think I will implement a buddy system for accountability."*
	Stay on task	*"I would probably put my phone on silent, so I'm not distracted with my phone vibrating from texts."*
	Work to adopt GP process	*"Follow the GAME plan step and step."*

Operating with the themes outlined in Table 22 and Table 23, Table 24 presents the frequency of themes found in the evaluation phase of the GAME plan based on the questions posed in Reflections 1-4. Percentages of themes are in order of frequency derived from student responses and grouped by Reflection. Overall, students reflected that the GAME plan framework was easy to use, similar to learning strategies that students were already familiar to them, effective in supporting their academic success in online courses. In general, students reflected that to improve effectiveness and achieve weekly goals, attention needed to be paid to refining the process used to outline study tactics and time management. In reference to the GAME plan process, themes were least frequently centered on stress management, and their perceptions of the self-efficacy for online learning.

Table 24
Percentage of Themes by Frequency of Responses Found in *Evaluation* Phase, Reflections 1-4

	Themes			
Target Questions	*Reflection 1(%)*	*Reflection 2 (%)*	*Reflection 3(%)*	*Reflection 4(%)*
What was the GAME plan process like for you?	Simple, effective, easy to adapt/adopt (53) Increased self-efficacy for managing online learning (13) Similar to students' current learning process (11) Difficult to adopt the process (9) Routine helped me stay on track/avoid procrastination (7) Less stressed about online course (4) Process was tedious/time consuming (2)	Simple, effective, easy to adapt/adopt (34) Routine helped me stay on track/avoid procrastination (23) Helped me stay organized and manage work flow (17) Similar to students' current learning process (9) Difficult to adopt the process (6) Increased self-efficacy for managing online learning (6) Process was tedious/time consuming (6)	Helped me stay organized and manage work flow (31) Simple, effective, easy to adapt/adopt (25) Difficult to adopt the process (19) Routine helped me stay on track/avoid procrastination (9) Increased self-efficacy for managing online learning (6) Less stressed about online course (3) Process was tedious/time consuming (3) Gets easier repetition (3)	Routine helped me stay on track/avoid procrastination (31) Simple, effective, easy to adapt/adopt (25) Helped me stay organized and manage work flow (16) Process gets easier with repetition (13) Difficult to adopt the process (9) Process was tedious/time consuming (6)
To achieve next week's goals, what changes would you make to improve your effectiveness?	Improve study plan/adjust time management (54) Revise goals (13) Stay on task (10) Work to adopt GP process (8) Avoid procrastination (5) Gain understanding of course material (5) Monitor progress (3) Organize work flow (3)	Improve study plan/adjust time management (46) No changes, keep doing what I am doing (14) Work to adopt GP process (14) Stay on task (11) Organize work flow (5) Avoid procrastination (3) Change study environment (3)	Improve study plan/adjust time management (27) No changes, keep doing what I am doing (22) Revise goals (10) Stay on task (10) Work to adopt GP process (10) Organize work flow (7) Gain understanding of course material (5) Change environment (2) Log-in to the course management system more frequently (2) Solicit peer support for accountability (2)	Improve study plan/adjust time management (32) No changes, keep doing what I am doing (18) Stay on task (11) Revise goals (9) Work to adopt GP process (9) Change study environment (7) Organize work flow (7) Avoid procrastination (2) Gain understanding of course material (2) Solicit peer support for accountability (2)

Specifically, when asked to share perceptions of the GAME plan process, one common theme derived from student responses across two out of four reflections, was that the GAME plan was *simple, effective, easy to adapt/adopt*, represented by 53% of responses in Reflection 1 and 34% of responses for Reflection 2. In Reflection 3, the theme *helped me stay organized and manage work flow*, was the most common theme derived from student responses represented by 31% of the responses. In Reflection 4, the theme, routine helped me stay on track/avoid procrastination was the most common, represented by 31% of the responses. Findings show that students perceived the GAME plan process to be both effective, and support of their desire to achieve their learning goals. The least common theme derived from students' responses to evaluation of the GAME plan process across all four reflections was, *process was tedious/time consuming,* which represented 2% of the responses to Reflection 1, 6% of the responses to Reflection 2, 3% of the responses to Reflection 3, and 6% of the responses to Reflection 4. Although, some students responded that the GAME plan process was tedious and timely, most students' responses did not share this opinion.

Frequency patterns of thematic categories that represent students' responses to their perceptions varied across reflection submissions. For example, the frequency of the thematic category *increased self-efficacy for online learning* was inconsistent across reflections. In Reflection 1, *increased self-efficacy for online learning* represented 13% of the responses. The frequency percentage dropped to 6% in Reflections 2 and 3. Students' statements reflected increased perceptions of self-efficacy during the first week on implementation of the GAME plan framework. After the first week, their reported perceptions regarding increased self-efficacy for online learning decreased. Another

example of varying frequency patterns takes place with the theme, *difficult to adopt the process* represented by 9% of the responses in Reflection 1, 6% in Reflection 2, 19% in Reflection 3, and 9% on Reflection 4. Findings indicate that at different times during the quarter, a small number of students perceived the GAME plan framework as difficult to adopt into their personal process for supporting weekly success in online courses.

In the evaluation section of the GAME plan reflection form, along with sharing perceptions regarding the GAME plan process, students stated which specific changes they would make to their process in improve effectiveness the following week. The most common theme derived from student responses across all four reflections, was *improve study plan/adjust time management*, represented by 54% of responses in Reflection 1, 46% of responses in Reflection 2, 27% of responses in Reflection 3, and 32% of responses in Reflection 4. Another common theme across three out of four reflections was *no change, keep doing what I am doing*, represented by 14% of responses in Reflection 2, 22% of responses in Reflection 3, and 18% of responses in Reflection 4. As students moved through the authentic practice of implementing the GAME plan framework, weekly, they reflected that they were satisfied with their current process and desired results. The least common themes regarding changes to students' process to improve effectiveness were *solicit peer support for accountability*, represented in Reflections 2 and 3 with 2% of responses and 2% of the responses, respectively. Additionally, another least common theme in terms of changes to students' process to improve effectiveness was *change study environment*, represented by 3% of student responses in Reflection 2, 2% of responses in Reflection 3, and 7% of responses in Reflection 4. Findings show that half of students reflected that they would make changes

to study plans and tactics for managing time, whereas a third of students did not perceive a need to make any changes to their GAME plan processes. While evaluating the GAME plan process and performance, students were least likely to change their learning strategies to include help-seeking from peers to establish a structure for accountability.

In summary, students used the GAME plan reflections to detail how they implemented the GAME plan framework for a period of 4 weeks to engage in authentic practice of self-regulated learning skill development. During the goal-setting phase, students set goals that centered on general online course performance, for example, course assignments and assigned readings. In general, students perceived the benefits of achieving goals was better academic performance and follow through with completing coursework as assigned. During the actions phase, students selected time-management strategies, organization strategies, and reading comprehension strategies most frequently to support their learning. In terms of specific tasks utilized to support learning goals, students most frequently charted study plans and created lists to track goal steps. During the monitoring stage, students most frequently utilized tools such as calendars and planners to organize time, track progress, and manage tasks. Students most frequently spent an average of 8 to 10 hours per week studying for their online courses. Students identified the most common obstacle encountered while working toward goals were related balancing commitments to school, work, and home life. Last, during the evaluation phase students reflected that overall the GAME plan framework was easy to use, similar to learning strategies of which students were already familiar, and effective in supporting their academic success in online courses. To improve effectiveness and

achievement of weekly learning goals, students most frequently focused on refining time management strategies and adjusting study plans.

Research Question 4

The fourth research question was designed to gain insight into students' perceptions of the effectiveness of the self-regulated learning strategy instruction and subsequent authentic practice utilizing the GAME plan strategic framework to support their success while working through an online course. There were two instruments used to collect students' perceptions: the GAME Plan Audiobook Evaluation completed after the self-regulated learning strategy instruction and the GAME Plan Course Evaluation completed at the end of the study. At the beginning of the study, after completing the preintervention SASR, students watched a 30-minute SRL strategy instruction audiobook presentation that had been converted into video accessible through YouTube. The video introduced the three phases of self-regulated learning-- forethought, performance, and self-reflection -- and introduced the GAME plan strategic framework that encompasses goal setting, time management, task strategies, monitoring, and self-evaluation. Directly after watching the self-regulated learning video, students completed the GAME Plan Audiobook Evaluation. The focus of the evaluation was to assess whether or not desired results of applying new self-regulated learning skills in their impending online course were achieved in the short term. The audiobook evaluation consisted of five open-ended questions followed by one final question Likert item question in which students were asked to indicate their answer on a 6-point scale, where (1) represents *Not effective at all* and (6) represents *Very Effective*.

GAME Plan Audiobook Evaluation Results

Students used the GAME plan audiobook evaluation to provide feedback on the 30-min video discussing self-regulated learning instruction and introducing the GAME plan framework. Students responded to the following five target questions directly after participating in instruction evaluating their perceptions of the GAME plan framework prior to beginning the authentic practice phase in their online course.

1. Did you find the GAME plan audiobook helpful? Why or why not?
2. What did you like the most about this GAME plan audiobook?
3. What did you like the least about the GAME plan audiobook?
4. What was the most important thing that you learned from the GAME plan audiobook?
5. What one thing would you recommend to improve the GAME plan audiobook?

Students' responses to the five target questions regarding their perceptions of the self-regulated learning strategy instruction were analyzed and categorized into themes derived from the responses. From students' responses to question 1 in the audiobook evaluation, 10 themes were derived. For target question 2 in the audiobook evaluation, 6 themes were derived from student responses. For target question 3 in the audiobook evaluation, 8 themes were derived from student responses. For target question 4 in the audiobook evaluation, 6 themes were derived from student responses. For target question 5 in the audiobook evaluation, 8 themes were derived from student responses. All themes derived from students' responses to the target questions in the audiobook evaluation are presented in Table 25-27. Tables 25-27 provide specific examples of the student responses used to determine each theme presented. Target questions for the evaluation

phase are included in the left column, themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 25
Themes Found in Students' Perceptions of the GAME Plan Audiobook Evaluation, Question 1

Target Questions	Themes	Sample Student Responses
Did you find the GAME plan audiobook helpful? Why or why not?	Previous experience using learning strategies	*"No, the GAME plan audiobook was not helpful to me because I had already learned all of this previously in an Adjunct Skills Course at …."*
	Previous experience with online learning	*"I found it a little helpful, the reason why is because I have taken over 12 online courses, so I have already developed my own way to study and manage time in order to deal with such courses."*
	Previous exposure to video content material	*"No because the strategies discussed in the audiobook are strategies I use daily in both online classes and on campus lectures."*
	Promoted adapting learning strategy use for success	*"Yes, I did. I learned some new things and learned about some new resources that I want to look into."*
	Provided easy framework for organization	*"I DID find the game plan audiobook helpful because I thought that the organization of the presentation was very easy to follow and clear. This made comprehending all the points easy and effective."*
	Provided procedural framework for managing learning	*"Yes, showed me step by step to how to create my goal and how to achieve them."*
	Raised awareness around lack of learning strategy use skills	*"Yes, I was able to see where I lack in preparing my time for assignments."*
	Raised awareness around potential online learning obstacles	*"I thought that the Game plan audiobook was very interesting. It definitely put things in perspective for me. I learned some interesting facts about the extra challenges that online students face that I had never considered."*
	Recognized value of online learning strategies	*"Yes, I did find it helpful. I generally already do a type of "GAME plan" for my online class, but it is nice to now be able to identify the different parts of it. By doing this, I hope that I can see what can be improved in my own strategy to ensure success this quarter and in future quarters."*
	Solely interested in content mastery	*"Yes. It makes me know more information about children development."*

Table 26
Themes Found in Students' Perceptions of the GAME Plan Audiobook Evaluation, Questions 2 and 3

Target Questions	Themes	Sample Student Responses
What did you like the most about this GAME plan audiobook?	Clear and practical steps that can be divided into tasks	*"It has some practical steps on time management. You can divide the task into several smaller ones which are easier to accomplish each time."*
	Easy to understand and remember GAME process	*"I like how they gave us phrases into something meaningful. Game has significance to it and it is easy to remember what the phrase means. Smart is a motivating word that also had significance to it. Game meant goals, actions, monitoring, and evaluation. These are useful significant words to take in mind to achieve in this course. This audio also a great advice to achieve weekly goals."*
	Presentation of new strategies and the connection to existing learning strategies already in use	*"I liked how it discussed strategies because I could compare the learning strategies I use with the learning strategies discussed in the audiobook."*
	Raised awareness of online learning obstacles	*"It was clear; it had good tips and recommendations. It also addressed the actual difficulties that someone who is taking an online class may be facing."*
	Visual presentation of video	*"I really liked that there was a slideshow to follow along with. In order to really absorb something I need that visual aspect. When I read that there was an audiobook I was not very excited to just listen to something for half an hour and then answer questions on it, but I was very relieved when I saw there was a visual aspect. It made it much easier to follow along with the presentation."*
What did you like the least about the GAME plan audiobook?	Audio quality; lack of voice inflection on audio track	*"Static noises, it's a little distracting, though the speaker spoke clearly (which is good)."*
	Delivery of material was helpful but boring.	*"It was slow, I get annoyed when explanation videos talk slowly and take their time between each slide."*
	Length of the video	*"The audiobook seemed a bit long, most of it was repetitive, it could have been shorter and straight to the point."*
	Nothing; video "as is" was good.	*"I liked everything. I had no problem with this audiobook."*
	Size and clarity of images inside of video	*"The images on the PowerPoint were too small."*
	Students had previous exposure to video content material, redundant	*"As I mentioned, I use a lot of these strategies already. A lot of the video was redundant for me."*
	Suggestions for changes in video content	*"I wish that they had talked more about self-regulation and a good way to increase those skills. They mostly talked about students having a "lack" of that."*
	Too much information presented to digest and process	*"What I like least about the audiobook is that it seems there may be one too many steps. I understand that it takes a lot of planning to finish goals, but for some people it may be time-consuming, especially for people who have other obligations besides school."*

Table 27
Themes Found in Students' Perceptions of the GAME Plan Audiobook Evaluation, Questions 4 and 5

Target Questions	Themes	Sample Student Responses
What was the most important thing that you learned from the GAME plan audiobook?	Importance of managing time and tasks	*"Time management and how to prepare for assignments also the best way for me to learn."*
	Learning how to utilize the GAME plan to support success in online course	*"I learned that as online students we face more challenges that in class students do. Fallowing the GAME plan steps could help me stay on track and be successful. Setting goals and fallowing through would keep me motivated and on track."*
	Learning to balance personal and professional life	*"The most important thing I learned was how to balance my professional and personal life. I liked how the GAME plan audiobook gave examples on the schedule of an actual student that has work and school."*
	Personal control over learning outcomes and individual success	*"That you are in charge of your own success and you it is a PROCESS. Not something you have to do on your own, like that statement implies."*
	SMART Goal strategy	"The most important thing I learned from the GAME plan audiobook is the difference between goals and SMART goals."
	The acronym GAME	*"The acronym, GAME, because it makes the steps easy to remember and each step (especially the SMART goals) will help me stay on track with my course."*
What one thing would you recommend to improve the GAME plan audiobook?	Address audio; better clarity, alternate voices on narration, more than one voice	*"Everything is good. But I recommend one thing that is improving more clear recorded voice."*
	Better visual presentation; Increase font size on text slides	*"It will be nice if it has better visuals and if there are examples."*
	Changes to specific video content	*"I think that one thing that could be improved was explaining the bullet points more in certain areas of the presentation. Sometimes it was just word-for-word off of the slides and felt a little like an in-class presentation. It wasn't like this throughout the entire audiobook, just in a few areas."*
	Include more completed GAME plan examples	*"One thing I would recommend improvement on is adding more examples and animations on each slide."*
	Increase level of interactivity in the video	*"Have it more interactive, if you want somebody to have success in an online course with a video like this you should have them answer questions within the video in order to better learn the tips and tricks being taught."*
	Make the presentation "more fun"	*"Make it a little more lively and interesting to listen to."*
	Nothing; video "as is" was good.	*"I think it doesn't need any improvement. It is organized and easy to understand and follow."*
	Shorten length of video	*"It is a tad long (30 minutes), if it is possible to cut down to 15 minutes, it would be great!"*

Operating with the themes outlined in Tables 25, 26, and 27, Table 28 presents the frequency of themes found in the audiobook evaluation of the GAME plan based on the five target questions posed to students. Representative themes are in order of frequency percentage derived from student responses and grouped by target question.

Table 28
Percentage of Themes by Frequency of Responses of Students' Perceptions of the GAME Plan Audiobook Evaluation

Target Questions	Themes (%)
Did you find the GAME plan audiobook helpful? Why or why not?	Why? Provided easy framework for organization (44) Promoted adapting learning strategy use for success in online environment (17) Provided procedural framework for managing learning (14) Raised awareness around potential online learning obstacles (11) Recognized value of online learning strategies (8) Raised awareness around lack of learning strategy use skills (6) Why not? Previous experience using learning strategies (67) Previous exposure to video content material (17) Previous experience with online learning (8) Solely interested in content mastery (8)
What did you like the most about this GAME plan audiobook?	Raised awareness of online learning obstacles and how to use strategies to support success (32) Easy to understand and remember GAME process (21) Presentation of new strategies and the connection to existing learning strategies already in use (18) Goal setting with SMART goal strategy (12) Visual presentation of video (9) Clear and practical steps that can be divided into tasks (9)
What did you like the least about the GAME plan audiobook?	Length of the video (20) Nothing; video "as is" was good. (20) Audio quality; lack of voice inflection on audio track (17) Delivery of material was helpful but boring. Pace of video was too slow. (11) Size and clarity of images inside of video (9) Too much information presented to digest and process (9) Suggestions for changes in video content (9) Students had previous exposure to video content material, redundant (6)
What was the most important thing that you learned from the GAME plan audiobook?	SMART Goal strategy (35) Learning how to utilize the GAME plan to support success in online course (24) Importance of managing time and tasks (18) The acronym G.A.M.E. (9) Learning to balance personal and professional life. (9) Personal control over learning outcomes and individual success (6)
What one thing would you recommend to improve the GAME plan audiobook?	Nothing: video "as is" was good. (21) Address audio; better clarity, alternate voices on narration (18) Make the presentation "more fun" (15) Shorten length of video (12) Increase level of interactivity in the video (15) Include more completed GAME plan examples (9) Better visual presentation; Increase font size on text slides (9) Changes to specific video content (6)
Overall, the GAME plan audiobook was effective in preparing me to support my online learning:	Effective (49) Very effective (26) Somewhat effective (17) Slightly effective (6) Not effective at all (3)

Overall, students found the GAME plan audiobook effective in providing a strategic framework in which to utilize to support their success in their online course. Specifically, 83% of students found the GAME plan audiobook helpful, while 17% of students did not find it helpful. Students' reflected that the GAME plan audiobook introduced an easy procedural framework for managing online learning. In addition, students reflected that the content presented raised students' awareness of potential obstacles faced by online learners and the benefits of learning strategy use. Some learners were familiar with the concepts presented and reflected that the GAME plan framework was similar to the strategic processes already used. Students' reflected that the introduction of new strategies such as the SMART goal strategy was an important take-away from the audiobook. In terms of suggested improvements to the GAME plan audiobook, several students were dissatisfied with the length of the video or the audio quality of the voice-over. In general, other recommendations for improvement were centered on increasing the level of interactivity and entertainment of the video presentation.

Specifically, of the 83% of students that perceived the GAME plan audiobook as helpful, 44% of students commented that the GAME plan audiobook *provided easy framework for organization*, Seventeen of students commented that the GAME plan *promoted adapting learning strategy use for success in online environment*. Of the 17% of students who perceived the GAME plan audiobook as not helpful, 67% commented that *previous experience using learning strategies* influenced their perceptions regarding the effectiveness of the GAME plan framework as a specific learning strategy.

Findings show that with students who agreed that the GAME plan audiobook was helpful, ease of use and adaptability were important to their overall perceptions of the instruction. For students who agreed that they GAME plan audiobook was not helpful, repetition of the subject matter and previous experience utilizing learning strategies to support success influenced the overall perceptions of the instruction. The least common theme derived from student responses who agreed that the GAME plan was helpful was *raised awareness around lack of learning strategy use skills*, represented by 6% of responses. Increased awareness of the role of learning strategy use in online student success and reflection on the current level of strategy use influenced overall perceptions of the instruction. The least common theme derived from student responses who agreed that the GAME plan was not helpful was *solely interested in content mastery*, represented by 8% of responses. Findings show that students who were focused on mastering the content presented in their online course found the GAME plan audiobook instruction less helpful.

Students were asked to reflect on elements that they liked most about the GAME plan audiobook. The most common theme derived from student responses in reference to what elements of the audiobook were most liked, was *raised awareness of online learning obstacles and how to use strategies to support success*, represented by 32% of responses, followed by *easy to understand and remember GAME plan process*, represented by 21% of responses. Findings show that the relevant connection between potential obstacles and guidance on how to overcome them contributed to students' enjoyment of the instruction as well as the ease of comprehension and understanding of the GAME plan process. The least common theme derived from student responses in

reference to what elements of the audiobook were most liked was *clear and practical steps that can be divided into tasks,* represented by 9% of responses. Clarity of steps and division of task although important was not the most liked element of the GAME plan audiobook.

As students were asked to reflect on elements that they liked most about the GAME plan audiobook, they also were asked to specify which elements of the GAME plan audiobook that were least liked. The most common themes derived from student responses in reference to what elements of the audiobook were least liked was *length of the video*, represented by 20% of responses, followed by *nothing: video "as is" was good,* represented by 21% of responses in Table 28. Several students reflected that the length of the audiobook presentation was a deterrent; however, the same percentage of students perceived no problems with the GAME plan audiobook. The least common theme derived from student responses in reference to what elements of the audiobook were least liked was *previous exposure to video content material, redundant*, represented by 6% of responses. A few students commented that the materials presented and discussed in the audiobook were a repeat based on their previous experience with using learning strategies to manage learning.

Students were asked to reflect on the most important element learned from the GAME plan audiobook. The most common themes derived from student responses in reference to the perceived most important element of the audiobook, was *SMART goal strategy*, represented by 35% of responses, followed by *learning how to utilize the GAME plan to support success in online course* represented by 24% of responses. Exposure to the SMART goal framework that can be utilized during the goals phase of the GAME

plan was an important element. Several students shared that they were not previously familiar with SMART goals and learned that clarity of goals supports learning goal achievement. The least common theme derived from student responses in reference to the perceived most important element of the audiobook was *personal control over learning outcomes and individual success*, represented by 6% of responses. Students reflected that in addition to having specific learning strategies, enacting those strategies effectively is connected to their success in their online course success.

Last, students were asked to rate the perceived effectiveness of the GAME plan audiobook in preparing students to support their online learning by using a Likert-like item on a 6-point scale, where (1) represents *Not effective at all* and (6) represents *Very effective.* Forty-nine percent of students agreed that the GAME plan audiobook was *effective* in preparing them to support their success in an online course. Twenty-six percent of students agreed that the GAME plan audiobook was *very effective* in preparing them to support their success in an online course. In contrast, 3% of students agreed that the GAME plan audiobook was *not effective at all* in preparing them to support their success in an online course.

GAME Plan Course Evaluation Results

At the end of the study, after completing the self-regulated learning instruction and authentic practice implementing the GAME plan strategic framework during their online course, students completed the GAME Plan Course Evaluation. The GAME Plan Course Evaluation focuses on gaining insight into students' perceptions of the effect of the SRL intervention on applied self-regulated learning conduct in the online course. The course evaluation is intended to measure students' perceptions of how the SRL

intervention affected their self-regulated learning conduct and academic performance in the online course. The course evaluation consisted of 5 Likert items posed in terms of statements, in which students selected responses on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. The last question asked students to indicate whether or not they plan to continue using the GAME plan strategic framework to support their success in future online courses.

Overall, students' perceptions of the effectiveness of the GAME plan framework in support of their success in online courses were favorable. Students agreed with the majority of statements posed in the course evaluation. Specifically, when presented with the statement, "Overall, the GAME plan framework helped me manage my self regulated learning in the online course", 56% of students agreed and 9% of students strongly agreed. Fifty-six percent of students agreed with the statement, "Creating GAME plans weekly increased my awareness about my own learning process", and 12% strongly agreed with this statement. Findings indicated that metacognitive awareness of students' learning process was heightened while utilizing the GAME plan framework.

Thirty-eight percent of students somewhat agreed as well as 38% of students agreed with the statement, "Goal setting and strategic planning helped me achieve my goals," whereas 21% of students strongly agreed. Results show that students perceived that goal setting and strategic planning, typically included the forethought phase of the self-regulated learning process, and aided them in achieving their goals. Fifty-nine percent of students agreed with the following statement, "Executing learning strategies and monitoring progress toward my goals supported my learning," and 15% of students strongly agreed. Overall, students agreed that while working through the performance

phase of the self-regulated learning process which includes taking action on progress toward learning goals and monitoring progress supported their learning during their online course. Fifty-six percent of students agreed with the statement, "I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals," and 12% of students strongly agreed with the statement. Results show that as students moved through the reflection phase of the self-regulated learning process, they evaluated their learning process and made adjustments based on their insights in support of the success. Table 29 provides additional data regarding response frequencies students' indicated in the GAME Plan Course Evaluation.

Last, students were asked to indicate whether or not they intended to continue using the GAME plan strategic framework to support their learning in future online courses. Eighty-three percent of students indicated that they would continue to use the GAME plan strategic framework in future online courses; whereas 17% of students indicated that they would not continue using the framework. For those students who indicated that they would not continue to use the GAME plan, they were asked to indicate reasons why they would not move forward with using the GAME plan. Students indicated three main reasons why they would not continue to use the GAME plan in support of their learning and success in online courses: (a) implementing the entire GAME plan in conjunction with other coursework was time consuming, (b) GAME plan did not support the teacher-student feedback loop that was perceived to be the biggest obstacle in online learning, and (c) students already had their own system for supporting their success in online courses that differed from the GAME plan strategic framework.

Table 29
Response Frequencies of Students' Perceptions of the GAME Course Evaluation

	Frequency (%)					
Target Questions	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Overall, the GAME plan framework helped me manage my self-regulated learning in the online course.	0	0	6	29	56	9
Creating GAME plans weekly increased my awareness about my own learning process.	0	3	0	29	56	12
Goal setting and strategic planning helped me achieve my goals.	0	0	3	38	38	21
Executing learning strategies and monitoring progress toward my goals supported my learning.	0	0	6	21	59	15
I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals.	0	0	3	29	56	12

Summary of Results of Study 1

The purpose of this study was to examine the effect of a self-regulated learning strategy intervention on community-college level students' self-regulated learning conduct and academic performance in an online course. The first research question aimed at investigating whether there was a significant effect of self-regulated learning and implementation of the GAME plan framework on students' perceptions of their self-regulated learning conduct measured by responses to the Survey of Academic Self-Regulation before and after intervention. It was found that there was a statistically significant increase in scores from preintervention to postintervention for the group on combined SASR scales. It also was found that there was a statistically significant increase

in scores from preintervention to postintervention for the group on the Metacognition scale.

The second research question aimed to explore the relationship between students' perceptions of their self-regulated learning conduct measured by responses to the SASR postintervention and the final course grade earned in their online courses. It was determined that the correlation of $r = .16$, between students' final course grades and SASR postintervention scores was weak and not statistically significant.

The third research question was aimed at gaining insight into how students used the GAME plan framework to support their learning while working through an online course. It was found that over the course of four weekly reflection submissions, students' learning goals were centered on general performance measures such as completing and staying on top of assignments in their online course. Students perceived the benefit of achieving their goals was better academic performance in their online course, and the ability to stay on task and follow through with completing coursework. Additionally, students selected learning strategies that focused on time management, organization tools used to synthesize course materials, and reading comprehension strategies. In general, students most frequently mapped out study plans and created task lists to track goal steps to take action toward achieving their goals. To monitor actions towards achieving learning goals, students utilized tools such as calendars and planners to organize time, track progress, and manage tasks. Students' devoted chunks of time to studying several days a week resulting in an average of 8 to10 hours per week. Additionally, obstacles that stood in the way of students achieving learning goals were most frequently centered on balancing their commitments to school, work, and home life. To evaluate overall process

implementation, students reflected that the GAME plan framework was easy to use, similar to learning strategies that already were familiar to them and effective in supporting their academic success in online courses. To improve effectiveness and achieve weekly goals, students were attentive to refining the process used to outline study tactics and time management.

Finally, the fourth research question explored students' perceptions of the effectiveness of the self-regulated learning strategy instruction and subsequent authentic practice utilizing the GAME plan strategic framework to support their success while working through an online course. After the initial instruction, the majority of students found the GAME plan audiobook effective in providing a strategic framework to utilize to support their success in their online course. Increased awareness around potential obstacles and guidance on how to overcome them contributed to students perceived effectiveness of the instruction. Suggestions for improvement of the initial instruction included shortening the length of the audiobook presentation and adding more interactivity to the presentation of content. After the initial instruction and subsequent weeks of authentic practice utilizing the GAME plan framework, students' perceptions of the effectiveness of the GAME plan framework in support of their success in online courses were favorable. Sixty-five percent of students agreed that the GAME plan framework assisted with developing self-regulated learning skills and managing their online learning. Last, 83% of students indicated that they would continue to use the GAME plan strategic framework in future online courses. Seventeen percent of students indicated that they would not continue using the framework for the following reasons: (a) implementing the entire GAME plan in conjunction with other coursework was time

consuming, (b) GAME plan did not support the teacher-student feedback loop which was perceived to be the biggest obstacle in online learning, and (c) students already had their own system for supporting their success in online courses that differed from the GAME plan strategic framework.

Results for Study 2

Study 2 was conducted as a replication of Study 1 in that the same procedures, instruments, and intervention were administered to a sample of community-college students enrolled in the same set of general education courses taught by the same instructor in the subsequent quarter with the exception of two minor updates. In Study 2, however, two slides were augmented in the GAME Plan Audiobook to reiterate relevant obstacles faced by online learners. Additionally, in Study 2, students answered on additional question on the qualitative reflection forms detailing how they managed the obstacles face while learning online. Utilizing the same set of research questions administered in Study 1, Study 2 yielded the following results.

Research Question 1

To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) preintervention, and postintervention?

To answer the first research question, means, standard deviations were calculated for preintervention and postintervention SASR responses of students who participated in the second study administration. Overall, the mean and standard deviation of the total preintervention SASR scores of students was 274.16 and 23.03, respectively. As with the first study administration, it was expected that students' postintervention responses would

be higher than their preintervention responses. Table 30 details that there was an increase from mean preintervention scores to postintervention scores for the Study 2 sample group. A paired-sample *t* test was conducted using the preintervention and postintervention scores of the SASR for the second study. Unlike Study 1, results showed that there was no statistically significant difference between overall SASR responses preintervention and postintervention (t (44) = -1.38, d = .21) in Study 2.

Table 30
Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Responses for Study 2

	Pretest			Posttest				
SASR Scores	*n*	*M*	*SD*	*n*	*M*	*SD*	*t*	*df*
Total	45	274.16	23.03	45	278.98	24.87	-1.378	44

As in Study 1, students' SASR responses were also calculated based on individual scales of the SASR instrument. The SASR scales included Metacognition (18 items), Personal Relevance and Control (11items), Self-Regulation (12 items), Intrinsic Motivation (9 items), Self-Efficacy (8 items), and Extrinsic Motivation (5 items). The data in Table 31 illustrate that there were increases from mean preintervention scores to postintervention scores for all scales. Both the raw mean responses and weighted mean responses are presented for the purpose of comparison across scales. Paired-sample *t* tests were conducted using the preintervention and postintervention responses to the SASR on all six scales. The results showed that there was a statistically significant difference between overall SASR responses preintervention and postintervention on the metacognition scale (t (44) = -2.37, p =.02 d =.35). As in Study 1, there were no statistically significant differences found between preintervention and postintervention SASR responses on any of the other scales in Study 2.

Table 31
Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Scores by Scale for Study 2

	Pretest			Posttest				
SASR Scale	*n*	*M raw (SD)*	*M weighted (SD)*	*n*	*M raw (SD)*	*M weighted (SD)*	*t*	*df*
Intrinsic Motivation	45	42.00 (5.75)	4.67 (0.64)	45	42.00 (5.30)	4.67 (0.59)	0.00	44
Extrinsic Motivation	45	21.76 (3.46)	4.35 (0.14)	45	21.87 (3.77)	4.37 (0.75)	-0.25	44
Personal Relevance & Control	45	52.42 (4.64)	4.77 (0.42)	45	53.20 (5.20)	4.84 (0.47)	-1.08	44
Metacognition	45	78.64 (9.41)	4.37 (0.52)	45	81.62 (9.85)	4.53 (0.55)	-2.37*	44
Self-Efficacy	45	31.82 (4.70)	6.36 (0.94)	45	32.58 (4.55)	6.52 (0.91)	-1.17	44
Self-Regulation	45	47.31 (3.95)	3.94 (0.33)	35	47.51 (4.86)	3.96 (0.41)	-0.34	44

*Indicates a statistically significant difference between pretest and posttest scores when overall error rate controlled at .05 level.

Research Question 2

To what extent is there a statistically significant relationship between students' self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?

To answer the second research question, first, final course grades from students who participated in Study 2 were converted into numerical representations based on a 4-point scale. See Table 12 for letter grades and numeric conversions table. After students' final course grades were converted into to numbers, the mean final course grade was 3.46 (SD = .69). Second, a correlation was computed using Study 2 students' postintervention SASR response totals and numeric grades. Based on Pearson product-moment correlation, resulted indicate that there was a weak positive correlation of $r = .19$, between students' final course grades and SASR postintervention scores. The correlation was not statistically significant. Total SASR scores explain 4% of the variance in final

course grades. Next, correlations were computed using the final course grades and SASR postintervention scores by individual scale. Results indicated that the relationships between final course grades and SASR postintervention scores by individual scale were all weak and not statistically significant. The strongest relationship found was between final course grade and the metacognition scale, r = .18. Students SASR responses to the metacognition scale questions explain 3.2% of the variance in final course grade. The weakest relationship was between final course grade and the self-efficacy scale, r = .06. Students SASR responses to the self-efficacy scale questions explain <1% of the variance in final course grade. Table 32 provides additional details regarding the correlations between final course grade and SASR total and individual scales. Additionally, the matrix provides the correlations between SASR total and individual scales.

Table 32
Pearson Correlation Matrix of Course Grade and Posttest SASR Scale Responses in Study 2 (n=45)

Variable	*SASR Total*	*IM*	*EM*	*MC*	*PRC*	*SE*	*SR*	*Course Grade*
SASR Total	-							
Intrinsic Motivation (IM)	.78*	-						
Extrinsic Motivation (EM)	.68*	.42*	-					
Metacognition (MC)	.84*	.59*	.39*	-				
Personal Relevance & Control (PRC)	.85*	.71*	.46*	.70*	-			
Self-Efficacy (SE)	.40*	.19	.31*	.52*	.25	-		
Self-Regulation (SR)	.76*	.44*	.65*	.52*	.51*	.33*	-	
Course Grade	.19	.16	.11	.18	.13	.06	.17	-

**Statistically significant when the overall error rate is controlled at .05 level.*

To investigate if additional correlations could be computed based on individual groups of final course grades from Study 2; the distribution of final course grades was examined. Fifty-eight percent of students received an “A” grade or an “A-” grade. Twenty-nine percent of students received a final course grade of “B+” or “B”. It was

found that the distribution of grades was skewed toward the mean of 3.46 (SD =.69), equivalent to the letter grade of "B+". Based on the small sample size of the individual grade groups, no additional correlations between SASR responses postintervention and individual grade groups can be computed. Figure 4 details the complete distribution of final course grades received.

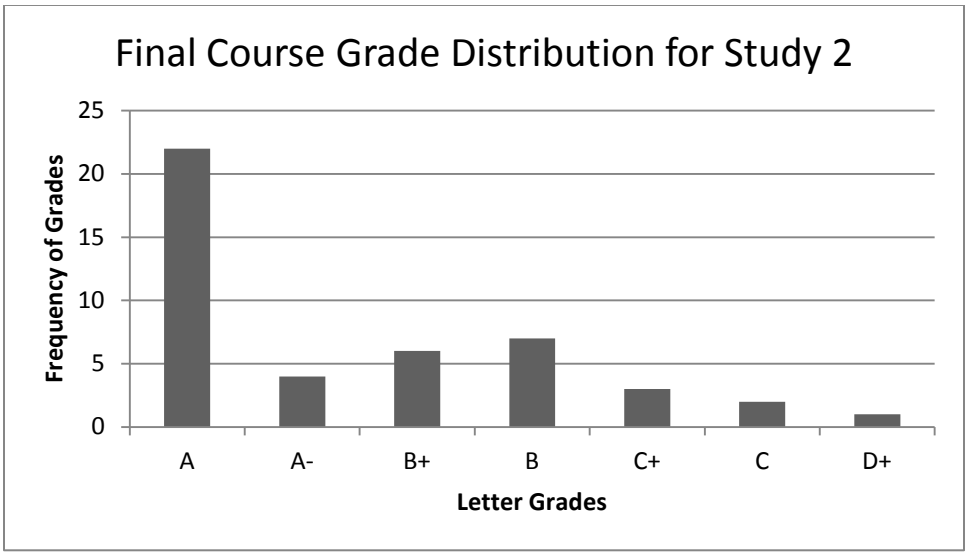

Figure 4. Final grade distribution of students enrolled in 10G & 10H online courses for Study 2

Research Question 3

How are students utilizing the GAME plan framework to support their learning in an online course?

To answer research question 3, as in Study 1, students also completed the GAME plan reflection form every week, over a 4-week period after participating in initial self-regulated learning instruction and introduction to the GAME plan framework. Each student completed four GAME plan reflections. Using the same coding schemes developed from student responses in Study 1, reflection forms for each phase of the GAME plan were analyzed by the primary researcher and a qualified second coder and independently coded the reflect students' responses. Overall agreement between the two

coders was 95.2%. In instances where there was a disagreement in thematic coding, the discrepancy was discussed and resolved. The qualitative themes found in student responses to the GAME plan reflections in Study 2 are presented by phase in the following order: goals, actions, monitoring, and evaluation.

Thematic Analysis for the Goals Phase in Study 2

Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of 4 weeks.

1. What are your learning goals for the week?

2. How did you benefit from achieving these goals?

Students' responses to the above questions regarding the goals phase were analyzed by the primary researcher and the second coder and categorized into themes derived from the responses to all four GAME plan reflections. For target question 1 in the goals phase, the same themes detailed in Table 14 were derived from student responses. For target question 2 in the goals phase, in addition to the original nine themes derived from student responses in Table 14, one additional theme was uncovered in Study 2. Table 33 provides a specific example of the student responses that were used to determine the new theme. Target question 2 for the goals phase is included in the left column, the additional theme is presented in the center column, and exemplar student responses are presented in the right column.

Table 33
New Theme found in *Goals* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

Target Questions	Themes	Sample Student Responses
How did you benefit from achieving these goals?	Did not complete goal (s)	*"I did an okay job. I did not achieve my goals as well as I had hoped but I managed. These goals helped me to become more focused and motivated."*
		"Unfortunately, I did not achieve my goal this week and will continue to work on this goal next week."

Table 34 presents the frequency of themes found in the goals phase of the GAME plan based on the two target questions posed in Reflections 1-4 for Study 2. Target questions for the goals phase are listed on the left and themes are in order of frequency percentage derived from student responses and grouped by Reflection. Overall, students' learning goals were centered on general online course performance measures such as completing assigned reading and staying on top of assignments in their online course. Students' learning goals were least frequently centered on establishing balance between school, work, and other life responsibilities. Additionally, students perceived the benefit of achieving their goals was increased understanding of course subject matter, and the ability to stay on task and follow through with completing coursework.

Specifically, when students provided their learning goals for the week, the most common theme derived from student responses across three out of four reflections, was *complete course assignments*, represented by 19% of responses in Reflection 1, 28% of responses in Reflection 2, 22% of responses in Reflection 3, and 29% of responses for Reflection 4. As Study 2 was a replication of Study 1 in the subsequent quarter, the major course assignments still included discussion posts, course papers, essay questions, and an observation project that required students to coordinate with outside sources. Along the same lines, in Reflection 3, *prepare for tests/quizzes*, was the most common theme derived from student responses, represented by 28% of the responses.

Findings imply that students were focused on ensuring that they were prepared for assessments and completing course assignments and assigned readings in support of their overall academic performance. In addition to completing course work and assigned reading, another common learning goal across two out of four reflections was *striving for*

content mastery/clarifying understanding of course material represented by 12% of responses in Reflection 1 and 13% of responses in Reflection 2.

Table 34
Percentage of Themes by Frequency of Responses Found in *Goals* Phase of the GAME Plan Framework Reflections 1-4 for Study 2

	Themes			
Target Questions	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What are your learning goals for the week?	Complete assigned reading and take notes (21) Complete course assignments (19) Prepare for tests/quizzes (18) Strive for content mastery/clarifying understanding (12) Forecasting time for studying (9) Time management (9) Staying on task (7) Planning and organization of tasks (4) Work/life balance (2)	Complete course assignments (28) Complete assigned reading and take notes (23) Strive for content mastery /clarifying understanding(13) Time management (13) Planning and organization of tasks (8) Staying on task (6) Forecasting time for studying (4) Work/life balance (4) Prepare for tests/quizzes studying (2)	Prepare for tests/quizzes (28) Complete course assignments (22) Complete assigned reading and take notes (15) Forecasting time for studying (11) Time management (11) Strive for content mastery /clarifying understanding(7) Planning and organization of tasks (2) Staying on task (2) Work/life balance (2)	Complete course assignments (29) Complete assigned reading and take notes (19) Prepare for tests/quizzes (19) Strive for content mastery /clarifying understanding(8) Forecasting time for studying (6) Staying on task (6) Time management (6) Planning and organization of tasks (4) Work/life balance (2)
How will you benefit from achieving these goals?	Increased understanding/retention of course material (32) Stayed on task (completed assignments) (17) Feel more prepared for quiz/tests/assignments (13) Improved performance in online course (13) Limited stress (11) More time for school/life balance (9) Increased self-efficacy (4) Moved ahead with coursework (2)	Stayed on task (completed assignments) (26) Increased understanding/retention of course material (21) Improved performance in online course (16) Feel more prepared for quiz/tests/assignments (12) Limited stress (7) Managed time well (7) More time for school/life balance (7) Increased self-efficacy (2) Moved ahead with coursework (2)	Increased understanding/retention of course material (22) Stayed on task (completed assignments) (20) Improved performance in online course (15) Feel more prepared for quiz/tests/assignments (12) Managed time well (10) Increased self-efficacy (7) Did not complete goal (5) Limited stress (5) More time for school/life balance (5)	Stayed on task (completed assignments) (20) Increased understanding/retention of course material (18) Improved performance in online course (13) Feel more prepared for quiz/tests/assignments (11) Increased self-efficacy (9) More time for school/life balance (9) Did not complete goal (7) Limited stress (7) Managed time well (4) Moved ahead with coursework (2)

Findings show that students focused on mastering the course content and understanding key concepts in further support of their academic performance. The least common themes derived from students responses across reflections were *planning and organization of tasks* represented in Reflections 1 and 4 with 4% of responses and 2% of responses in Reflections 2 and 3 respectively. Additionally, *work/life balance* was also a least common theme across reflections represented in Reflections 1 to 4 with 2%, 4%,

2%, and 2% of student responses, respectively. Findings suggest that the establishing balance between work, life, and school responsibilities and planning and organization of tasks were not the primary goal choices of students in Study 2.

Frequency patterns of the thematic goal categories that represent students' responses to target questions varied across reflection submissions. For example, the frequencies of the thematic category *prepare for tests or quizzes* were inconsistent across reflections. In Reflection 1, *prepare for tests/quizzes* represented 18% of the responses. The frequency percentage dropped to 2% in Reflection 2, and 0% in Reflection 3, and then rose to 19% in Reflection 4. Findings show that while utilizing the GAME plan framework, based on individual needs, students' goals were not always focused on the specific performance outcomes of assessments such as tests and quizzes.

Thematic Analysis for the Actions Phase in Study 2

Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of 4 weeks aimed at uncovering details about the process students undertook during the actions phase.

1. What learning strategies did you use this week to support your learning goal(s)?
2. What are the specific actions that you tool this week to achieve this goal?

Students' responses to the above questions regarding the actions phase were analyzed by the primary researcher and the second coder and categorized into themes derived from the responses to all four GAME plan reflections. For target question 1 in the actions phase, the same themes previously detailed in Tables 16 and 17 were used to code student responses. For target question 2 in the actions phase, in addition to the original 12 themes previously derived from student responses in Table 14, two additional

themes was uncovered in Study 2. Table 35 provides a specific example of the student responses that were used to determine the new theme. Target question 2 for the actions phase is included in the left column, the additional themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 35
New Themes found in *Actions* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

Target Questions	Themes	Sample Student Responses
What were the specific actions that you took this week to achieve your goals?	Note taking	*"I took detailed notes on my textbook readings because I know that it will benefit me for the online tests and assignments."*
	Sought out study group/peer support	*"I cross-referenced my answers with a classmate for a practice test and I allocated time to study for my tests and spread out my written homework so I wouldn't get overwhelmed."*
		"Find the partner to study together."

Table 36 presents the percentage of themes by frequency of responses found in the actions phase of the GAME plan based on the two target questions posed in Reflections 1 to 4 for Study 2. Target questions for the actions phase are listed on the left and themes are in order of frequency of percentage derived from student responses and grouped by Reflection. Overall, students selected strategies that focused on time management, taking effective notes, goal setting and reading comprehension strategies. Students' learning strategies were least frequently centered on seeking out external resources from outside course materials or peers to support learning goals, and use of strategies such as highlighting for quick reference. Additionally, students shared the specific actions taken each week in conjunction with their chosen learning strategies to achieve their goals. In general, students created task lists to track goal steps and took actions to map out study plans.

Table 36
Percentage of Themes by Frequency of Responses Found in *Actions* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

	Themes			
Target Questions	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What learning strategies did you use this week to support your learning goal (s)?	Time management (26) Note taking (18) Goal setting (daily, weekly) (16) Organize / map out course material (10) Reading for understanding (10) Utilize study guide to test knowledge acquisition (8) Personal integrity, follow-through with study plans (4) Changed study environment (2) Highlighted for quick reference (2) Study group/peers support(2) Sought out external resources (2)	Time management (30) Goal setting (daily, weekly) (15) Note taking (13) Utilize study guide to test knowledge acquisition (13) Organize / map out course material (9) Reading for understanding (9) Changed study environment (4) Personal integrity, follow-through with study plans (4) Sought out external resources (2) Study group/peer support (2)	Time management (40) Reading for understanding (13) Note taking (10) Personal integrity, follow-through with study plans (8) Flash cards (8) Goal setting (daily, weekly) (8) Personal integrity, follow-through with study plans (8) Organize / map out course material (5) Sought out external resources (5) Highlighted for quick reference (3) Utilize study guide to test knowledge acquisition (3)	Time management (29) Note taking (17) Goal setting (daily, weekly) (14) Personal integrity, follow-through with study plans (14) Reading for understanding (7) Sought out external resources (7) Utilize study guide to test knowledge acquisition (7) Changed study environment (2) Study group/peer support (2)
What are the specific actions that you took this week to achieve this goal?	Mapped out specific times to study (31) Created a list of goals/tasks and checked them off after completion (15) Reviewed course materials to check for understanding (15) Limited distractions (8) Used practice test/study guides to guide note taking (8) Chunked reading into smaller sections (6) Focused on perseverance (6) Note taking (4) Found new study environment (2) Managed time well (2) Sought our study group/peer support (2)	Mapped out specific times to study (32) Reviewed course materials to check for understanding (15) Created a list of goals/tasks and checked them off after completion (10) Managed time well (10) Focused on perseverance (7) Monitored progress with tools (7) Limited distractions (5) Sought our study group/peer support (5) Chunked reading into smaller sections (2) Sought help from instructor (2) Used practice test/study guides to guide note taking (2) Used discipline to follow through and finish assignments on time (2)	Created a list of goals/tasks and checked them off after completion (19) Mapped out specific times to study (17) Used practice test/study guides to guide note taking (14) Reviewed course materials to check for understanding (11) Focused on perseverance (8) Limited distractions (8) Managed time well (8) Monitored progress with tools (6) Note taking (6) Chunked reading into smaller sections (3)	Mapped out specific times to study (26) Reviewed course materials to check for understanding (18) Chunked reading into smaller sections (13) Monitored progress with tools (10) Used practice test/study guides to guide note taking (10) Limited distractions (5) Managed time well (5) Note taking (5) Created a list of goals/tasks and checked them off after completion (3) Focused on perseverance (3) Found new study environment (3)

Specifically, students indicated learning strategies they chose to support achieving their goals. The most common theme derived from student responses across all four reflections, was *time management*, represented by 26% of responses in Reflection 1, 30% of responses in Reflection 2, 40% of responses in Reflection 3, and 29% of responses for Reflection 4. Findings show that students were focused on managing the amount of time spent on specific activities, to increase effectiveness, efficiency, productivity, or a combination of these. In addition to time management, another common theme across two out of four reflections was *note taking* represented by 18% of responses in Reflection 1 and 17% of responses for Reflection 4. Findings show that students used note taking as a learning strategy to support their overall larger learning goals. As previously presented, learning goals were centered on completing assignments and assigned reading, as well as preparation for quizzes and tests.

The least common themes derived from students' responses in reference to their chosen learning strategies differed across reflections. In Reflection 1, the least common themes were, *changed study environment, highlighted for quick reference, sought out external resources, study groups/peer support* only represented by 2% of responses respectively. In Reflection 2, *sought out external resources, and study group/peer support* were the least common themes represented by 2% of the responses, respectively. In Reflection 3, the least common themes were *highlighted for quick references* and *utilize study guide to test knowledge acquisition*, each represented by 3% of the responses. In Reflection 4, the least common themes apparent in students' responses regarding their choice of learning strategies were *change of study environment*, and *study group or peer support*, each represented by 2% of the student responses. Findings show

that students were least likely to choose types of learning strategies that utilized help-seeking in support of their learning goals in online courses.

Frequency patterns of the thematic actions categories that represent students' responses to learning strategies used varied across reflection submissions. For example, the frequency of the thematic category *personal integrity, follow-through with study plans* was inconsistent across reflections. In Reflection 1 and 2, *personal integrity, follow-through with study plans* represented 4% of the responses. The frequency percentage rose to 8% and 14% respectively in Reflections 3 and 4. Another example of varying frequency patterns takes place with the theme; *utilize study guides to test knowledge acquisition.* In Reflection 1 *utilize study guides to test knowledge acquisition* represented 8% of the responses. The frequency percentage rose to 13% in Reflection 2, dropped to 3% in Reflection 3, and rose to 7% in Reflection 4. Findings show that while utilizing the GAME plan framework students' remained flexible in choosing learning strategies specific to individual needs in support of their weekly learning goals. As the goals changed each week, so did the learning strategies used to support them.

In the actions section of the GAME plan reflection form, students also were asked to provide the specific actions taken to move forward with their goals for the week. The most common theme derived from student responses across three out of four reflections was *mapped out specific times to study*, represented by 31% of responses in Reflection 1, 32% of responses in Reflection 2, and 26 % of responses in Reflection 4. In Reflection 3, the most common theme was *created a list of goals/tasks and checked them off after completion*, represented by 19% of student responses. Findings show that students' specific actions taken to achieve their goals were congruent to the selected learning

strategies. Specifically, the most common theme of chosen learning strategy was *time management* and the most common themes for specific actions taken to achieve learning goals were *mapped out specific times to study and created a list of goals/tasks and checked them off after completion,* both of which are actions that support aspects of time management.

The least common themes regarding specific actions taken to achieve learning goals differed across reflections. In Reflection1, the least common themes were *found new study environment, managed time well,* and *sought out study group or peer support* all represented by 3% of responses respectively. In Reflection 2, the least common themes were *chunked reading into smaller sections, sought help from instructor, used practice test or study guides to guide note taking,* and *used discipline to follow through and finish assignments on time* all represented by 2% of responses respectively. In Reflection 3, the least common theme was *chunked reading into smaller sections,* represented by 3% of student responses. In Reflection 4, the least common themes were *created a list of goals/tasks and checked them off after completion, focused on perseverance, and found new study environment* each represented by 3% of student responses. Findings suggest that overall, while utilizing the GAME plan framework, students were least likely to take action on learning to manage their time well and seek out help when necessary from the instructor of their online courses.

Thematic Analysis for the Monitoring Phase in Study 2

Using the GAME plan reflection form, students responded to the following three target questions weekly for a period of four weeks aimed at discovering how students monitored progress toward achieving goals during their online courses.

1. How did you monitor progress towards this week's goals?

2. How much time did you devote to studying this week?

3. What obstacles if any stood in the way of your achieving this week's goals?

4. What did you do to manage the obstacles that impacted your coursework?

In Study 2, students' completed one additional question in the monitoring sections specific to detailing what steps were taken to overcome the obstacles presented while learning online. Question 4 above, is the additional question included on the GAME plan reflection form in Study 2. As in Study 1, in Study 2, students' responses to the questions 1, 3, and 4 regarding the monitoring phase were analyzed and categorized into themes derived from the responses to all four GAME plan reflections. Students' responses to question 2 were only grouped into numerical categories based the nature of the data received.

Students' responses to the above questions regarding the monitoring phase were analyzed by the primary researcher and the second coder and categorized into themes derived from the responses to all four GAME plan reflections. For target question 1 in the monitoring phase, the same themes previously detailed in Tables 19 and 20 were used to code student responses. In addition to the original eight themes previously derived from student responses in Tables 19 and 20, two additional themes were uncovered in Study 2. Table 37 provides a specific example of the student responses that were used to determine the new themes for target question 1. For target question 4, in the monitoring phase, not previously included in Study 1, nine themes were derived from student responses in Study 2. Table 37 includes two additional themes for target question 1 and all themes for the target questions 4 in the actions phase. Target questions are included in

the left column, the themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 37
New Themes Found in *Monitoring* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

Target Questions	Themes	Sample Student Responses
How did you monitor progress towards this week's goals?	Used assignment grades to monitor progress towards final grades	*"I took the practice quizzes some of my classes offered to test myself on where I am and what areas I still need to focus on."*
	Used peers/family support for accountability	*"I was monitored by my partner because we made the schedule, and we finished on time."*
		"I asked my Mom to keep watch on me, in order to push me to finish the assignment on time."
What did you do to manage the obstacles that impacted your coursework?	Adjusted work schedule	*"Since my work schedule is still not set, I went and talked to my manager about slimming down the amount of possible days worked, in order to make sure that I had a more focused idea of when I would be scheduled."*
	Changed study environment	*"Left to the library where I could be away from distractions and study."*
	Chunking strategy (larger assignments into smaller parts)	*"I broke the chapter down so that I only had to read for about 20 minutes each day. The fact that the reading was spread out throughout the week rather than all in one day kept me motivated to try hard."*
	Evaluated time-management, made adjustments where necessary	*"I would look at my schedule to make sure I accomplished each task even if it wasn't when I initially intended. I readjusted my schedule to fit my life."*
	Focus on health; more sleep/rest, exercise, vitamins	*"There isn't a lot I can do besides take medication and rest in a dark room. This then adds stress as the more I lose in down time leaves me less time to get the task done. But, I worked when I felt good and rested when I didn't. That is really the only way I have found to manage my work against my pain."*
	Focused on perseverance	*"Self-discipline. I stated my objective, I created a to do list, and I checked off each item after completion."*
	Haven't yet managed obstacle (s)	*"I haven't been able to manage that yet."*
	Limited distractions (cell phone, Wi-Fi, TV)	*"Turn off my Wi-Fi and put my phone on airplane mode."*
	Made arrangements for childcare	*"Take my daughter to the babysitter or find someone for her to play with so I can study."*
	Maintained motivation for learning	*"Worked around them [obstacles] the best I could. Tried to keep in mind that my interested and commitments are important too."*
	Reviewed course materials to check understanding	*"Whenever I have time I will go through those terms that I got confused until I remember them."*
	Sought out external resources	*"I will go online to find some information which is helpful for me to solve the problem. If the online information cannot help me I will ask for my friends' and teachers' help."*
	Sought out help from study group/peer support/family	*"In order to manage the obstacles that impacted my coursework I set up a time do it with my friends."*
	Took study breaks	*"Take short periods of time to go online."*
	Used planner/organizational tools to manage tasks	*"Tried to keep details in my planner so I didn't forget."*

Table 38 presents the frequency of themes found in the monitoring phase of the GAME plan based on target questions 1, 3, and 4 posed in Reflections 1 to 4. Themes are in order of frequency of percentages derived from student responses and grouped by Reflection. Overall, students utilized goals checklists and tools such as calendars and planners to organize time, track progress, and manage tasks. Students' devoted chunks of time to studying throughout the week resulting in an average of 8 to10 hours per week. In general, common obstacles that stood in the way of students achieving learning goals were centered on health and wellness and balancing their commitments to school, work, and home life. The methods students used to monitor progress toward goals were least frequently centered on staying on task, and lack of quiet study environments. In general, students managed obstacles that affected their learning goals by consistently adjusting weekly study plans and working to evaluate effective time-management strategies.

In more detail, students provided methods used to monitor progress toward achieving weekly goals; one common theme derived from student responses across three out of four reflections was *used a goals checklist*, represented by 37% of responses in Reflection 1, 39% of responses in Reflection 2, and 31% of responses for Reflection 3. In Reflection 4, the most common theme was *used a planner/organization tool to manage tasks,* represented by 22% of responses. Across all reflections, students consistently utilized tools to monitor actions that supported their weekly learning goals. Student responses further indicated that tools used to monitor activities included, the goals checklist and the weekly action plan checklist provided to students in the GAME plan tool kit.

Table 38
Percentages of Themes by Frequency of Responses Found in *Monitoring* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

	Themes			
Target Questions	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
How did you monitor progress towards this week's goals?	Used a goals checklist (37) Created/executed a study plan (16) Chunking strategy (Set up review chapter points) (12) Used a calendar to manage time (12) Used a planner/organization tool to manage tasks (12) Used assignment grades to monitor progress (9) Used peers/family support for accountability(2)	Used a goals checklist (39) Used a calendar to manage time (17) Used assignment grades to monitor progress (15) Chunking strategy (Set up review chapter) (7) Created/executed a study plan (7) Used a planner/organization tool to manage tasks (7) Reflected on previous work, made adjustments (2) Used self-explanation (2) Used peers/family support for accountability (2)	Used a goals checklist (31) Used a calendar to manage time (25) Used a planner/organization tool to manage tasks (16) Created/executed a study plan (6) Chunking strategy (Set up review chapter points) (6) Used assignment grades to monitor progress (6) Used peers/family support for accountability (3) Reflected on previous work, (3) Used self-explanation (2)	Used a planner/organization tool to manage tasks (22) Created/executed a study plan (20) Used a goals checklist (20) Used a calendar to manage time (15) Used assignment grades to monitor progress (12) Chunking strategy (Set up review chapter points) (5) Reflected on previous work (2) Used peers/family support for accountability (2) Used self-explanation (2)No monitoring (13)
How much time did you devote to studying this week?	8-10 hours per week (33) Over 10 hours per week (23) 6-8 hours per week (15) 4-6 hours per week (13) 2-4 hours per week (10) 0-2 hours per week (5)	4-6 hours per week (29) Over 10 hours per week (29) 8-10 hours per week (17) 2-4 hours per week (12) 6-8 hours per week (10) 0-2 hours per week (2)	8-10 hours per week (29) Over 10 hours per week (29) 2-4 hours per week (21) 4-6 hours per week (9) 6-8 hours per week (9) 0-2 hours per week (3)	6-8 hours per week (26) Over 10 hours per week (24) 4-6 hours per week (21) 8-10 hours per week (17) 0-2 hours per week (7) 2-4 hours per week (5)
What obstacles if any stood in the way of you achieving this week's goals?	Balancing school, work, home/social life (49) Health (11) Managing time for school (11) Maintain motivation for learning/studying (11) No obstacles (9) Course content (4) Staying on task (4) Lack of quiet study environment (2)	Balancing school, work, home/social life (42) No obstacles (23) Health (12) Managing time for school (12) Course content (7) Staying on task (2) Technology Problems (2)	Balancing school, work, home/social life (42) Managing time for school (16) Course content (13) No obstacles (11) Health (8) Lack of quiet study environment (5) Staying on task (3) Technology Problems (3)	Balancing school, work, home/social life (40) No obstacles (19) Health (14) Managing time for school (9) Technology Problems (9) Course content (5) Lack of quiet study environment (2) Staying on task (2)
What did you do to manage the obstacles that impacted your coursework?	Evaluated time management (44) Maintain motivation for learning (12) Sought out external resources (7) Took study breaks (7) Chunking strategy (5) Focus on health (5) Modified study plan (5) Adjusted work schedule (2) Changed study environment (2) Limited distractions (2) Made arrangements for childcare (2) Sought out help from peers/family (2) Used planner/organizational tools (2)	Evaluated time management (39) Modified study plan (30) Haven't yet managed obstacle (s) (6) Sought out external resources (6) Sought out help from /peers/family (6) Changed study environment (3) Focus on health (3) Limited distractions (3) Made arrangements for childcare (2)	Modified study plan (32) Evaluated time management (24) Haven't yet managed obstacle (s) (9) Used planner/organizational tools (9) Sought out help from study group/peers/family (6) Adjusted work schedule (3) Changed study environment (3) Focus on health (3) Limited distractions (3) Maintain motivation for learning (3) Reviewed course materials (3) Took study breaks (3)	Modified study plan (23) Evaluated time management (13) Sought out help from peers/family (13) Haven't yet managed obstacle (s) (10) Reviewed course materials (10) Focus on health (8) Maintain motivation for learning (8) Made arrangements for childcare (5) Adjusted work schedule (3) Chunking strategy (3) Focused on perseverance (3) Used planner/organizational tools (3)

Findings show that students were attentive to tracking the steps and actions taken toward achieving learning goals. The least common theme derived from students' responses to methods used to monitor across three out of four reflections was *used peers/family support for accountability* represented by 2% of responses in Reflections 1, 2, and 4. Another least common theme found in three out of four reflections was *used self-explanation* represented by 2% of responses in Reflections 2, 3, and 4. In Reflections 2 and 4, additionally, the theme, *reflected on previous work, made adjustments,* was the least common theme represented by 2% of the responses. Findings indicate that students were less likely to choose monitoring methods related to seeking accountability from peers and family members, and less likely to use measures of self-evaluation to monitor progress toward goals.

The frequency patterns of thematic monitoring categories that represent students' responses to methods used to monitor progress varied across reflection submissions. For example, the frequency of the thematic category *created or executed a study plan* was inconsistent across reflections. In Reflection 1, *created or executed a study plan* represented 16% of the responses. The frequency percentage decreased to 7% in Reflection 2 and 6% in Reflection 3 and increased to 20% in Reflection 4. Another example of varying frequency patterns takes place with the theme, *used a planner or organization tool to manage tasks,* represented by 12% and 7% of responses in Reflections 1 and 2, respectively; however, in Reflections 3 and 4, *used a planner or organization tool to manage tasks* represented 16% of the responses and 20% of the responses, respectively. Findings show that while utilizing the GAME plan framework students' remained flexible in selecting methods to monitor progress towards weekly

learning goals. As the goals and learning strategies changed each week, so did the methods used to monitor progress. In Reflections 1, 3, and 4, students were more likely to use strategies centered on outlining tasks and tracking progress toward goals. Whereas in Reflection 2, students were less likely to use planning activities to monitor progress toward learning goals.

In the monitoring section of the GAME plan reflection form, along with indicating methods used to monitor weekly progress, students quantified how much time was devoted each week to studying. The amount of time that students reported varied across reflections. For example, in Reflection 1, the most common category of time spent studying was *8-10 hours per week* represented by 33%. In Reflection 2, the most common category of time spent studying was *4-6 hours per week* and *over 10 hours per week* each represented by 29% of responses, respectively. In Reflection 3, the most common category of time spent studying was *8-10 hours per week* and *over 10 hours per week* each represented by 29% of responses, respectively. The least common category of the amount of time spent studying, *0-2 hours per week* was consistent across three out of four reflections, represented by 5% of responses in Reflection 1, 2% of responses in Reflection 2, and 3% of responses in Reflection 3. Findings show that overall, the amount of time that students devoted specifically to studying varied particularly in the middle of the Winter quarter.

The third target question in the monitoring section of the GAME plan reflection form, asked students to share obstacles that stood in the way of achieving learning goals in their online courses. The most common theme derived from student responses across all four reflections was *balancing, school, work, home or social life*, represented by 49%

of responses in Reflection 1, 42% of responses in Reflection 2, 42% of responses in Reflection 3, and 40% of responses in Reflection 4. Another common theme across three out of four reflections was *health*, represented by 11% of responses in Reflection 1, 12% of responses in Reflection 2, and 14% of responses in Reflection 4. The least common themes regarding obstacles that stood in the way of students achieving learning goals across all four reflections was *staying on task*, represented in Reflections 1, 2, 3, and 4 with 4% of responses, 2% of responses, 3% of responses and 2 % of responses respectively. Additional least common themes included *technology problems*, represented by 2% of student responses in Reflection 2 and 3% of responses in Reflection 3, and lack of quiet study environment represented by 2% of student responses in Reflection 1 and 2% of responses in Reflection 4. Findings suggest that overall while utilizing the GAME plan framework students were least likely to encounter problems with staying on task and following through with actions toward achieving their goals. Additionally, students were least likely to encounter technology related to Internet access, computer viruses, or functionality of the course management system, and least likely to have issues with finding adequate study environments.

The last target question in the monitoring section of the GAME plan reflection form asked students to detail what steps they took, if any, to manage the obstacles encountered while working toward goals. The most common themes derived from student responses across two out of four reflections were *evaluated time-management, made adjustments where necessary* represented by 44% of responses in Reflection 1 and 39% of responses in Reflection 2 and *modified study plan*, represented by 32% of responses in Reflection 3 and 23% of responses in Reflection 4. Findings indicate that when students

were presented with obstacles that impeded their progress on work toward goals, students were more likely to use strategies that focused on aspects of self-evaluation to overcome obstacles. The least common themes represented by students' responses to how they managed obstacles encountered while working toward goals varied across all four reflections. There were 12 least commons themes found in Reflections 1 to 4. A few examples of least common themes include (a) *limited distractions*, represented in Reflections 1 to 3 as 2%, 3%, and 3% of student responses, respectively, (b) made *arrangements for childcare* represented in Reflections 1, 2, and 4 as 2%, 2%, and 5% of student responses respectively, (c) *changed study environment*, represented in Reflections 1-3 as 2%, 3%, and 3% of student responses, respectively. Findings indicate that while utilizing the GAME plan framework students were least likely to enact strategies centered on making changes to their study environment and least likely to need to secure childcare arrangements during time allotted for studying.

Thematic Analysis for the Evaluation Phase in Study 2

Using the GAME plan reflection form, students responded to the following two target questions weekly for a period of 4 weeks aimed at learning more about students' reactions to implementing the GAME plan framework and evaluating results in relation to achieving their desired performance during their online courses.

1. What was the GAME plan process like for you?

2. To achieve next week's goals, what changes would you make to improve your effectiveness?

Students' responses to the above questions regarding the evaluation phase were analyzed by the primary researcher and the second coder and categorized into themes

derived from the responses to all four GAME plan reflections. For target question 1 in the evaluation phase, the same themes previously detailed in Tables 22 and 23 were used to code student responses. For target question 2 in the evaluation phase, the same themes previously detailed in Table 23 were used to code student responses. In addition to the original 12 themes previously derived from student responses in Table 23, two additional themes were uncovered in Study 2. Table 39 provides a specific example of the student responses that were used to determine the new themes for target question 2. The target question is included in the left column, the themes are presented in the center column, and exemplar student responses are presented in the right column.

Table 39
New Themes found in *Evaluation* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

Target Questions	Themes	Sample Student Responses
To achieve next week's goals, what changes would you make to improve your effectiveness?	Manage stress/health and wellness; e.g., sleep	*"I am going to try to keep healthier and if I do get under the weather I want to focus on not falling behind the way I had this week. It was stressful and made my life more complicated."*
		"If I could make any changes, I would give myself more time to rest."
	Work to balance school/home life	*"I need to get my personal life together before next quarter begins. I don't want to start another quarter off as I did. I'm not one for excuses nor do I quit so I kept the class thinking certain things would improve when some got worse."*
		"To achieve next week's goals, I will hopefully have a better mindset to balance school, work as well as home life."

Table 40 presents the frequency of themes found in the evaluation phase of the GAME plan based on the two target questions posed in Reflections 1-4. Themes are in order of frequency percentage derived from student responses and grouped by Reflection. Overall, in Study 2, students reflected that the GAME plan framework was easy to use, and the routine of the framework was effective in supporting students with staying on track and avoiding procrastination while working toward goals in support of their

academic success in online courses. In general, students reflected that in their efforts to improve effectiveness week to week, the efforts were centered on refining time management strategies and adjusting study plans. In reference to the GAME plan process, themes were least frequently centered on working to fully adopt the GAME plan process, and managing health and wellness.

Table 40
Percentage of Themes by Frequency of Responses Found in *Evaluation* Phase of the GAME Plan Framework Reflections 1-4 in Study 2

	Themes			
Target Questions	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What was the GAME plan process like for you?	Simple, effective, easy to adapt/adopt (46) Helped me stay organized and manage work flow (15) Routine helped me stay on track/avoid procrastination (13) Similar to students' current learning process (13) Difficult to adopt the process (4) Increased self-efficacy for managing online learning (4) Less stressed about online course (4) Process was tedious/time consuming (2)	Routine helped me stay on track/avoid procrastination (24) Helped me stay organized and manage work flow (22) Simple, effective, easy to adapt/adopt (22) Difficult to adopt the process (13) Process was tedious/time consuming (7) Increased self-efficacy for managing online learning (4) Similar to students' current learning process (4) Less stressed about online course (2)	Simple, effective, easy to adapt/adopt (29) Routine helped me stay on track/avoid procrastination (26) Difficult to adopt the process (11) Increased self-efficacy for managing online learning (8) Similar to students' current learning process (8) Helped me stay organized and manage work flow (5) Process gets easier with repetition (5) Process was tedious/time consuming (5) Less stressed about online course (3)	Simple, effective, easy to adapt/adopt (39) Routine helped me stay on track/avoid procrastination (16) Increased self-efficacy for managing online learning (14) Difficult to adopt the process (9) Helped me stay organized and manage work flow (7) Similar to students' current learning process (7) Process gets easier with repetition (5) Process was tedious/time consuming (5)
To achieve next week's goals, what changes would you make to improve your effectiveness?	Improve study plan/adjust time management (44) No changes, keep doing what I am doing (22) Gain understanding of course material (7) Avoid procrastination (4) Revise goals (4) Work to balance school/home life (4) Change study environment (2) Log-in to the course management system more frequently (2) Manage stress/health and wellness (2) Organize work flow (2) Stay on task (2) Work to adopt GP process (2)	Improve study plan/adjust time management (43) No changes, keep doing what I am doing (20) Organize work flow (9) Work to balance school/home life (9) Stay on task (7) Gain understanding of course material (4) Revise goals (4) Manage stress/health and wellness (2) Monitor progress (2)	Improve study plan/adjust time management (45) No changes, keep doing what I am doing (16) Manage stress/health and wellness (11) Avoid procrastination (8) Work to balance school/home life (5) Stay on task (5) Gain understanding of course material (5) Organize work flow (3) Work to adopt GP process (3)	Improve study plan/adjust time management (28) No changes, keep doing what I am doing (26) Stay on task (13) Gain understanding of course material (9) Manage stress/health and wellness (7) Work to balance school/home life (4) Avoid procrastination (4) Organize work flow (2) Revise goals (2) Change study environment (2) Seek out help from instructor (2)

Specifically, as students gave their overall perceptions of the GAME plan process, one common theme derived from student responses across three out of four reflections was the GAME plan was *simple, effective, easy to adapt or adopt*, represented by 46% of responses in Reflection 1 and 26% of responses for Reflection 3, and 39% of responses in Reflection 4. In Reflection 2, the theme *routine helped me stay on track or avoid procrastination* was the most common theme derived from student responses represented by 24% of the responses.

Findings show that students perceived the GAME plan process to be effective and easy to employ. Additionally, the routine supported students' efforts to avoid procrastination and stay on track with progress toward achieving their learning goals. The least common theme derived from students' responses to evaluation of the GAME plan process across three out of four reflections was *process was tedious or time consuming,* which represented 2% of the responses to Reflection 1, 5% of the responses to Reflection 3, and 5% of the responses to Reflection 4. Another least common theme three out of four reflections was *less stressed about online course,* which represented 4% of the responses to Reflection 1, 2% of the responses to Reflection 2, and 3% of the responses to Reflection 4. Findings indicate that even though some students felt that the GAME plan process was tedious and timely most students did not share this opinion. Students also were least likely to perceive that the GAME plan process alleviated stress associated with taking online courses.

In Study 2, frequency patterns of thematic categories that represent students' responses to their perceptions varied across reflection submissions. For example, the frequency of the thematic category *helped me stay organized and manage work flow* was

inconsistent across reflections. In Reflections 1 and 2, *helped me stay organized and manage work flow* represented by 15% of the responses and 22% of responses, respectively. The frequency percentage decreased to 5% in Reflection 3 and 7% in Reflection 4. Students' statements reflected increased perceptions of their need to stay organized and manage the flow of work during the first 2 weeks of implementation of the GAME plan framework. During the 3rd and 4th weeks, their perceptions regarding the GAME plan process and its influence on their organization of tasks and work flow decreased. Another example of varying frequency patterns takes place with the theme, *increased self-efficacy for online learning* represented by 4% of the responses in Reflection 1, 4% in Reflection 2, and increased to 8% in Reflection 3, and 14% in Reflection 4. Findings indicate that during the last 2 weeks of implementing the GAME plan framework students perceptions of self-efficacy for managing learning in online courses increased.

In the second target question in the evaluation section of the GAME plan reflection form, asked student to specify potential changes they would make to their process to improve effectiveness the following week. The most common theme derived from student responses across all four reflections was *improve study plan or adjust time management*, represented by 44% of responses in Reflection 1, 43% of responses in Reflection 2, 45% of responses in Reflection 3, and 28% of responses in Reflection 4. As students utilized the GAME plan framework week to week, they focused on making adjustments to current strategies for planning study segments and time allocated for studying. Another common theme across all four reflections was *no changes, keep doing what I am doing*, represented by 22% of responses in Reflection 1, 20% of responses in

Reflection 2, 16% of responses in Reflection 3, and 26% of responses in Reflection 4. As students moved through the authentic practice of implementing the GAME plan framework weekly, they reflected that they were satisfied with their current process and desired results. The least common themes regarding changes to students' process to improve effectiveness were *organize work flow*, represented in Reflections 1 and 3 with 2% of responses and 3% of the responses, respectively. Additionally, another least common theme in terms of changes to students' process to improve effectiveness was *revise goals*, represented by 4% of student responses in Reflection 2 and 2% of responses in Reflection 4. Findings show that a third of students did not perceive a need to make any changes to their GAME plan processes, whereas in contrast nearly half of students reflected that they would make changes to study plans and strategies for managing time. While evaluating the GAME plan process and performance, students were least likely to change their learning strategies to include revising goals set at the beginning of the week and organizing the flow of work for their online courses.

In summary, students used the GAME plan reflections to detail how they implemented the GAME plan framework week after week to engage in authentic practice of self-regulated learning skill development. In Study 2, during the goal-setting phase, students set goals that focused on enhancing general online course performance, for example, course assignments and assigned readings. In general, students perceived the benefits of achieving goals as better comprehension of course subject matter and increased ability to follow through and with study plans and stay on task. During the actions phase, students selected learning strategies that supported reading comprehension strategies, effective note taking, and time management. In terms of specific tasks utilized

to support learning goals, students most frequently mapped out study plans and created lists to track goal steps. During the monitoring stage, students most frequently utilized tools to monitor activities such as the GAME plan goals checklist included in the GAME plan tool kit and calendars and planners to organize time, track progress, and manage tasks. Students most frequently spent an average of 8-10 hours per week studying for their online courses. Common obstacles most frequently encountered while working toward goals were related to health and wellness and balancing commitments to school, work, and home life. Students most frequently adjusted weekly study plans and evaluated effective time management strategies to manage obstacles that arose. Last, during the evaluation phase students reflected that overall the GAME plan framework was easy to use and effective in supporting students with staying on track and avoiding procrastination while working toward goals in support of their academic success in online courses. To improve effectiveness week to week, students most frequently focused on honing time management strategies and adjusting study plans.

Research Question 4

What are students' perceptions of the effectiveness of the SRL intervention?

To answer the fourth research question, students completed both the GAME Plan Audiobook Evaluation completed after the self-regulated learning strategy instruction and the GAME Plan Course Evaluation completed at the end of the study. The audiobook evaluation consisted of five open-ended questions followed by one final question Likert item in which students were asked to indicate their answer on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*.

GAME Plan Audiobook Evaluation Results

As in Study 1, in Study 2, students also used the GAME plan audiobook evaluation to provide feedback on then 30-min video discussing self-regulated learning instruction and introducing the GAME plan framework. Students responded to the following five target questions directly after participating in instruction beginning the authentic practice phase in their online course.

1. Did you find the GAME plan audiobook helpful? Why or why not?
2. What did you like the most about this GAME plan audiobook?
3. What did you like the least about the GAME plan audiobook?
4. What was the most important thing that you learned from the GAME plan audiobook?
5. What one thing would you recommend to improve the GAME plan audiobook?

Students' responses to the above five questions regarding perceptions of the GAME plan audiobook were analyzed by the primary researcher and the second coder and categorized into themes derived from the responses. For target question 1of the audiobook evaluation, the same themes previously detailed in Table 25 were used to code student responses. In addition to the original 9 themes previously derived from student responses in Table 25, one additional theme was discovered in Study 2. For target question 2 of the audiobook evaluation, the same themes previously detailed in Table 26 were used to code student responses. In addition to the original themes previously derived from student responses in Table 26, three additional themes were discovered in Study 2. For target question 3 of the audiobook evaluation, the same themes previously detailed in Table 26 were used to code student responses. In addition to the original themes previously derived from student responses in Table 26, one additional theme was

discovered in Study 2. For target question 4 of the audiobook evaluation, the same themes previously detailed in Table 27 were used to code student responses. In addition to the original themes previously derived from student responses in Table 27, two additional themes were discovered in Study 2. Table 41 provides specific examples of the student responses that were used to determine the new themes discovered while coding the second study. The target questions are included in the left column, the themes are presented in the center column, and exemplars student responses are presented in the right column.

Table 41
New Themes Found in Students' Perceptions of the GAME Plan Audiobook Evaluation in Study 2

Target Questions	Themes	Sample Student Responses
Did you find the GAME plan audiobook helpful? Why or why not?	Found the study techniques concrete and relevant	*"I found it helpful because it was really relevant and the tips were helpful."*
		"Yes I thought it gave concrete and useful study techniques."
What did you like the most about this GAME plan audiobook?	Introduction to the role of self-regulated learning in managing learning	*"The thing I like most about the audiobook is the self-regulating aspect and how that will help me in not only that online course but also my other online class that I am taking this quarter as well."*
	Narration of the video	*"I liked the fact that the video was narrated."*
	Pacing of the video; easy to follow and keep up	*"That it was at a slow pace that allowed me to read each slide at my own pace."*
What did you like the least about the GAME plan audiobook?	Did not provide an example of a completed GAME plan by an online student	*"I don't like the part that the audiobook only showed us how to use the GAME plan tool kit, but didn't give any examples about what if we failed to accomplish the plan. What is the result of failed, and how to make up."*
What was the most important thing that you learned from the GAME plan audiobook?	Evaluating your process after implementing a plan	*"How to make a plan for studying and then evaluate your progress."*
		"After finishing the GAME, using the self-evaluation form to check our work."
	Using tools to monitor progress; e.g., calendar, planner	*"The most important thing that I learned from the GAME plan audiobook was I could use a daily calendar, and write down my goals for every single hour. Because this step I can avoid to always find myself an excuse to finish my work on time."*

Table 42 presents the frequency of themes found in the audiobook evaluation of the GAME plan based on the five target questions posed to students. Representative themes are in order of frequency derived from student responses and grouped by target question.

Table 42
Frequency of Themes from Students' Perceptions of the GAME Plan Audiobook Evaluation in Study 2

Target Questions	Themes (%)
Did you find the GAME plan audiobook helpful? Why or why not?	Why? Raised awareness around potential online learning obstacles (30) Provided procedural framework for managing learning (19) Provided easy framework for organization (17) Found study techniques presented, concrete and relevant (13) Recognized value of online learning strategies (13) Promoted adapting learning strategy use for success in online environment (9) Why not? Previous experience with online learning (71) Previous experience using learning strategies (14) Previous exposure to video content material (14)
What did you like the most about this GAME plan audiobook?	Clear and practical steps that can be divided into tasks (26) Easy to understand and remember GAME process (24) Raised awareness of online learning obstacles and how to use strategies to support success (24) Presentation of new strategies and the connection to existing learning strategies already in use (10) Goal setting with SMART goal strategy (5) Intro to the role of SRL in managing learning (5) Pace of the video; easy to follow and keep up (5) Narration of video (2)
What did you like the least about the GAME plan audiobook?	Length of the video (26) Delivery of material was helpful but boring. Pace of video was too slow. (19) Audio quality; lack of voice inflection on audio track (14) Nothing; video "as is" was good. (14) Students had previous exposure to video content material, redundant (7) Suggestions for changes in video content (7) Size and clarity of images inside of video (5) Too much information presented to digest and process (5) Did not provide example of complete GAME plan (5)
What was the most important thing that you learned from the GAME plan audiobook?	SMART Goal strategy (35) Personal control over learning outcomes and individual success (19) Learning how to utilize the GAME plan to support success in online course (16) Evaluating your process after implementing a plan (9) Importance of managing time and tasks (9) Using tools to monitor progress; e.g. calendar, planner (9) The acronym GAME (2)
What one thing would you recommend to improve the GAME plan audiobook?	Shorten length of video (26) Nothing; video "as is" was good. (19) Address audio; better clarity, alternate voices on narration (15) Include more completed GAME plan examples (11) Increase level of interactivity in the video (11) Make the presentation "more fun" (11) Better visual presentation; Increase font size on text slides (9)
Overall, the GAME plan audiobook was effective in preparing me to support my online learning:	Effective (39) Somewhat effective (27) Very effective (19) Slightly effective (12) Not effective at all (4)

Overall, students found the GAME plan audiobook effective in providing a strategic framework in which to utilize to support their success in their online course. Specifically, 86% of students found the GAME plan audiobook helpful, while 14% of students did not find it helpful. Students' reflected that the content of the GAME plan audiobook raised awareness of potential obstacles faced by online learners and the benefits of learning strategy use. Students found the strategies and tools introduced in the GAME plan framework easy to implement and relevant to their experiences with online learning. For the students who did not find the GAME plan framework helpful, they reflected that their previous experience with online courses influenced their perceptions of the GAME plan framework. Students' indicated that the SMART goal strategy was an important take-away from the audiobook. In terms of suggested improvements to the GAME plan audiobook, in general, recommendations for improvement were centered on increasing the level of interactivity and entertainment of the video presentation as well as condensing the length of the video presentation.

Specifically, of the 86% of students that perceived the GAME plan audiobook as helpful, 30% of students commented that the GAME plan audiobook *raised awareness around potential online learning obstacles*. Nineteen percent of students that perceived the GAME plan audiobook as helpful commented that the GAME plan audiobook *provided procedural framework for managing learning.* Of the 14% of students that perceived the GAME plan audiobook as not helpful, 71% of students commented that *previous experience with online courses* influenced their perceptions regarding the effectiveness of the GAME plan framework as a specific learning strategy. Findings show that with students who agreed that the GAME plan audiobook was helpful

increased awareness of potential obstacles of online learners was important to their overall perceptions of the instruction. For students who agreed that they GAME plan audiobook was not helpful, previous experience with online courses influenced their overall perceptions of the instruction. Students reflected that the felt the GAME plan audiobook was effective for students who were new to online learning environments.

The least common theme derived from student responses that agreed that the GAME plan was helpful, was *promoted adapting learning strategy use for success in online environment*, represented by 9% of responses. Encouraging students to adapt their current learning strategies for use in online learning environments influenced overall perceptions of the instruction. The least common theme derived from student responses that agreed that the GAME plan was not helpful, was *previous exposure to video content material*, represented by 14% of responses. Findings show that students who had previous exposure to strategies for developing self-regulated learning skills focused on in the instruction perceived the GAME plan audiobook instruction less helpful.

Students were asked to reflect on aspects of the GAME plan audiobook that they liked most. The most common theme derived from student responses in reference to what aspects of the audiobook were most liked, was *clear and practical steps that can be divided into tasks*, represented by 26% of responses, followed by *easy to understand and remember GAME plan process*, represented by 24% of responses. Findings show that the practicality of steps within the GAME plan framework contributed to students' enjoyment of the instruction as well as the ease of comprehension and understanding of the GAME plan process. The least common theme derived from student responses in reference to what aspects of the audiobook were most liked was *narration of the video,*

represented by 2% of responses. The fact that the presentation was narrated although important to few students was not the most liked aspect of the GAME plan audiobook.

As students were asked to reflect on aspects of the GAME plan audiobook that they liked most, they also were asked to specify which aspects of the GAME plan audiobook that were least liked. The most common themes derived from student responses in reference to what aspects of the audiobook were least liked was *length of the video*, represented by 26% of responses, followed by *delivery of material was helpful but boring* and *pace of video was too slow*, represented by 19% of responses. Several students reflected that the length of the audiobook presentation was a deterrent and negatively influenced their interest the topics presented. Students also reflected that the presentation of the material was paced too slowly which did not hold their interest. The least common theme derived from student responses in reference to what aspect of the audiobook were least liked was *did not provide example of complete GAME plan*, represented by 5% of responses. A few students commented that they would have liked to see examples of complete GAME plans created by an online student after all of the steps and tools were presented.

Students provided their perceptions regarding the most important element learned from the GAME plan audiobook. The most common themes derived from student responses was *SMART goal strategy*, represented by 35% of responses, followed by *personal control over learning outcomes and individual success* represented by 19% of responses. Students commented that exposure to the SMART goal framework that can be utilized during the goals phase of the GAME plan was important to their fundamental understanding of the function of goals. Several students shared that they were not

previously familiar with SMART goals and learned that clarity of goals supports learning goal achievement. Additionally, students perceived that understanding that their success in online courses was within their control as beneficial to their implementation of the GAME plan. The least common theme derived from student responses in reference to the perceived most important element of the audiobook was *the acronym GAME*, represented by 2% of responses. Although important to a few students, the GAME plan acronym was not perceived as the most important element of the GAME plan audiobook.

Last, students were asked to rate the perceived effectiveness of the GAME plan audiobook in preparing students to support their online learning by using a Likert-like item on a 6-point scale, where (1) represents *Not effective at all* and (6) represents *Very effective.* Thirty-nine percent of students agreed that the GAME plan audiobook was *effective* in preparing them to support their success in an online course. Nineteen percent of students agreed that the GAME plan audiobook was *very effective* in preparing them to support their success in an online course. In contrast, 7% of students agreed that the GAME plan audiobook was *not effective at all* in preparing them to support their success in an online course.

GAME Plan Course Evaluation Results

At the end of the Study 2, after completing the self-regulated learning instruction and authentic practice implementing the GAME plan strategic framework during their online course, students completed the GAME Plan Course Evaluation. The course evaluation consisted of 5 Likert items posed in terms of statements, in which students selected responses on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. The last question asks students to indicate whether or not they

plan to continue using the GAME plan strategic framework to support their success in future online courses. Table 42 provides data regarding response frequencies students indicated in the GAME Plan Course Evaluation.

Overall, students' perceptions of the effectiveness of the GAME plan framework in support of their success in online courses were favorable. Students agreed with the majority of statements posed in the course evaluation. Specifically, when presented with the statement, "Overall, the GAME plan framework helped me manage my self regulated learning in the online course," 35% of students agreed and 13% of students strongly agreed. Forty-four percent of students agreed with the statement, "Creating GAME plans weekly increased my awareness about my own learning process," and 12% strongly agreed with this statement. Findings indicated that metacognitive awareness of students' learning process was heightened while utilizing the GAME plan framework.

Fifty-two percent of students agreed with the statement, "Goal setting and strategic planning helped me achieve my goals," whereas 19% of students strongly agreed. Results indicate that students perceived that goal setting and strategic planning assisted them in achieving their goals. Fifty-two percent of students agreed with the following statement, "Executing learning strategies and monitoring progress toward my goals supported my learning," and 17% of students strongly agreed. Overall, students agreed that while working through the performance phase of the self-regulated learning process selecting and implementing appropriate learning strategies and monitoring progress supported their learning during their online courses. Forty-eight percent of students agreed with the statement, "I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals," and 15% of students strongly

agreed with the statement. Results indicated that as students moved through the reflection phase of the self-regulated learning process, they judged the effectiveness of their learning process and made adjustments based on their insights in support of the success. Table 43 provides additional data regarding response frequencies students' indicated in the GAME Plan Course Evaluation.

Table 43
Response Frequencies of Students' Perceptions of the GAME Course Evaluation for Study 2

	Frequency (%)					
Target Questions	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Overall, the GAME plan framework helped me manage my self-regulated learning in the online course.	7	7	7	30	35	13
Creating GAME plans weekly increased my awareness about my own learning process.	7	6	2	30	44	12
Goal setting and strategic planning helped me achieve my goals.	4	2	6	13	57	19
Executing learning strategies and monitoring progress toward my goals supported my learning.	4	2	2	24	52	17
I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals.	0	4	3	33	48	15

Summary of Results of Study 2

The purpose of Study 2 was to replicate Study 1 and follow the same procedures to examine the effect of a self-regulated learning strategy intervention on community-college level students' self-regulated learning conduct and academic performance in

online courses in a subsequent quarter. The first research question aimed at investigating whether there was a significant effect of self-regulated learning and implementation of the GAME plan framework on students' perceptions of their self-regulated learning conduct measured by responses to the Survey of Academic Self-Regulation before and after intervention. It was found that the increase in mean preintervention responses to mean postintervention responses for the Study 2 group on combined SASR scales was not statistically significant. It was found that there was a statistically significant increase in mean preintervention responses to mean postintervention responses for the Study 2 group on the Metacognition scale.

The second research question aimed to explore the relationship between students' perceptions of their self-regulated learning conduct measured by responses to the SASR postintervention and the final course grade earned in their online courses. It was found that the correlation of $r = 19$, between students' final course grades and SASR postintervention scores was weak and not statistically significant.

The third research question was aimed at discovering how students implemented the GAME plan framework week after week to engage in authentic practice of self-regulated learning skill development during online courses. It was determined that over the course of four weekly reflection submissions, students' learning goals were centered on enhancing general online course performance, for example, course assignments and assigned readings. Students perceived the benefit of achieving their goals was better comprehension of course subject matter and increased ability to follow through with study plans and stay on task. Additionally, students selected learning strategies that that supported reading comprehension strategies, effective note taking, and time management.

In general, students most frequently created lists to track goal steps toward achieving their goals and mapped out specific study plans. To monitor actions toward achieving learning goals, students most frequently utilized tools to monitor activities such as the GAME plan goals checklist included in the GAME plan tool kit, and calendars and planners to organize time, track progress, and manage tasks. Students' devoted an average of 8-10 hours per week to studying for their online courses. Additionally, obstacles that stood in the way of students achieving learning goals most frequently were centered on health and wellness and balancing commitments to school, work, and home life. Students most frequently managed obstacles that arose by adjusting weekly study plans and evaluating effective time-management strategies. To evaluate overall process implementation, students reflected that the GAME plan framework was easy to use and effective in supporting students with staying on track and avoiding procrastination while working toward goals in support of their academic success in online courses. To improve effectiveness and achieve weekly goals, students were attentive to honing the process used to outline study plans and time management.

Finally, the fourth research question explored students' perceptions of the effectiveness of the self-regulated learning strategy instruction and subsequent authentic practice utilizing the GAME plan strategic framework to support their success while working through an online course. After the initial instruction, 86% of students found the GAME plan audiobook effective in providing a strategic framework to utilize to support their success in their online course. Heightened awareness around potential obstacles students experience during online courses and suggestions for how to overcome them contributed to students perceived effectiveness of the instruction. Suggestions for

improvement of the initial instruction included shortening the length of the audiobook presentation and including more examples of completed GAME plans. After the initial instruction and subsequent weeks of authentic practice using the GAME plan framework, students' perceptions of the effectiveness of the GAME plan framework in support of their success in online courses were favorable. Seventy-eight percent of students agreed that the GAME plan framework assisted with developing self-regulated learning skills and managing their online learning. Last, 80% of students indicated that they would continue to use the GAME plan strategic framework in future online courses. Twenty-percent of students indicated that they would not continue using the framework for the following reasons: (a) students already had their own system for supporting their success in online courses that differed from the GAME plan strategic framework (b) implementing the entire GAME plan in conjunction with other coursework was time consuming.

Comparing Results from Study 1 and Study 2

Research Question 1

To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) preintervention, and postintervention?

In Study 1 and Study 2, all students completed the 63-item SASR assessing their perceptions of self-regulated learning conduct preintervention and postintervention. Table 44 illustrates that there were increases from mean preintervention scores to mean postintervention scores for both Study 1 and Study 2. Students' preintervention SASR scores were slightly higher is Study 2 than they were in Study 1. For both studies paired-

sample *t* tests were conducted using the preintervention and postintervention scores of the SASR. For Study 1, results showed that there was a statistically significant difference between overall SASR responses preintervention and postintervention whereas in Study 2 no statistically significant difference was found.

Table 44
Comparing Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Responses for Study 1 and Study 2

	Pretest			Posttest				
	n	*M*	*SD*	*n*	*M*	*SD*	*t*	*df*
Study 1	35	271.71	21.21	35	278.49	23.56	-2.93*	34
Study 2	45	274.16	23.03	45	278.98	24.87	-1.38	44

*Indicates a statistically significant difference (p<.01) between pretest and posttest scores.

In both studies, students' SASR responses also were calculated based on individual scales of the SASR instrument. The SASR scales included: Metacognition (18-items), Personal Relevance and Control (11 items), Self-Regulation (12 items), Intrinsic Motivation (9 items), Self-Efficacy (8-items), and Extrinsic Motivation (5 items). Table 45 illustrates that there were increases from mean preintervention scores to postintervention scores for all scales in both Study 1 and Study 2. Raw mean responses and weighted mean responses are presented for the purpose of comparison across scales. Paired sample t-tests were conducted using the preintervention and postintervention responses to the SASR on all six scales. In Study 1, there was a statistically significant difference between overall SASR responses preintervention and postintervention on the metacognition scale (t (34) = -3.90, p = .000, d = 68). There were no statistically significant differences found between preintervention and postintervention SASR responses on any of the other scales in Study 1. In Study 2, the results showed that there was also a statistically significant difference between overall SASR responses preintervention and postintervention on the metacognition scale (t (44) = -2.37, p =.02 d

= .35). As in Study 1, there were no statistically significant differences found between preintervention and postintervention SASR responses on any of the other scales in Study 2.

Table 45
Comparing Results of Paired-Samples *t* Test for Students' Pretest and Posttest Survey of Academic Self-Regulation (SASR) Scores by Scale for Study 1 and Study 2

		Pretest			Posttest				
SASR Scale	Study Group	*n*	*M raw (SD)*	*M weighted (SD)*	*n*	*M raw (SD)*	*M weighted (SD)*	*t*	*df*
Intrinsic Motivation	Study 1	35	40.89 (4.57)	4.54 (0.51)	35	41.63 (5.36)	4.63 (0.60)	-1.03	34
	Study 2	45	42.00 (5.75)	4.67 (0.64)	45	42.00 (5.30)	4.67 (0.59)	0.00	44
Extrinsic Motivation	Study 1	35	21.46 (3.37)	3.58 (0.68)	35	21.77 (3.26)	4.35 (0.65)	-0.81	34
	Study 2	45	21.76 (3.46)	4.35 (0.14)	45	21.87 (3.77)	4.37 (0.75)	-.25	44
Personal Relevance & Control	Study 1	35	51.89 (5.05)	4.72 (0.46)	35	52.89 (4.29)	4.81 (0.39)	-1.78	34
	Study 2	45	52.42 (4.64)	4.77 (0.42)	45	53.20 (5.20)	4.84 (0.47)	-1.08	44
Metacognition	Study 1	35	76.83 (9.34)	4.27 (0.52)	35	80.97 (11.03)	4.50 (0.61)	-3.90*	34
	Study 2	45	78.64 (9.41)	4.37 (0.52)	45	81.62 (9.85)	4.53 (0.55)	-2.37*	44
Self-Efficacy	Study 1	35	32.34 (4.07)	4.04 (0.51)	35	32.86 (3.74)	4.11 (0.47)	-1.11	34
	Study 2	45	31.82 (4.70)	6.36 (0.94)	45	32.58 (4.55)	6.52 (0.91)	-1.17	44
Self-Regulation	Study 1	35	48.31 (4.46)	4.03 (0.37)	35	48.67 (4.86)	4.06 (0.41)	-0.09	34
	Study 2	45	47.31 (3.95)	3.94 (0.33)	45	47.51 (4.86)	3.96 (0.41)	-0.34	44

*Indicates a statistically significant difference between pretest and posttest scores when overall error controlled at .05 level.

Research Question 2

To what extent is there a statistically significant relationship between students' self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?

For both studies, students' letter grades were converted into numerical equivalents used to calculate grade point averages at the community college where the studies took place. Letter grades and equivalent numeric values can be found in Table 12. In both studies, average student performance was equivalent to a B+ letter grade. Students in Study 2 performed slightly better than students in Study 1.

For both studies, correlations were computed using students' postintervention SASR totals and numeric grades. In both studies, results indicated that there were weak positive relationships between students' final course grades and SASR postintervention scores. The correlations in both studies were not statistically significant. Next, correlations were computed using the final course grades and SASR postintervention scores by individual scale for both studies. The data in Table 46 details the correlation coefficients for final course grades and SASR postintervention scores for both studies.

Table 46
Comparing Pearson Correlations of Course Grade and Posttest SASR Scale Scores for Study 1 (n=35) and Study 2 (n=45)

Variables	*SASR Total*	*IM*	*EM*	*MC*	*PRC*	*SE*	*SR*
Course Grade (Study 1)	.16	.09	.02	.21	-.16	.16	.18
Course Grade (Study 2)	.19	.16	.11	.18	.13	.06	.17

Results indicated that the relationships between final course grades and SASR postintervention scores by individual scale for Study 1 and Study 2 were all weak and not

statistically significant. The strongest relationship found in both studies was between final course grades and the metacognition scale. The weakest relationship found between final course grade and SASR scales, differed in between studies. In Study 1, the weakest relationship between final course grade and the extrinsic motivation scale. In Study 2, the weakest relationship was between final course grade and the self-efficacy scale.

In both studies, the distributions of grades were similar, in that in Study 1, 60% of students received an "A" grade or an "A-" grade and in Study 2, 58% received an "A" grade or an "A-" grade. In Study 1, 20% of students received a final course grade of "B+" or "B" and in Study 2, 29% of students received a final course grade of "B+" or "B." In both studies, the distribution of grades were skewed toward the means of 3.32 (SD=.98) in Study 1 and 3.46 (SD =.69) in Study 2. In both cases, based on the small sample size of the individual grade groups, no additional correlations between SASR responses postintervention and individual grade groups could be computed. Figure 5 details the complete distributions of final course grades received in both Study 1 and Study 2.

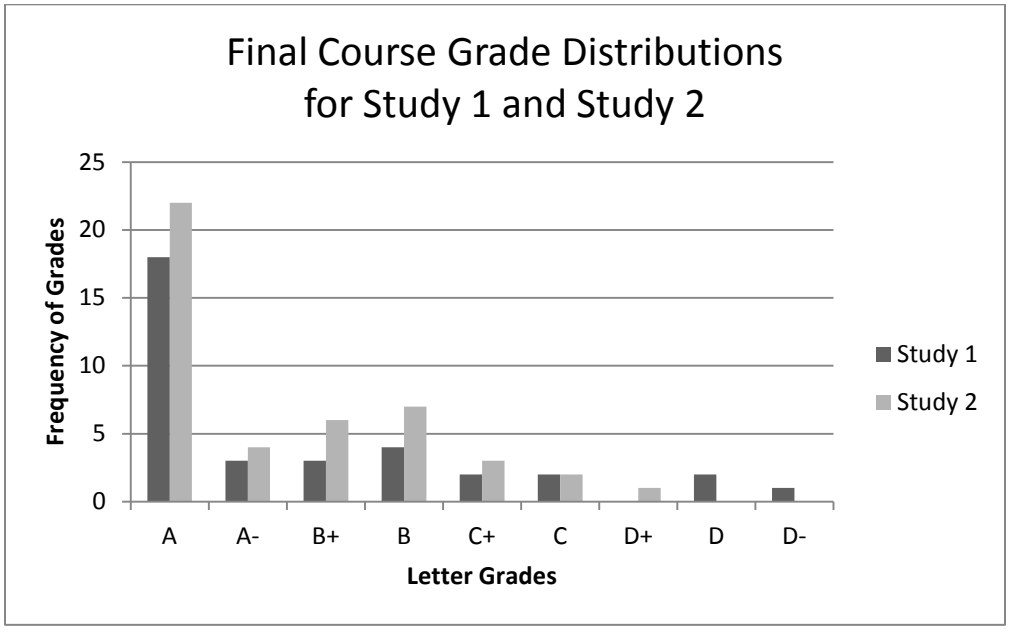

Figure 5. Final grade distribution of students enrolled in 10G & 10H online courses for both Study 1 and Study 2.

Research Question 3

How are students utilizing the GAME plan framework to support their learning in an online course?

Students completed the GAME plan reflection form every week, over a 4-week period after participating in initial self-regulated learning instruction and introduction to the GAME plan framework. Four GAME plan reflections were completed for each student participant. The top three qualitative themes found most frequently in student responses to the GAME plan reflections for Study 1 and Study 2 will be presented by phase in the following order: goals, actions, monitoring, and evaluation.

Comparing Frequencies of Themes for the Goals Phase

Students in Study 1 and Study 2 responded to the following two target questions weekly for a period of 4 weeks using the GAME plan reflection form.

1. What are your learning goals for the week?
2. How did you benefit from achieving these goals?

Table 48 presents the frequency of the top three themes found in the goals phase of the GAME plan based on the two target questions posed in Reflections 1-4 grouped by study. Overall, in both Study 1 and Study 2, students' learning goals were most frequently centered on general performance measures such as completing and staying on top of assignments in their online courses. Additionally, in both Study 1 and Study 2, students perceived the benefit of achieving their goals was better academic performance in their online course, the ability to stay on task and follow through with completing coursework, and increased comprehension of key concepts.

Table 47
Top Three Percentage of Themes by Frequency of Responses Found in *Goals* Phase of the GAME Plan Framework Reflections 1-4 for Study 1 and Study 2

		Themes			
Target Questions	Study Group	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What are your learning goals for the week?	Study 1	Complete assigned reading and take notes (35) Complete course assignments (29) Planning and organization of tasks (11)	Complete course assignments (26) Complete assigned reading and take notes (23) Prepare for tests/quizzes (17) Time management (17)	Complete course assignments (29) Complete assigned reading and take notes (24) Time management (18)	Complete course assignments (37) Complete assigned reading and take notes (22) Time management (18)
	Study 2	Complete assigned reading and take notes (21) Complete course assignments (19) Prepare for tests/quizzes (18)	Complete course assignments (28) Complete assigned reading and take notes (23) Strive for content mastery /clarifying understanding(13) Time management (13)	Prepare for tests/quizzes (28) Complete course assignments (22) Complete assigned reading and take notes (15)	Complete course assignments (29) Complete assigned reading and take notes (19) Prepare for tests/quizzes (19)
How will you benefit from achieving these goals?	Study 1	More time for school/life balance (22) Increased understanding/retention of course material (18) Moved ahead with coursework (18) Limited stress (13)	Improved performance in online course (30) Feel more prepared for quiz/tests/assignments (20) Increased understanding/retention of course material (15) Managed time well (15)	Increased self-efficacy (19) Increased understanding/retention of course material (16) Stayed on task (completed assignments) (16) Feel more prepared for quiz/tests/assignments (11)	Improved performance in online course (26) Stayed on task (completed assignments) (21) Increased self-efficacy (13) Managed time well (13)
	Study 2	Increased understanding/retention of course material (32) Stayed on task (completed assignments) (17) Feel more prepared for quiz/tests/assignments (13) Improved performance in online course (13)	Stayed on task (completed assignments) (26) Increased understanding/retention of course material (21) Improved performance in online course (16)	Increased understanding/retention of course material (22) Stayed on task (completed assignments) (20) Improved performance in online course (15)	Stayed on task (completed assignments) (20) Increased understanding/retention of course material (18) Improved performance in online course (13)

Specifically, for target question 1, the most common theme represented across reflections was *complete course assignments.* In Study 1, it is the most frequently represented theme in Reflections 2, 3, and 4. In Study 2, *complete course assignments*, it is the most frequently represented theme in Reflections 2, and 4. Other common themes in reference to learning goals represented across reflection in both studies were *complete assigned reading and take notes*, *prepare for tests or quizzes*, and *time management.*

For target question 2, the most common theme represented across reflections was *increased understanding or retention of course material.* In Study 1, it is represented in the top three frequent themes across three out of four reflections. In Study 2, *increased understanding or retention of course material* was the only theme represented in the top three across all four reflections. Other common themes in reference to benefits of achieving learning goals represented across reflections in both studies were *stayed on task (completed assignments), improved performance in online course, and Feel more prepared for quiz or tests or assignments.*

Comparing Frequencies of Themes for the Actions Phase

Students in Study 1 and Study 2 responded to the following two target questions weekly for a period of 4 weeks using the GAME plan reflection form.

1. What learning strategies did you use this week to support your learning goal(s)?
2. What are the specific actions that you took this week to achieve this goal?

Table 48 presents the frequency of the top three themes found in the actions phase of the GAME plan based on the two target questions posed in Reflections 1 to 4 grouped by study. Overall, in both Study 1 and Study 2, students' actions were most frequently focused on managing time, reading comprehension, and setting achievable goals. Additionally, in both Study 1 and Study 2, students' specific actions taken to work toward achieving goals were centered on scheduling study time and utilizing tools such as calendars or goals checklist to manage tasks.

Specifically, for target question 1, the most common theme represented across reflections was *time management.* In Study 1, it is the most frequently represented theme in Reflections 1, 3, and 4. In Study 2, *time management* is the most frequently

represented theme in Reflections 1, 2, 3, and 4. Other common themes in reference to specific actions taken to support learning goals represented across reflections in both studies were *goal setting (daily, weekly)*, *note taking*, and *reading for understanding.*

Table 48
Top Three Percentages of Themes by Frequency of Responses Found in *Actions* Phase of the GAME Plan Framework Reflections 1-4 for Study 1 and Study 2

		Themes			
Target Questions	Study Group	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What learning strategies did you use this week to support your learning goal (s)?	Study 1	Time management (36) Goal setting (daily, weekly) (20) Note taking (11)	Reading for understanding (33) Flash cards (13) Highlighted for quick reference (10) Repetition/practice (10)	Time management (31) Personal integrity, follow-through with study plans (17) Note taking (11)	Time management (39) Goal setting (daily, weekly) (16) Organize / map out course material (6) Utilize study guide to test knowledge acquisition (6) Note taking (6) Memorization (6) Personal integrity (6)
	Study 2	Time management (26) Note taking (18) Goal setting (daily, weekly) (16)	Time management (30) Goal setting (daily, weekly) (15) Note taking (13) Utilize study guide to test knowledge acquisition (13)	Time management (40) Reading for understanding (13) Note taking (10)	Time management (29) Note taking (17) Goal setting (daily, weekly) (14) Personal integrity, follow-through with study plans (14)
What are the specific actions that you took this week to achieve this goal?	Study 1	Mapped out specific times to study (20) Created a list of goals/tasks and checked them off after completion (17) Monitored progress with tools (10) Reviewed course materials to check for understanding (10) Used discipline to follow through and finish assignments on time (10) Used practice test/study guides to guide note taking (10)	Mapped out specific times to study (17) Created a list of goals/tasks and checked them off after completion (14) Used practice test/study guides to guide note taking (14) Chunked reading into smaller sections (14) Reviewed course materials to check for understanding (14)	Mapped out specific times to study (26) Used practice test/study guides to guide note taking (16) Focused on perseverance (13)	Mapped out specific times to study (17) Chunked reading into smaller sections (14) Focused on perseverance (14) Reviewed course materials to check for understanding (14)
	Study 2	Mapped out specific times to study (31) Created a list of goals/tasks and checked them off after completion (15) Reviewed course materials to check for understanding (15)	Mapped out specific times to study (32) Reviewed course materials to check for understanding (15) Created a list of goals/tasks and checked them off after completion (10) Managed time well (10)	Created a list of goals/tasks and checked them off after completion (19) Mapped out specific times to study (17) Used practice test/study guides to guide note taking (14)	Mapped out specific times to study (26) Reviewed course materials to check for understanding (18) Chunked reading into smaller sections (13)

For target question 2, the most common theme represented across reflections was *mapped out specific times to study.* In Study 1, it is the most frequently represented theme in Reflections 1, 2, 3, and 4. In Study 2, *mapped out specific times to study*, is the most frequently represented theme in Reflections 1, 2, and 4. Other common themes in reference to specific actions taken to support learning goals represented across reflections in both studies were *created a list of goals or tasks* and *checked them off after completion, reviewed course materials to check for understanding, and used practice test or study guides to guide note taking.*

Comparing Frequencies of Themes for the Monitoring Phase

Students in Study 1 and Study 2 responded to the following three common target questions weekly for a period of 4 weeks using the GAME plan reflection form.

1. How did you monitor progress toward this week's goals?
2. How much time did you devote to studying this week?
3. What obstacles if any stood in the way of your achieving this week's goals?

Table 49 presents the frequency of the top three themes found in the actions phase of the GAME plan based on the two target questions posed in Reflections 1-4 grouped by study. Overall, in both Study 1 and Study 2, students' most frequently utilized tools such as calendars, planners, and checklists to monitor progress toward goals. Additionally, in both Study 1 and Study 2, students' specific actions taken to work toward achieving goals were centered on scheduling study time and utilizing tools such as calendars or goals checklist to manage tasks. In both studies, students most frequently reported devoting between 8-10 hours of time studying. In general, in both studies, students frequently

encountered obstacles centered on establishing balance between responsibilities for school, work, and family.

Table 49
Top Three Percentages of Themes by Frequency of Responses Found in *Monitoring* Phase of the GAME Plan Framework Reflections 1-4 for Study 1 and Study 2

		Themes			
Target Questions	*Study Group*	*Reflection 1(%)*	*Reflection 2 (%)*	*Reflection 3(%)*	*Reflection 4(%)*
How did you monitor progress towards this week's goals?	Study 1	Used a calendar to manage time (34) Used a planner/organization tool to manage tasks (23) Used a goals checklist (20)	Used a goals checklist (26) Used a calendar to manage time (17) Used a planner/organization tool to manage tasks (17) Chunking strategy (14) Created/executed a study plan (14)	Used a calendar to manage time (24) Used a goals checklist (24) Created/executed a study plan (21) No monitoring (12)	Used a goals checklist (31) Created/executed a study plan (19) Used a calendar to manage time (16) Used a planner/organization tool to manage tasks (16)
	Study 2	Used a goals checklist (37) Created/executed a study plan (16) Chunking strategy (12) Used a calendar to manage time (12) Used a planner/organization tool to manage tasks (12)	Used a goals checklist (39) Used a calendar to manage time (17) Used assignment grades to monitor progress (15)	Used a goals checklist (31) Used a calendar to manage time (25) Used a planner/organization tool to manage tasks (16)	Used a planner/organization tool to manage tasks (22) Created/executed a study plan (20) Used a goals checklist (20) Used a calendar to manage time (15)
How much time did you devote to studying this week?	Study 1	Over 10 hours per week (34) 4-6 hours per week (28) 6-8 hours per week (25)	Over 10 hours per week (41) 6-8 hours per week (19) 4-6 hours per week (16) 8-10 hours per week (16)	8-10 hours per week (25) Over 10 hours per week (22) 4-6 hours per week (19)	Over 10 hours per week (24) 6-8 hours per week (21) 0-2 hours per week (17) 8-10 hours per week (17)
	Study 2	8-10 hours per week (33) Over 10 hours per week (23) 6-8 hours per week (15)	4-6 hours per week (29) Over 10 hours per week (29) 8-10 hours per week (17)	8-10 hours per week (29) Over 10 hours per week (29) 2-4 hours per week (21)	6-8 hours per week (26) Over 10 hours per week (24) 4-6 hours per week (21)
What obstacles if any stood in the way of your achieving this week's goals?	Study 1	Balancing school, work, home/social life (28) Managing time for school (18) Maintain motivation for learning/studying (13)	Balancing school, work, home/social life (32) No obstacles (24) Health (12)	Balancing school, work, home/social life (36) No obstacles (18) Maintain motivation for learning/studying (15)	Balancing school, work, home/social life (42) Health (13) No obstacles (13) Managing time for school (11) Staying on task (11)
	Study 2	Balancing school, work, home/social life (49) Health (11) Managing time for school (11) Maintain motivation for learning/studying (11)	Balancing school, work, home/social life (42) No obstacles (23) Health (12) Managing time for school (12)	Balancing school, work, home/social life (42) Managing time for school (16) Course content (13)	Balancing school, work, home/social life (40) No obstacles (19) Health (14)

Specifically, for target question 1, the most common theme represented across reflections was *used a goals checklist.* In Study 1, *used a goal checklist* was the most frequently represented theme across Reflections 1 to 4. In Study 2, *used a goals checklist*, was the most frequently represented theme in Reflections 1, 2, and 3. Other common themes in reference to strategies used to monitor progress toward learning goals represented across reflections in both studies were *used a calendar to manage time, used a planner or organization tool to manage tasks,* and *created or executed a study plan.*

For target question 3, the most common theme represented across reflections was *balancing school, work, home or social life.* In Study 1, *balancing school, work, home or social life* was the most frequently represented theme in Reflections 1, 2, 3, and 4, represented by 28%, 32%, 36%, and 42%, respectively. In Study 2, *balancing school, work, home or social life* was also the most frequently represented theme in Reflections 1, 2, 3, and 4, represented by 49%, 42%, 42%, and 40%, respectively. Other common themes in reference to common obstacles encountered while working toward achieving goals represented across reflections in both studies were *health, managing time for school,* and *maintain motivation for learning or studying.*

Comparing Frequencies of Themes for the Evaluation Phase

Students in Study 1 and Study 2 responded to the following two common target questions weekly for a period of 4 weeks using the GAME plan reflection form.

1. What was the GAME plan process like for you?
2. To achieve next week's goals, what changes would you make to improve your effectiveness?

Table 50 presents the frequency of the top three themes found in the evaluation

phase of the GAME plan based on the two target questions posed in Reflections 1-4 grouped by study. Overall, in both Study 1 and Study 2, students' most frequently reflected that the GAME plan framework was easy to use, effective, and supported their success in online courses. Additionally, students reflected that the GAME plan framework promoted organization and workflow management that assisted students with staying on task. In both Study 1 and Study 2, students' reflected that they most frequently made changes to study plans and time management strategies to improve goal outcomes week after week.

Specifically, for target question 1, the most common theme represented across reflections was *simple, effective, easy to adapt or adopt.* In Study 1, *simple, effective, easy to adapt or adopt* was the most frequently represented theme in Reflections 1 and 2. In Study 2, *simple, effective, easy to adapt or adopt*, was the most frequently represented theme in Reflections 1, 3, and 4. Other common themes in reference to students' perceptions of the GAME plan framework after implementation represented across reflections in both studies were *routine helped me stay on track or avoid procrastination* and *helped me stay organized and manage work flow.*

For target question 2, the most common theme represented across reflections was *improve study plan or adjust time.* In Study 1, *improve study plan or adjust time* was the most frequently represented theme in Reflections 1, 2, 3, and 4. In Study 2, *improve study plan or adjust time* also was the most frequently represented theme in Reflections 1, 2, 3, and 4. Other common themes in reference to common obstacles encountered while working toward achieving goals represented across reflections in both studies were *no changes, keep doing what I am doing*, and *stay on task.*

Table 50
Top Three Percentages of Themes by Frequency of Responses Found in *Evaluation* Phase of the GAME Plan Framework Reflections 1-4 for Study 1 and Study 2

		Themes			
Target Questions	Study Group	Reflection 1(%)	Reflection 2 (%)	Reflection 3(%)	Reflection 4(%)
What was the GAME plan process like for you?	Study 1	Simple, effective, easy to adapt/adopt (53) Increased self-efficacy for managing online learning (13) Similar to students' current learning process (11)	Simple, effective, easy to adapt/adopt (34) Routine helped me stay on track/avoid procrastination (23) Helped me stay organized and manage work flow (17)	Helped me stay organized and manage work flow (31) Simple, effective, easy to adapt/adopt (25) Difficult to adopt the process (19)	Routine helped me stay on track/avoid procrastination (31) Simple, effective, easy to adapt/adopt (25) Helped me stay organized and manage work flow (16)
	Study 2	Simple, effective, easy to adapt/adopt (46) Helped me stay organized and manage work flow (15) Routine helped me stay on track/avoid procrastination (13) Similar to students' current learning process (13)	Routine helped me stay on track/avoid procrastination (24) Helped me stay organized and manage work flow (22) Simple, effective, easy to adapt/adopt (22)	Simple, effective, easy to adapt/adopt (29) Routine helped me stay on track/avoid procrastination (26) Difficult to adopt the process (11)	Simple, effective, easy to adapt/adopt (39) Routine helped me stay on track/avoid procrastination (16) Increased self-efficacy for managing online learning (14)
To achieve next week's goals, what changes would you make to improve your effectiveness?	Study 1	Improve study plan/adjust time management (54) Revise goals (13) Stay on task (10)	Improve study plan/adjust time management (46) No changes, keep doing what I am doing (14) Work to adopt GP process (14)	Improve study plan/adjust time management (27) No changes, keep doing what I am doing (22) Revise goals (10) Stay on task (10) Work to adopt GP process (10)	Improve study plan/adjust time management (32) No changes, keep doing what I am doing (18) Stay on task (11)
	Study 2	Improve study plan/adjust time management (44) No changes, keep doing what I am doing (22) Gain understanding of course material (7)	Improve study plan/adjust time management (43) No changes, keep doing what I am doing (20) Organize work flow (9) Work to balance school/home life (9)	Improve study plan/adjust time management (45) No changes, keep doing what I am doing (16) Manage stress/health and wellness (11)	Improve study plan/adjust time management (28) No changes, keep doing what I am doing (26) Stay on task (13)

Research Question 4

What are students' perceptions of the effectiveness of the SRL intervention?

Students completed both the GAME Plan Audiobook Evaluation completed after the self-regulated learning strategy instruction and the GAME Plan Course Evaluation,

completed at the end of the study to assess the effectiveness of the self-regulated learning intervention.

Comparing Frequencies of Themes for the Audiobook Evaluation

Students in Study 1 and Study 2 responded to the following five target questions directly after participating in instruction beginning the authentic practice phase in their online courses.

1. Did you find the GAME plan audiobook helpful? Why or why not?
2. What did you like the most about this GAME plan audiobook?
3. What did you like the least about the GAME plan audiobook?
4. What was the most important thing that you learned from the GAME plan audiobook?
5. What one thing would you recommend to improve the GAME plan audiobook?

Table 51 and Table 52 present the frequencies of themes found in students' responses to questions in the GAME plan audiobook evaluation. Representative themes are in order of frequency percentage derived from student responses, grouped by target question and study administration. Overall, in both Study 1 and Study 2, the majority of students perceived the GAME plan audiobook as helpful and effective in providing a strategic framework to utilize in support of their success in their online courses. Specifically 83% of students in Study 1 perceived the GAME plan audiobook as helpful and 86% of students in Study 2 perceived the GAME plan audiobook as helpful in supporting success in online courses. In both studies, students reflected that the aspects of the GAME plan framework that were most liked were the ease of the holistic strategic process and its clearly defined steps for execution. Similar perceptions were reported in terms of aspects of the framework that were least liked by students on both studies.

Table 51
Comparison of Themes of Students' Perceptions of the GAME Plan Audiobook Evaluation for Study 1 and Study 2 for Questions 1-3

Target Questions	Study Group	Themes (%)
Did you find the GAME plan audiobook helpful? Why or why not?	Study 1	Why? Provided easy framework for organization (44) Promoted adapting learning strategy use for success in online environment (17) Provided procedural framework for managing learning (14) Raised awareness around potential online learning obstacles (11) Recognized value of online learning strategies (8) Raised awareness around lack of learning strategy use skills (6) Why not? Previous experience using learning strategies (67) Previous exposure to video content material (17) Previous experience with online learning (8) Solely interested in content mastery (8)
	Study 2	Why? Raised awareness around potential online learning obstacles (30) Provided procedural framework for managing learning (19) Provided easy framework for organization (17) Found study techniques presented, concrete and relevant (13) Recognized value of online learning strategies (13) Promoted adapting learning strategy use for success in online environment (9) Why not? Previous experience with online learning (71) Previous experience using learning strategies (14) Previous exposure to video content material (14)
What did you like the most about this GAME plan audiobook?	Study 1	Raised awareness of online learning obstacles and how to use strategies to support success (32) Easy to understand and remember GAME process (21) Presentation of new strategies and the connection to existing learning strategies already in use (18) Goal setting with SMART goal strategy (12) Visual presentation of video (9) Clear and practical steps that can be divided into tasks (9)
	Study 2	Clear and practical steps that can be divided into tasks (26) Easy to understand and remember GAME process (24) Raised awareness of online learning obstacles and how to use strategies to support success (24) Presentation of new strategies and the connection to existing learning strategies already in use (10) Goal setting with SMART goal strategy (5) Intro to the role of SRL in managing learning (5) Pace of the video; easy to follow and keep up (5) Narration of video (2)
What did you like the least about the GAME plan audiobook?	Study 1	Length of the video (20) Nothing; video "as is" was good. (20) Audio quality; lack of voice inflection on audio track (17) Delivery of material was helpful but boring. Pace of video was too slow. (11) Size and clarity of images inside of video (9) Too much information presented to digest and process (9) Suggestions for changes in video content (9) Students had previous exposure to video content material, redundant (6)
	Study 2	Length of the video (26) Delivery of material was helpful but boring. Pace of video was too slow. (19) Audio quality; lack of voice inflection on audio track (14) Nothing; video "as is" was good. (14) Students had previous exposure to video content material, redundant (7) Suggestions for changes in video content (7) Size and clarity of images inside of video (5) Too much information presented to digest and process (5) Did not provide example of complete GAME plan (5)

Table 52
Comparison of Themes of Students' Perceptions of the GAME Plan Audiobook Evaluation for Study 1 and Study 2 for Questions 4-6

Target Questions	Study Group	Themes (%)
What was the most important thing that you learned from the GAME plan audiobook?	Study 1	SMART Goal strategy (35) Learning how to utilize the GAME plan to support success in online course (24) Importance of managing time and tasks (18) The acronym G.A.M.E. (9) Learning to balance personal and professional life. (9) Personal control over learning outcomes and individual success (6)
	Study 2	SMART Goal strategy (35) Personal control over learning outcomes and individual success (19) Learning how to utilize the GAME plan to support success in online course (16) Evaluating your process after implementing a plan (9) Importance of managing time and tasks (9) Using tools to monitor progress; e.g. calendar, planner (9) The acronym G.A.M.E. (2)
What one thing would you recommend to improve the GAME plan audiobook?	Study 1	Nothing; video "as is" was good. (21) Address audio; better clarity, alternate voices on narration (18) Make the presentation "more fun" (15) Shorten length of video (12) Increase level of interactivity in the video (15) Include more completed GAME plan examples (9) Better visual presentation; Increase font size on text slides (9) Changes to specific video content (6)
	Study 2	Shorten length of video (26) Nothing; video "as is" was good. (19) Address audio; better clarity, alternate voices on narration (15) Include more completed GAME plan examples (11) Increase level of interactivity in the video (11) Make the presentation "more fun" (11) Better visual presentation; Increase font size on text slides (9)
Overall, the GAME plan audiobook was effective in preparing me to support my online learning:	Study 1	Effective (49) Very effective (26) Somewhat effective (17) Slightly effective (6) Not effective at all (3)
	Study 2	Effective (39) Somewhat effective (27) Very effective (19) Slightly effective (12) Not effective at all (4)

Specifically, students in both studies did not like the length of the video and audio quality of the narration in the audiobook. Across both studies, students reflected that the most important aspect retained from the GAME plan audiobook was the SMART goal strategy, used to ensure that achievable goals were specific, measurable, and timely. Recommendations for Study 1 and Study 2 included changes to the length of the video and enhancing the audio quality. In both Study 1 and Study 2, however, elevated percentages of students reflected that they were satisfied with the GAME plan audiobook

in its current state. Last, in both Study 1 and Study 2, students' perceived the GAME plan audiobook as effective in preparing them to support their online learning.

Comparing Frequencies of Themes for the GAME Plan Course Evaluation

Students in Study 1 and Study 2 responded to the following five target questions directly after participating in instruction beginning the authentic practice phase in their online courses. The course evaluation consisted of 5 Likert items posed in terms of statements, in which students selected responses on a 6-point scale, where (1) represents *Strongly Disagree* and (6) represents *Strongly Agree*. The last question asked students to indicate whether or not they plan to continue using the GAME plan strategic framework to support their success in future online courses. Table 53 provides details regarding student response frequencies in both studies.

Table 53
Comparison of Response Frequencies of Students' Perceptions of the GAME Course Evaluation for Study 1 and Study 2

		Frequency (%)					
Target Questions	Study Group	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Overall, the GAME plan framework helped me manage my self-regulated learning in the online course.	Study 1	0	0	6	29	56	9
	Study 2	7	7	7	30	35	13
Creating GAME plans weekly increased my awareness about my own learning process.	Study 1	0	3	0	29	56	12
	Study 2	7	6	2	30	44	12
Goal setting and strategic planning helped me achieve my goals.	Study 1	0	0	3	38	38	21
	Study 2	4	2	6	13	57	19
Executing learning strategies and monitoring progress toward my goals supported my learning.	Study 1	0	0	6	21	59	15
	Study 2	4	2	2	24	52	17
I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals.	Study 1	0	0	3	29	56	12
	Study 2	0	4	3	33	48	15

Overall, in both studies, students' perceptions of the GAME plan intervention were relatively similar. Similar percentages of students agreed that GAME plan intervention assisted them in managing their self-regulated learning processes in their online courses. In Study 2, however, some students disagreed with the statement that the GAME plan intervention assisted them in managing their self-regulated learning processes. In Study 1 and Study 2, both groups generally agreed that creating GAME plans weekly increased their metacognitive awareness about their online learning process. In Study 2, however, 15% of students disagreed that creating weekly GAME plans increased their metacognitive awareness. In terms of goal setting and strategic planning as a means to assist students with achieving their goals, in Study 2 higher percentages of students agreed that goal setting and strategic planning assisted students with achieving their goals, than in Study 1. Additionally, in Study 2, 12% of students disagreed with this statement, while in Study 1, only 3% of students disagreed. In both studies, students generally agreed that the process of executing learning strategies and monitoring progress toward goals supported their learning. Last, in both studies, students generally agreed that they were comfortable evaluating their self-regulated learning process and using their judgments to make adjustments as necessary in support of their learning goals.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to examine the effects of a self-regulated learning strategy intervention on students' academic performance and self-regulated learning conduct. Differences in self-regulated learning conduct preintervention and postintervention were examined as well as the self-regulated learning process undertaken to support academic success. The study was administered to two groups of students enrolled in intact general education online courses at a community college in Northern California. This section begins with a summary of the study and is followed by a summary of findings organized by study administration. Additionally, a detailed discussion of the results of both study administrations will be presented organized by the research questions. Subsequently, limitations associated with the study are reported and conclusions are made. Last, research and educational implications are discussed.

Summary of Study

The study was designed to examine the effects of a self-regulated learning strategy intervention and authentic practice of self-regulated learning skill development on community-college level students' academic performance and self-regulated learning behaviors during online courses. Researchers posited that the transition to learning in the online environment requires greater learner autonomy, self-regulation, and individual responsibility for academic performance (Andrade & Bunker 2009). Students are often not prepared for the autonomous learning environment in online courses and struggle to succeed in online courses (Artino, 2009; Harrell, 2008; Thomas & Gadbois, 2007). Student's academic success and retention in online courses is based largely on previous

behavior, attitudes, and intrinsic motivation that drive behavior through the formation of intent to learn (Artino 2009; Artino & Stephens 2009; Kim 2009; Lin, Lin et al. 2008). The study was designed to draw from previous research that utilized self-regulated learning strategy to develop students' skills in learning goal orientation, learning strategy use, metacognitive monitoring, and self-evaluation to promote student success (Kitsantas & Zimmerman, 2008; Nota et al., 2004; Schunk, 2008).

The self-regulated learning strategy intervention in this study utilized the GAME plan strategic framework, modeled after phases of the self-regulated learning process model, to introduce self-regulated learning theory, learning strategy use, metacognitive monitoring, and self-evaluation. The intervention took place over 8 weeks during students' online courses and was integrated into the course curriculum as study strategies exercises. The intervention began with the strategy instruction presented in a 30-min audiobook that students accessed through YouTube. Throughout the video, students learned how to apply the GAME plan framework to their studies to support their success in online courses. Specifically, students learned how to set SMART goals, create strategic plans for learning, apply strategic plans, monitor progress toward goals, and reflect on the effectiveness of strategic plans. During the second phase of the intervention, students engaged in authentic practice of self-regulated learning skill development by implementing the GAME plan framework weekly during their online courses.

The study implemented a within-subject pretest-posttest design with intact groups of community-college students enrolled in general education online courses. Both quantitative and qualitative data were gathered to assess the effectiveness of a self-regulated learning strategy intervention on students' self-regulated learning conduct and

academic performance. The independent variable was the self-regulated learning strategy intervention using the GAME plan framework. The dependent variables were students' self-regulated learning conduct responses measured by scales from the Survey of Academic Self-Regulation (SASR) postintervention as well as academic performance that was measured by the final course grade. Quantitative data were used to compare students' self-regulated learning conduct preintervention and postintervention at the end of the online courses. Additionally, postintervention scores were correlated with academic performance. Qualitative data were gathered through the weekly structured-diary reflections detailing students' application of self-regulated learning processes used to support their learning throughout the duration of the online courses. In the current study, qualitative data was used to enhance and confirm quantitative data by providing rich insights into students' weekly engagement in self-regulated learning processes throughout the duration of the 12-week online course.

In terms of the study administration procedures, the studies began with students submitting their responses to the SASR, a preassessment of self-regulated learning conduct prior to participating in the intervention. After completing the pre-assessment SASR, students watched the 30-min SRL intervention instruction featuring the GAME plan strategic framework. To address fidelity issues regarding whether or not students actually watched the GAME plan video, students completed a short GAME plan audiobook evaluation of the instruction delivered after watching the video. Next, students completed structured-diary forms at the end of each week for a period of 4 weeks. After completing the weekly structured-diary forms, students completed the short demographic survey detailing their gender, age, ethnicity, educational background, enrollment status

(part-time or full-time), goals for education (degree pursuant versus vocational training), and previous experience with online courses. Next, students completed the SASR as a postassessment of self-regulated learning conduct after participating in the intervention. To complete GAME plan course activities, students submitted responses to a final GAME plan course evaluation, sharing their perceptions regarding the effectiveness of implementing the GAME plan framework in support of their success in online courses.

To investigate the effect of participating in a self-regulated learning strategy intervention on students' self-regulated learning conduct, academic performance, and self-regulated learning skill development in online courses, the current study examined the following research questions:

To what extent does students' self-regulated learning conduct change after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR) preintervention and at the end of the intervention?

To what extent is there a relationship between students' self-regulated learning conduct as measured by scores on the SASR and their academic achievement as measured by final course grades?

How are students utilizing the GAME plan framework to support their learning in an online course?

What are students' perceptions of the effectiveness of the SRL intervention?

Summary of Findings

This section outlines the summary of findings for the study. Findings of each study administration will be discussed separately, followed by main findings of both

study administrations. Within each study administration, quantitative results will be discussed followed by qualitative results.

Summary of Findings from Study 1

The first research question examined whether there was a significant effect of self-regulated learning and implementation of the GAME plan framework on students' perceptions of their self-regulated learning conduct based on self-reported responses to the Survey of Academic Self-Regulation before and after intervention. A statistically significant increase in preintervention responses to postintervention responses was found for the group on combined SASR scale responses. Students' perceptions regarding their self-regulated learning conduct increased after participating in the self-regulated learning intervention. The effect size for the difference in students' perceptions before instruction and after participation in authentic practice of skill development as measured by Cohen's d was .50. In terms of individual SASR scale responses; there was a statistically significant increase in preintervention responses to postintervention responses for the group on the Metacognition scale. Students' perceptions regarding their levels of metacognition for managing learning online increased.

The second research question explored the relationship between students' perceptions of their self-regulated learning conduct measured by responses to the SASR postintervention and the final course grade earned in their online courses. It was found that the relationship between students' final course grades and overall SASR postintervention responses was weak and not statistically significant. Additionally, the relationship between students' perceptions of their self-regulated learning conduct

measured by responses to the SASR postintervention by individual scales and their final course grades also were weak and not statistically significant.

The third research question provided insights into the process students used to implement the GAME plan framework in support of their online learning success. Over the course of four weekly reflection submissions, students' learning goals were centered on general performance measures and staying on task with assignments in their online courses. Students perceived the benefits of achieving their goals as better academic performance and follow through with completing coursework as assigned. Additionally, students selected time-management strategies, organization strategies, and reading comprehension strategies most frequently to support their learning. Specifically, students frequently charted study plans and created task lists to track steps taken toward achieving their goals. Students utilized certain tools to monitor progress toward achieving learning goals that included calendars and planners to organize time, track progress, and manage tasks. On average, students' devoted 8 to 10 hours per week to studying. Students identified the most common obstacle that stood in the way of achieving their learning goals as balancing their commitments to school, work, and home life. After evaluating weekly progress, students reflected that the GAME plan framework was easy to use, similar to learning strategies that were already familiar, and effective in supporting their academic success in online courses. Last, students concluded that focusing on refining the process used to outline study tactics and time management would improve overall effectiveness and achievement of weekly learning goals.

Finally, the fourth research question surveyed students' perceptions of the effectiveness of the self-regulated learning strategy instruction and subsequent authentic

practice utilizing the GAME plan strategic framework to support their success while working through an online course. After the initial instruction, most students found the GAME plan audiobook effective in providing a strategic framework to utilize and support their success in their online course. Students reported that utilizing the GAME plan framework helped increase awareness around potential obstacles and provided strategies aimed at overcoming obstacles. Students suggested that the GAME plan video could be improved by shortening the length of the audiobook presentation and including more opportunities for student interactivity with the material presented. After subsequent weeks of authentic practice utilizing the GAME plan framework, 65% of students agreed that the GAME plan framework assisted with developing self-regulated learning skills and managing their online learning. Eighty-three percent of students indicated that they would continue to use the GAME plan strategic framework in future online courses. Seventeen percent of students, however, indicated that they would not continue using the framework for the following reasons: (a) implementing the entire GAME plan in conjunction with other coursework was time consuming, (b) the GAME plan did not support the teacher-student feedback loop that was perceived to be an obstacle in online learning, and (c) students already had their own system for supporting their success in online courses that differed from the GAME plan strategic framework.

Summary of Findings from Study 2

Study 2 was conducted as a replication of Study 1 in that the same procedures, instruments, and intervention were administered to a sample of community-college students enrolled in the same set of general education courses taught by the same instructor in the subsequent quarter with the exception of two minor updates. In Study 2,

two slides were augmented in the GAME Plan Audiobook to reiterate relevant obstacles faced by online learners. Additionally, in Study 2, students answered on additional question on the qualitative reflection forms detailing how they managed the obstacles face while learning online. Utilizing the same set of research questions administered in Study 1, Study 2 yielded the following results.

Main findings of Study 1 and Study 2

In reference to students' perceptions of students' self-regulated learning conduct before and after instruction and implementation of the GAME plan framework as measured by comparing scores on the Survey of Academic Self-Regulation (SASR), the effect size for the difference in students' perceptions before instruction and after participation in authentic practice of skill development as measured by Cohen's d in the first study was .50 and in the second study was .21. Students in Study 2 had higher preintervention responses than students in Study 1. In Study 1, there was a statistically significant increase in preintervention SASR total responses and postintervention SASR total responses. In Study 2, the increase in preintervention SASR responses and postintervention SASR responses was not statistically significant. Differences between SASR scores also were examined by scale. Findings indicated that in both studies, statistically significant differences were found in preintervention SASR responses and postintervention SASR responses on the Metacognition scale. Students' perceptions regarding their ability to think critically about their online learning and make judgments to improve learning outcomes increased after participation in the GAME plan intervention.

In both studies with reference to relationships between students' self-regulated

learning conduct as measured by scores on the SASR and final course grades, results indicated that there were weak positive relationships between students' final course grades and SASR postintervention scores. The relationships between perceived self-regulated learning conduct and final course grades in both studies were not statistically significant. In both studies, the relationship between final course grades and metacognition was the strongest whereas relationships between final course grade and extrinsic motivation and self-efficacy were negligible. In both studies, average student performance was equivalent to a B+ letter grade. The distributions of grades were skewed toward the mean. In both studies, due to the small sample size of the individual grade groups, no additional correlations between SASR responses postintervention and individual grade groups were computed.

Students' weekly reflections detailing the processes used to develop self-regulated learning skills in support of success in their online courses indicated that utilizing the GAME plan framework to set goals, take action, monitor progress, and evaluate results was effective. In both studies, students regularly established goals centered on completing course assignments and time-management. In both studies, students reflected that their perceived benefit of achieving weekly goals was increased understanding and retention of course materials, and improved course performance. Students elected learning strategies focused on effectively managing time and reading comprehension. Tools such as calendars, planners, and goals checklist helped students stay on track in both studies. Obstacles students encountered that detracted from progress toward goals were centered on balancing responsibilities of school, work, family, and social commitments. Overall, students perceived the GAME plan framework as straightforward,

adaptable, and effective in keeping students organized and on track. To improve progress week to week, in both studies, students most frequently reflected the need to improve study plan and consistently assess time management.

Limitations

There were several limitations that were acknowledged before the actual implementation of the study. One of the limitations was the convenient samples used for both studies. The participants were enrolled in four intact child development classes offered fully online at an urban community college. All four courses were taught by the same instructor, and a few students who participated in the first study participated in the second study. Consequently, the results of the study may not be generalizable to a larger population that is not comparable to the population included in the study.

The second limitation, learner fatigue, was a concern in the present study. Results indicate that student attrition from full participation in all GAME plan tasks reduced the final number of viable data sets analyzed in the study. For example, in Study 1, 62 participants completed the two online courses, however, only complete data sets were analyzed for 35 students. In Study 2, 64 participants completed the two online courses, however, only complete data sets were analyzed for 45 students. It is not clear why students did not complete all GAME plan activities as they were included in their course assignments therefore making students eligible for receiving points for submitting activities. Additionally, three students who participated in the Study 1 participated in study 2. The repetition of the GAME plan activities during two consecutive quarters may have affected their responses.

The third limitation was the researcher's decision to omit some of the other inclusive elements of the self-regulated learning process such as effort regulation, peer learning, and help seeking. The omission may have given students an inadequate representation of the multifaceted construct of self-regulated learning. Particularly, in the weekly reflections submitted, students mentioned help seeking and peer learning as possible solutions to overcoming obstacles faced while working through their online courses. As these aspects were not emphasized in the instruction or GAME plan framework, students did not make the connection between seeking out support from their instructor or peers and its consideration as a viable learning strategy.

The fourth limitation was the use of two self-report measures of self-regulated learning; the SASR and the structured-diary forms. Self-report measures are not as accurate as measures of direct observation such as trace log data and think-aloud protocols (Winters, Greene, & Costich, 2008). Researchers suggest that students may have difficulty accurately reporting study behaviors (Boekaerts & Cascallar, 2006). When responding to the SASR, students may have responded to the survey questions in a socially desirable manner, particularly because students were aware that their responses would be accessible by their instructor and wanted their responses to reflect highly upon their efforts to succeed in their online courses. Additionally, students were aware that the GAME plan activities were accessible to the researcher and, therefore, may have answered responses that they thought would please the researcher. When responding to the weekly GAME plan reflections, students may have overestimated the amount of time reported studying, embellished the obstacles reported to gain sympathy from their instructor, or both.

Following the implementation of the study and analysis of the results, more limitations of the design of the study were found. The first limitation of the studies that arose after implementation was the lack of clarity around the relationship between GAME plan activities and other course assignments. The GAME plan activities were included as part of the curriculum of the individual online courses; however, the students did not always make the connection between the benefits of working through GAME plan activities aimed at developing self-regulated learning skills, and their success in online courses. In the present study, this limitation may have contributed to students' varied commitment to complete all the GAME plan activities throughout the duration of their online courses.

The second limitation that arose after study implementation was the decision to use Survey monkey to receive student responses to surveys, and reflection submissions. Due to the limitations of the free online survey software, students were not able to review responses to survey and reflections after their initial submission. Therefore, students may not have engaged in thorough reflection of activities, goals, and learning strategies utilized in the previous weeks. In the present study, this limitation may have affected negatively students' ability to track personal patterns of self-regulated learning development over time throughout the duration of their online course.

The third limitation of the studies postimplementation was the decision to use YouTube to distribute the self-regulated learning instruction video that introduced the GAME plan framework. Because YouTube was a service external to the Catalyst course management system, there were no student linked tracking elements to ensure that each individual student watched the instruction video in its entirety. The video was 30 minutes

in length. It may have been helpful to have statistics regarding individual students viewing patterns, and areas of review. Students did complete the GAME plan audiobook evaluation as a fidelity measure; however, there was no way to determine that all students who completed the evaluation did so after watching the complete video instruction.

Discussion of Findings

This section focuses on the discussion of findings of the studies in relation to the research literature and each topic investigated by the study's research questions. First, the results of quantitative questions are discussed in the first two sections. Then the qualitative questions are discussed in the last two sections.

Measuring Self-Regulated Learning Conduct over Time

The first research question was aimed at measuring the changes in students' perceptions of their self-regulated learning conduct before and after participating in the GAME plan intervention that included initial instruction in self-regulated learning strategies followed by authentic practice of implementing the SRL strategic framework while working through general education online courses. Addressing this question provides empirical support for implementing self-regulated learning strategy intervention in online courses at the community-college level, an area previously under researched. The majority of postsecondary studies investigating domain-general self-regulated learning instruction have been conducted outside the context of online courses, mainly in traditional face-to-face classes. Additionally, few studies have coupled initial self-regulated learning strategy instruction with authentic practice within an online course.

In the current studies, descriptive statistics indicated that the responses of students' perceptions of their self-regulated learning conduct increased preintervention to

postintervention. These findings are similar to other studies that investigated changes in self-regulated learning conduct after intervention. In detail, Andertonn (2006) found statistically significant differences in MSLQ scores, measured online students' self-regulated learning behavior from pretest to posttest after participation in a metacognitive monitoring intervention. Hofer and Yu (2003) also found statistically significant differences in pretest to posttest MSLQ scores after undergraduate students participated in domain general self-regulated learning instruction. In contrast, Cho (2004) did not find statistically significant differences from pretest to posttest scores on the Self-Regulated Learning Strategies Questionnaire, among online undergraduate students in Korea. Overall findings suggest that in the current studies, participation in self-regulated learning strategy intervention that included subsequent practice in self-regulated learning skill development positively influenced students' perceptions of their self-regulated learning behaviors postintervention.

In the second study administration, the results of the descriptive statistics were slightly different between groups on mean responses of students' perceptions of their self-regulated learning conduct. Specifically, in Study 2, students' preintervention responses were slightly higher than those is Study 1. There are two reasons that may explain the increase in preintervention scores for students in Study 2. Slight increases in preintervention responses for Study 2 may have been affected by the responses of the three students who participated in both study administrations. Therefore, their exposure to the GAME plan framework and previous opportunity for practice implementing the framework may have resulted in higher perceptions of SRL conduct before the intervention began in the second study. Additionally, students in Study 2 had more

students with previous experience learning online, than students in Study 1. In terms of postintervention responses, the difference in postintervention SASR responses between Study 1 and Study 2 was less that 1 point. Findings suggest that even though the groups started off differently, students ended up with very similar perceptions of their self-regulated learning conduct postintervention.

The current studies also examined descriptive statistics by individual scales of the SASR instrument. As previously discussed, the SASR scales included Metacognition (18 items), Personal Relevance and Control (11 items), Self-regulation (12 items), Intrinsic Motivation (9 items), Self-efficacy (8 items), and Extrinsic Motivation (5 items). Students in Study 1 reported higher perceptions of self-regulated learning conduct preintervention than their Study 2 counter parts on the following scales: Self-efficacy and Self-regulation. Therefore, students in Study 2 reported higher perceptions of Self-regulated Learning conduct preintervention than their Study 1 counter parts on the following scales: Intrinsic Motivation, Metacognition, Extrinsic Motivation, and Personal Relevance and Control.

To investigate the statistical significance of differences in mean responses reported before and after intervention in both studies, paired-sample *t* tests were conducted using the preintervention and postintervention scores of the SASR. In Study 1, results found a statistically significant difference in mean SASR from pre- to postintervention. Results from Study 1 are consistent with findings from previous literature on self-regulated learning strategy interventions. Specifically, Andertonn (2006) found statistically significant increases in posttest scores on the MSLQ after students participated in an intervention that featured metacognitive monitoring using goal-setting

forms, weekly monitoring, and evaluation forms. Cennamo, Ross, and Rogers (2002) found statistically significant differences in MSLQ scores from the beginning to end of online course after participation in an online course that utilized the GAME mnemonic to foster self-regulated learning skill development. After participating in a self-regulated learning strategy intervention focused on goal setting and self-management, Gerhardt (2007) found statistically significant differences in before and after self-regulated learning scores. Overall findings suggest that after participating in self-regulated learning interventions students' perceptions of their self-regulated learning behaviors significantly increases.

In contrast to Study 1, in Study 2 the results from the paired-sample *t* tests of preintervention and postintervention scores of the SASR were not statistically significant. Results from Study 2 are not consistent with findings from previous literature on self-regulated learning strategy interventions. The results, however, are similar to the findings of one study. Cho (2004) found no statistically significant differences in pre- or postSRLSQ scores after online students participated in a self-regulated learning intervention and guided practice of SRL skill development in a language course. In Study 2, results may be attributed to confounding variables that presented themselves after the second study administration began; specifically, repeat participation in the intervention and high levels of experience with online learning. There were five students who participated in the intervention in both Study 1 and Study 2. Additionally, across both studies, 47% of students reported having taken two or more online courses.

In addition to paired sample *t* tests for total SASR perception responses preintervention and postintervention, individual paired-sample *t* tests were conducted by

individual scale on the SASR instrument. The SASR instrument included six individual scales: Intrinsic Motivation, Extrinsic Motivation, Personal Relevance and Control, Self-efficacy, Self-regulation, and Metacognition. In both Study 1 and Study 2, statistically significant differences were found between preintervention responses and mean postintervention responses for the metacognition scale. These results are consistent with results found in the literature on self-regulated learning strategy interventions. Specifically, Hofer and Yu (2003) found statistically significant difference in pre- and postMSLQ scores for the metacognition variable after participation in a self-regulated learning strategy course. Hofer and Yu (2003) posited that, through participation in effective SRL instruction, students increased their understanding of mental processes involved in learning thus building conditional knowledge about why and when to use strategies to support learning outcomes and overall effectiveness. Like Hofer and Yu (2003), Arsal (2010) found statistically significant differences in pre- and postMSLQ scores on the metacognition scale after participating in an intervention that introduced structured-diary use to influence self-regulated learning behavior. Overall findings suggest that the GAME plan intervention was effective in influencing students' perceptions of their self-regulated learning conduct after intervention. Students' perceived ability to think critically about his or her learning and engage in the metacognitive processes of setting realistic learning goals, monitoring one's progress toward those goals, adapting learning strategy when goal achievement is impeded, evaluating upon completion of a task, and compare one's performance to the initial goals, increased after participation in the GAME plan intervention.

In both studies, no statistically significant differences were found in preintervention and postintervention responses of the SASR on the Intrinsic Motivation, Extrinsic Motivation, Personal Relevance and Control, Self-regulation, and Self-efficacy scales. These results are not consistent with findings in the self-regulated learning intervention literature. For example, Orhan (2008) found statistically significant differences between pre and postMSLQ scores on the control of learning belief scale, much like the Personal Relevance and Control scale on the SASR, when self-regulated learning strategies were embedded into a teaching practicum course. Findings indicated that students believed learning outcomes mainly depended on their own efforts. Students in the present study did not report changes in their perceived level of personal control over learning outcomes. Within the quantitative data, it is not clear what may have warranted these results. Qualitative data, however, collected in weekly student reflections indicated that students faced several obstacles that impeded their learning progress. Students' perceived levels of control over learning outcomes after intervention may be attributed to frequent encounters with perceived obstacles. Additionally, in contrast to the present studies, Cennamo, Ross, and Rogers (2002) found statistically significant increases in students' self-efficacy for learning and performance online after participation in the GAME course structure. One potential reason for the differences in findings may be the length of time students were exposed to the GAME course structure. In the present studies, the GAME plan intervention only lasted 8 weeks from start to finish, whereas students in the Cennamo et al (2002) studied completed a semesters long course, which typically last 16 weeks.

Consistent with the findings in the present studies, as previously discussed, Matuga (2009) found no statistically significant differences on the self-regulation scale from the beginning to end of an online course. Because the studies focused on teaching self-regulated learning strategies and promoted adoption of the self-regulated learning process, it was expected that statistically significant differences would be found in students' perceptions on the self-regulation scale postintervention. Results in the present studies may have been influenced by the nature of questions posed on the SASR and the length of the intervention. In detail, the self-regulation scale on the SASR is aimed at assessing students' perceptions of their actual learning and studying behaviors. This result differs from assessing perceptions of metacognition in which students have heightened awareness of their learning processes but may not have yet moved to action on changing study behaviors. On the self-regulation scales students report study behaviors that they engaged in, thus reporting current state of study behavior. The length of time of the GAME plan intervention may not have allowed students to assess consistent shifts in habitual study behaviors after 4 weeks of authentic practice.

The data from these studies suggest that self-regulated learning strategy intervention improves online students' perceptions of their self-regulated learning conduct postintervention, specifically in the area of metacognition. The instruction portion of the intervention in these studies outlines an effective strategic framework that aids students in developing self-regulated learning skills in support of their academic success in general education online courses. Authentic practice of skill development real time within the context of online courses, contributed to students' improved perceptions of their self-regulated learning conduct. If students are provided opportunities to learn

about self-regulated learning, set effective goals, develop patterns of appropriate strategy use, monitor progress toward goals, and evaluate results, they may experience more success in online courses and avoid academic losses many online students experience in community colleges (Aragon & Johnson, 2008; Derby & Smith, 2004; Fike & Fike, 2008; Moore, Bartkovich, Fetzner, & Ison, 2003).

Relationship Between Self-Regulated Learning and Academic Success

The second research question intended to investigate the relationship between students' perceptions of their self-regulated learning conduct postintervention measured by responses to the SASR and the final course grade earned in their online courses. Research results suggest that when students engage in self-regulated learning strategy instruction, academic success increases (Bail et al., 2008; Heikkilä & Lonka, 2006; Hu & Gramling, 2009). Additionally, researchers have found statistically significant relationships between aspects of self-regulated learning and final course grades such as intrinsic motivation, self-efficacy, metacognition, task value, and control beliefs (Bell, 2007; Bembenutty, 2007; Cobb, 2003). In the current studies, students assessed their self-regulated learning conduct postintervention by completing the SASR. For both studies, students' letter grades were converted into numerical equivalents used to calculate grade point averages.

The aim of the studies was to examine the significance of relationships between academic success measured by final course grades and learners' perceptions of their self-regulated learning behaviors after participation in a SRL intervention. The outcomes of both studies were ambiguous in this regard. Results in both studies suggested that the associations between students' final course grades and their postintervention perceptions

of their self-regulated learning conduct were weak. Although the correlations in both studies were positive, they were not statistically significant. Additionally, in both studies, the associations found between final course grades and individual aspects of self-regulated learning conduct such as Intrinsic Motivation, Extrinsic Motivation, Metacognition, Personal Relevance and Control, Self-Efficacy, And Self-Regulation were also weak and not statistically significant.

Findings for the current studies are similar to findings from one study that investigated self-regulated learning as a predictor of final course grades with a diverse sample of community college students enrolled in several online courses. Puzziferro (2008) found no statistically significant associations between final course grades and metacognitive self-regulation. Another notable aspect of this study is the similar distribution of grades received by community-college students. The final grade distribution was skewed toward A and B grades, specifically, 74% of students received letter grades of either A or B. In the current studies, similar grade distributions were apparent. Future research is needed to further investigate the relationships between final course grades and aspects of self-regulated learning conduct to investigate what if any other factors may have mediated the relationship.

Interestingly, results from the current studies differ from other studies that investigated similar associations between students' perceived self-regulated learning conduct and final course grades. For example, Bembenutty (2007) investigated relationships between students' self-regulated learning assessment and their final course grades by gender and ethnicity. Results suggested that the associations between final course grades and intrinsic motivation, final course grades and extrinsic motivation, and

final course grades and metacognition were all moderate and statistically significant for Caucasian students. Additionally there was a strong significant association between final course grades and self-efficacy for Caucasian students. For Minority students, moderate significant associations also were found between final course grades and intrinsic motivation, final course grades and extrinsic motivation, and control beliefs. Minority students believed that their efforts to learn in the course would result in positive outcomes and that if they tried hard enough, they would understand the course material. In another study, after participation in instruction, Hofer and Yu's (2003) results suggested that the association between final course grades and intrinsic motivation were weak and not statistically significant. In the same study, however, results suggested a moderate association between self-efficacy and final course grades. Correlations were statistically significant. The confidence in capability to perform in the course was strongly associated with their performance, confirming the ability of self-efficacy to predict performance of students after participation in instruction.

Another notable finding was that in both studies, the strongest suggested associations were between final course grade and metacognition. In contrast, the weakest suggested association in Study 1 was between final course grades and extrinsic motivation, and in Study 2, it was between final course grades and self-efficacy. Findings show that students' perceptions of their self-regulated learning conduct only explained a minimal amount of variance in the final course grades in both studies.

Clear reasons for the ambiguous findings in the current study are unclear. It is plausible that some of the scales were not sensitive enough to capture the diverse metacognitive processes that the students may use to learn that the instruction and course

assignments may not have required a deep level of information processing and comprehension, or that the some of students did not yet know how to use or fully adopt metacognitive strategies. Future research is needed to further investigate the relationships between the outcome variable of final course grades and perceptions of new self-regulated learning behaviors. Online educators may need to consider innovative ways to help students make better connections between metacognitive strategy use and improved course performance.

Metacognitive Strategy Use in Developing Self-Regulated Learning Skills

The third research question was intended to provide additional insight into the process that students underwent to adopt and implement the GAME plan strategic framework into their studies. Themes that occurred most frequently in student reflections will be discussed in the section based on the phases of the GAME process: goals, actions, monitoring, and evaluation.

Goal Setting and Planning For Self-Regulated Learning

Goal setting and planning learning activities are often the catalyst for actions that students take to work toward achieving academic success in their courses. Research posits that clear goals and expectations will increase the use of self-regulated learning strategies, and academic success (Fleming, 2002; Gerhardt, 2007; Hu & Gramling, 2009; Orhan, 2008). In the current studies, students completed weekly reflections regarding their adoption and implementation of the GAME plan strategic framework; students outlined specific learning goals and perceived benefits of achieving learning goals each week.

Results indicated that throughout both studies, students most frequently set goals that were associated with completing assignments, course readings, test preparation, and increased comprehension of course materials; all of which supported the overarching learning goals of improved online course performance. In detail, heavy emphasis was placed on efforts to stay on task with assignment goals and submitting assignments on time. A perceived value for content mastery and understanding of subject materials was apparent across both studies. Benefits of achieving goals were perceived as primarily, better online performance outcomes.

Findings are relevant to the self-regulated learning literature in two areas: achievement goals and perceived task value. Specifically, self-regulated learning (SRL) literature on achievement goals posited that there are two types of achievement goals; mastery goals and performance goals (Ames, 1992; Dweck & Leggett, 1998). Findings in the current studies identified that the type of goals most frequently set by online students were mastery goals. Mastery goals orient the student toward learning and understanding, developing new skills, and focus on self-improvement using individual performance standards. Researchers posited that mastery goals are more adaptive than performance goals and imply that students' focus on mastery in their achievement pursuits leads to better learning outcomes (DuBois et al., 2007; Maclellan & Soden, 2006; Vrugt & Oort, 2008). Students' adoption of different goals while developing self-regulated learning skills within the current studies allowed them to manage their learning with more flexibility, so that they were able to adjust their behavior accordingly to the tasks and achieve desired results.

In terms of task value, mastery goals operate as a framework for the perception of

task value, and perceived task value has been shown to influence students' interest and performance (Hulleman et al., 2008). For example, a student whose goal was to learn and understand course material may be more likely to experience the intrinsic value of the material and see how the course is relevant to his or her life. Within the context of the current studies' findings, students' focus on setting goals centered on completing course requirements were connected to the secondary focus of goals centered on understanding course material and retaining relevant information. Findings also are consistent with other studies that investigated goals setting within the context of self-regulated learning. Specifically, Hu and Gramling (2009) indicated that students' goals were centered on completing course tasks and finding focus and relevance in their work. The value of completing tasks on time and keeping up with coursework was viewed as critical in online learning environments. Artino (2009) found statistically significant strong relationships between task value and metacognition (r =.61) when investigating motivational beliefs and self-regulated learning strategy use in online courses. Overall, findings imply that given instruction in goal setting, students' became skilled at setting effective mastery goals in support of their overall academic success.

Taking Action: Applying Self-regulated Learning Strategies

In the current studies, as part of the weekly reflection submissions, students detailed learning strategy selections and specific actions taken to make progress toward achieving learning goals each week. In both studies, students most frequently selected learning strategies centered on time management, reading comprehension, and task analysis within goal-setting parameters. More specifically, students were strategic about time spent studying course content and made the most out of their time by being prepared

to utilize it to their advantage. Time-management skills were perceived as essential for effective self-regulated learning during online courses. Current study findings are consistent with previous research that posits online students strategize to “fit” course activities into their schedules while maintaining full-time jobs, families, and other responsibilities beyond their coursework (Yang, 2006).

Additionally, findings in the current studies indicated that the specific actions taken by students to support learning goals were scheduling specific times to study, related to time management, using practice tests or study guides to guide note taking, related to reading comprehension, and analyzing tasks related to goal setting. Actions taken by students to make progress toward goals were related directly to the learning strategies previously outlined. Findings are consistent with the few qualitative research studies that have examined self-regulated learning strategy use with online students. Specifically, Hsu et al., (2010) found similar themes derived from students reflections in regards to strategy use. Students most frequently utilized note-taking strategies to support comprehension of materials and created study routines to support effective utilization of time. Hu and Gramling (2009) also found similar themes when analyzing student reflections regarding strategy use: task analysis, re-reading to clarify understanding, note-taking, use of advanced organizers, elaboration strategies, such as mnemonic strategies and reciprocal teaching. Findings show that when selecting learning strategies and actions to support goals, online students were more likely to choose learning strategies classified as “deep approach” strategies previously associated in the literature with successful self-regulated learners. Researchers posited that successful self-regulators typically utilize high-level learning strategies that promote a “deep approach” to learning with focus on

constructing meaning and application of knowledge. Findings in the current studies confirm that online students were less likely to use low-level strategies synonymous with unsuccessful self-regulators that promote a “surface approach” to learning that focuses on memorizing information for recall (Heikkilä & Lonka, 2006; Ruban & Reis, 2006). Future research should further investigate the relationships between levels of strategy use and academic success in online courses.

Metacognitive Monitoring in Self-regulated Learning Application

Monitoring as a self-regulated learning strategy has been shown to affect positively academic achievement (Arsal, 2010; Chang, 2007). In the current studies, metacognitive monitoring of self-regulated learning strategy use supported students’ development of self-regulated learning skills and supported work toward academic success in their online courses. Students detailed tools used to monitor actions, quantified the amount of time dedicated to studying, identified obstacles encountered while learning online, and discussed strategies used to manage obstacles.

Results from both studies showed that students most frequently used tools such as calendars, planners, and checklist to manage time and tasks. Value was placed on the ability to track progress by crossing off items as they were completed. Students’ satisfaction with completing tasks contributed to their overall motivation for learning. Findings are relevant to studies that have examined self-monitoring as an important aspect of self-regulated learning. Whipp and Chiarelli (2004) found similar results regarding online students’ use of tools to monitor actions, specifically, record keeping through course calendars, task checklists, and monitoring progress by utilizing the online grade book. Utilizing tools to monitor actions provides students with opportunities to

visually track progress and positively influenced their efficacy for managing their learning and supported their adoption of the self-regulated learning process. Future research and practice should focus on how online instructors can facilitate students' use of tools within course management systems to support self-regulated learning skill development.

In both studies, students consistently reported that the most frequent category of time spent studying was 8 to10 hours per week. Schimitz and Wiese (2006) found that students spent an average of 4 hours daily learning or studying outside of the classroom. These findings are inconsistent with those found in the current studies. Possible reasons for inconsistent findings may be attributed to a few mediating factors: the difference in population, for example, community-college students versus traditional university students, the percentage of students who attend school and work at the same time, the lack of a standard definition for "studying." Students were not given a definition of studying to classify time spent reading, doing assignments, working on class projects, and so on. Students also were not asked to specify if the amount of time spent studying that was specific to their online course or included time spent on studying for other courses. In order to understand the differences in time spent studying, future research will need to find a way to address mediating factors.

In the current studies, results indicated that students most frequently encountered obstacles centered on balancing school, work, home and social life, as well as maintaining motivation for learning, and health and wellness. Students struggled to find balance between their responsibilities and that of their other commitments. The inability of students to manage successfully their commitments may have influenced their

motivation for learning. For example, several students commented that they often have to choose between focus on their school work and work commitments. Additionally, time allocated for study was often infringed upon by family commitments. The current study is unique in that studies that investigate self-regulated learning typically do not examine potential obstacles that students encounter while engaging in trial and error of the self-regulated learning process. The results offer insight into external factors that may mediate students' progress toward learning goals thus impeding academic success. Results are consistent with the one other study that gained insight into the role of obstacles in self-regulated learning. Hu and Gramling (2009) found similar results that indicated student reported having family responsibilities that affected their time for studying for their online course. In order to fully understand how students adopt the self-regulated learning process, future research should consider investigating the role of obstacles in self-regulated learning skill development and best practices for managing obstacles while moving forward with learning goals.

In Study 2, one additional question was added to the student reflection form aimed at learning more about how students managed obstacles encountered while working to implement the self-regulated learning process. Results showed that to manage obstacles, students most commonly utilized three approaches: evaluated time management, modified study plan, and maintained motivation for learning. All three approaches are elements that are relevant to the monitoring stage of the self-regulated learning strategy. Evaluating time management previously was discussed as preferred learning strategy students used to stay on track and make progress toward goals. Modifying study plans previously were discussed as specific actions taken to support

learning strategy choices and support progress toward learning goals. Maintaining motivation for learning may be considered a form of performance management associated with staying on task or focusing on perseverance to ensure achievement of learning goals. Findings are partially congruent with those found in the Hu and Gramling (2009) in which students focused mainly on modifying study plans and changing the study environment. Overall, findings offer an additional layer of insight into the process that students undergo to improve self-regulated learning skills.

Evaluating Learning Processes

Research has found that self-evaluative judgments are not only closely linked to achievement outcomes but also to individual self-satisfaction (Kramarski & Michalsky, 2009; Schmitz & Wiese, 2006; Zimmerman, 2010). Self-satisfaction, which involves satisfaction or dissatisfaction with performance outcomes, is critical because people who are satisfied with their performance will continue pursuing the task. For online students in the current studies, students' satisfaction with their self-regulated learning process influenced their perceptions of the effectiveness of the intervention. Specifically, students were asked to evaluate their individual GAME plan process each week as well as indicate potential improvements to the process based on their judgments of its effectiveness in supporting achievement of weekly goals.

Results indicated that students perceived the GAME plan strategic framework as simple, effective, and easy to adapt for individual needs. Additionally, the routine supported students' ability to stay on task and avoid procrastination. Learning strategies presented during the GAME plan instruction were similar to learning strategies currently used in students' individual learning processes. Evaluation of the weekly implementation

of the strategic framework resulted in three common suggested improvements: (a) improve study plan or adjust time management, (b) no changes, keep doing what I am doing, and (c) stay on task, manage health and wellness. Findings are somewhat consistent with self-regulated learning literature. Perels, Dignath, and Schmitz (2009) found that when students were taught explicit instruction in the self-regulated learning processes and learning strategies, they were more likely to persist through learning tasks and use effective strategies to increase self-regulated learning skills. Cho (2004) suggested that to support individuals' development toward becoming self-regulated learners requires certain amounts of scaffolding. The GAME plan framework provided scaffolding for students that supported procedural knowledge yet allowed for individual freedom to engage in the self-regulated learning process where appropriate (Kollar & Fischer, 2006). As previously discussed, learners come to online learning environments with several learning strategies from previous learning experiences. Introducing the GAME plan was intended to add to students' arsenal of learning strategies and share strategies that students could easily adapt to their current learning strategy schema. Findings suggest that intervention was successful in augmenting students' exposure to learning strategies.

Another notable finding is that after evaluating the self-regulated learning process and measuring outcomes in relation to original goals, several students reported that they did not perceive a need to make any changes to their current process. In the current studies, self-evaluative judgments were linked to self-satisfaction with performance outcomes and contributed to students overall self-regulated learning skill development.

In summary, metacognitive strategy use was fostered by the implementation of the GAME plan strategic framework. Authentic practice implementing the strategic framework in support of academic success, reinforced students' self-regulated learning skill development. Structured-diary forms provided sufficient insight to assess the process students underwent to adopt self-regulated learning skills.

Perceptions of Self-Regulated Learning Intervention

The fourth research question was intended to gain insight into students' perceptions of the effectiveness of the self-regulated learning strategy instruction at two points in time; directly after watching the initial instruction video and at the end of the study after completing subsequent authentic practice implementing the self-regulated learning strategic framework to support their success while working through an online course. This section will first discuss students' perceptions of the intervention at the beginning of the studies, followed by students' perceptions of the intervention at the end of the studies.

Perceptions of Instruction at the Beginning of Studies

After watching the initial instruction video introducing the self-regulated learning process, potential obstacles encountered while learning online, the connection between self-regulated learning strategy use and success in online courses, and the self-regulated learning strategic framework that would be used during their online courses, results suggested that students' initial reactions to the self-regulated learning instruction were positive. In Study 1, students perceived the SRL strategic framework as an effective tool that supported organization and provided sound procedures for managing online learning processes. In Study 2, students felt that the strategic framework contributed to their

awareness about the climate of learning in an online environment and the potential obstacles that may occur while learning online. Findings from the present study are consistent with other studies that investigated the perceptions of self-regulated learning interventions with undergraduate students: specifically, Cennamo, Ross, and Rogers (2002) found that students reported self-regulated learning instruction influenced their strategic approach to learning. Macellan and Soden (2007) also found those students reported increased awareness of and engagement with self-regulated learning strategies in support of their learning goals. Results of the current studies are important in the sense that the self-regulated learning instruction was designed to support metacognitive awareness and strategy use to support learning goals in online courses. Students' perceptions imply that the initial intent of the instruction was effective. There were however, a few students in both studies that did not find the SRL strategy instruction effective. Their perceptions may have been mediated by other factors such as previous experience with online learning, previous experience with learning strategy use, and exposure to other effective learning management framework. Future research should further investigate these mediating factors and explore the depth of their relationship to students' perceptions.

In both studies, students perceived the likeable elements of the SRL strategy intervention as its solution-based approach to online learning obstacles as well as the ease of remembering the steps in the SRL process. In terms of the ease of remembering the steps of the SRL process, findings from the current studies are similar to those found in the Cennamo et al.'s (2002) study. Mnemonic strategies and systematic frameworks assist online learners with strengthening long-term retention and retrieval of information

by creating connections where connections may not have been previously obvious to the learners. Specifically, Cennamo et al. (2002) found that online learners benefited from exposure to a mnemonic strategy that reiterated a procedural strategic framework to support their self-regulated learning competence.

In contrast to results found in the current studies, in referent to SRL strategy intervention as a solution-based approach to online learning obstacles, Cho (2004) found that students have mixed feelings regarding the purpose of integrating SRL skill practice into their regular course assignments. More specifically, students indicated that engaging in SRL activities during their online course was a chore and did not see the value in the application of skills in providing solutions for overcoming obstacles encountered while studying. Future research is needed to investigate how to ensure that students understand the value of self-regulated learning strategy use and their success in online courses.

Students perceived the most important element regarding the content of the strategy instruction video in both studies as the introduction of the SMART goal strategy. Students mostly were unfamiliar with the concept of breaking down elements of learning goals to ensure that they are specific, measureable, achievable, realistic, and timely. As in the current studies, Gerhardt (2007) found similar student perceptions regarding goal setting. Specifically, SMART goals assisted undergraduates with “getting focused” on where to concentrate their efforts when working through complex learning goals. Setting effective goals is the first and most important step in the self-regulated learning strategy framework; therefore, students’ efficacy in goal setting is essential for accurate execution of the remaining steps. Findings imply that the strategy instruction was successful in introducing students to the SMART goal strategy.

Students perceived the least important element regarding the content of the strategy instruction video in both studies as the length of the video, which in the current studies were 30 minutes. The strategy intervention was patterned after domain-specific interventions typically delivered to students in K-12 settings in which the length of interventions ranged from 20 minutes to 60 minutes, over multiple iterations during a 4 to 7 week research study. Current research that investigates instructional interventions for online students at the community college level is limited. Findings from the current studies provide the literature base with student perceptions regarding the negative impact of lengthy interventions as it pertains to students' focus, interest, and full comprehension of concepts presented in the strategy intervention. Future research is necessary to investigate the appropriate length of instructional interventions that meet the needs of students yet provide enough content for full comprehension of presented concepts.

Additionally, students recommended that elements of the strategy instruction that could be improved were its production value, for example, audio quality, the level of interactivity provided within the video, and the video's entertainment value. The video was produced solely by the primary researcher with limited access to professional-grade recording equipment. In future versions of the strategy intervention, the primary researcher will seek out assistance with ensuring the quality of images and audio recording from professionals with video production expertise.

The second finding regarding student perceptions of video production is of particular interest. The current studies took place in a community-college in Northern California where the majority of students enrolled in the online courses used in the study samples where in the range of 18 to 24. Community-college students in this age range

have different educational experiences heavily influenced by recent advances in multimedia and communication technologies such as nonlinear, interactive digital video found in games, social media, and other mediums (Lim, Lee, & Nam, 2007; Zhang, Zhou, Briggs, & Nunamaker, 2006). Future iterations of the self-regulated learning intervention will need to consider the learning preferences of this group of students educated in the digital age and explore the research benefits of using interactivity to achieve higher levels of learner satisfaction and engagement with the presentation of the strategy video.

Perceptions of Intervention at the End of Studies

After watching the initial instruction and implementing the self-regulated learning strategic framework during their online courses, students evaluated their general perceptions of the self-regulated leaning intervention. Postintervention, students' perceptions of the effectiveness of the self-regulated leaning intervention remained favorable. In both studies, overall, students perceived that the strategic framework supported their efforts to manage their learning in an online course. General findings from these studies are consistent with others that examined student perceptions after intervention. Specifically, Gerhardt (2007) reported similar findings in which students reflected that strategies contributed to the effectiveness of their overall learning management and promoted students' desire and willingness to put forth the effort and practice to become a skilled self-regulated learner. Study findings imply the original intent of the intervention was successful in assisting learners with using self-regulated learning strategies to facilitate learning management in online courses.

Another important agreed upon takeaway from the intervention as perceived by students in both studies were the influences of creating weekly strategic plans that included goal setting and strategic planning on metacognitive awareness. This finding is of particular interest as it demonstrates that students in the present studies actively were engaged in the forethought phase of the self-regulated learning process in which learners set outcome expectations and outlined learning plans that supported their desired outcomes. Adoption of the forethought phase implies that learners developed enhanced self-regulated learning skills as a result of their participation in the intervention. These findings are consistent with those found in the literature on self-regulated learning interventions. Specifically, McClellan and Soden (2007) observed that students' increased exposure to implementation of strategic planning and engagement with self-regulated learning behaviors supported learning goals.

In the present studies, students also agreed that executing learning strategies and monitoring progress toward goals supported their ability to effective manage their learning online. As with the previous finding, this finding is important to this study's contribution to the larger self-regulated learning literature, as it demonstrates that online students actively engaged in the performance phase of the self-regulated learning process in which they selected and executed learning strategies that supported their learning goals previously outlined in the forethought phase and monitored progress toward goals to ensure that they were achieved. Online learners' adoption of the performance phase implies that learners' self-regulated learning skills continued to evolve as a result of participation in the intervention. Similar findings were discussed by Hsu et al. (2010) in which themes derived from students responses to prompts regarding adoption of the

performance phase indicated that enacting appropriate learning strategies and monitoring progress, supported students with learning management and contributed to sustaining motivation for learning. Findings confirm that students in online courses successfully utilize a collection of strategies from previous learning experiences and that participation in the intervention promoted increased skill in discerning and executing appropriate strategies that best supported online learning goals.

Last, in both studies, students also agreed that after the intervention they were comfortable evaluating the effectiveness of their learning process and making adjustments where necessary to better support learning goals. Evaluation of effectiveness occurs in the last phase of the self-regulated learning process that is, self-reflection. Students in the currents studies demonstrated active engagement in self-reflection as the last stage of their strategic framework. Student implementation of consistent self-evaluation promoted students' ability to develop expertise in moving through phases to improve their learning process for optimum performance. Based on similar results, Schmitz and Wiese (2006) purported that structured-diary use supported students comprehension of evaluating learning outcomes based goals and actions taken by the student during the learning scenario, contributed to increases in self-regulated learning skill development.

In summary, students' perceptions of the effectiveness of the GAME plan as a self-regulated learning strategy intervention were favorable at the beginning and end of both studies. Findings suggest that participation in self-regulated learning strategy intervention was effective in assisting students with developing enhanced self-regulated learning skills in support of success in online courses.

Conclusions

Based on the design and results of the study, there are several implications for educational practice and future research. This section will first discuss research implications, potential study modifications, and recommendations for future research. Second, the educational implications will be discussed as well as recommendations for online instructors.

Implications for Research

Previous research on self-regulated learning (SRL) has shown that self-regulated learning strategy instruction has had a positive effect on academic performance in college and university courses (Bail, Zhang, & Tachiyama, 2008; DuBois & Staley, 2007; Hofer & Yu, 2003). Researchers posited that when given instruction, students develop improved skills in time management, learning goal orientation, self-efficacy, metacognitive monitoring, and overall academic performance in support of their success (Dignath & Buttner, 2008; Kistner et al., 2010; Sacks, 2007). The present studies found similar results when providing initial domain general instruction embedded into the course curriculum of online courses with subsequent authentic practice. Specifically, the increase in SASR total mean responses on the SASR between preintervention and postintervention suggests that utilizing the GAME plan framework was effective in raising students' perceptions of their self-regulated learning conduct. The results of the studies also demonstrate that students' perceptions by individual scales on the SASR varied. Specifically, students' perception of their metacognition for learning before and after intervention was influenced by participating in SRL instruction and implementing the GAME plan framework. The implication for research is that the GAME plan

framework is beneficial to students' perceptions of their self-regulated learning conduct before and after intervention. Participating in the both the instruction and GAME plan implementation during online courses supported students' learning goals.

Given the importance of self-regulated learning skill development for online learners, and the influence on students' academic success, replica studies are warranted. The study should be repeated with a more diverse student population to increase the generalizability of the results to a broader population representative of students attending community colleges across the state of California.

Given the success of implementing a strategic framework that promotes self-regulated learning skill development and academic success, replica studies would reveal whether this success, which was inconsistent within the research literature, was unique to this population or whether it can be expected within the broader population. Specifically, replicating the GAME plan study with larger samples of students enrolled in diverse subjects of general education online will further determine the effectiveness of the GAME Plan as a domain-general strategy. A larger diverse sample of students will allow for more analysis regarding individual differences in students' academic success after the GAME plan participation such as, differences in success by gender, ethnic background, level of experience with online courses, and educational goals. Additionally, replications of the GAME plan study should be conducted to more fully understand students' selection of learning strategies specific to supporting success in online learning environments. Learning more about students' choice of certain strategies over others will improve the GAME plan instruction video content by providing relevant examples of proven strategies that support student learning online. Currently, there is limited research

examining students' reasons for selecting specific learning strategies to support online learning.

Finally, replica studies, utilizing the GAME plan framework including initial instruction, authentic opportunities for practice with developing self-regulated learning skills in real time, while working through an online courses, and student control over learning strategy selection could be strengthened in three ways: (a) incorporation of instructor feedback on students' implementation of chosen learning strategies in support of goal attainment (Stoeger & Ziegler, 2008), (b) student to student feedback during the evaluation process regarding reflection of learning outcomes based on chosen strategies facilitated through discussion boards (Nicol & MacFarlane-Dick, 2006), (c) structured-interview or survey follow-up with students several quarters after participation in the GAME plan study to determine if SRL skills in online courses continued to develop (Bail et al., 2008; Jaggars & Xu, 2010). These simple modifications will result in more effective implementations of the GAME plan strategic framework and strengthen students resolve to develop better self-regulated learning skills by incorporating both internal and external feedback to support learning gains. Additionally, gathering more data on students' continued efforts to develop self-regulated learning skills after participation in the GAME plan will further determine the long-term effectiveness of the GAME plan framework on students' skill development and academic success.

Recommendations for Future Research

Implications for research were discussed in reference to suggested modifications to the current study for the purpose of replication. Recommendations for research beyond the scope of the current study will be discussed.

The current study builds on several studies investigating the effects of self-regulated learning instruction on academic success (Andertonn, 2006; Bail et al., 2008; Cennamo et al., 2002; Cho, 2004; Kauffman, 2004; Orhan, 2008). Andertonn (2006) investigated the relationship between goal analysis forms, self-evaluation forms, and monitoring learning forms to development self-regulated learning skill and academic success. The current study utilized similar methods to foster goal analysis, monitoring actions, and self-evaluation within the weekly GAME plan reflections. Bail et al., (2008) investigated the effects of a general self-regulated learning strategy course on students' future academic achievement. Cennamo et al., (2002) developed and incorporated the GAME plan mnemonic into course design aimed at facilitating students' self-regulated learning within an online course. The current study repurposed the GAME plan mnemonic and developed self-regulated learning strategy instruction. As in the current study, each of the above three studies used convenient samples of intact classes with no comparison or control groups to compare results. Future studies investigating the effect of instruction and its relationship to academic achievement should consider augmenting the research design to use like intact classes to serve as control or comparison groups to examine the differences of self-regulated learning skill development. This cross-course comparison could be achieved by identifying several general education online courses that would like to investigate students' self-regulated learning skill development and implementation during online courses. The self-regulated learning instruction would then be offered as a treatment to certain classes and not others. Results of students' perceptions of self-regulated learning conduct at the beginning and end of online courses would be compared to determine differences between self-regulated learning skill

development with and without instructional intervention and guided practice. Cho (2004) investigated the design and implementation of self-regulated learning strategies aimed at developing student's SRL skills and influencing academic success. Cho found differences in students' perceptions of self-regulated learning behaviors. Students in the treatment group's SRL scores were slightly higher than those who did not participate in instruction.

Kauffman (2004) investigated the effect of self-monitoring prompts, and self-efficacy feedback on academic achievement in an online course. The current study incorporated self-monitoring prompts into the GAME plan reflection in which students provided qualitative data regarding their adoption of the self-regulated learning process. Orhan (2008) studied how preservice teachers developed self-efficacy for online learning. Unlike the Kauffman (2004) study and the Orhan (2008) study, the current study did not focus on investigating the role of self-efficacy for online learning and its relationship to participation in the GAME plan study. Future research should consider further investigating the role of self-efficacy for online learning after participation in self-regulated learning instruction and authentic practice of skill development. Learning more about the role of students' perceived self-efficacy for online learning will determine new areas of effectiveness of self-regulated learning instruction on students' development, implementation, and efficacy for strategy use in support of academic success in online courses.

Another area for future research is exploring the predictive validity of participation in self-regulated learning instruction on academic performance. Several studies have found aspects of self-regulated learning as effective predictors of academic success in online courses (Bell, 2007; Kitsantas et al., 2008; Morris, Wu, & Finnegan,

2005; Waschull, 2005; Yukselturk & Bulut, 2007). Specifically, Kitsantas et al. (2008) found there was a statistically significant relationship between students' metacognitive self-regulation and first semester GPA as well as between their metacognitive self-regulation and fifth semester GPA. Additionally, time and study management were found to be statistically significant predictors of students' first semester grade point average (GPA) and fifth semester GPA. Yukselturk and Bulut (2007) found that self-regulation accounted for 16.4% of the variance of student success measured in an online course and statistically significantly predicted first-year GPA performance for online students. Both studies recommended that in order to foster academic success in online courses, colleges should focus on developing instructional interventions that support students' development of self-regulated learning skills. The GAME plan study developed and implemented an intervention aimed at developing self-regulated learning skills for academic success in online courses. Future research focused on the impact of participating in SRL instruction on academic performance may provide the empirical support necessary for colleges to consider investing in self-regulated learning skill development for their students.

Last, future research opportunities exist in exploring the relationship between employing self-regulated learning skills and student retention in online courses. In the current study, the focus was on implementing self-regulated learning instruction and scaffolding self-regulated learning implementation within an online course. Additionally, it examined the relationship between participation in the GAME plan intervention and academic success outcomes. It was determined that the relationships were weak and not statistically significant. The relationship between enhanced self-regulated learning skills

and the intent of students to persist was not explored. Future research should directly investigate the link between employing self-regulated learning skills and its influence on students' intent to persist through online courses.

Implications for Practice

Self-regulated learning instruction is an effective way to teach students strategies that assist them with managing their academic success in online courses (Andertonn, 2006; Cennamo et al., 2002; Cho, 2004; Kauffman, 2004; Whipp & Chiarelli, 2004). Students' metacognition is heightened as they learn how to develop process and outcome goals, implement and monitor learning strategies, and evaluate the effectiveness of their process. Academic success is influenced by higher levels of metacognition and self-regulated learning skill development (Bell, 2007; Bembenutty, 2007; Cobb, 2003). Students, however, struggle with adapting their learning strategies to develop new behaviors that increase their success in online environments (Harrell, 2008; Jaggars & Bailey, 2010). Teaching students how to develop and enhance self-regulated learning skills in support of success in online courses was the premise of the current studies. Previous studies have shown that scaffolding students' self-regulated learning skill development has positive effects on academic success outcomes (Bail et al., 2008; Cukras, 2006; Hofer & Yu, 2003; Whipp & Chiarelli, 2004). A strategic instruction framework coupled with authentic practice of self-regulated learning skills as a dual method to help students develop self-regulated learning skills in support of their student success in online courses is a suggested result of this study. The results of this study are applicable to both online instructors and their students who need practice in developing

higher levels of self-regulated skills to support learning the autonomous environment of online courses (Kollar & Fischer, 2006).

For online instructors, an implication for educational practice of introducing the GAME plan framework is that it contributes to learners becoming active in their own learning process. Making a commitment to provide opportunities for community-college students to develop self-regulated learning skills is a decision that begins with conscious course design that encourages learner engagement. Research has found that better learner engagement in online learning positively affects students' academic performance and intrinsic motivation to learn (Bail et al., 2008; Barnard et al., 2008; Hofer & Yu, 2003; Kitsantas et al., 2008; Mohd Kosnin, 2007). Specifically, results have shown that students develop improved skills in time-management, learning goal orientation, self-efficacy, metacognitive monitoring, and overall academic performance, which supported their overall student success (Arsal, 2010; Weinstein & Acee, 2011). Introducing the GAME plan framework and authentic practice scaffolds students' self-regulated learning skill development by prompting learners to reflect on their use of specific self-regulated learning activities that support their learning goals. The present studies found that learners' assessment of self-regulated learning behaviors before and after instruction followed by guided practice contributed to increases in metacognitive awareness of self-regulated learning skills necessary for success in online learning environments.

Additionally, for online instructors, implementing the GAME plan framework into their course curriculum as study activities requires very little effort and instructional planning. Embedding self-regulated learning strategies and guided practice into existing curriculum directly to promote students' development of self-regulated learning skill can

be effective despite the individual subject matter of the online course. The GAME plan framework was developed based on a domain-general approach to self-regulated learning instruction. It is comprised of general strategies that can be applied to different content to support learners' self-regulated skill development no matter the subject matter of the individual course (Zimmerman, 1998). The individual freedom of learners' internalization of self-regulated learning strategies remains authentic and is not compromised by the potential limitations of domain-specific strategies (Pintrich, 1999b). In the present study, students used individual freedom to set goals, chose appropriate learning strategies and monitoring tools to support their learning goals. Thus, including GAME plan activities within the coursework of individual online courses contributed to cohesion between SRL skill development and academic performance.

For community-college online students, an implication for educational practice is the continued use of the GAME plan framework to support online learning successes across courses. In the present study, by utilizing the GAME plan framework within their online courses, students learned to set goals, choose appropriate learning strategies, monitor progress, and evaluate their results, which often prompted them to adjust their process to improve results. Working on developing self-regulated learning skills while working on coursework in online courses gave students the opportunity to adopt effectively the steps of the GAME plan. In future online courses, students can draw from their authentic experiences with developing self-regulated learning skill development to improve online learning successes. As community-college students continue to choose online learning as the platform to pursue their learning goals, utilizing aspects of the GAME plan framework will continue to raise awareness about their learning process and

encourage them to take a more active role in their learning experiences by consistently working through the adaptive process and develop better self-regulated learning skills.

Summary

The purpose of these studies was to examine the effects of a self-regulated learning strategy intervention on students' academic performance and self-regulated learning conduct. To measure the dependent variables, students' perceptions of self-regulated learning conduct were captured by way of responses to the Survey of Academic Self-Regulation before and after intervention, and academic performance was measured by students' final course grades earned in individual online courses that participated in the present study. Additionally, qualitative data was collected over a period of 4 weeks after instruction by way of structured-diary reflections to expand insight into processes of students' self-regulated learning skill development while working through their online courses.

The current studies showed that in Study 1, there was a statistically significant difference between students' overall perceptions of their self-regulated learning conduct before and after intervention. In Study 2, however, no statistically significant difference was found. When results of both studies were combined for statistical power, there was a statistically significant difference between students' overall perceptions of their self-regulated learning conduct before and after intervention. In both studies, it also was found that there was a statistically significant increase in students' overall perceptions of their self-regulated learning conduct before and after intervention on responses specific to metacognition. The effect size for the difference in students' perceptions before instruction and after participation in authentic practice of skill development as measured

by Cohen's d in the first study was .50 and in the second study was .21. There were no statistically significant relationships found between students' perceptions of self-regulated learning conduct after intervention and their final course grades in either study administration. The results suggest that although there was a relationship between students' perceptions of self-regulated learning conduct after intervention and their final course grades it was weak.

Qualitative information collected from structured-diary responses showed that while engaging in the process of self-regulated learning skill development, students' often created learning goals centered on general performance measures such as completing and staying on top of assignments in their online course. In both studies, students perceived benefits of achieving their goals were better academic performance and increased ability to stay on task. Additionally, students frequently employed learning strategies that focused on time management, reading comprehension, and utilizing tools to organize information such as outlines, or concept maps. To monitor actions toward achieving learning goals, students utilized tools such as calendars and planners to organize time, track progress, and manage tasks. Students' averaged 8 to10 hours per week of study time. Students most frequently encountered obstacles associated with balancing their commitments to school, work, and home life. Overall, students reflected that the GAME plan framework was easy to use and effective in supporting their academic success in online courses. Students reflected that after evaluation of weekly effectiveness, students aimed to be more attentive to refining their processes used to outline study strategies and time management. Finding suggest that, while engaging in authentic practice of self-regulated learning skill development, students effectively

adopted the steps of the GAME plan framework to support their learning goals in their online courses.

There is research and educational implications that can be recommended based on the results of the current studies. One of the research implications is the need for more interactivity within the content of the self-regulated learning strategy intervention and concrete or anecdotal examples of completed GAME plans previously created by online students. Another research implication is continued research that investigates the relationship between accurate measures of self-regulated learning behaviors and academic performance due to the inconsistent results in the present study and within the self-regulated learning research. Last, continued research on instruction that fosters self-regulated learning skill development for online learning in the community-college population that utilizes both quantitative and qualitative data to assess changes in skill development.

In regard to educational implications, the most important implication is that the self-regulated learning strategy instruction that introduced the GAME plan framework is valuable in raising the metacognitive awareness and self-regulated learning skill level of community-college level online students, specifically students with lower-levels of self-regulated learning skills and less experience managing learning in online courses. Increased metacognitive awareness and self-regulated learning skills positively contributed to students' efficacy of academic success in their online courses. Furthermore, the GAME plan strategic framework should be utilized as a curriculum-embedded instructional tool that can be used to scaffold students' self-regulated learning skill development as it pertains to fostering success in online courses. Last, self-regulated

learning processes should be assessed weekly by way of structured-diary reflections that encourage students to consistently work through the phases of the self-regulated learning process to support their learning goals.

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APPENDIXES

Appendix A

IRB Approval Letter

[redacted]

Consent to Conduct Research at [redacted]

October 23, 2012

Institutional Review Board for the Protection of Human Subjects
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Members of the Committee:

On behalf of [redacted] I am writing to formally grant authorization of the research proposed by Ms. Bianca Rowden Quince, a doctoral student at the University of San Francisco (USF). Ms. Rowden Quince intends to conduct her research by administering an electronic pre-survey assessing students' self-regulated learning behaviors followed by providing students with a 30-minute self-regulated learning instruction video introducing the GAME plan framework to students enrolled in Child Development 10G and Child Development10H,online courses, taught by a participating instructor; [redacted] Students will use the GAME plan framework to monitor their academic progress and self-regulated learning behavior throughout their online courses. The research will conclude with administration of an electronic post-survey assessing students' self-regulated learning behavior post instruction. Ms. Rowden Quince will be working with the participation of the course instructor. The GAME plan framework will be included in the course curriculum as study strategies activities

I have approved Ms. Rowden Quince's proposal in principle and have reviewed the approved IRB proposal to ensure that it meets with our standards.

If you have any questions or concerns, please feel free to contact me.

Sincerely,

Mallory Newell
[redacted]
Institutional Research and Planning
[redacted]

Appendix B

GAME Plan Research Study Consent Form

GAME Plan Research Study Consent Form

UNIVERSITY OF SAN FRANCISCO CONSENT TO BE A RESEARCH SUBJECT

Purpose and Background:
Bianca Rowden-Quince, a doctoral student in the School of Education at the University of San Francisco invites you to participate in a study about self-regulation in online courses, which relates to "how you know what you know" in an online course. Over the past several years, more and more students are enrolling in online courses. The transition from face-to-face courses to online courses can be challenging. Even though there is rise in online course enrollment, student success in online courses is still inconsistent. Successful students are shown to use self-regulation strategies. The researcher is interested in understanding the differences in students' learning strategy use and academic performance after a strategy skills webinar and monitoring strategy use throughout the online course.

I am being asked to participate because I am currently enrolled in CD/PSYC 10G or CD/PSYC 10H online courses at [redacted] during the Fall 2012 quarter/Winter 2013 quarter.

Procedures:
As part of your coursework in CD/PSYC 10G & CD/PSYC 10H, you will be introduced to the GAME plan framework developed to support student success in online courses. After introduction to the GAME plan framework, you will be practicing application of the GAME plan framework while working through your online course. Agreeing to participate in the research study involves granting the researcher access to your student data submitted as part of your GAME plan activities. If I agree to be a participant in this study, the researcher will have access to the following data:

Preassessment scores from the Survey of Academic Self-Regulation *(submitted week 3)*
The survey details current patterns of strategy use in online courses. With this survey, you will begin by assessing your own levels of self-regulation.
GAME plan audiobook evaluation *(submitted week 4)*
The evaluation will be completed after watching the GAME plan audiobook instruction.
GAME plan reflections *(submitted week 5, week 6, week 7, and week 8)*
Demographic survey *(submitted Week 9)*
A short questionnaire giving basic information about me, including age, gender, ethnicity, enrollment status, educational goal, and online course experience.
Post assessment follow-up scores from the Survey of Academic Self-regulation *(submitted week 10).*
The survey details current patterns of strategy use in online courses 8 weeks after the audiobook instruction.
GAME plan course evaluation *(Submitted week 11)*
A follow-up questionnaire giving feedback about the GAME plan after using it to complete your online course.
Final course grades
Researcher will have access to your final course grade for secondary analysis.

Benefits:
The anticipated benefit of this study is a better understanding of how to implement specific

self-regulated learning strategies to support learning in online courses. This project will provide you important insight into the strategies you use to learn. In addition, it will present alternate strategies that you may consider to improve your own processes of knowledge acquisition. Knowing what strategies you currently utilize is an important first step in this process.

Risks and/or Discomforts:
It is possible that some of the questions on the learning strategies assessment survey may make me feel uncomfortable, but I am free to decline to answer any questions I do not wish to answer.

Costs/Financial Considerations:
There will be no financial costs to me as a result of taking part in this study

Payment/Reimbursement:
There will be no financial compensation received for study participation. Since the GAME plan framework is part of your course curriculum, study participants will receive credit towards their final course grade for activities submitted.

Extent of anonymity and confidentiality:
Student responses to this questionnaire and electronic mail will be kept strictly confidential. The information that you provide will have names removed and an identification number will be used during analysis and in any reported results. At no time will your responses be released to anyone other than the individuals working on the project without your written consent. There is no compensation for participating in this project.

Freedom to withdraw:
You have the freedom to prevent your responses from being recorded for the purpose of study. In addition, you may withdraw from this research project at any time without penalty. Should you decide to withdraw, you will not lose course points or be penalized in any way.

Questions?
If have questions about this research study, I may contact the researcher, Bianca Rowden-Quince directly via email at: [redacted]

If I have any questions or comments about participation in this study, I should first talk with the researchers. If for some reason I do not wish to do this, I may contact the IRBPHS, which is concerned with protection of volunteers in research projects. I may reach the IRBPHS office by calling (415) 422-6091 and leaving a voicemail message, by e-mailing IRBPHS@usfca.edu, or by writing to the
IRBPHS, Department of Psychology
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117-1080.

Consent: **PARTICIPATION IN RESEARCH IS VOLUNTARY. I am free to decline to be in this study, or to withdraw from it at any point. My decision as to whether or not to participate in this study will have no influence on my present or future status as a student at** [redacted]
1. Please confirm or decline study participation.
I agree to participate in the GAME plan research study. **I do NOT agree to participate in the GAME plan research study.**
2. I am currently enrolled in:
CD/PSYC 10G: The Early Years **CD/PSYC 10H: The Middle Childhood & Adolescence** **Both CD/PSYC 10G & CD/PSYC 10H**
3. Please provide your name:

Appendix C

Survey of Academic Self-Regulation (SASR)

GAME Plan Learning Strategies Assessment

Survey of academic self-regulation and study skills

Please provide your name to receive full credit for submission.
Name:

Please select your level of agreement for each statement below based on the following agreement scale:

1. I prefer tasks that are more challenging.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

2. I hold myself to the highest learning standards.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

3. It is very important for others to see me as capable.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

4. I know I can learn even the most difficult material.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

5. When I cannot solve a problem, I change my approach to it.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

6. I use most available study aids (e.g., outlines, glossary, etc.).
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

7. I know I am able to accomplish most tasks assigned to me.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

8. I place the highest value on my education.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

9. I find learning in college to be very enjoyable.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

10. Once I start a task, I usually find it hard to finish.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

11. I often like to let others see just how smart I am.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

12. I know that I will do well on most of my quizzes or tests.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

13. I review the effectiveness of my approach once I finish a task.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

14. I keep track of my long-term goal progress after each task.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

15. I complete assigned tasks even when they are uninteresting.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

16. I believe what I learn in college has real-world relevancy.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

17. I like to completely master the tasks I am learning.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

18. I often make excuses for not doing my school work.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

19. I act as if a task is easy even when it is not.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

20. I usually do very well on most of my learning tasks.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

21. I know when, how, and why to use a specific learning strategy.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

22. I set personal learning goals before I even begin studying.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

23. I achieve most of the learning goals I set for myself.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

24. I can connect most of what I learn in college to my own life.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

25. I try to study in places where I can easily concentrate.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

26. I enjoy knowing more than others do.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

27. I usually put off studying because I worry about not doing well.
☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

28. I keep track of how well I do or do not understand material. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
29. I know the studying and learning resources available to me. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
30. I spend too much time socializing when I should be studying. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
31. I am well aware of what my instructors/professors expect of me. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
32. I can think of different ways to make a boring task interesting. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
33. I usually get my studying done first before "playing." ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
34. I often summarize to myself the things I am learning. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
35. I try very hard to attend all of my classes. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
36. I often worry about not doing as well as others do in college. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
37. I can easily identify the main ideas when learning or studying. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
38. I study because I enjoy learning, not just to get a good grade. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
39. I am not easily distracted from what I am learning or studying. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
40. I often test myself to see how well I understand something. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
41. I am quite sure I am going to succeed in college. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
42. I remind myself how important studying is when I get tired of it. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

43. I usually want to learn more than just what is required. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
44. I am often afraid of looking dumb when I ask a question in class. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
45. I like to reconsider my own view when I hear a different one. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
46. I know I have much control over how much I can learn. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
47. I almost always complete my schoolwork on time. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
48. I am driven to know more than what others do. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
49. I often find learning and studying to be enjoyable. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
50. I approach problems by first considering all of my options. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
51. What I am learning in college will help me realize my life's goals. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
52. I reflect on how well I am managing my learning as it unfolds. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
53. I often cannot concentrate on tests because I get so nervous. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
54. I prefer to analyze the evidence before I accept another's view. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
55. I usually try different approaches rather than give up on a task. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
56. I easily connect what I am learning to what I already know. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree
57. My time management skills allow me to get things done. ☐ Strongly Disagree ☐ Disagree ☐ Slightly Disagree ☐ Slightly Agree ☐ Agree ☐ Strongly Agree

58. I get pretty nervous even when I am prepared for a test. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
59. It is important that I do not appear dumb in front of others. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
60. I like to consider several different perspectives on a topic. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
61. I set benchmarks to gauge when to stop studying before I start. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
62. I have a repertoire of different test taking strategies. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**
63. If the help is available, I will usually use it when I need to. ☐ **Strongly Disagree** ☐ **Disagree** ☐ **Slightly Disagree** ☐ **Slightly Agree** ☐ **Agree** ☐ **Strongly Agree**

Appendix D

Structured-Diary Form: GAME Plan Reflection

GAME Plan Reflection Form

What's your GAME Plan?

Share with us your GAME Plan for supporting your online learning goals this week.

Please provide your name to receive full credit for submission.

Name:

Step 1: G - Goal setting

What were your learning goals for this week?

How did you benefit from achieving these goals?

Step 2: A - Actions taken towards goals

What learning strategies did you use this week to support your learning goal (s)?

What were the specific actions that you took this week to achieve your goals?

Step 3: M - Monitoring your actions

How did you monitor progress towards this week's goals?

How much time did you devote to studying this week?

What obstacles if any stood in the way of you achieving this week's goals?

What did you do to manage the obstacles that impacted your coursework?

Step 4: E - Evaluating your results

What was the GAME plan process like for you?

To achieve next week's goals, what changes would you make to improve your effectiveness?

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live." - Mortimer Adler

Appendix E

GAME Plan Demographic Survey

GAME Plan Demographic Survey

Thank you for participating in our study. We appreciate your time and support of educational research. Please complete the following demographic information:

Please provide your name to receive full credit for submission.

Name: _____

Gender:

What is your gender?

- ☐ **Female**
- ☐ **Male**

Age:

Which category below includes your age?

- ☐ **18 or younger**
- ☐ **19 to 24**
- ☐ **25 to 29**
- ☐ **30 to 39**
- ☐ **40 to 49**
- ☐ **50 to 59**
- ☐ **60 or older**

Ethnicity:

Which race/ethnicity best describes you? (Please choose only one.)

- ☐ **Native American or Alaska Native**
- ☐ **Hawaiian or Other Pacific Islander**
- ☐ **Asian or Asian American**
- ☐ **Black or African American**
- ☐ **Hispanic or Latino**
- ☐ **White**
- ☐ **Other Non-White**

Employment Information:

Are you currently employed?

- ☐ **Yes, fulltime (40+ hours per week)**
- ☐ **Yes, 20-30 hours per week**
- ☐ **Yes, fewer than 20 hours per week**
- ☐ **No, not currently employed.**

Enrollment Status:

What is your current enrollment status at [redacted]? (Please choose one option)

- ☐ **First-time student**
- ☐ **First-time transfer student**
- ☐ **Returning student (readmit)**
- ☐ **Continuing student**
- ☐ **Special Admit (K-12)**
- ☐ **Other (Please specify)**

Educational Background:

What is the highest level of school you have completed**?**

- ☐ **Never attended school or only attended kindergarten**
- ☐ **Elementary (Grades 1 through 8)**
- ☐ **Some high school (Grades 9 through 11)**
- ☐ **High school graduate (Grade 12 or GED)**
- ☐ **Some college or technical school (College 1 year to 3 years)**
- ☐ **College graduate (B.A/B.S. Degree or equivalent)**
- ☐ **Advanced Degree (M.A./M.S. Degree or equivalent)**

Educational Goal:

What is your current goal for pursing education at [redacted]? (Please choose one option)

- ☐ **Transfer after AA/AS**
- ☐ **Transfer without AA/AS**
- ☐ **AA/AS Degree**
- ☐ **Vocational Degree/Certificate**
- ☐ **Job Advancement/New Career**
- ☐ **Maintain Certificate/License**
- ☐ **Educational Development**
- ☐ **Improve basic skills**
- ☐ **Credit for High School or GED**
- ☐ **Undecided**

How likely are you to attain the educational goal that you set?

- ☐ **Very Unlikely**
- ☐ **Somewhat Unlikely**
- ☐ **Unlikely**
- ☐ **Somewhat likely**
- ☐ **Likely**
- ☐ **Very Likely**

Online Course Experience:

Please indicate your previous experience with online courses. (Please choose one option)

- ☐ **Never taken an online course**
- ☐ **Enrolled in an online course but did not complete**
- ☐ **Completed 1 online course**
- ☐ **Completed 2-3 online courses**
- ☐ **Completed 4-5 online courses**
- ☐ **Completed a degree fully online**

What were the significant obstacles that you faced while working through your online course? (Check all that apply)

- ☐ **Feeling isolated**
- ☐ **Lack of student community**
- ☐ **Managing time for school**
- ☐ **Balancing school, work, home life**
- ☐ **Organizing your work flow**
- ☐ **Staying on task**
- ☐ **Using school resources(bookstore, Catalyst, library)**
- ☐ **Managing expectations for online learning**
- ☐ **Maintain motivation for learning**
- ☐ **Using appropriate study skills**
- ☐ **Level of comfort with technology**
- ☐ **Faculty-student interaction**
- ☐ **Course content (textbook, lecture, discussion, learning activities, course structure)**
- ☐ **Other (please specify):**

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live." - Mortimer Adler

Appendix F

GAME Plan Audiobook Video Evaluation

GAME Plan Audiobook Video Evaluation

Thank you for watching the GAME plan audiobook video. Please take a few moments to provide us with some feedback.

Please provide your name to receive full credit for submission.

Name:

Did you find the GAME plan audiobook helpful? Why or why not?

What did you like most about the audiobook?

What did you like least about the audiobook?

What was the most important thing that you learned from the GAME plan audiobook?

What one thing would you recommend to improve the GAME plan audiobook?

Considering the GAME Plan Strategy, on a scale of 1-5, how effective do you think the GAME Plan Strategy will be in preparing you for this online course?

☐ **Not at all Effective** ☐ **Slightly Effective** ☐ **Somewhat Effective** ☐ **Effective** ☐ **Very Effective**

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live." - Mortimer Adler

Appendix G

GAME Plan Course Evaluation

GAME Plan Course Evaluation

Thank you for participating in the GAME plan research study. Please take a few moments to provide us with some feedback. Please indicate your agreement with the following statements:

Please provide your name to receive full credit for submission.

Name:

Overall, the GAME plan framework helped me manage my self-regulated learning in the online course.

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

Creating GAME plans weekly increased my awareness about my own learning process.

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

Goal setting and strategic planning helped me achieve my goals.

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

Executing learning strategies and monitoring progress toward my goals supported my learning.

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

I am comfortable judging the effectiveness of my learning process and making adjustments to better support my learning goals.

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

Will you continue to use the GAME plan framework to support your learning in future online courses?

Yes
No

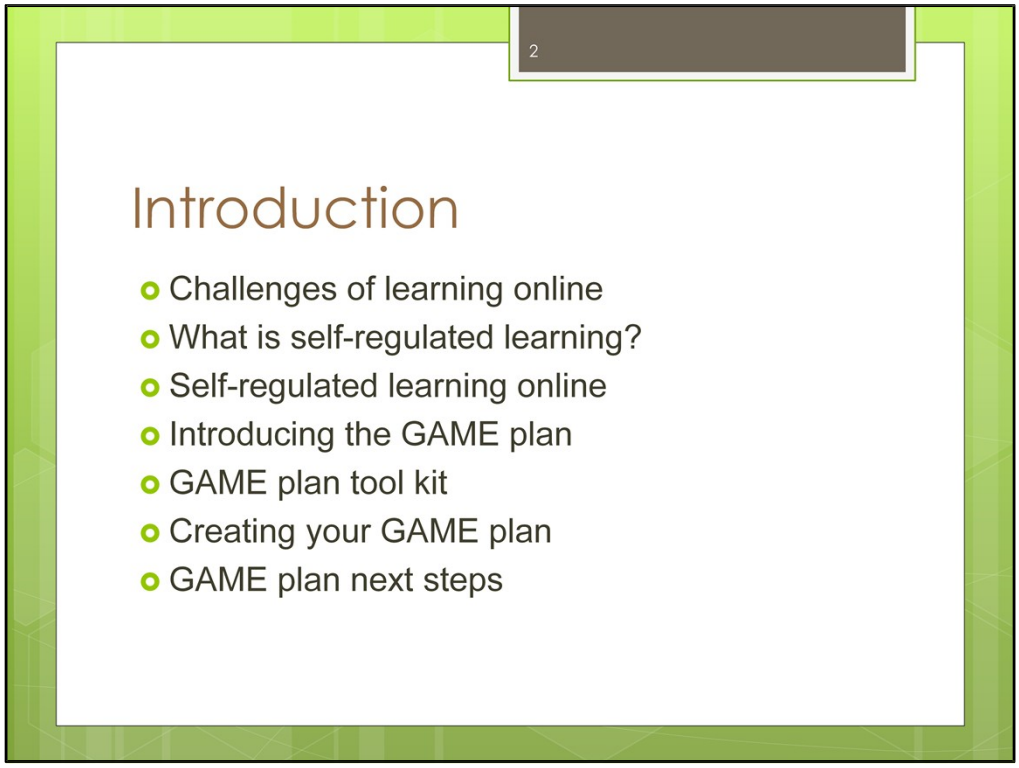
If you do NOT plan to use the GAME plan in future online courses, why?

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live." - Mortimer Adler

Appendix H

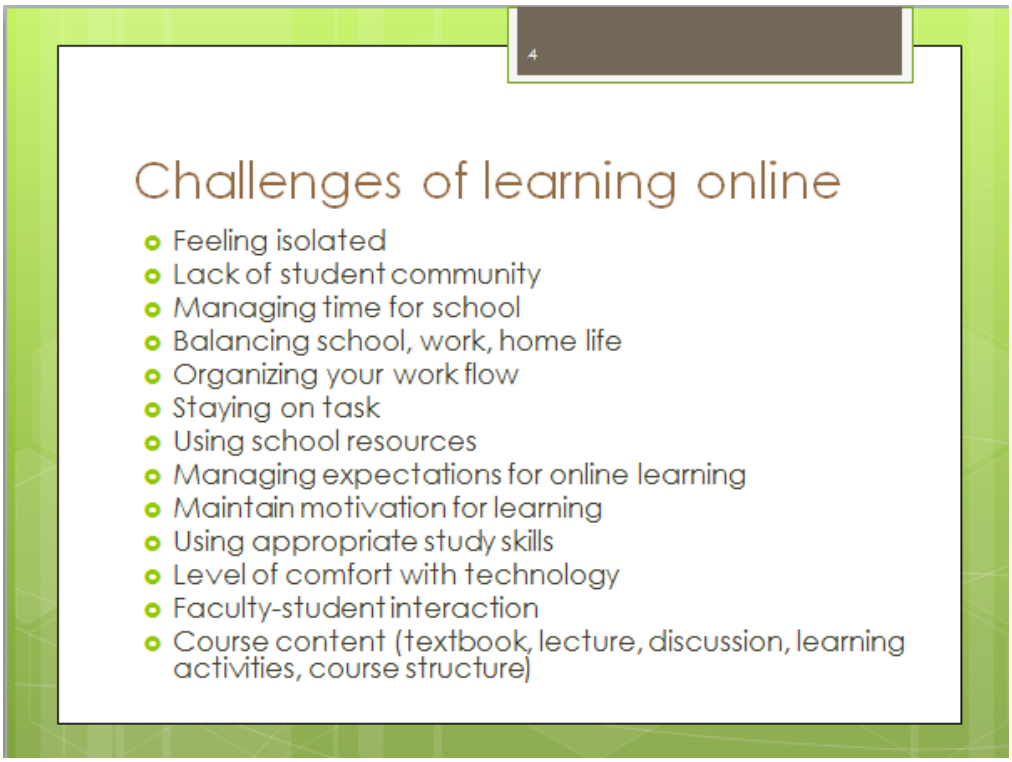
GAME Audiobook Stills with Text

Spoken Text:
Welcome to the presentation "Creating your GAME plan for success: a self-regulated learning strategy for online courses". By now, you have completed the survey of academic self-regulation and have begun to think about your individual learning behaviors. This presentation is intended to share with you a strategic framework to support your learning in an online course. While listening to the presentation, continue to think about how you plan to approach your learning online.

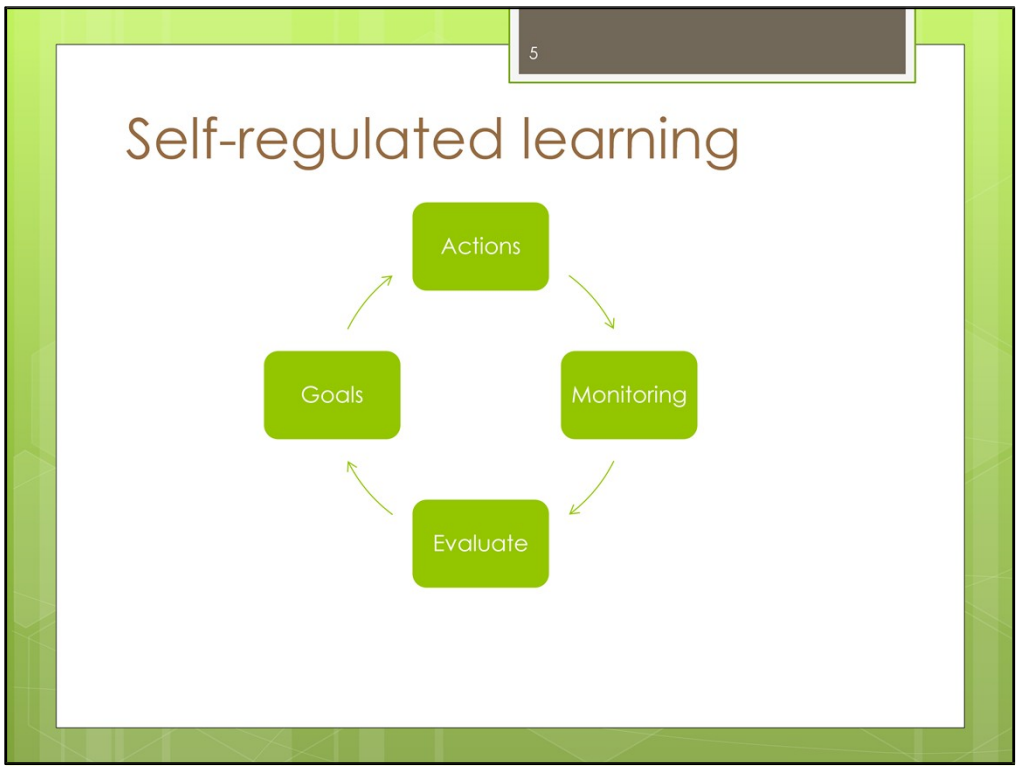


Spoken Text:
The presentation will begin with an overview of the challenges that learners face when taking an online course. Challenges presented are common items discussed in the online student success research. Next, we will introduce a social cognitive theory, self-regulated learning associated with promoting student success in both traditional and online courses. Next we'll move on to the role that self-regulated learning plays in online courses. We'll then transition into introducing the GAME plan framework, a strategy based on the principles of self-regulated learning developed to support learning online. We'll introduce some sample tools that can be used to execute the GAME plan, discuss how to create your personal GAME plan to support your learning. Lastly, we'll end with discussing how you'll be using the GAME plan strategy to support your learning in your current course.

Spoken Text:
Whether you're new to online courses or have lots of experience with them, transition from learning in traditional classrooms to learning online can be challenging even for experienced online learners. Despite the many challenges student face in online courses, we believe that you can learn to be a successful online learner.

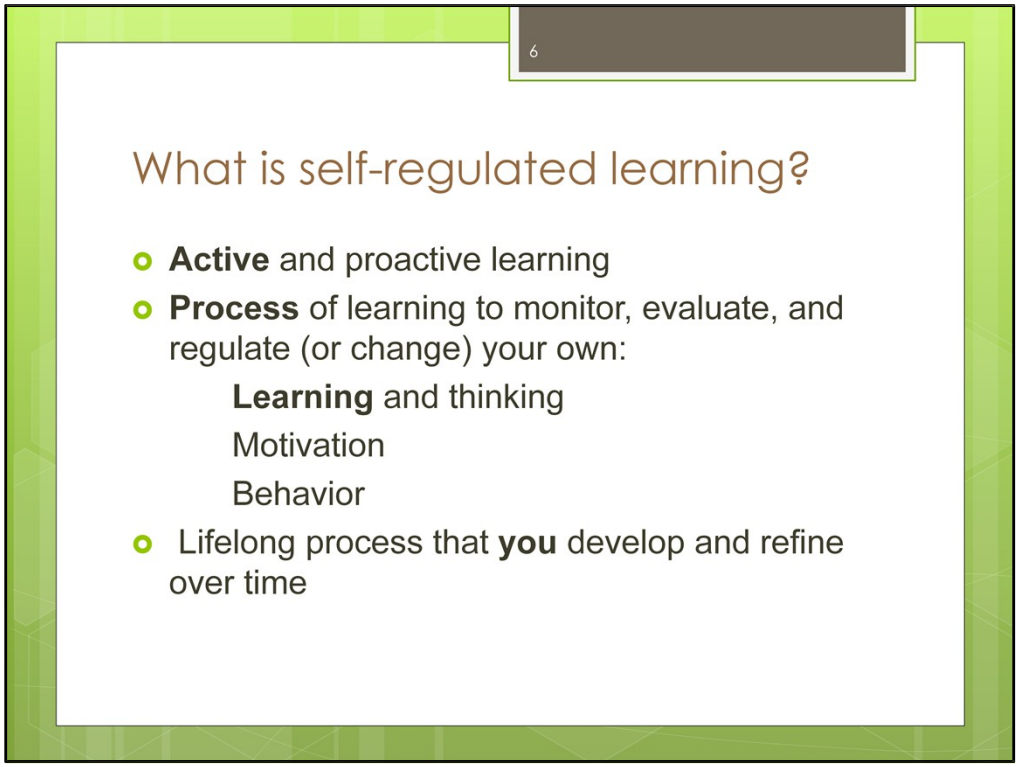


Spoken Text:
Over the past few years, research in the area of online student success has begun to investigate challenges that students in online courses face when trying to succeed academically and complete degree programs. Through Interviews, surveys, and teacher feedback researchers found the following challenges:
Feeling isolated
Lack of student community
Managing time for school
Balancing school, work, home life
Organizing your work flow
Staying on task
Using school resources
Managing expectations for online learning
Maintain motivation for learning
Using appropriate study skills
Level of comfort with technology
Faculty-student interaction
Course content
Students can learn to develop skills to manage all of the above challenges. Researchers are still investigating best practices for supporting students with these challenges. One of the best practices used most frequently to support students' skill development is self-regulated learning.



Spoken Text:

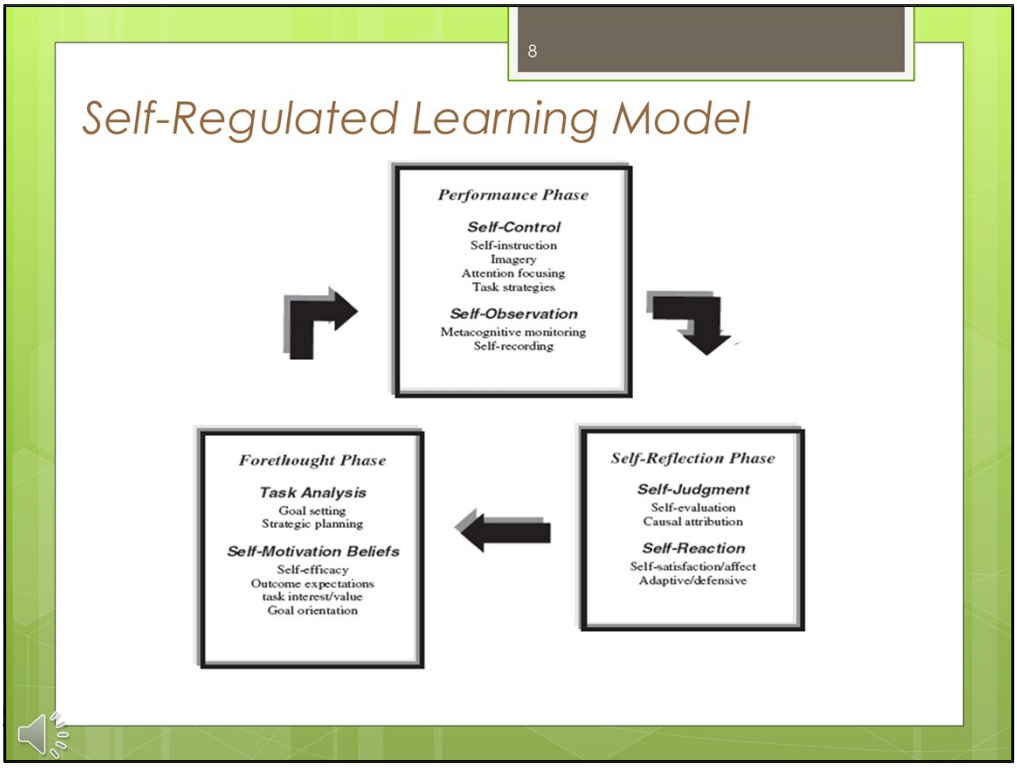
"Self-regulated learning (also known as SRL) is not a mental ability or an academic performance skill; it is a self-directive process by which learners transform their mental abilities into academic skills" (Zimmerman, 2002 p.7). Self-regulated learners set goals, create plans to reach their goals, monitor progress towards their learning goals, and reflect on the effectiveness of their process once their learning goals have been achieved.



Spoken text:

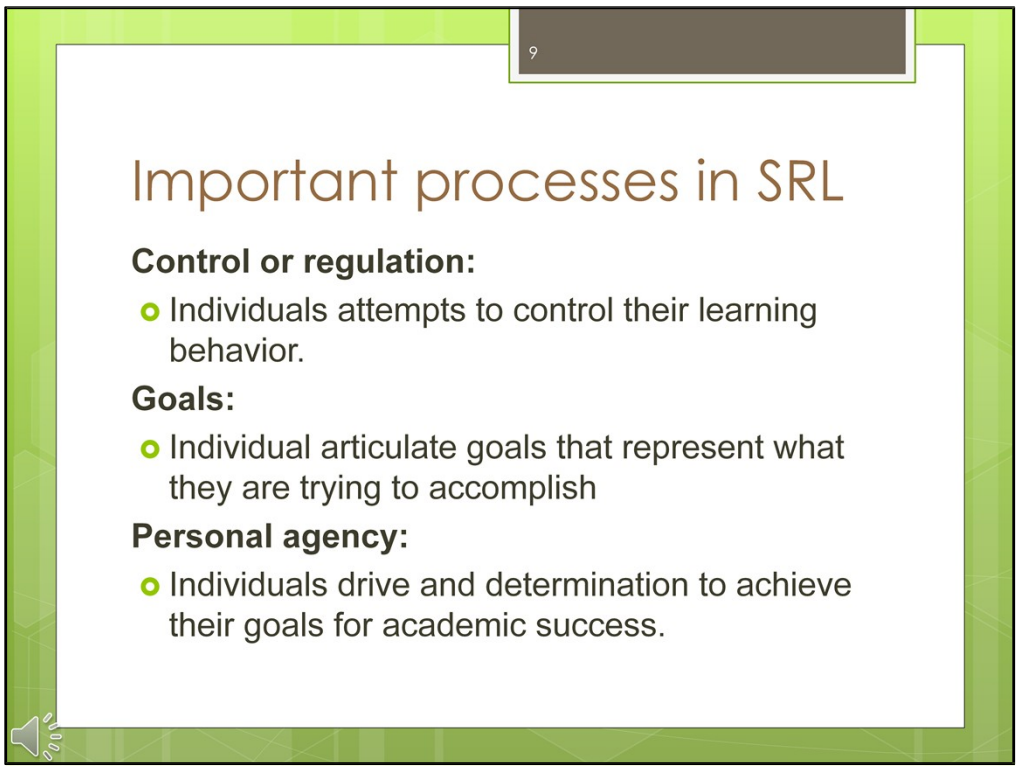
Self-regulated learning is both active and proactive on the part of the student. You engage in the process of learning to monitor, evaluate, and change your own learning approach to learning, motivation, and behavior. SRL is perfected over time and is extremely dependent upon learning contexts. In our case, the context for learning is your online course.

Spoken Text:
The good news is that self-regulated learning can be learned, controlled, and improved. Put simply, self-regulated learning = constantly experimenting with your learning to determine what works best for you as an individual. Specifically it includes the following: Set a learning goal
Make plans and set procedures
Monitor how things are going
Compare results to original learning goal
Based on your findings, make changes to your goals, plans or strategies

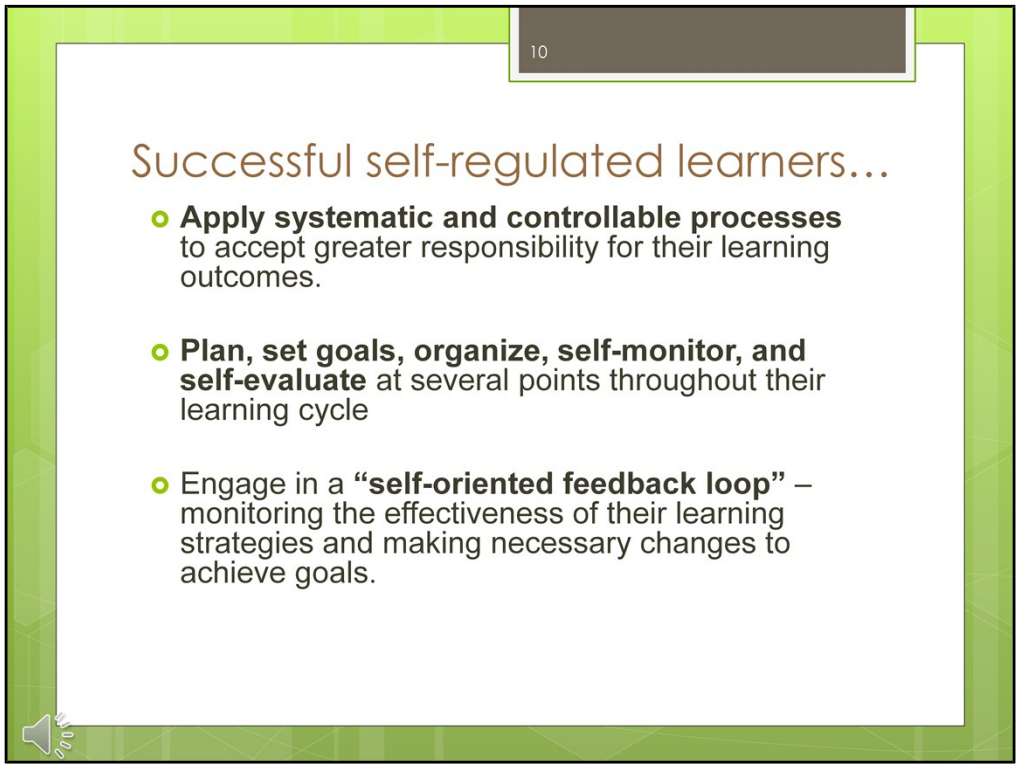


Spoken Text:

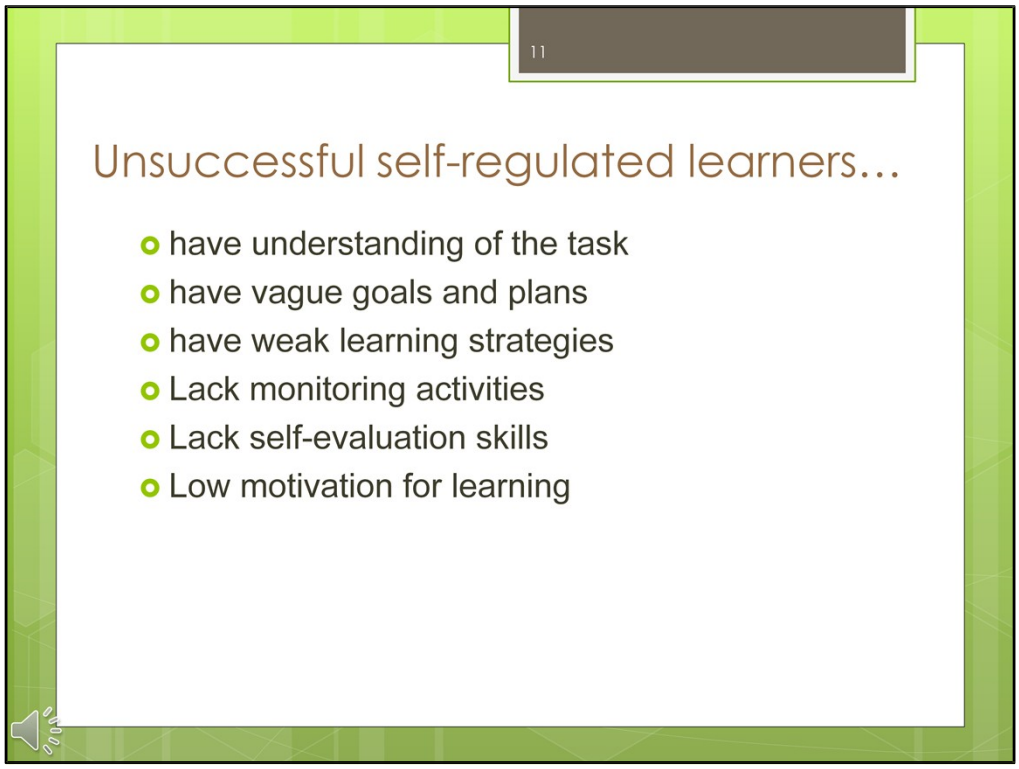
SRL theory as determined by researchers Zimmerman and Schunk (2001) rely on learners completing a process which involves three phases; forethought, performance, and self- reflection. The cyclical nature of the process suggests that students' learning interacts with personal, behavioral, and environment factors at each stage. At each stage of the cycle, students' interactions with factors can lead to changes in learning strategies and behaviors. The forethought phase typically takes place before learning, and can include task analysis, goal setting, and strategic planning, as well as self-motivation. The performance phase typically consists of monitoring of learning strategies and actions taken to work towards your goal. The self-reflection phase involves self-evaluation of the performance (comparison of self-observed performance against some standard, such as prior performance, others' performance, or a standard of performance).



Spoken Text:
There are a few important processes in SRL that are worth mentioning to solidify your understanding on this theory: Control or regulation refers to individuals attempts to control their learning behavior. Goals refer to students individually articulate goals that represent what they are trying to accomplish. Lastly, it's important to remember that as individuals, you drive the SRL process and determine the actions necessary to meet your goals.



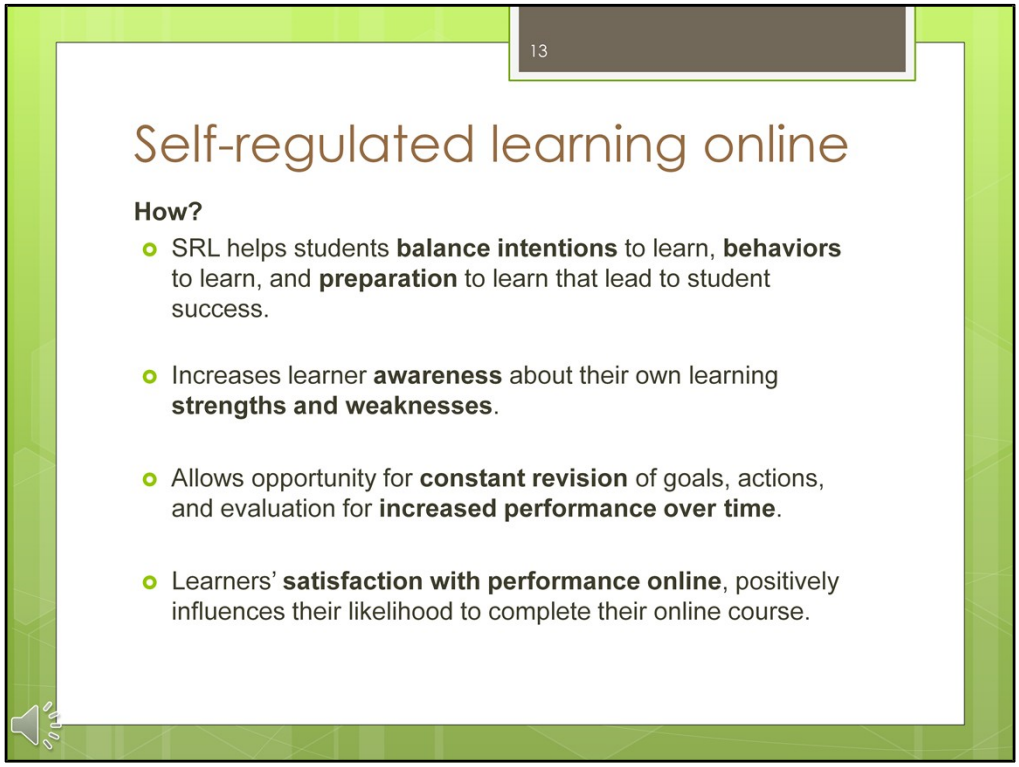
Spoken Text:
So, what attributes do successful self-regulated learners have? They apply systematic and controllable processes to their learning. They plan, get goal, organize, monitor, and evaluate continuously to support their learning.



Spoken Text:
So, what attributes do Unsuccessful self-regulated learners have? The have weak task understanding; you don't know where to start, you don't know how to tell how well you're doing, you're not sure of the steps you took to work through your task, goals are vague and non-descript. Actions: "jump into solutions or action strategies; attribute poor performance to lack of time management, motivation and effort.
-Without goals to work towards, learners cannot monitor activities.
-Students often don't monitor or check how they are doing along the way.

Successful monitoring involves feedback from either yourself or others.
-The feedback loop continues after your goal is met. Discussing your progress and making changes for the next go round leads to better performance and higher motivation for learning.

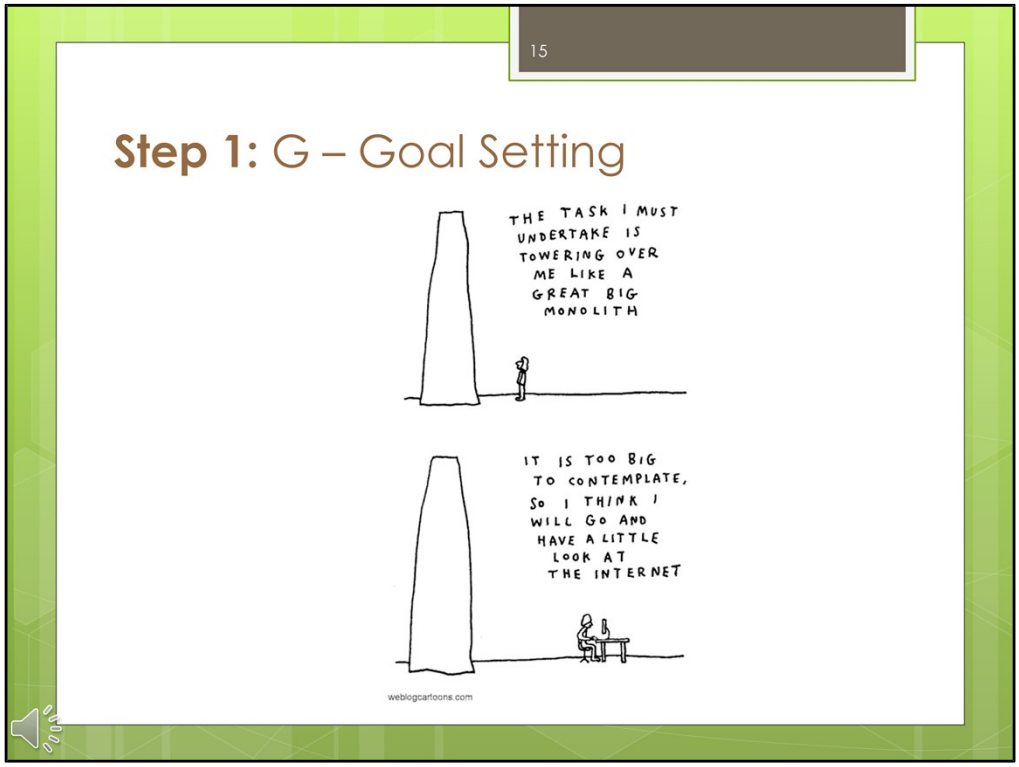
Spoken Text:
So, why are developing self-regulated learning skills to cope with the challenges that online students face important? Transition to learning in the online environment requires greater learner autonomy, self-regulation and individual responsibility for academic performance. Students not prepared to learn online struggle and often do not succeed with their educational goals.



Spoken Text:
How?
SRL Gives students a process to help with the transition to learning online.
Increases awareness of strengths and weaknesses.
Allows opportunity for constant refinement.
Online, you as student are in charge of your own success, SRL provided a strategic approach to promote your success.

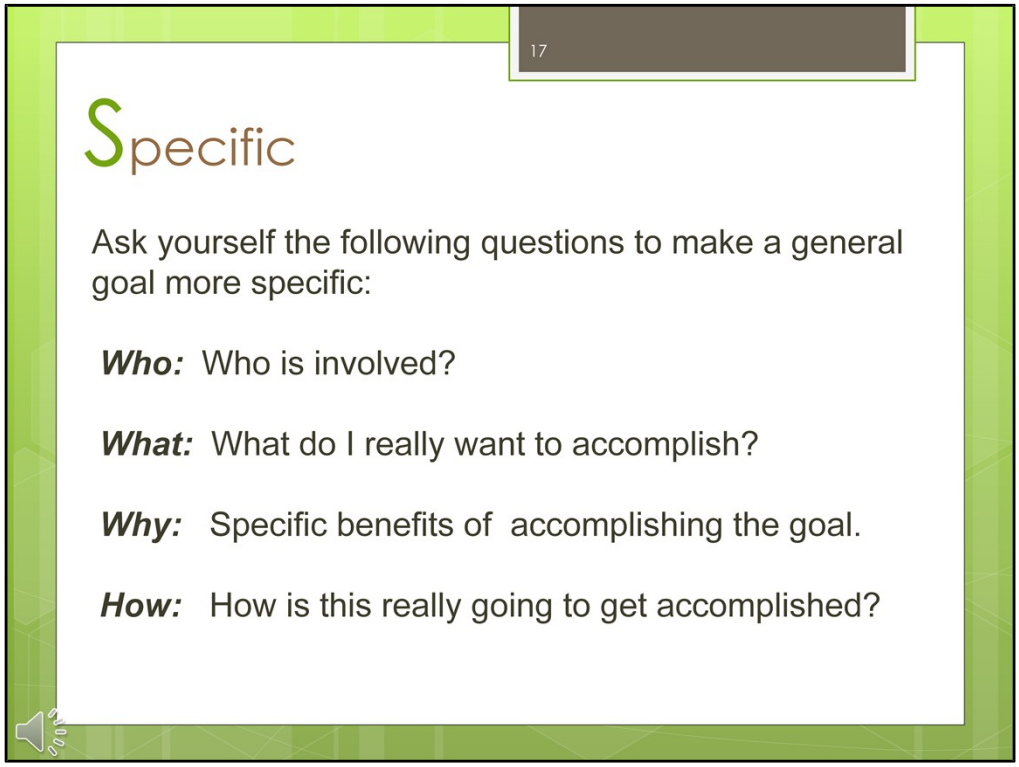
Spoken Text:

Self-regulated learning as a process to support student success is complex.
The learning strategy GAME plan was developed to provide a clear reminder of the steps to follow in the self-regulated learning process. The acronym GAME stands for Goal, Actions, Monitoring and Evaluation. Goal refers to the forethought phase of the SRL model where task analysis, goal setting, and outcome expectations are set by the student. Action/Monitor refers to the performance phase of the SRL model where students engage in learning strategies and metacognitive monitoring of their progress towards goals. Lastly, Evaluate refers to the self-evaluation phase of the SRL model where students reflect on outcomes in relation to their goals and make plans for adjustment as necessary.

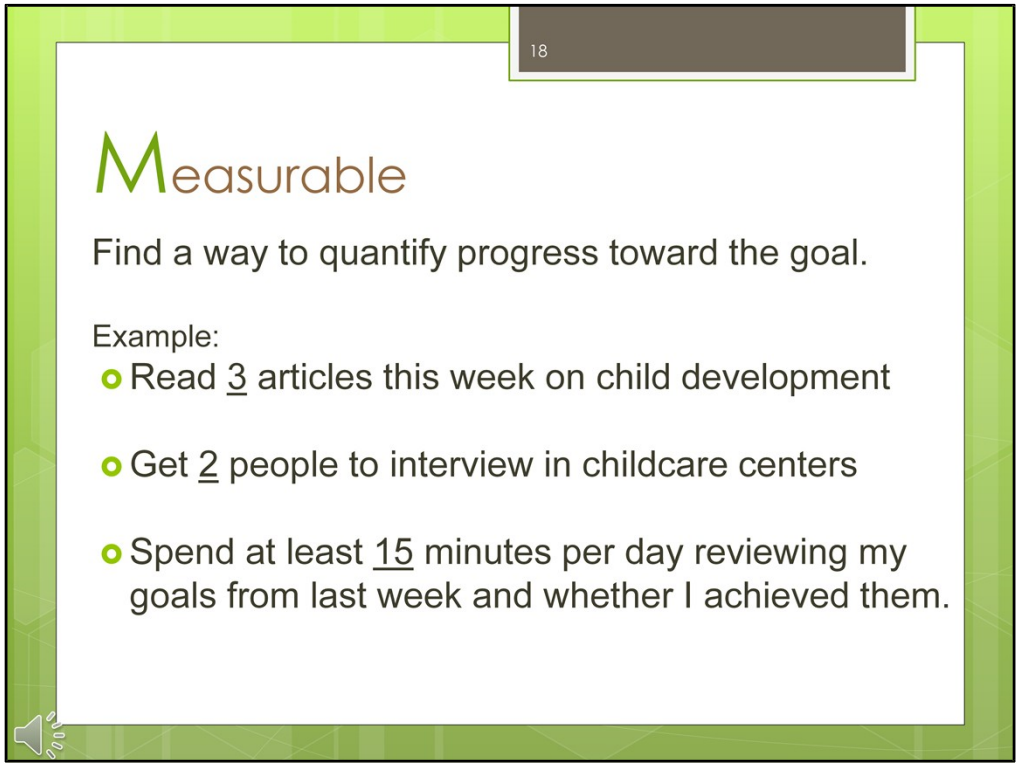


Spoken Text:
Step 1 of the GAME plan is goal setting. Goals that help you…get started, get motivated, determine direction and areas of focus. Goals can be long-term goals such as "I want to own my own business in 5 years" or short term goals, "I will organize my notes from last night's lecture". In order to get off to a great starts, goals should be specific, measureable, action oriented, realistic and timely…also referred to as SMART goals.

Spoken Text:
Goals are something that you want to achieve in the future whether that be the near future as in this week, or the distant future...5 years from now
SMART goals assist with "getting focused" on where to focus efforts.
SMART goals help define the "future state" and how success will be measured. SMART goals are specific, measurable, achievable, realistic and most importantly in reference to your online class, timely.
SMART Goals show students how their work is aligned with the goals of their online course.

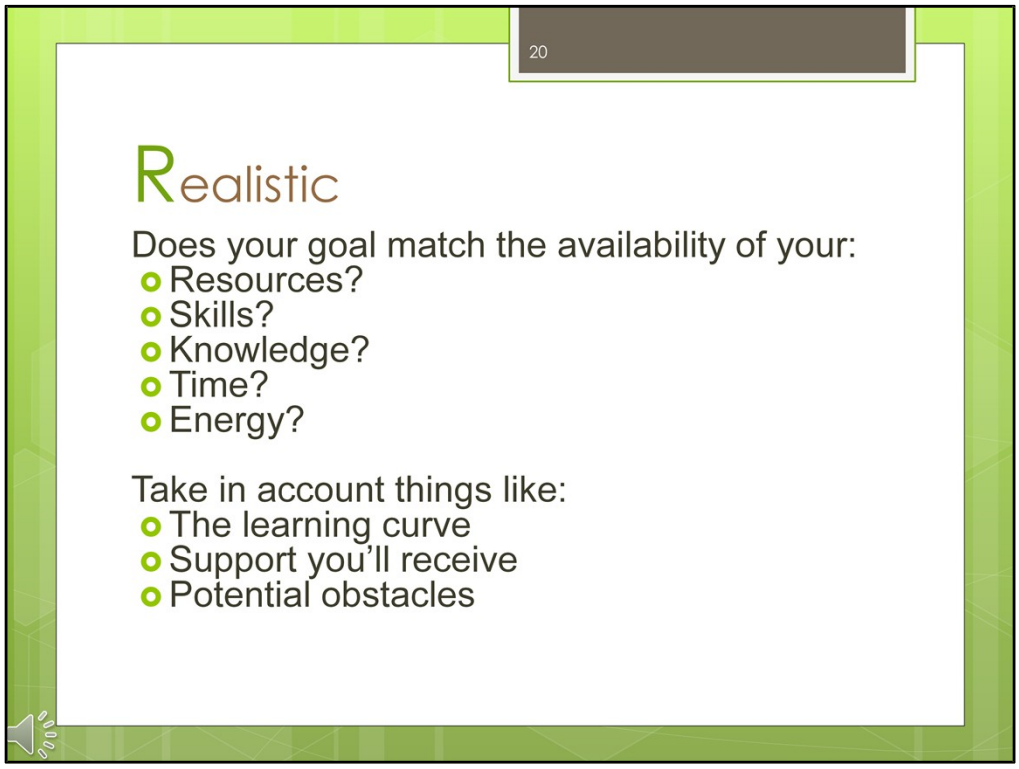


Spoken Text:
Specific - described what you want to accomplish with as much detail as possible. If you establish vague goals, you lesson the possibility of attaining them. Consider the following questions: Who: Who is involved?
What: What do I really want to accomplish?
Why: Specific benefits of accomplishing the goal.
How: How is this really going to get accomplished?

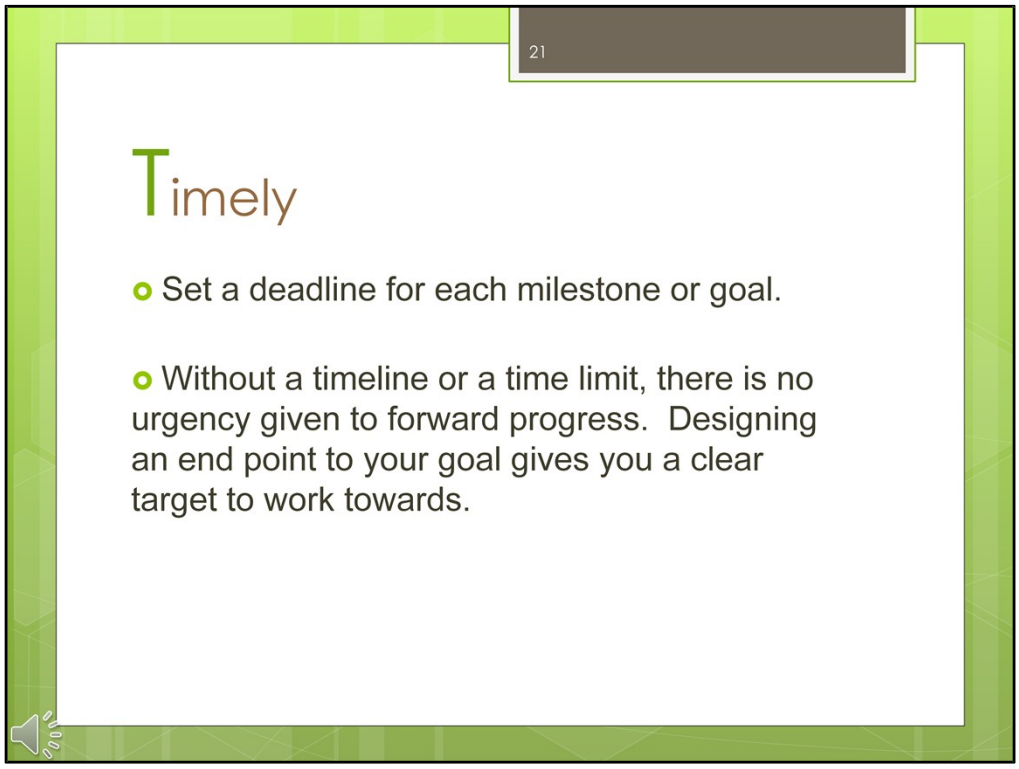


Spoken Text:
Measurable describes your goal in terms that can be clearly evaluated. If you don't determine how a goal is measured, you will never know how your attained it. See the examples listed below quantifying progress toward the goal. Progress that is quantified can easily be evaluated.

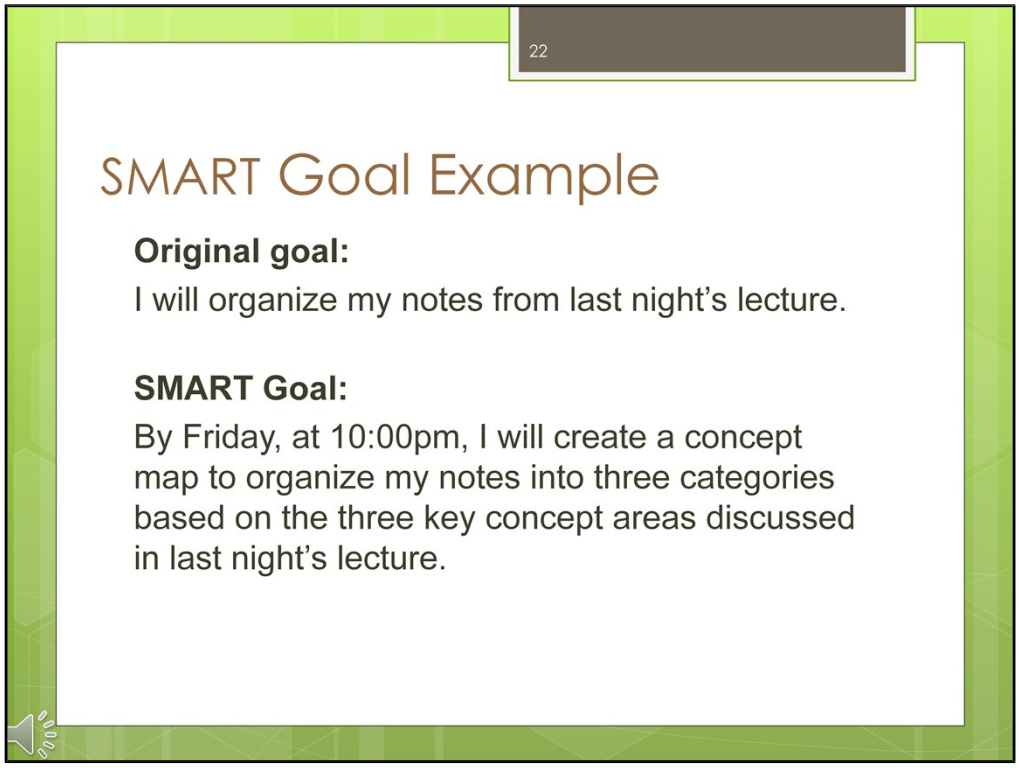
Spoken Text:
Achievable - identifies a goal that focuses on actions rather than personal qualities. Be sure to identify your goal so that it includes an action to be complete, otherwise, you will not know how to accomplish it. Additionally, goals should stretch your slightly so that you feel challenged and inspired to succeed. Chunking larger goals into smaller goals make them more likely to be achieved.



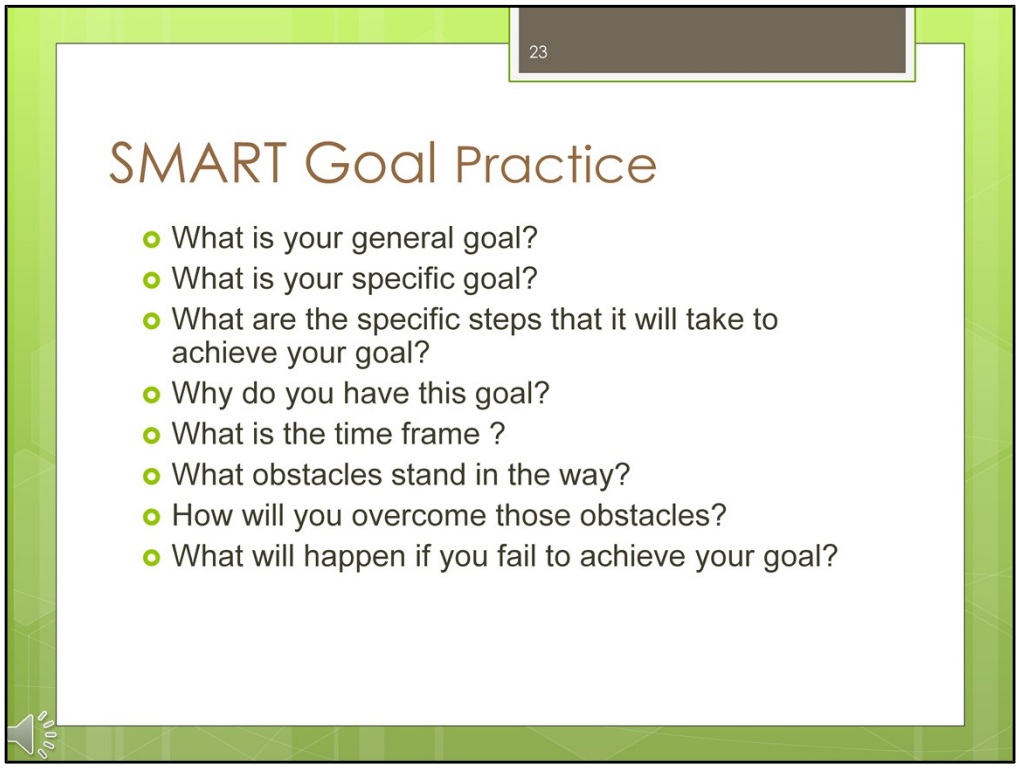
Spoken Text:
Realistic - identifies a goal you know you are actually capable of attaining. Goals can be challenging but unrealistic. There, as students, you should analyze your goals to determine that you can reasonably expect to achieve them. Ask yourself… Does your goal ma the availability of your resources..., skills, knowledge, time, and energy?



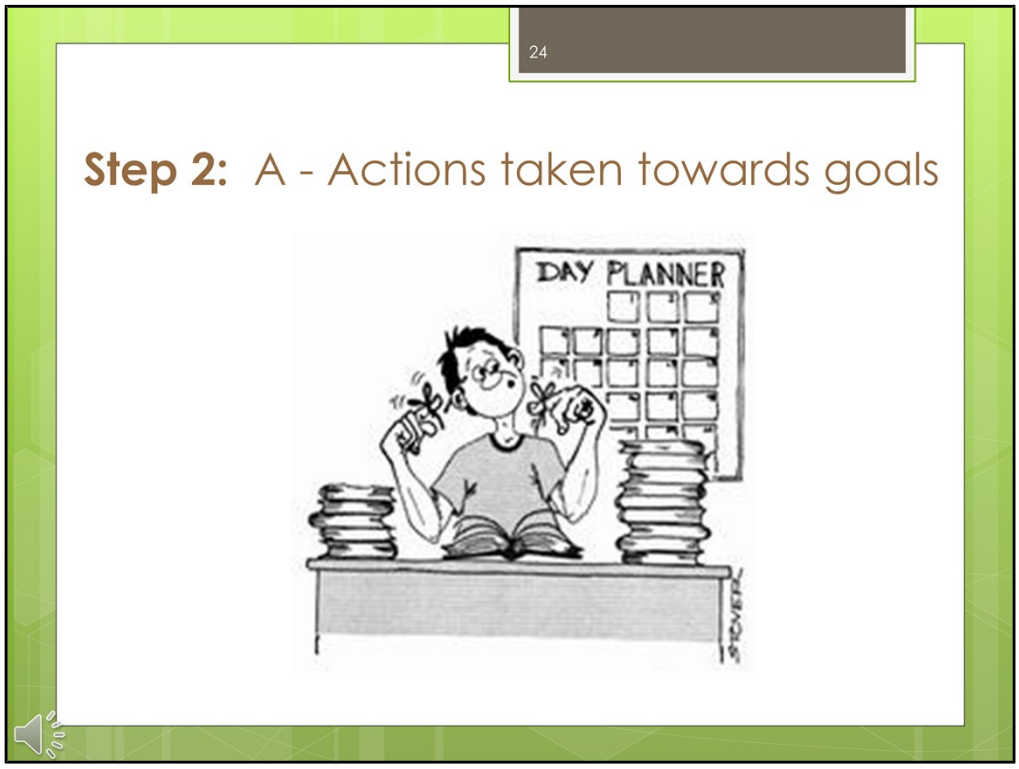
Spoken Text:
Timely - identifies a goal that breaks a longer term goal into a shorter term goals and clearly specifies a completion date. Without a timeline or a time limit, there is no urgency given to forward progress. Designing an end point to your goals gives you a clear target to work towards.



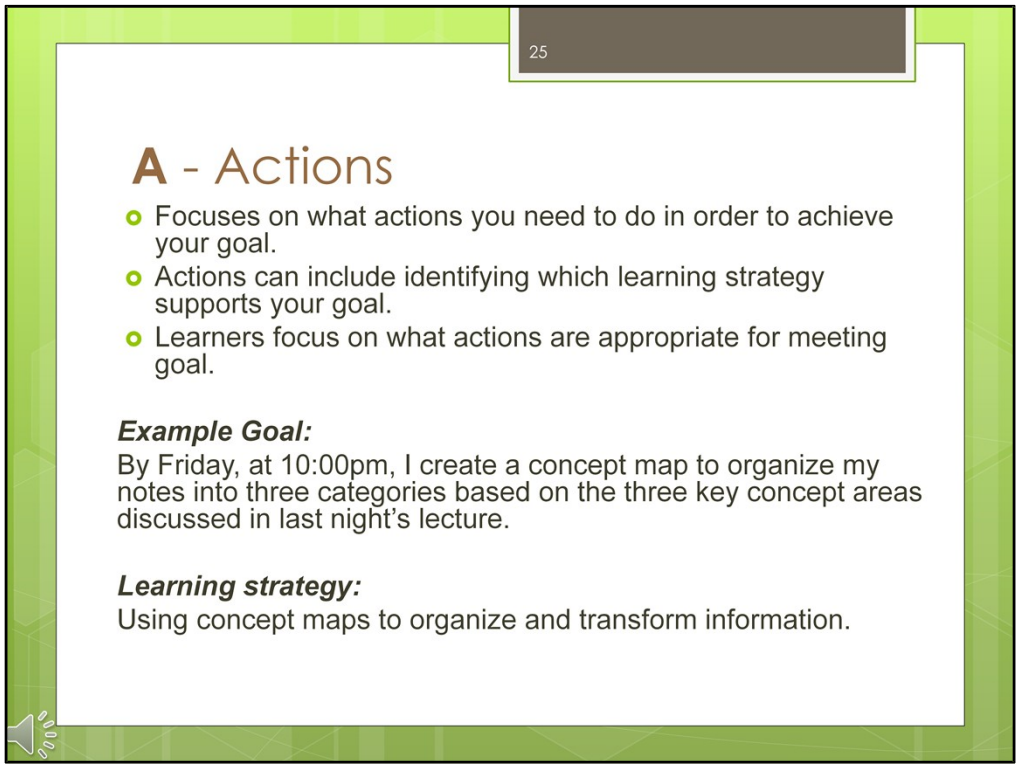
Spoken Text:
Let's take a look at an example, Original goal:
I will organize my notes from last night's lecture. SMART Goal:
By Friday, at 10:00pm, I will create a concept map to organize my notes into three categories based on the three key concept areas discussed in last night's lecture.



Spoken Text:
Here are a few questions to consider when practicing crafting your own SMART goals in support of your learning in your online course: What is your general goal?
What is your specific goal?
What are the specific steps that it will take to achieve your goal?
Why do you have this goal?
What is the time frame ?
What obstacles stand in the way?
How will you overcome those obstacles?
What will happen if you fail to achieve your goal?
You'll have time throughout your work in the course to practice writing and achieving SMART goals. By the end of the course, you'll be a pro!

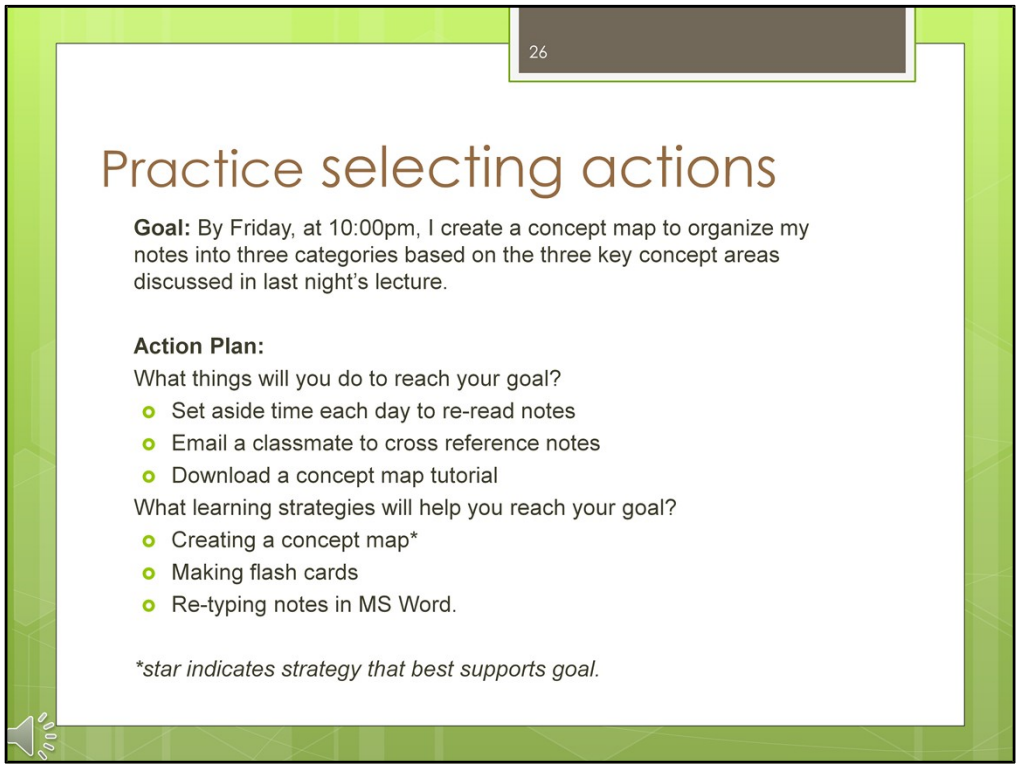


Spoken Text:
Step 2 of the GAME plan is - taking actions towards your goal. Now that we've written a SMART goal, we must now consider how we are going to attaining the goals and plan exactly what actions needs to take place in order to achieve our goal.



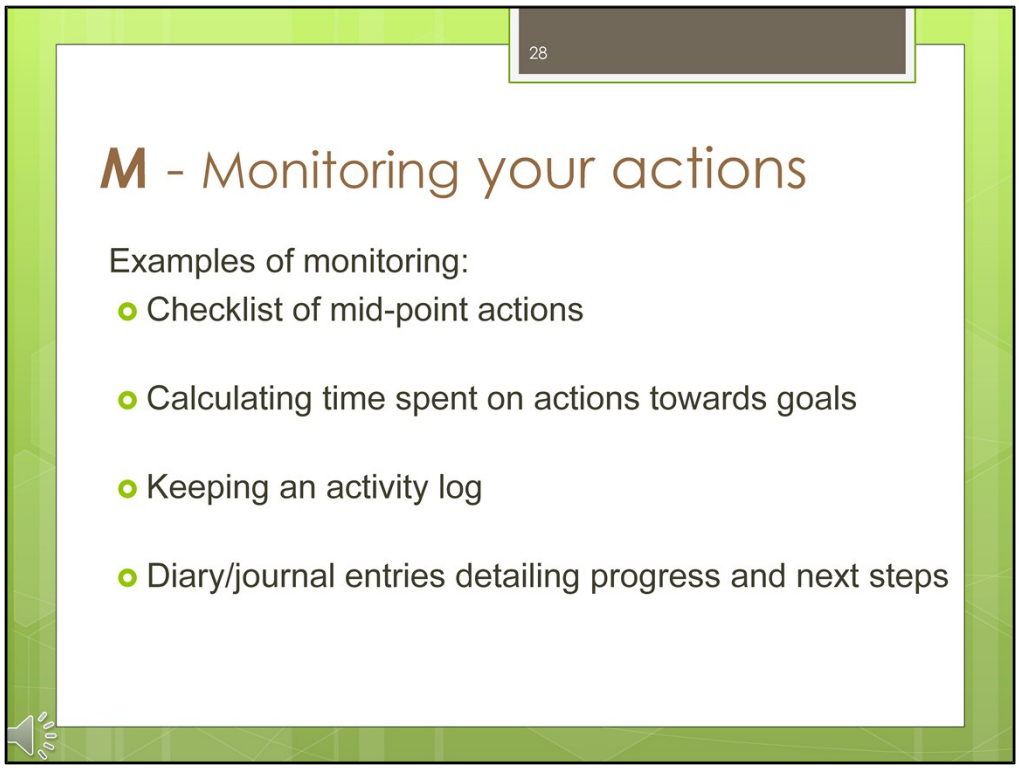
Spoken Text:

The most important aspect of this step is clarifying what needs to be done to achieve this goal. Within the context of your learning online, actions may include selecting specific learning strategies to support your goal. All students have "go to" strategies that they are comfortable using to achieve their goals. Strategies vary by the individual based on previous learning experiences. Typical strategies may include but are not limited to: Other strategies might include, making note cards, re-typing notes in MS Word, flash cards, writing summaries. It's important to remember that you as an individual student must decide which strategy to use that best fits your needs. Let's take a look at an example of a learning strategy that supports the goal.

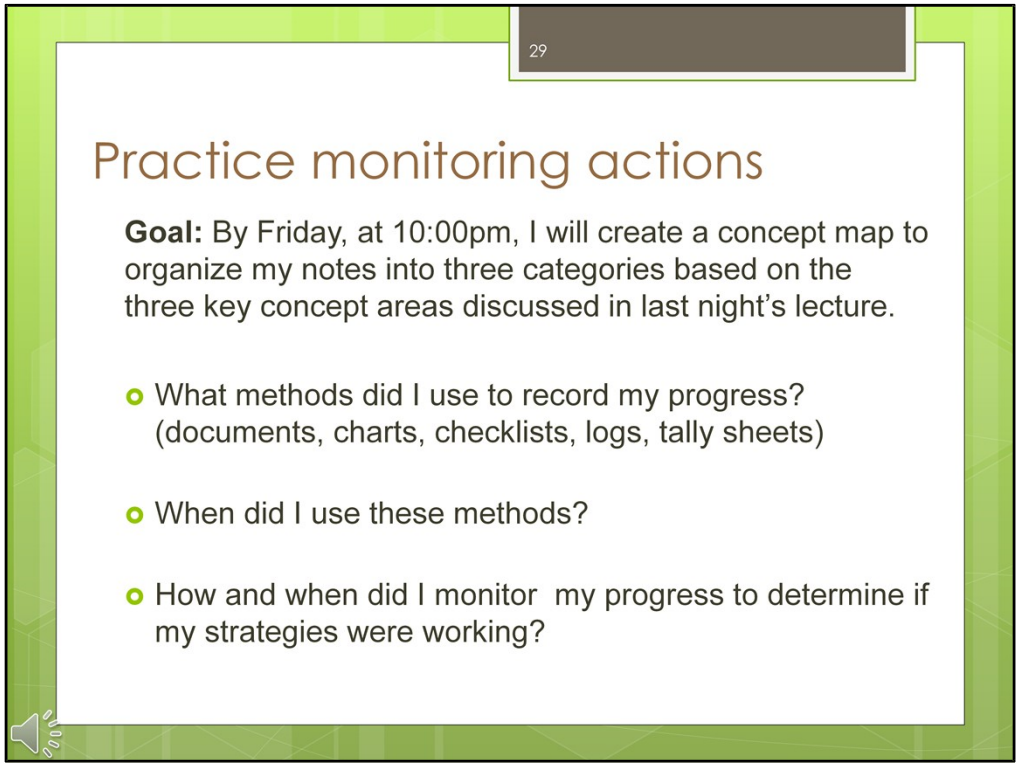


Spoken Text:
Reviewing the current goal, we've developed a possible action plan based on typical student experiences. Consider, what things will you do to reach your goal? In this case, Set aside time each day to re-read notes
Email a classmate to cross reference notes
Download a concept map tutorial. Also, consider, what learning strategies will help you reach your goal? Below are a few examples of learning strategies that may help with our current goal.

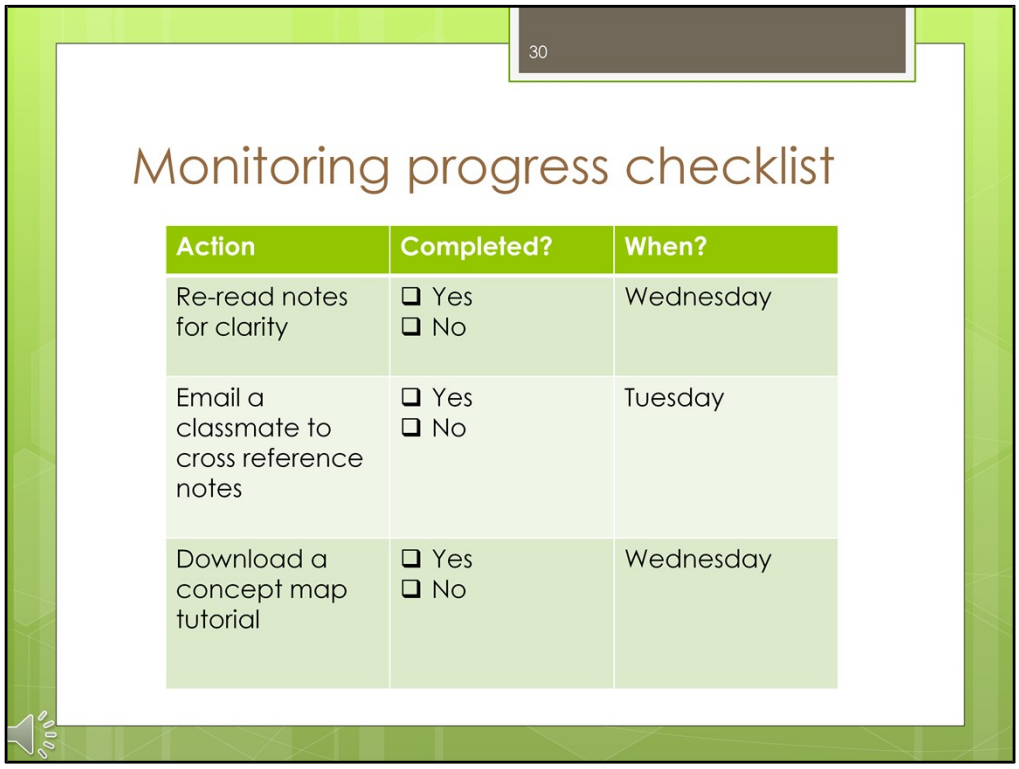
Spoken Text:
Step 3 in the GAME plan is monitoring your actions. Once you've decided on which actions to take to support your goal…take stock on your progress by monitoring your actions along the way.



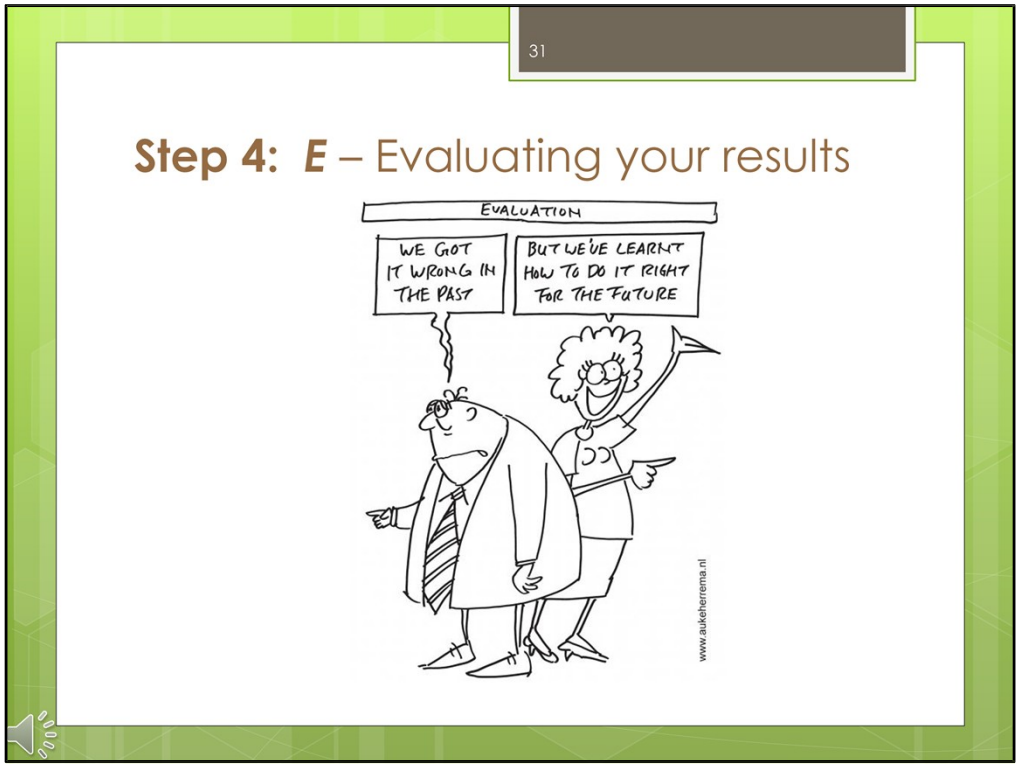
Spoken Text:
Monitoring may include setting smaller goals associated with the larger goal. Depending on the goal, monitoring may include, keeping track of time spent studying, number of pages read, etc. Examples of monitoring may include, checklist of mid-goal actions, keeping an activity log, journaling about your progress. In an online course, another example of monitoring may include, using the online grade book to track progress towards your final course grade.



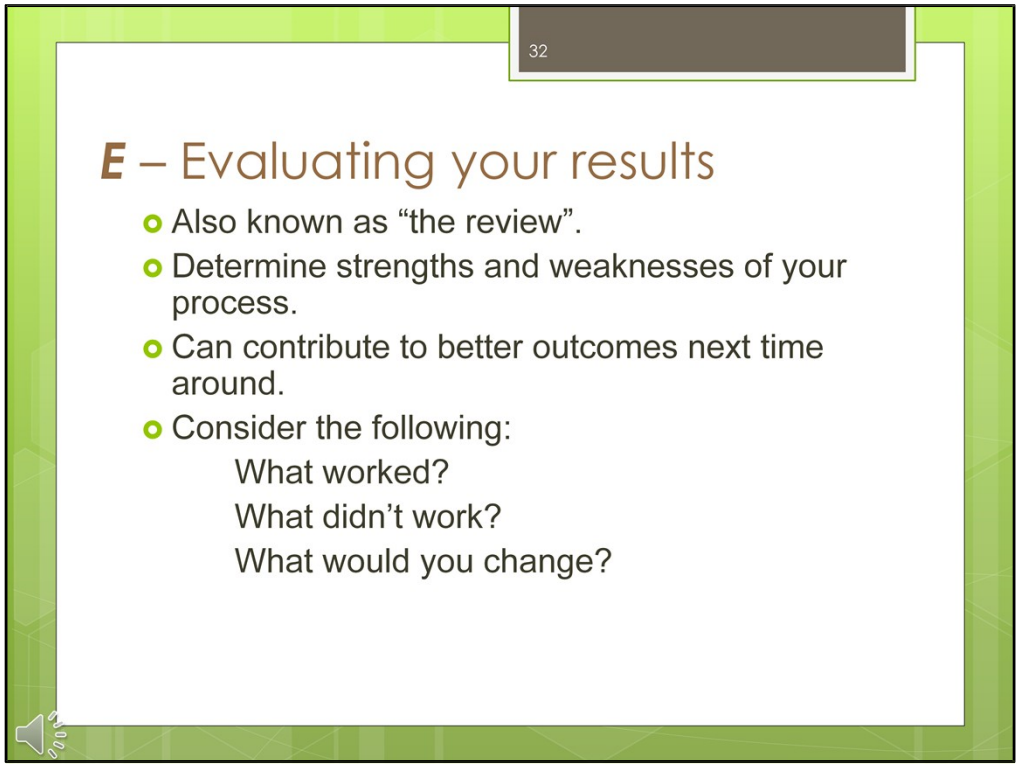
Spoken Text:
Need more practice monitoring actions? Consider the following guiding questions: What methods did I use to record my progress? (documents, charts, checklists, logs, tally sheets) When did I use these methods? How and when did I monitor my progress to determine if my strategies were working?



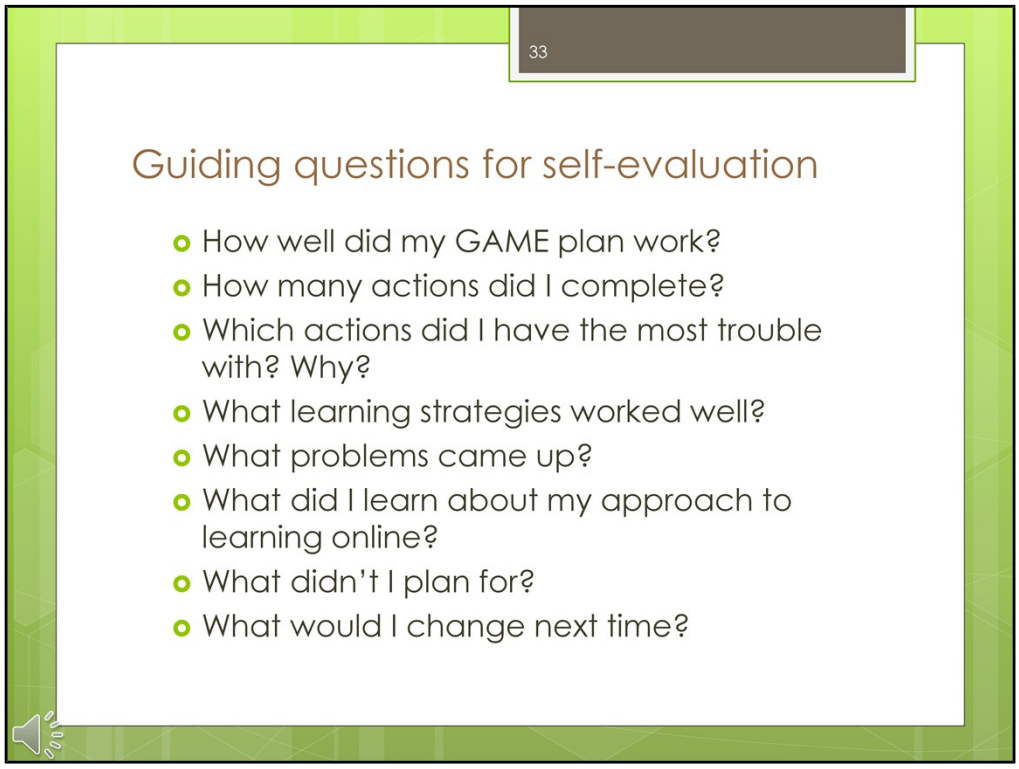
Spoken Text:
Here is a brief example of how you might use a checklist to monitor actions toward your goals. In this case, the actions listed in the left column are the necessary actions we suggested that support our SMART Goal. We determine if those actions have been met, and by when.



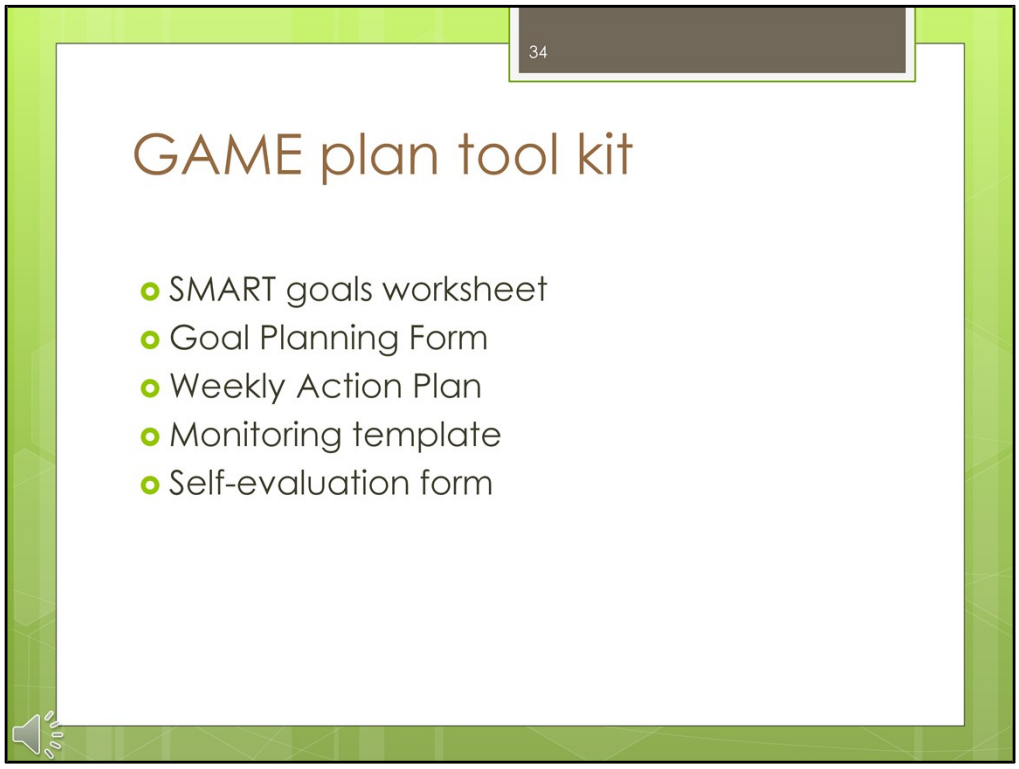
Spoken Text:
Step 4, the last step in the GAME plan is E - Evaluating your results. This step is referred to in the SRL model as the self-reflection phase.



Spoken Text:
Evaluating your results is also known as the learner review. This is your opportunity to take a look at your process to determine its strengths and weaknesses. Did you achieve you goal as planned? Answers found in the review should contribute to better outcomes when working toward future goals. When evaluating your results, consider the following: What worked? What didn't work? What would you change?

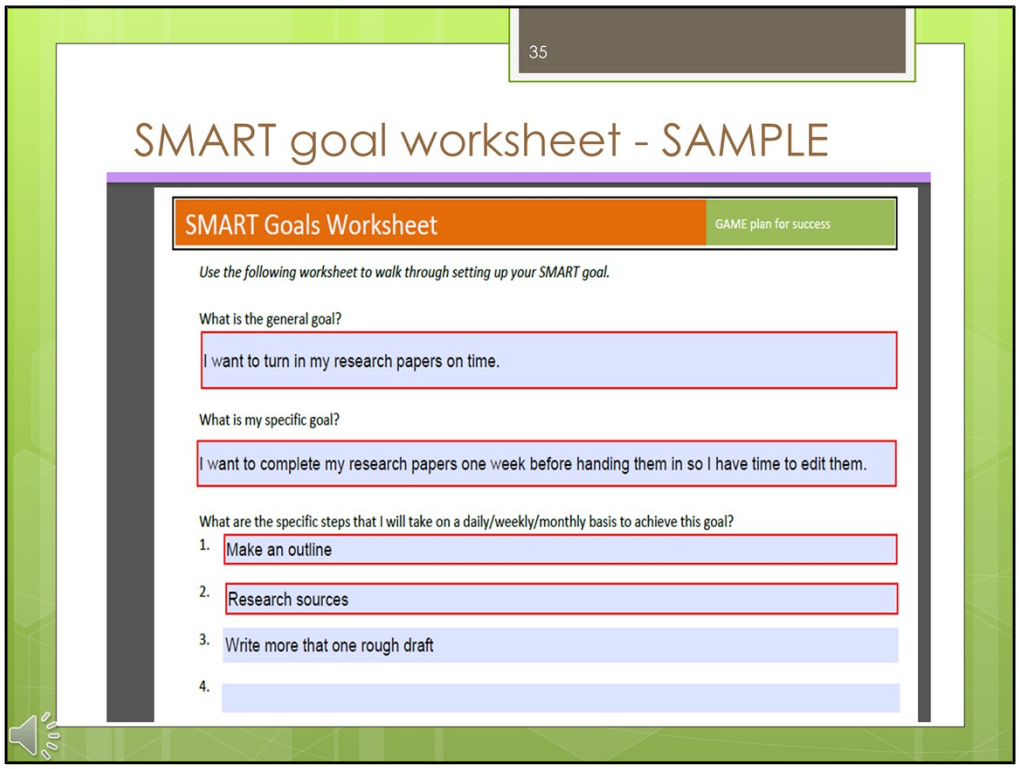


Spoken Text:
When reflecting back through the GAME plan goals and activities of the week, here are some guided questions for further consideration.



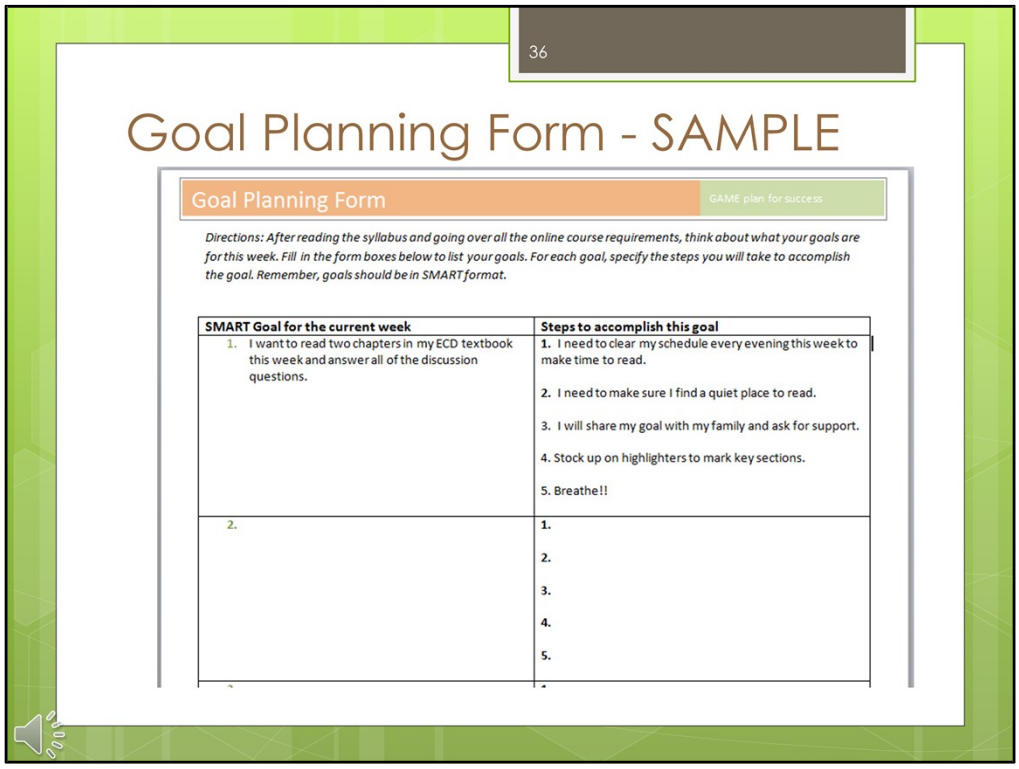
Spoken Text:
We've just reviewed each step in the GAME plan which included identifying and defining your SMART goal, choosing appropriate learning strategies needed for implementing actions, completing actions, and evaluating results. Becoming comfortable implementing the GAME plan strategy the first few times you work with it takes time.

In this section we will discuss a few standard tools that you can use to implement your own GAME plans to support your learning online. Remember, these tools are optional but may give your ideas on how to create and use your own tools to implement your GAME plan. The first two tools, SMART goals worksheet and goal planning form, can help you execute Step 1, goal setting. The weekly action plan tool can help you execute Step 2, taking actions towards goals. The third tool, the monitoring template can be utilized with Step 3, monitoring you actions. Lastly, the self-evaluation form can help you implement, Step 4, evaluating you results.



Spoken Text:
The first optional tool in the GAME plan tool kit is the SMART goal work. Blank SMART goal worksheets are available in your online course materials folder. The worksheet walks you through steps necessary to practice designing SMART goals for yourself. We've provided a sample worksheet here to show you the first portion of the goal worksheet. As you can see above, we've listed the general goal as "I want to turn in my research papers on time". The worksheet then is used to make the general goal more specific.

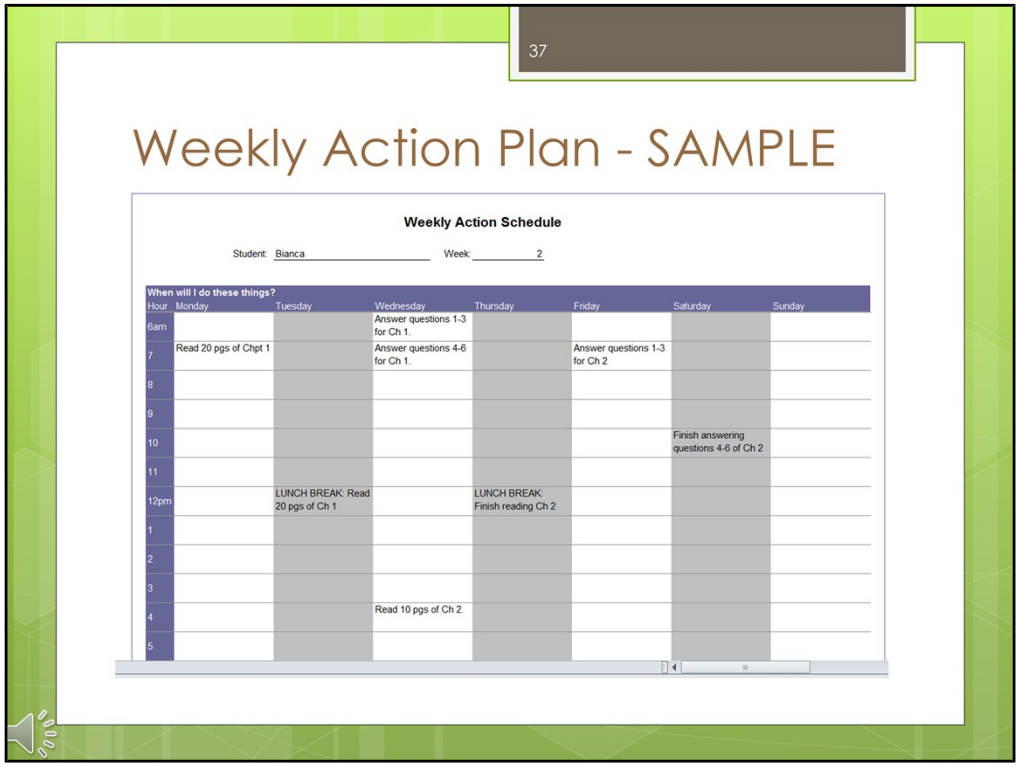
The more specific version of the general goal is "I want to complete my research papers one week before handing them in so that I have time to edit them." By adding specificity, we know how to work backwards to determine actions. The next portion of the worksheet as us to outline the specific steps and the time frame we will take to achieve this goal. Our goal is about completing our research paper. So, some potential steps might be "making an outline", "reviewing research or sources that we plan to cite", and "writing a rough draft. The worksheet goes on to ask us about time frame, obstacles, personal importance, of the goal. Again, the SMART goal worksheet can help you fine tune your process or writing SMART goals and begin your GAME plan for success.



Spoken Text:

The second tool which can help you think about how to transition your SMART goal into actions that you need to take to make progress on your goal is the Goal Planning Form. As with the SMART goal worksheet, a blank Goal Planning Form is available in your online course materials folder. This form asks you to list your SMART goals for the current week in the left column and outline steps that you'll need to take in the right column. For example, the SMART goal for the current week is: "I want to read two chapters in my Early Childhood Development Textbook this week and answer all of the discussion questions". The steps outlined to accomplish this goal are as follows:

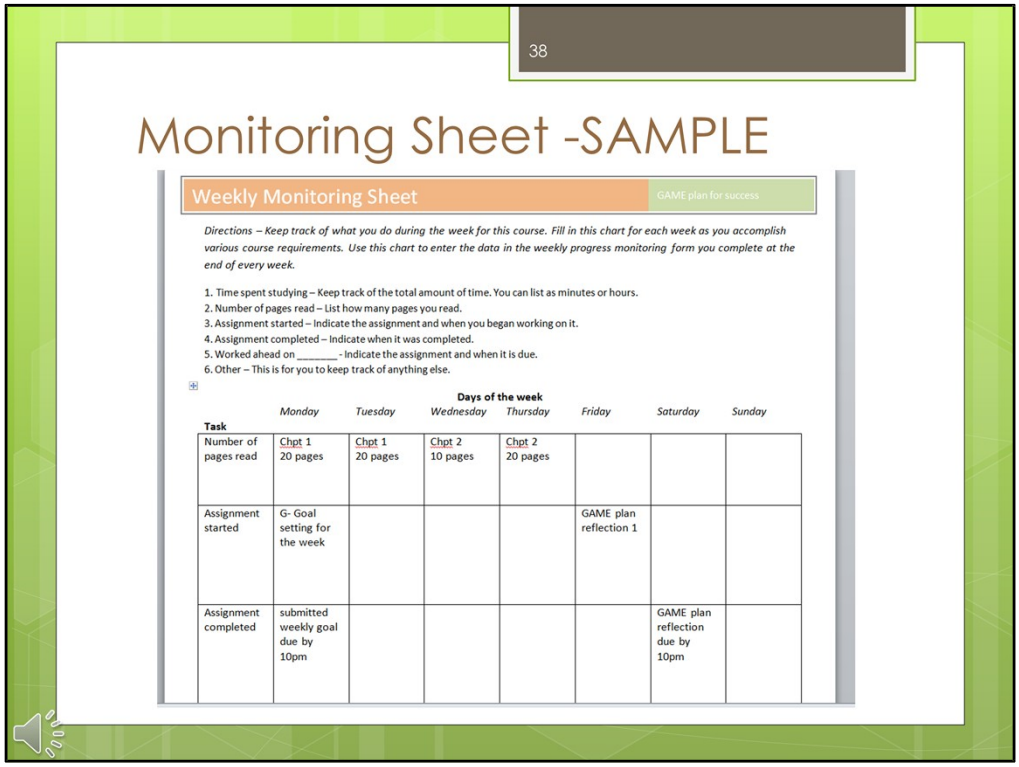
1) I need to clear my schedule every evening this week to make time to read.
2) I need to make sure I find a quiet place to read
3) I will share my goal with my family and ask for support
4) Stock up on highlighters to mark key sections
5) BREATHE!!!



Spoken Text:
The third sample tool in the GAME plan tool kit is the Weekly Action Plan. The purpose of this tool is to move one step beyond outlining steps needed to make progress on your SMART goals, and determine the time you plan to put aside for those tasks.

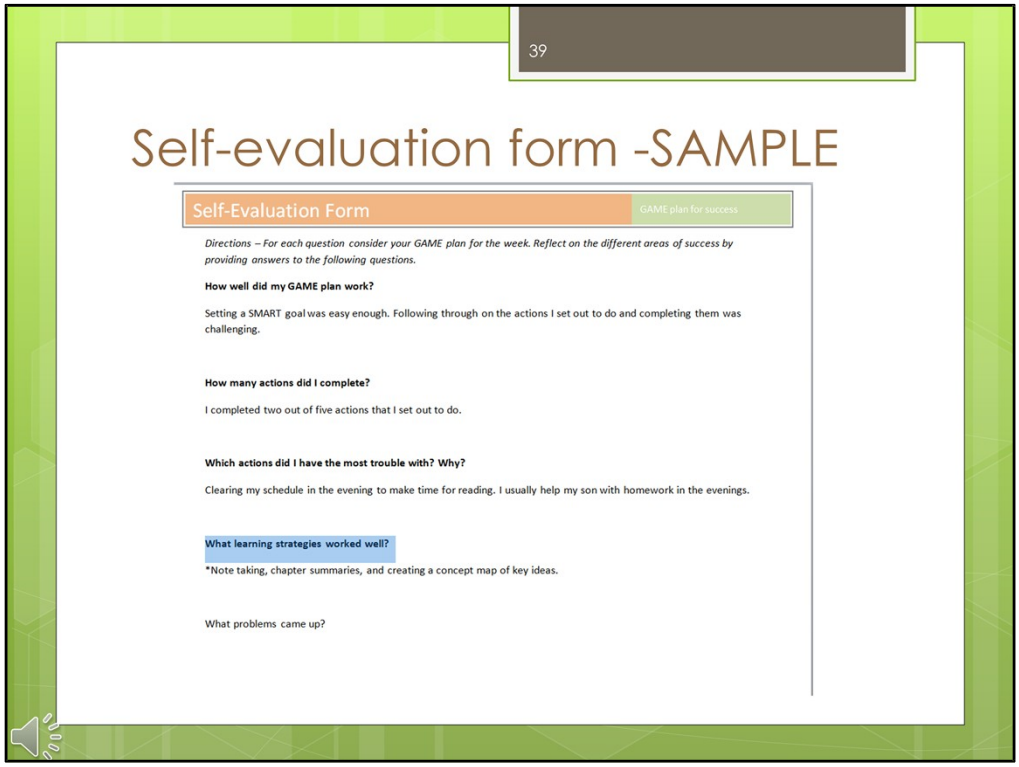
Earlier in the presentation we discussed some of the challenges that online learners face when taking courses on line. Time management, and organization where among the challenges found by online learning researchers. We realize that the Weekly Action plan is “low tech” and that as 21st century students; you may have access to other more sophisticated calendar features that better meet your needs. Despite its “low tech” presentation, the weekly action plan is meant to help you get organized and put your plans into action while balancing your personal and professional life.

In this example, our goal was to read two ECD chapters and answer discussion questions by the end of the week. Clearly, this student is an early riser…and plans to read chapters and answer questions before work. That’s the beauty of the GAME plan. You are in charge of when and where you move to action on your goals.



Spoken Text:
The fourth sample tool in the GAME plan tool kit is the Weekly Monitoring Sheet. The purpose of this tool is similar to the weekly action plan, however it provides an alternate way to “keep track” or monitor course activities and assignments. The column on the left is set-up to monitor specific tasks or activities that you feel are important to track progress. Across the top, are the days of the week in which tasks should be completed.

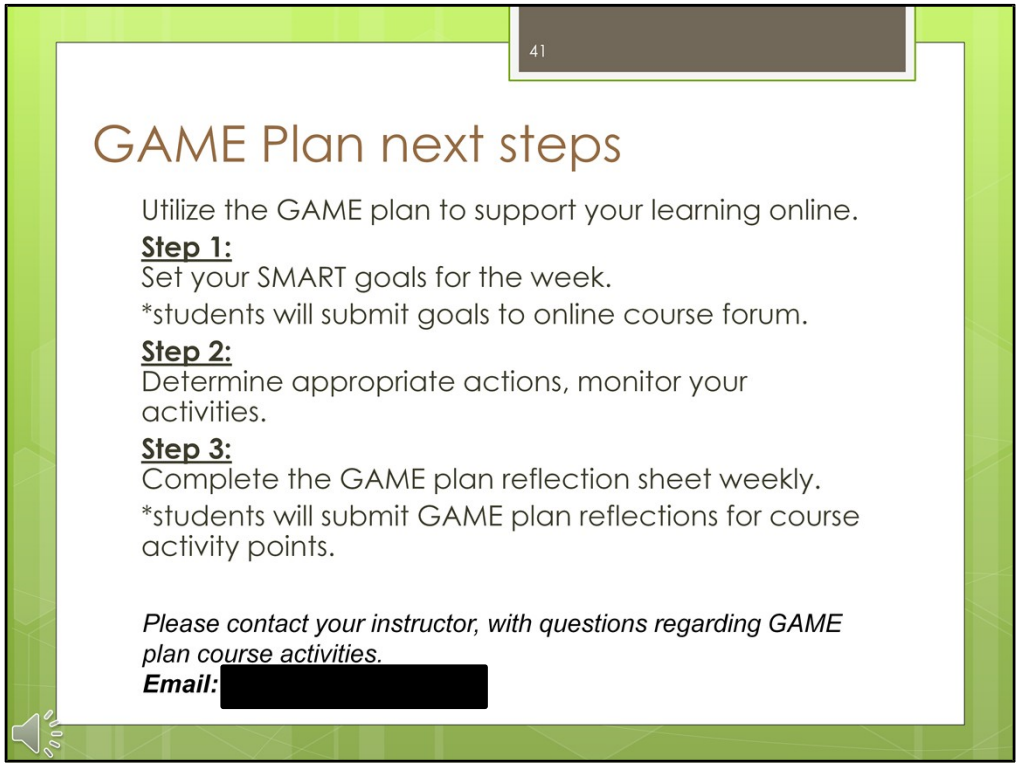
Using the example from the previous slide, the same monitoring sheet is outlining when, where and how, this student will approach reading the two chapters in the ECD book and answering all of the discussion questions. This student read a certain number of pages of each desired chapter every day. The tasks listed on the left can be customized for your online course. For example, one of the tasks might be, posted responses to the online discussion forum. A blank Monitoring Sheet is available in your online course materials folder. We encourage you to use these tools and make them your own so that they work specifically for aspects of your GAME plans.



Spoken Text:
The last tool in the GAME plan tool kit is the Self-evaluation form which should be used once your goal has been achieved. As we talked about before, evaluating your process after its completed will help you improve your process when you set out to conquer your next goal. In keeping with the goal outlined before, of reading two ECD chapters and completing the chapter discussion questions, the sample self-evaluation form reflects back on this students' GAME plan used to achieve the goal. Notice that the student did not complete all of the actions she set out to do based on conflicts in her schedule and family responsibilities. As online students with full lives outside of school, this type of challenge will happen often. However, GAME plan actions can be changed or altered at any time to ensure that you successfully achieve your goals.

The above tools in the GAME plan tool kit are meant to provide you with optional support as you begin to set-up and execute your own GAME plans. The tools are available to you in your online course materials folder. We encourage you to make them your own and customize them in support of your learning goals in your online course. These tools are just the tip of the iceberg. You may even have other tools or learning strategies that you use regularly to support your learning. As long as they work for you, use them to implement your GAME plans.

Spoken Text:
Let's review what we've discussed so far, online learners typically face challenges that imped their academic success. Some of the challenges that researchers have identified are: time management, organization, motivation for learning, and staying on track with the demands of their online course. Developing students' self-regulated learning skills has be proven to support student success in online courses. We reviewed the elements of the self- regulated learning process that support online learners and introduced the GAME plan strategy created to provide a simple way for you to engage in the self-regulated learning process in your online course. The GAME plan strategy includes four easy steps, goal setting, taking actions towards goal, monitoring progress, and evaluating results. GAME plans are flexible, individual, and student driven. You determine, when, where, and how to execute your GAME plans to support your own online learning. The choice is yours!!



Spoken Text:

Your online course begins today!! As part of your course activities, you will be creating your own GAME plans weekly to support your learning goals throughout your online course. At the beginning of the week, you will begin by setting your goals for the week and sharing them with your classmates in the online forum. At the end of the week, you will submit your GAME plan reflection which asks you to share how you used the GAME plan to achieve your weekly goals. Details regarding GAME plan submissions are included in your Weekly Learning Activity Schedule. The intention is to further develop self-regulated learning skills which can be used to support your motivation for learning and academic success online. Good luck to you! Go forth and execute your GAME plans for success. Thank you for your time and attention.

Appendix I

GAME Plan Tool for Guided Practice

SMART Goal Worksheets

SMART Goals Worksheet

GAME plan for success

Use the following worksheet to walk through setting up your SMART goal.

What is the general goal?

What is my specific goal?

What are the specific steps that I will take on a daily/weekly/monthly basis to achieve this goal?

1.

2.

3.

4.

Why do I have this goal?

What benefits will I get by achieving this goal?

What is the timeframe for this goal?

What obstacles stand in the way of achieving this goal? (Attainable)

How will I overcome those obstacles? (Attainable)

What happens if I fail to achieve this goal?

pose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live". - Mortimer Adler

Goal Planning Form

GAME plan for success

Directions: After reading the syllabus and going over all the online course requirements, think about what your goals are for this week. Fill in the form boxes below to list your goals. For each goal, specify the steps you will take to accomplish the goal. Remember, goals should be in SMART format.

SMART Goal for the current week	Steps to accomplish this goal
1.	1. 2. 3. 4.
2.	1. 2. 3. 4.
3.	1. 2. 3. 4.
4.	1. 2. 3. 4.

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live". - Mortimer Adler

Appendix J

GAME Plan Tool for Guided Practice

Weekly Action Plans

Weekly Action Plan

Student:	**Week:**
What are my goals for the course?	**What are my goals for this week?**
1.	1.
2.	2.
3.	3.
4.	4.

What do I need to do this week?	**How, Where, and When?**
1.	**1.**
2.	**2.**
3.	**3.**
4.	**4.**
5.	**5.**
6.	**6.**
7.	**7.**
8.	**8.**

Action Schedule

When will I do these things?

Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6am						
7						
8						
9						
10						
11						
12pm						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12am						

Appendix K

GAME Plan Tool for Guided Practice

Weekly Monitoring Form

Weekly Monitoring Sheet

GAME plan for success

Directions – Keep track of what you do during the week for this course. Fill in this chart for each week as you accomplish various course requirements. Use this chart to enter the data in the weekly progress monitoring form you complete at the end of every week.

1. Time spent studying – Keep track of the total amount of time. You can list as minutes or hours.

2. Number of pages read – List how many pages you read.

3. Assignment started – Indicate the assignment and when you began working on it.

4. Assignment completed – Indicate when it was completed.

5. Worked ahead on _____- Indicate the assignment and when it is due.

6. Other – This is for you to keep track of anything else.

	Days of the week						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Task							
Number of pages read							
Assignment started							
Assignment completed							
Worked ahead on _____							
Number of discussion forum responses completed							

****Table can be customized to meet individual student needs.***

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Appendix L

GAME Plan Tool for Guided Practice

Self-Evaluation Form

Self-Evaluation Form

GAME plan for success

Directions – For each question consider your GAME plan for the week. Reflect on the different areas of success by providing answers to the following questions.

How well did my GAME plan work?

How many actions did I complete?

Which actions did I have the most trouble with? Why?

What learning strategies worked well?

What problems came up?

What did I learn about my approach to learning online?

What didn't I plan for?

What would I change next time?

"The purpose of learning is growth, and our minds, unlike our bodies, can continue growing as long as we live". - Mortimer Adler