ABSTRACT

TOMS, MARCIA L. A Qualitative Inquiry Into the Self-Regulated Learning of First-Semester College Students. (Under the direction of Dr. Lance D. Fusarelli).

The purpose of this study was to discover and describe the self-regulated learning (SRL) of a group of first-semester college students. Using Zimmerman's model of self-regulated learning, this study considered two major research questions: (a) how and why do first-semester college students decide to self-regulate? and (b) how do first-semester college students alter their self-regulation over the course of their first semester in college? These two main questions were supported by data gathered on the following subquestions: (c) what self-regulatory strategies do first-semester college students use? and (d) how do students know if these strategies are successful?

This study used qualitative methods to discover and describe the SRL or a group of 8 first-semester college students. The context for the study a program for undecided students at a large, research extensive institution. The primary data collection technique was multiple, semi-structured interviews and was supplemented by document analyses. Each of the 8 participates was interviewed four times at strategic points between August 2012 and December 2012: before classes started, one-month into the semester, after fall break, and before final exams. In addition, participants consented to sharing their fall GPA and spring enrollment status.

The study yielded a rich, thick description of students' SRL during their first-semester in college. At least 1 participant engaged in each aspect of Zimmerman's model of SRL, but there were also many instances of participants not self-regulating. Peers and instructors played key roles in the participants' behaviors. In some cases peers encouraged participants to work on academics, while in others they discouraged. Tools created or

assigned by instructors were preferred by all the participants.

The participants in this study with the strongest academic performance shared a few traits: (a) extensive use of SRL, (b) awareness of their SRL, (c) accurate metacognition, and (d) creating their own learning resources instead of relying on instructors'. Recommendations for professors, advisors, and further research are included.

A Qualitative Inquiry Into the Self-Regulated Learning of First-Semester College Students

by
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DEDICATION

To my grandmothers: Edythe Lynn Roberts Crocker and Ruth Elizabeth Wacaster Toms

BIOGRAPHY

Marcia Lynn Toms grew up and currently resides in Raleigh, North Carolina. She has been a public school teacher, an English composition instructor, and a coordinator of tutoring services. She now serves as Associate Director of the Undergraduate Tutorial Center at North Carolina State University.

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CHAPTER 1: INTRODUCTION

Chickering (1969; Chickering & Reisser, 1993) proposes that there are seven vectors of development through which individuals may progress during their tenure in higher education. The seven vectors—developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity—demonstrate that college development is about much more than knowledge growth. Indeed, as Tinto (1993) has established, success in college depends on more than just academic ability.

Work in the late 1980s, such as Gardner and Upcraft's (1989) *The Freshman Year Experience: Helping Students Survive and Succeed in College,* helped articulate that the first year of college is a crucial time for an individual's success and satisfaction with the higher education experience. Since that time, a flood of research about first year students and programs designed to assist them has begun. In their updated book, Upcraft, Gardner, and Barefoot (2005) note that while there have been many improvements to the first year experience, "efforts to help first year students succeed are too often focused on retention rather than learning" (p. 6). While acknowledging the importance of other aspects, their definition of success begins with learning: "successful first year students must not only get off to a good start academically and learn how to learn, but they must begin to appreciate what it means to become an educated person" (p. 8).

This study aimed to understand how students learn how to learn by observing students' use of and development of self-regulated learning (SRL). According to

Zimmerman (2001), "students are self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 5). In other words, SRL involves students evaluating their own knowledge, assessing what they need to learn, choosing strategies to improve their knowledge, and, finally, using those strategies. Research has demonstrated that college students who demonstrate self-regulatory skills tend to have higher course grades and GPAs than those who do not (Heikkilä & Lonka, 2006; Ley & Young, 1998; Perry, Hladkyj, Pekrun, Clifton, & Chipperfield, 2005; Vanderstoep, Pintrich, & Fagerlin, 1996).

Despite its importance, most research on SRL is conducted through self-report questionnaires like the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991). Such self-report questionnaires provide efficient ways to gather information on students' attitudes and behaviors, but their depth is limited. More in-depth studies of SRL are often focused on specific aspects of SRL and are conducted in a laboratory environment; for instance, Zimmerman and Kitsantas (1997) studied goal-orientation by having high school women throw darts. While useful information is coming out of these studies, very little research is being conducted in natural contexts.

Purpose of the Study

The purpose of this study was to discover and describe the self-regulated learning of a group of first-semester college students. This study determined what self-regulatory behaviors the students utilized, how students made decisions about their self-regulation, and how their self-regulation changed over their first semester.

Definition of Terms

While the survey of relevant literature will provide more detailed information on each of the following terms, they are defined here to facilitate communication between the researcher and reader.

- *Self-regulated learning* (SRL): the contextually-based cognitive, emotional, and behavioral processes that students use to mediate their learning (Pintrich, 2000; Zimmerman, 2001). This study is framed by Zimmerman's (2000) three-stage model of SRL—forethought, performance/volitional control, and self-reflection. Key subprocesses include:
    - *Forethought Phase*: "metacognitive processes and self-motivational feelings/beliefs [that] precede efforts to learn and prepare a student to self-regulate it" (Zimmerman, 2011, pp. 55–56). Included in this phase are:
        - *Goal setting*: what a student hopes to accomplish during a learning session (Zimmerman, 2000).
        - *Goal orientation*: "general reason an individual does a task" (Pintrich, 2000, p. 473).
        - *Strategic Planning*: selecting tools and strategies to enable self-regulation (Pintrich, 2000; Zimmerman, 2000).
        - *Self-efficacy*: "one's perceived capabilities to learn or perform behaviors at designated levels" (Schunk & Pajares, 2005, p. 85).
        - *Outcome expectations*: an individual's "judgments of the likely

consequences of behavior" (Schunk & Pajares, 2005, p. 89).

- *Performance/Volitional Control*: processes and beliefs that occur during learning (Zimmerman, 2000). This includes:
  - *Attention focusing*: anything that helps a student focus. Strategies often include adjusting the environment, such as turning off the radio or moving to a quieter place in the library (Zimmerman, 2000).
  - *Self-instruction and imagery*: processes used to help encode information such as describing to oneself how to solve a problem or forming a mental picture to help memorize information (Zimmerman, 2000).
  - *Self-monitoring*: "refers to students' efforts to observe themselves as they evaluate information about specific personal processes of actions that affect their learning and achievement in school. From this information, students can assess their progress and make necessary changes to ensure goal attainment" (Zimmerman & Paulsen, 1995, p. 14).
  - *Metacognition*: "knowledge or awareness of self as knower" (Fox & Riconscente, 2008, p. 374)
- *Self-Reflection*: behaviors and feelings/beliefs that occur after learning such as how successful the session was (*evaluation*) and the cause for that success or failure (*attribution*) (Zimmerman, 2000).

- *Motivation*: "a student's willingness to engage in and persist at a task" (Wolters, 2003, p. 190).

- *Undecided Program (UP)*: a program at Big University (BU). The program is designed for undecided incoming students. The program consists of:
    - One-on-one academic and career advising,
    - A two-semester orientation course focusing on transition to the university, academics, self-discovery, and career and major exploration, and
    - A living-and-learning community that incorporates both academic and social programming.

Significance of the Study

Understanding the decisions and thought-processes students make about their study skills is important because, as Schilling and Schilling (1999) note, "What is required of students in their first semester appears to play a strong role in shaping the time investments made in academic work by students in their last semester of their senior year" (p. 8). While there are multiple studies that correlate students' study behaviors and grades (Lynch & Dembo, 2004; Reaser, Prevatt, Petscher, & Proctor, 2007), little research is done on how students make decisions about their studying. Instead, the research relies on large, self-report questionnaires like the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich et al., 1991). While such questionaires provide information on the thoughts and behaviors of students, they do not delve into the reasons behind those thoughts and behaviors. Other times, SRL research is based on non-naturalistic small-scale experiments such as studying in a computer environment for a limited amount of time for a test not related to the student's course (Perry & Winne, 2006). Psychologists gain useful information about the students'

cognitive processes through such studies, but it is often hard to see how such research applies outside the laboratory setting, when students are faced with competing demands on their time.

This study was designed to contribute to the field by: 1) conducting a qualitative study in the naturalistic context of students' first semester in college and 2) observing the changes in SRL over time. This research focused on students at a natural, critical point—the first semester of college. Students guided the thoughts and behaviors discussed, instead of prompting by way of a structured questionnaire. The study also used qualitative techniques to probe the reasons behind the students' thoughts and behaviors. By conducting the study over a period of time, something rarely done in SRL research, this research contributes to understanding how SRL develops.

By more thoroughly understanding the self-regulation of first year college students, this research contributes in multiple ways. First, it provides the basis for studying the development of SRL with other students. Exploratory qualitative research is often used as a precursor for larger qualitative or quantitative studies (Creswell & Clark, 2010). Next, the research may assist higher education institutions better serve their students by helping professors and advisors understand their students better.

Research Questions

Two major questions guided this study:

1. How and why do first-semester college students decide to self-regulate?
2. How do first-semester college students alter their self-regulation over the course of

their first semester in college?

These two main questions were supported by data gathered on the following subquestions:

- What self-regulatory strategies do first-semester college students use?
- How do students know if these strategies are successful?

Overview of the Methodological Approach

In order to understand students' self-regulation over their first semester in college, a qualitative design was used. A multiple-case design was implemented, with eight participants in their first semester of college. The primary data collection technique was multiple, semi-structured interviews and was supplemented by document analysis. Data was analyzed inductively using first and second cycle coding (Saldaña, 2009).

Organization of the Dissertation

This dissertation is an account of eight first-semester students' experiences using self-regulated learning. In Chapter 2, the relevant literature including the history or self-regulated learning, its components, and methods for researching SRL is reviewed. Chapter 3 includes data collection and analysis procedures, as well as a discussion of the study's limitations and ethical considerations. Chapter 4 presents descriptions of each of the eight study participants and examines their use, or lack of use, of SRL. Finally, Chapter 5 provides a review of the study results, a discussion of their meaning, and implications for practice and future research.

CHAPTER 2: REVIEW OF RELATED LITERATURE

This chapter reviews the literature that serves as the theoretical base for the research study. The major components include: (a) the history of self-regulated learning (SRL), (b) the components of SRL, (c) teaching and development of SRL, (d) methods for researching SRL, and (e) known group differences in SRL. Motivation, a related but distinct concept, is also examined.

History of Self-Regulated Learning

Self-regulated learning (SRL) is the academic subset of a relatively new area in psychological research: self-regulation. The first wave of research, which appeared in the 1980s and 1990s (Boekaerts, Pintrich, & Zeidner, 2000), is based on principles developed by James, Piaget, and Vygotsky (Fox & Riconscente, 2008).

As SRL is still a relatively new field, theorists and practitioners have not come to consensus on the definition. Even as late as 2008, *Educational Psychology Review* devoted an entire issue to defining and creating boundaries between metacognition, self-regulation, and self-regulated learning (Alexander, 2008).

Most psychologists agree that Bandura's (1986) *Social Foundations of Thought and Action* is the seminal work on SRL. Bandura argues that key tenets of social cognitive theory are the self-regulatory and self-reflective capabilities of individuals. However, social cognitive theorists are not the only psychologists who research SRL; Zimmerman and Schunk's (2001) book *Self-Regulated Learning and Academic Achievement: Theoretical Perspectives* articulates SRL through the views of operant, phenomenological, information

processing, social cognitive, volitional, and Vygotskian theorists. Each psychological perspective defines SRL differently, but much work has been done trying to identify the key elements of SRL with which all theorists and researchers can agree (Boekaerts et al., 2000; Pintrich, 2000; Zimmerman, 2000).

Zimmerman (1998) argues that "most self-regulation theorists view learning as a multidimensional process involving personal (cognitive and emotional), behavioral, and contextual components" (p. 2). Pintrich (2000) notes four common assumptions in SRL models: (1) the "active, constructive assumption" that learners are not just passive recipients of knowledge, but they are active participants, (2) the "potential for control assumption" that learners can (though they may not always) monitor and control their learning, (3) the "goal, criterion, or standard assumption" that there is some standard or benchmark that learners use to judge their learning to see if the control they are using is working, and (4) the "mediator assumption" that self-regulatory processes mediate between the individual and the learning (p. 453). In other words:

> It is not just individual's cultural, demographic, or personality characteristics that influence achievement and learning directly, or just the contextual characteristics of the classroom environment that shape achievement, but the individual's self-regulation of their cognition, motivation, and behavior that mediate the relationships between the person, context, and eventual achievement. (Pintrich, 2000, p. 453)

Zimmerman (2001) composes a common definition of SRL: "Students are self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active

participants in their own learning process" (p. 5). This definition appears to be widely adopted, (e.g. Ainley & Patrick, 2006; Greene & Azevedo, 2007).

While there are many perspectives of SRL, this research is based on the social cognitive perspective, which stresses "reciprocal interactions" between behavior, environmental variables, and personal variables (Bandura, 1986; Schunk, 2001). Unlike other psychological viewpoints which focus on the individual, social cognitive psychologists view the environment as both an actor and an agent for human functioning (Bandura, 1986).

Components of SRL

Each of the various models of self-regulated learning reflects its psychological perspective. For instance, the four stages of Winne and Hadwin's (Winne, 2001) information processing model — 1) defining the task, 2) setting goals and planning how to reach them, 3) enacting tactics, and 4) adapting metacognition — are focused on the cognitive processes used during learning. The social cognitive psychologist Paul Pintrich (2004) offers a similar four-phase model: 1) planning, goal setting, and activating prior knowledge; 2) monitoring metacognition and motivation; 3) control through selection and use of strategies for thinking, learning, and motivating; and 4) cognitive and affective reaction. Pintrich's model notes that each phase has motivational, affective, behavioral and contextual processes, in addition to the cognitive process of Winne and Hadwin's model.

This study utilizes Zimmerman's (2000) three-stage model of: 1) forethought, 2) performance or volitional control, and 3) self-reflection. Like Pintrich's, it incorporates both the individual and the context, but the simplified model more closely aligns with before,

during, and after learning. Even Pintrich noted that at times it is hard to distinguish between the monitoring and control phases of his model (Pintrich, 2004).

Following are descriptions of the three phases and the subprocesses that compose them.

Forethought

Goal Setting and Goal Orientation

During the forethought phase, self-regulated learners set goals for their learning session. According to Zimmerman (1998), skillful self-regulators have specific goals that are organized hierarchically. The organization allows the learner to see how a specific subgoal (i.e., memorizing vocabulary) leads to long-term goals (such as passing a foreign language course and graduating from college). In contrast, naïve self-regulators may not have goals, or may only have non-specific goals.

SRL researchers not only care about the specificity of the goals, but the student's "goal orientation." The orientation is the "general reason an individual does a task" (Pintrich, 2000, p. 473). Researchers tend to break down the orientation into either *performance* or *mastery* orientation, and within each orientation the individual may have a focus of *approaching* or *avoiding*. A person with a performance-approach focus will focus on "being superior, besting others, being the smartest, [or] best at task in comparison to others"; an individual with a performance-avoidance focus will focus on "avoiding inferiority, not looking stupid or dumb in comparison to others" (p. 477). In both cases, the orientation is on how the person *appears* to others. In contrast, a person with a mastery-

approach focus will focus on mastering the task, learning, or understanding, while a person with mastery-avoidance will focus on avoiding misunderstanding, not learning, or not mastering the task. In general, students who have a mastery orientation are more likely to self-regulate (Pintrich, 2000; Zimmerman, 1998) and often, ironically, perform better than those who hold a performance orientation (Bartels & Magun-Jackson, 2009; Hoyert & O'Dell, 2009).

In a classic experiment, Zimmerman and Kitsantas (1997) gave high school girls dart-throwing instruction. Some of the students were given an outcome (or performance) goal, "Get the best score possible," while others were given a process (or mastery) goal, "Focus on properly executing the final 2 steps in every throw." Still others were given a "shifting" goal where they were given a process goal at the beginning of the session, then an outcome goal in the last third. The results showed that students who were given any goal performed better than students who were in the control group and given no goal. Students who were given the shifting goal, however, produced the best skill. Zimmerman and Kitsantas suggest that focusing on outcome goals too soon disrupts the learning process.

Dweck (1986) argues that goal orientation stems from a learner's theory of intelligence; learners may hold an *entity* theory or an *incremental* theory. Those who hold the entity theory believe that intelligence is a fixed trait that a person either possesses or does not. These learners tend to hold a performance goal orientation, which may serve them well when they feel confident in their abilities. When they encounter difficulty, however, they

feel helpless because the difficult situation shows that they may have reached the peak of their intelligence.

Students who hold incremental theories, however, see intelligence as a "malleable" quality that can grow through challenge, in the same way that one can strengthen a muscle (Dweck, 1986, p. 1041). These students tend to adopt a mastery goal orientation, which Dweck calls a learning goal. When faced with difficulties these students are more likely to persist, seeing the difficulty as a challenge to help them foster learning. Greene et al. (2010) found that using SRL strategies helped undergraduate education students mitigate the negative effects of holding the entity theory.

Strategic Planning

Zimmerman's model of SRL includes strategic planning during the forethought phase. This includes picking which tools and strategies the student will use during the learning session; tools range from flashcards and textbooks to peers and instructors (Zimmerman, 2000). Pintrich (2000) also includes time and effort planning, and planning self-observations.

Not much research looks at the planning process. One study showed that students overestimated their planning by 29%; however, neither the accuracy of that assessment nor the planning itself was correlated to performance (Zimmerman, 2008).

Self-Efficacy

Self-efficacy is "one's perceived capabilities to learn or perform behaviors at designated levels" (Schunk & Pajares, 2005, p. 85). While Zimmerman places self-efficacy

within the forethought phase, Schunk and Ertmer (2000) note that it operates on all phases of SRL and is, indeed, required for effective self-regulation. It is so crucial in the social cognitive model of SRL because, according to Bandura (1997), "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (p. 2).

Schunk and Pajares (2005) note the significant effects of self-efficacy: individuals choose to do tasks and activities in which they feel competent; individuals will put forth more effort when they feel that can be efficacious; and an individual's thoughts and emotional reactions are influenced by self-efficacy. They also note, however, that "no amount of self-efficacy will produce a competent performance when requisite skills are lacking. Similarly, high self-efficacy will not influence behavior when people do not value the outcomes or take pride in their accomplishment" (Schunk & Pajares, 2005, p. 87).

Research shows a strong relationship exists between self-efficacy and performance. Stajkovic and Luthans's (1998) meta-analysis found the average weighted correlation between self-efficacy and work-related performance was (G)r = .38. Cassidy and Eachus (2000) found a student's perceived proficiency was correlated with academic performance. In Klassen's (2010) study on adolescents, self-efficacy contributed as much to the prediction of an English grade as did reading ability.

Other Beliefs

Other motivational beliefs can be included in the forethought phase of SRL. For instance, the outcome expectations an individual has affect one's motivation and self-

regulatory processes. Outcome expectations are an individual's "judgments of the likely consequences of behavior" (Schunk & Pajares, 2005, p. 89). Students who believe it is unlikely they will earn A's no matter how much effort they put forth are less likely to attempt the task. Likewise, individuals associate a value with every task. Students may believe they can earn A's on a homework assignment, but if they do not value that grade, they are not likely to pursue it (Schunk & Pajares, 2005; Wolters & Rosenthal, 2000).

Performance/Volitional Control

Attention Focusing

For Zimmerman (2000), attention focusing is anything that helps a student focus. Strategies often include adjusting the environment, such as turning off the radio or moving to a quieter place in the library. There is little research on attention focusing specifically in the literature.

Self-instruction and Imagery

Another aspect of SRL that has received little attention in the literature is self-instruction and imagery use. Both are processes used to help encode information such as describing to oneself how to solve a problem or forming a mental picture to help memorize information (Zimmerman, 2000).

Self-Monitoring

Self-monitoring "refers to students' efforts to observe themselves as they evaluate information about specific personal processes of actions that affect their learning and achievement in school. From this information, students can assess their progress and make

necessary changes to ensure goal attainment" (Zimmerman & Paulsen, 1995, p. 14). Pintrich (2000) identifies multiple types of self-monitoring: metacognitive awareness, motivation awareness, behavioral awareness, and context awareness. Self-monitoring is associated with better academic performance from middle schoolers to graduate level students (Greene & Azevedo, 2009; Lan, 1998; Zimmerman & Kitsantas, 1997).

Peverly, Brobst, Graham, and Shaw's (2003) study had college students study for a test; some were told to take notes, while others were not. Both groups were asked to predict their performance on a test. The study revealed that college students were not good at predicting how well prepared they were for the examination. While the notes group performed better, they were not able to predict their performance any better. Peverly et al., therefore, suggest that students are not good at self-monitoring.

Metacognition

While Pintrich (2000) includes metacognition as a part of self-monitoring, its problematic nature needs more attention. Metacognition is "very simply viewed as knowledge or awareness of self as knower" (Fox & Riconscente, 2008, p. 374). As such, it is a crucial aspect of SRL—a student cannot regulate her learning if she is not aware of what she knows, and what she does not know. However, in tracing the development of metacognition, self-regulation and self-regulated learning, Fox and Riconscente note, "Neither [metacognition nor self-regulation] subsumes nor subordinates the other" (p. 386). Instead, Kaplan (2008) argues that metacognition, self-regulation, and self-regulated learning

should be considered as "subtypes of the general, abstract, phenomenon of self-regulated action" (p. 477).

Self-reflection

During the self-reflection phase, learners judge their performance. When evaluating their learning, students may use various standards for benchmarks: mastery, previous performance, or social comparison (Zimmerman, 2000). Whatever the results of the evaluation, students attribute their success or failure to various causes. In general, more adaptive attributions are those that are internal, such as the amount of time studied or strategies used, while non-adaptive attributions are those that are external, such as the teacher's opinion of the student (DiBenedetto & Zimmerman, 2010; Schunk, 2001). Social psychology uses the short hand, locus of control (LOC), to describe these attributions (Weiner, 2005). Attributions are important because "people who believe they can perform better persist longer and work harder" (Schunk, 2001, p. 133).

Development of SRL

Zimmerman (2000) identifies four stages when developing SRL; observation: "vicarious induction of a skill from a proficient model"; emulation: "imitative performance of the general pattern or style of a model's skill with social assistance"; self-control "independent display of the model's skill under structured conditions"; and self-regulation: "adaptive use of skill across changing personal and environmental conditions" (p. 29). He notes, however, that self-regulation is always context dependent, and even students who are self-regulated may choose not to regulate because "intentional forethought, proactive

performance effort, and self-reflection are mentally and physically demanding activities, and a person may decide to forego their use if he or she feels tired, disinterested, or uncommitted" (p. 31). Zimmerman and Paulsen (1995) also note that formal self-regulation is not needed or used if the "task it easy, unimportant, or routine" (p. 17).

There are many different types of SRL interventions at the college level designed to help develop SRL (Hofer, Yu, & Pintrich, 1998). The interventions range from specific strategy instruction during a specific course (such as a memorization trick for the trigonometric functions) to stand-alone "learning how to learn" courses. But the key features of successful interventions are the same: explicitly teaching self-regulatory strategies, offering opportunities for students to practice those strategies, giving feedback on the use, encouraging monitoring, offering social support, and slowly withdrawing the support (Blumenfeld et al., 1991; Randi & Corno, 2000; Zimmerman, 1998). Ragosta's (2010) meta-analysis found that interventions based on social-cognitive theory produced the largest effect sizes. There were small-to-medium effect sizes for the studies as a whole, but there were no statistically significant differences between the interventions based on who facilitated the interventions (teacher or researcher) or how long the intervention was.

Methods for Researching SRL

Measuring SRL is not an easy task, and there are often calls for more reliable and valid assessments of SRL (Winne, 2010; Zimmerman, 2008). Early research treated SRL as an aptitude, something stable in the individual, like IQ (Winne & Perry, 2000; Zimmerman, 2008). The most common protocols which measure SRL as an aptitude are self-report

questionnaires like the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich et al., 1991) and *Learning and Study Strategies Inventory* (LASSI) (Weinstein, Schulte, & Palmer, 1987). Dinsmore, Alexander, and Loughlin's (2008) extensive literature review of metacognition, self-regulation, and self-regulated learning notes that the 59% of SRL research relies on self-report questionnaires. As definitions and research questions regarding SRL change, new questionnaires are being developed (Boekaerts, 2002; Crombach, Boekaerts, & Voeten, 2003; Gilles, 1994; Magno, 2010). This is to be expected as Pintrich (2004), one of the developers of the MSLQ says, "The MSLQ only measures a small portion of the potential self-regulatory strategies suggested by the model" (p. 400).

The other most commonly used measurement of SRL as an aptitude is via structured interviews like the Self-Regulated Learning Interview Schedule (SRLIS) (Zimmerman & Martinez-Pons, 1986). The SRLIS gives students hypothetical situations like "most teachers give tests at the end of marking periods, and these tests greatly determine report card grades. Do you have any particular method for preparing for this type of test in English or history?" (Zimmerman & Martinez-Pons, 1986, p. 617). Responses are then coded for theme. Zimmerman and Martinez-Pons (1988) also developed the Rating Student Self-Regulated Learning Outcomes (RSSRL), which helped validate the SRLIS. The RSSRL asks instructors to rate the self-regulation that they observed in their students. Similar open-ended interviewing also led to the development of the MSLQ (De Groot, 2002).

SRL can also be measured as an event, something that happens at one point in time within a specific context (Winne & Perry, 2000). Winne (2010) advocates for this method

because “researchers should not presume aptitudes measured or self-reported prior to an intervention are constant throughout the intervention” (p. 269). Think-aloud protocols and trace methodologies are the most common forms measuring SRL as an event.

In think-aloud protocols, the student is asked to articulate what she is thinking as she studies. Think-aloud protocols have been used to study SRL in tenth-grade readers (McMillan, 2010), college algebra students (Cifarelli, Goodson-Espy, & Chae, 2010), and undergraduate students in a hypermedia learning environment (Greene et al., 2010). Greene and Azevedo (2009) advocate using think-aloud protocols because “what may be an effective SRL process for one student may be less effective for another, complicating empirical analyses seeking a relation between these specific processes and learning outcomes” (p. 18). DiBenedetto and Zimmerman (2010) combined Likert-scale self-report and think-aloud protocols in their “microanalytic investigation” where they asked high school students to answer Likert-scale questions while studying. They also had open-ended questions such as, “I noticed while you are reading that you are (highlighting, rereading, underlining, etc.); could you explain to me what you are doing and why?” (p. 7). Winne (2010), however, still considers think-aloud protocols as measuring SRL as an aptitude because “think aloud data do not instantiate an event ‘in action.’ Think aloud data are learners’ interpretations of events” (p. 271).

Trace methodologies use computers to document “observable indicators about cognition that students create as they engage with a task” (Winne & Perry, 2000, p. 551). Computer programs like gStudy (Perry & Winne, 2006) and nStudy (Winne, 2010) allow

students to make notes, highlight information, and even ask peer questions. Each trace is an event that suggests information about the student's cognition.

Winne is an advocate for better measures of SRL, arguing strongly against self-report data. Winne, Jamieson-Noel, and Muis (2002) note that with self-report questionnaires, like the MSLQ, the context is large (a course or learning in general as opposed to a specific task) so it is difficult to see how responses change as the context changes. Likewise, self-report is limited by the responder's memory. Winne, Jamieson-Noel, and Muis also question qualitative research because the interpretation is dependent on the researcher. They would ask qualitative researchers "in what way or to what degree is the example representative of the population?" (p. 132). Nevertheless, even some studies by Winne and Jamieson-Noel use the MSLQ when trace methodologies are not feasible (Lodewyk, Winne, & Jamieson-Noel, 2009).

Another criticism of current research is the lack of context. As Dinsmore et al. (2008) argue, "it seems unlikely that isolated or decontextualized self-reports for SR [self-regulation] and SRL studies would uncover the complex interactions that are at the heart of the conceptual definitions that frame these literature" (p. 402). Of course, considering how context shapes SRL, opens, as Winne (2010) notes, "a Pandora's box that makes researching SRL particularly challenging" (p. 268): not only does context shape SRL, but as students self-regulate, they may *change the context*. Students may seek out help, they may move to a quieter location, or they may gather more resources for answering their questions.

Other commenters on SRL research call for studying SRL as a process, not just a single point in time as both self-report questionnaires and trace logs do (Dinsmore et al., 2008; Jarvela, Salonen, & Lepola, 2002; Schmitz, 2006). Ning and Downing's (2010) study is one of the few longitudinal studies assessing students with the LASSI questionnaire 3 weeks before starting their first semester at university and 15 months later. The data show reciprocal effects between motivation and SRL.

Dinsmore et al. (2008) praise the work of Winne and his colleagues for capturing the "subtle moves" of learners, but also argue:

> there is the opportunity to use more ethnographic or phenomenological techniques to probe the thoughts, explanations, and justifications of those who are engaged in academic tasks for which monitoring or regulation would be anticipated. It may be that neither quantitative nor qualitative approaches alone will suffice to illuminate the nature of monitoring and regulation, but that some combination is required. (p. 406)

Phenomenological techniques have been used in Europe and Australia to develop a model similar to SRL called Student Approaches to Learning (SAL). SAL was derived from "from in-depth qualitative interviews with students about their actual motivation, learning and studying in real college and university context" (Pintrich, 2004, pp. 385–386). While both the SAL and SRL perspectives agree that students are active participants in their learning and that students use processes to mediate between their selves and their learning, the SAL model does not have a clearly defined psychological model and has not been widely adopted by North American psychologists who prefer the more scientific nature of SRL

(Pintrich, 2004). Nevertheless, Heikkilä and Lonka (2006) found strong correlations between SAL and SRL questionnaire items, and both were correlated with academic performance.

Group Differences of SRL

While there is little longitudinal data on SRL, many studies consider how SRL differs between groups, though this research is still in the early stages. Researchers do not agree if gender and SRL are correlated. Wolters and Pintrich (1998) found that middle school males and females reported similar levels of self-regulatory use, but in Virtanen and Nevgi's (2010) study, females had statistically significantly higher reports of help-seeking strategies, task utility, and performance anxiety. Disciplinary differences are also unclear. In one study, student motivation varied across subject area (Wolters & Pintrich, 1998), while in another it did not (Virtanen & Nevgi, 2010). In addition, traditional and non-traditional aged students have not demonstrated statistically significant differences in metacognitive monitoring (Stine-Morrow, Shake, Miles, & Noh, 2006) or overall use of SRL strategies (Justice & Dornan, 2001).

According to Ruban et al. (2003), successful students with learning disabilities used self-regulatory strategies as compensation for material missed in class. These results mirror the work by Klassen (2010) which found that "self-efficacy for self-regulated learning contributed almost as much to the prediction of English grade as did reading ability" (p. 27) for adolescents with learning disabilities. In a similar vein, regular admission students only used one more strategy (on average) than developmental students, but they used them much more consistently (Ley & Young, 1998).

Motivation

While aspects of SRL are clearly related to motivation (such as task value and attention-focusing), motivation is a much more complex phenomenon. Wolters (2003) notes that, by definition, a student cannot be self-regulated without being aware of it, but the student may be motivated. And since "some effort and thus some initial level of motivation are necessary to engage in any regulatory strategy" (Wolters, 2003, p. 192), it is necessary to understand of motivation when studying SRL.

According to Wolters (2003) there are many ways students may regulate their motivation:

- self-consequating (given external rewards or consequences),
- goal-orientated self-talk (such as focusing on bigger goals to motivate oneself to focus on a smaller task),
- interest enhancement (make the task more enjoyable, interesting or challenging),
- environmental structuring (decrease the likelihood of distraction by changing environment), and
- self-handicapping via procrastinating. This is a maladapative strategy that allows the student to blame their failure on it.

When faced with failure, motivation becomes even more important. Boekaerts and Niemivirta (2000) found that students engaged in the following behaviors:

- mindful effort to overcome the obstacle,
- disengagement and avoidant behavior,

- "danger control," which is working harder, but not in a mindful way. This very rarely increases chances of success, and
- self-handicapping.

Unfortunately, motivation is very difficult to measure. In many studies of motivation and other academic interventions, such as SRL, the intervention itself is voluntary. When a student who completes the intervention is successful, it is unclear if that is due to the intervention or the student's willingness and motivation. Such is the case in Hoyert and O'Dell's (2006) study of goal-orientation and Mack's (2007) study of motivation and Supplemental Instruction usage.

Chapter Summary

This chapter summarized literature related to self-regulated learning of new college students. While there are multiple studies that correlate students' study behaviors and grades (Lynch & Dembo, 2004; Reaser et al., 2007), little research is done on how students make decisions about their studying. Research tends to rely on large questionnaires or experiments done in non-natural contexts. Research also rarely considers how students change over time. This study used qualitative techniques to probe the reasons behind the students' thoughts and behaviors. By conducting the study over a period of time, something rarely done in SRL research, this research contributes to understanding how SRL develops. Chapter 3 will detail the research methodology used to study SRL and its development in a naturalistic context.

CHAPTER 3: METHODOLOGY

This chapter describes the methods used to learn about first-semester college students' use and development of self-regulated learning. The chapter begins with the rationale for the qualitative design and the case study method in particular. Then, it details the procedures used to conduct the research and analysis. Finally, it discusses the limitations and ethical considerations of the study.

Research Design

Rationale for a Qualitative Approach

While researchers like Winne (2010) attempt to measure self-regulated learning (SRL) using new methods, the majority of SRL research relies on self-report questionnaires (Dinsmore et al., 2008). These self-report questionnaires like the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich et al., 1991) and *Learning and Study Strategies Inventory* (LASSI) (Weinstein et al., 1987) offer the opportunity to survey large numbers of students, but fail to "probe the thoughts, explanations, and justifications of those who are engaged in academic tasks for which monitoring or regulation would be anticipated" (Dinsmore et al., 2008, p. 406).

Qualitative research, "an approach to social science research that emphasizes collecting descriptive data in natural settings, uses inductive thinking, and emphasizes understanding the subjects point of view" (Bogdan & Biklen, 2006, p. 274), is a tool uniquely able to help understand how first-year college students experience academic self-regulation. As Pascarella and Terenzini (2005) note, qualitative research may help render

"tone, tint, texture, and nuance" that quantitative research cannot provide (p. 637). Glesne and Peshkin (1992) argue that "qualitative researchers avoid simplifying social phenomena and instead explore the range of behavior and expand their understanding of the resulting interactions" (p. 7). Qualitative research is also useful for creating descriptions of people and processes (Peshkin, 1993). By using qualitative methods, this study attempts to add "tone, tint, texture, and nuance" to the understanding of college students' experience of self-regulated learning during their first semester.

Choice of Qualitative Approach

The case study paradigm frames this research. A case study is an "empirical inquiry that investigates a contemporary phenomenon within its real-life context especially when the boundaries between the phenomenon and its context are not clearly defined" (Yin, 2008, Chapter 1). The case study was appropriate for this study because it focused on a small number of individuals in a specific, bounded experience, for a specific, bounded period of time.

There are two key types of case studies, as defined by Stake (1994): an instrumental case study in which "a particular case is examined to provide insight into an issue or refinement of theory" and an intrinsic case study "is undertaken because one wants better understanding of this particular case" (p. 237). This study investigated specific students to better understand the phenomenon of SRL in first-semester college students; therefore, this is an instrumental case study. Because the research involves multiple individual cases, this is also a multiple-case design "in which several instrumental bounded cases are selected to

develop a more in-depth understanding of the phenomena than a single case can provide" (Chmiliar, 2010, p. 583).

Research Questions

Two major questions guided this study:

1. How and why do first-semester college students decide to self-regulate?
2. How do first-year college students alter their self-regulation over the course of their first semester in college?

These questions contribute to the field by providing insight into the understanding of SRL. Question 1 focused on the *decision processes* students use when studying, instead of merely the product. Question 2 required gathering data over a pivotal time in participants' college experience instead of at a single point in time.

These two main questions were supported by data gathered on the following subquestions:

- What self-regulatory strategies do first-semester college students use?
- How do students know if these strategies are successful?

Data gathered on these two subquestions at multiple points throughout students' first semester of college helped form a picture of the decision processes first-year college students use.

Participants

Site Selection

The site for this study is a large, research-extensive land grant university in the

southeast, which for the purpose of this study will be called Big University (BU). The campus of over 30,000 students is comprised mostly of traditional-aged, full-time, in-state undergraduates. This campus is predominantly white, with slightly more males than females.

The Undecided Program (UP) was established as an intensive program for undecided students. It has grown into a nationally-recognized first year advising model. The program includes a two-semester orientation course taught by the student's academic advisor and a vibrant living-learning community.

This site was chosen because it offers the most important criterion for case selection according to Stake—the "*opportunity to learn*" (Stake, 1994, p. 243, emphasis original). Most colleges at BU have some form of orientation course, but they are all specific to the academic major. The students in UP, however, are undecided on their college major, so the within case sampling can provide more variation than other orientation courses.

Sampling Criteria

The participants for this research were selected from UP's 2012-2013 cohort of students. For the initial round of invitations, a list of incoming UP students which included names, email addresses, gender, ethnic background, hometown, and birthdates was provided by UP. Birthdates were used to certify that all invitees are at least 18 years of age, as that was condition of IRB approval. The other categories were used in a stratified purposeful sampling strategy (Miles & Huberman, 1994) in order to attempt to obtain variation amongst the participants. By inviting participants with a range of demographic profiles, the study's rigor was increased.

Invitations were sent to ten students to participate in the study via an email shortly before the beginning of the fall semester (see Appendix A). This invitation included information about the purpose of the study, the time required to participate in the study, and methods to ensure their confidentiality; it also included an electronic copy of the consent form (Appendix B). Based on the response received from the initial batch of invitations, more individuals were invited, striving for demographic variation, until a minimum of ten individuals agreed to participate. A total of 192 e-mails to potential participants were sent between August 2 and August 13 of 2012. Twenty-three invitees responded in some form to my initial email. Twelve students consented to participate and attended the first interview.

Since this was a longitudinal study, some attrition was expected. By starting the study with 12 participants, about 9 participants should have remained in the study until December, assuming a 75% retention rate (Boys et al., 2003). Nine participants would have provided approximately 36 hours of interviews with a maximum of 48 hours if all students persisted. While there is always more to be learned, these bounds were reasonable considering the time in which this study was conducted.

Of the 12 participants who completed the first interview, 8 participants completed all four interviews. During each round of interviews, participants were offered a variety of times to schedule the upcoming interview via their preferred method of contact (e-mail, text, or phone call). If the participant did not respond to the initial contact, a second message was sent two days later. If the participant did not respond to the second message, they were considered to have declined participation and no further contact was made. The four

participants who did not complete the study were removed in this way.

Data Collection

The majority of the data came from interviews, supplemented with document analysis.

Interviews

Each of the participants was interviewed a total of four times between August 2012 and December 2012: before classes began, one month into the semester, after fall break, and before exams. These are critical times during a student's first semester in college: before classes start, students may be unsure of their college experience; students often receive their first major grades back about four weeks into the semester; after fall break, students are no longer able to withdraw from fall classes; and before exams start, students have experienced the majority of their first semester. The initial interviews lasted 50 – 80 minutes, depending on the length of participants' responses. The second through fourth interviews lasted 25 – 50 minutes.

The interviews were conducted using semi-structured interviewing protocols. While these protocols list specific questions (see Appendix C), they were used as a guide. The researcher reworded questions, changed the order of the questions, and asked other questions depending on the interview. Semi-structured interviewing was appropriate because structured interviewing, asking the exact same questions to each participant, would not have allowed for rich data gathering from the participants; unstructured interviewing, in contrast, may have resulted in an overload of superfluous information or may not have provided comparable data

(Fontanta & Frey, 1994; Miles & Huberman, 1994). The protocols were piloted in July 2012 with college-aged students to determine the effectiveness of the questions and to practice interviewing skills.

The first interview was conducted during the days after residence hall move-in and before classes started. This was the most extensive protocol and gathered information about the student's SRL in high school and expectations for college academics. Questions asking about SRL strategies were modeled after Zimmerman and Martinez-Pons's (1986) Self-Regulated Learning Interview Schedule; the questions provided a context (i.e. high school English classes) and were open-ended questions about the strategies the student used. Unlike self-report survey questionnaires such as the Motivated Strategies for Learning Questionnaire (MSLQ), SRL strategies were not made explicit in the questions. This decision was made so that the research would not bias the answers participants gave.

The second interviews took place during weeks four and five of the semester. This was a pivotal time in a student's experience because it is when students were often getting their first major grades back. The objective of this interview was to understand their initial reactions to coursework and college grading, and to see how well they thought they were studying in college.

The third interviews occurred four to five weeks before the end of classes. At this point in the semester, most students were very busy with coursework, and students who were not succeeding had to make a choice about how they were going to proceed. The questions were similar to protocol two, and, therefore, offered the opportunity to learn how the student

had or had not changed over the semester.

The final interview occurred during the last week of classes. This protocol was also similar to two and three, but also looked forward to the upcoming semester.

Before each round of interviews, the researcher reviewed prompts for handling difficult interview sessions from Schwalbe and Wolkomir (2003) and Adler and Adler (2003). For the second, third, and fourth interviews, each participant's previous interviews were reviewed and notes of additional questions for that participant were made.

The interviews were conducted in person in a library study room. This location was private and quiet. The interviews were audio recorded and transcribed to facilitate analysis. Additionally, extensive notes were made after each interview to capture information not able to be audio recorded and to serve as a backup should the recording fail.

Document Analysis

If the participant kept a calendar and agreed to have photographs made, photographs were made of the weeks prior to and after the interview. Two students kept physical calendars; however, these students did not always bring their calendar to the interviews. Therefore, the documents were limited in number: one set of calendar snapshots for one participant, and two sets of calendar snapshots for another participant.

If the student had a calendar, it was used as an elicitation device to probe about decisions students made about their time and attention during a specific day. Calendar snapshots revealed what the student did and did not include on the calendar and allowed the researcher to compare that data with the student's self-report.

Grades and Enrollment Status

With participants' prior consent, the students' Fall 2012 grades and Spring 2013 enrollment status were compiled. These were common measures of students' academic success and helped shed light on the students' success at SRL.

Data Analysis

As the interviews were completed, the interviews were transcribed by the researcher. The transcripts were then imported into the qualitative research software HyperRESEARCH (ResearchWare, 2012) to facilitate coding.

Saldana's (2009) process of First and Second Cycle coding guided the data analysis process. First Cycle coding, or descriptive coding, summarizes the topic of a piece of qualitative data and avoids interpretation. Bogdan and Biklen's (2006) broad coding categories—setting/context, definition of the situation, perspective, way of thinking about people and objects, process, activity, event, strategy, relationship and social structure, narrative, and method—were used as lenses to consider the data during initial coding. The transcripts were also coded using Zimmerman and Martinez-Pons's (1988) 15 codes developed for the Self-Regulated Learning Interview Schedule (see Appendix D). As a final step before the data reduction phase, the researcher used strategies such as developing propositions, creating matrices, and modeling decision trees as recommended by Miles and Huberman (1994) to facilitate Second Cycle coding. Longitudinal charts provided a quick overview of the participant's semester (see Appendix E).

Second Cycle coding was be used "to develop a sense of categorical, thematic,

conceptual and/or theoretical organization from [the] array of First Cycle codes" (Saldaña, 2009, p. 149). Pattern coding was used to develop meta-codes, which helped identify salient themes of the research questions. This inductive process allowed patterns and themes to emerge on their own, rather than forcing a preconceived framework on the data.

Rigor

Quantitative researchers look for validity, reliability, and generalizability; as this is a work of qualitative research, discussing the rigor of this study is more appropriate. As Freeman, deMarrais, Preissle, Roulston, and St. Peirre (2007) note, "representing the multiple layers of human experience is fraught with challenge, alternative and limitation. But everything is not, as some argue, 'just a matter of opinion'" (p. 30). In order to ensure rigor, this study employed the following techniques: triangulation, audit trail, and responsiveness.

According to Stake (1994), "triangulation has been generally considered a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation. But, acknowledging that no observations or interpretations are perfectly repeatable, triangulation serves also to clarify meaning by identifying different ways the phenomenon is being seen" (p. 241). In this study, not only were there multiple interviews with the subjects, but data was gathered through documents and school records.

An audit trail, which "describes in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry" (Merriam, 2002, p. 27), was also used to ensure rigor. To that end, a researcher journal was begun during proposal

writing. The journal captured reflections on the questions and decisions encountered. This practice was continued throughout the data collection, analysis, and expression phases of this study.

Finally, the researcher took Morse, Barret, Maya, Olson, and Spiers's (2002) warning to heart: "the lack of responsiveness of the investigator at all stages of the research process is the greatest hidden threat to validity and one that is poorly detected using post hoc criteria of 'trustworthiness'" (p. 11). The researcher practiced reflexivity, the "project of examining how the research and intersubjective elements impact on and transform research" (Finlay & Gough, 2003, p. 4). In addition to documenting decisions along the way, the researcher also reflected on how the study was going. For instance, following Schwalbe and Wolkomir's (2003) twenty percent suggestion, the first and second rounds of interviews were evaluated before proceeding with the remaining interviews. The types of responses the prompts gleaned were considered and adjusted as necessary. For instance, during the second round of interviews, questions about the participants' most recent study session provided relevant information that the participant had not recently mentioned. Therefore, that series of questions was added to the third and fourth interviews.

Subjectivity Statement

The researcher is a white, middle class woman who values education. Learning and intelligence are key facets of her identity. Through high school she performed well, but never considered herself of outstanding intelligence. She self-selected to attend a challenging magnet high school and surrounded herself with friends of different racial and

religious backgrounds who held similar values for education.

The researcher entered college with over 30 credit hours completed and found herself among people who did not always prioritize educational over social experiences. She graduated from college as valedictorian and went on to earn a master's degree in English literature and work on a doctorate in educational research. She has been a teacher of middle school and college students, and currently works in a tutorial center. She often speaks with students, both those who receive tutoring and those who tutor, about their educational choices and priorities. She believes that all students admitted to the university are capable of the intellectual work, and hopes this research helps her and others understand how first-semester college students conceive of their academic identity and make choices about their education.

While multiple studies have correlated SRL with academic achievement (Abar & Loken, 2010; Boekaerts & Niemivirta, 2000; DiBenedetto & Zimmerman, 2010; Zimmerman & Paulsen, 1995), as Vassallo (2011) notes, the help seeking, negotiation, and environmental shaping strategies valued by SRL are concomitant with white, middle class values. Indeed, according to Vassallo teaching SRL "can resemble teaching complicity and obedience in schools" (p. 30).

The selection of SRL as a research topic reflects the reseacher's white, middle class values. She values self-regulation. It is not that she believes self-regulation is the only or best way to develop an education, but that it is an extremely effective tool for negotiating life in a predominantly white, research-intensive university in the U.S. She believes that helping

students navigate the institution, which is unlikely to change, is a worthwhile pursuit. Her work in a tutorial center is often to help make explicit the moves that facilitate success at the institution.

By selecting traditionally-aged, first-year college students at a predominantly white institution the researcher has limited voices present in this research. She worked to have participants who represented perspectives other than her own and attempted to frame interview questions in ways that do not impose her values onto the respondent. As Shope (2006) argues, "Our reflections spring forth from the richness of our experiences, theirs and ours, to be examined, embraced, and transformed into praxis. Our praxis also needs to be critically examined, carefully considered, and corrected until we encounter that which awaits the next hermeneutic turn" (p. 176).

In writing my analyses, the researcher considered carefully how her values and experiences shaped her interpretations of the respondents' stories. She looked for ways that she could help offer "an alternative to the 'commonsense' or dominant discourse" (Fine, Weis, Weseen, & Wong, 2000, p. 127). She hopes this research will help expand the notion of SRL, to move it out of the large scale, Likert-style surveys and into the contextually relevant, time-sensitive perspectives of unique individuals.

Ethical Issues

Guillemin and Gilliam (2004) suggest that there are at least two major components of ethics in qualitative research: "(a) procedural ethics, which usually involves seeking approval from a relevant ethics committee to undertake research involving humans; and (b) 'ethics in

practice' or the everyday ethical issues that arise in the doing of research" (p. 263). Both components were practiced in this study.

First, as a part of procedural ethics, this research was reviewed by North Carolina State University's Institutional Review Board for the Protection of Human Subjects in Research to ensure that the study design would cause no foreseeable harm to the participants. Second, each participant received an informed consent form (See Appendix B) to ensure that they were participating voluntarily and understood the nature of the study (Bogdan & Biklen, 2006).

All participants' data were transcribed and reported using pseudonyms to protect the participants' confidentiality. Any revealing details were altered as necessary. While the researcher can never fully reciprocate the importance and usefulness of these participants' time (Glesne & Peshkin, 1992), the participants were given gift cards to the university bookstore as small tokens of appreciation.

Finally, while the interview questions were not designed to elicit such information, the researcher recognized that she could be privy to information that is against university policy, illegal, or harmful, such as underage drinking, cheating, or depression. The researcher used what therapists and counselors use if faced with such a situation: maintaining confidentiality as long as she did not feel that the student would cause immediate harm to himself or herself or to another individual (Kaplin & Lee, 2007). During one interview, a student said he was "in trouble." Before he elaborated, the researcher told him the confidentiality stance and let him decide whether or not to continue.

Limitations of the Study

There are multiple limitations to this study. First, while the study strove to have diversity of genders, ethnicities, and hometowns, the sample was small and all the students choose to attend a large, research extensive, primarily white institution in the southeastern United States. To mitigate this limitation, the data is presented "in sufficient detail so that the reader can make good comparisons" to his or her own institution (Stake, 1994, p. 241).

Another limitation of this study is that by asking questions of the participants about their study habits on a regular basis the research may change the behaviors in question, causing a researcher effect (Bogdan & Biklen, 2006; Miles & Huberman, 1994). Triangulating the data will help mitigate this limitation.

As Winne, Jamieson-Noel, and Muis (2002) note, self-report data is dependent on the respondent's memory. By conducting research throughout the semester and focusing on the current weeks at hand, the researcher hoped to reduce the amount of memory needed. Also, whenever possible, she used the participant's own records (syllabi, calendars, and to-do lists) to elicit the participant's memory.

While this study occurred over a semester, it was still limited by the amount of time devoted to it. Academic acclimation occurs over many semesters. Saldaña (2003) recommends a minimum length of time for an educational longitudinal study (p. 4); while it would be useful to continue this research over multiple semesters, my own limitations did not allow it.

Finally, as an employee in higher education, the researcher came to this study with

preconceived notions. She practiced the methods described in the rigor section outlined above to help curtail bias.

Chapter Summary

This chapter described the methods to be uses to answer the research questions: 1) How and why do first-semester college students decide to self-regulate? and 2) How do first-year college students alter their self-regulation over the course of their first semester in college? Qualitative methods are useful for best capturing the nuances of the students' perspectives. The primary data collection technique was multiple, semi-structured interviews, and was supplemented by observations and document analysis. Data was analyzed inductively using First and Second Cycle coding. Finally, I attempted to be vigilant about the ethical considerations and limitations of this study.

CHAPTER 4: RESULTS

This chapter begins with an overview of the eight participants, followed by individual descriptions of each participant. It then details how participants used each element of self-regulated learning and related techniques. Finally, the chapter considers why participants used (or did not use) SRL, how participants changed their use of SRL over time, and how SRL affected academic achievement.

Participants

All of the participants are traditional-age college students enrolling in Big University (BU) the first fall semester after graduating high school; all are enrolled in the Undecided Program (UP). Each participant was offered the option of selecting a pseudonym; for those who did not select a pseudonym, one was assigned. In some cases, details were altered in order to ensure participant confidentiality.

The sample includes four females and four males. Four participants are persons of color, and four are white. Only one of the participants is an out-of-state student (see Table 1). These demographics differ from those of all UP students and other BU undergraduates in that there is a higher percentage of females and minorities in the study sample (see Table 2).

What follows is a more detailed description of the participants that is based on their first interviews.

Table 1: Participant Demographic Information

Participant[a]	Gender	Race/Ethnicity	Hometown
Anita	Female	African American	In-state
Bruce	Male	White American	In-state
Clayton	Male	White American	In-state
Erik	Male	White American	Northeast
Kary	Female	White American	In-state
Lauren	Female	Latina American	In-state
Sara	Female	Asian American	In-state
Thomas	Male	African American	In-state

[a]All participant names are pseudonyms

Table 2: Demographics for Study Participants, UP Students, and BU Undergraduates

Characteristic	Study Participants	All UP Students	All BU Undergraduates
Gender			
Male	50.0%	59.6%	56.4%
Female	50.0%	40.4%	43.6%
Residency			
In-state resident	87.5%	88.3%	88.2%
Non-resident	12.5%	11.7%	11.8%
Race and Ethnicity[a]			
White	50.0%	68.4%	74.7%
Black or African American	25.0%	15.7%	7.7%
Hispanics of any race	12.5%	5.2%	4.2%
Asian	12.5%	4.2%	5.1%
American Indian, Alaska Native		0.8%	0.5%
International		0.3%	2.5%
Two or more races		3.7%	2.5%
Race and ethnicity unknown		1.6%	2.9%

[a]Categories named and calculated from BU's institutional records

Anita

Anita grew up in a small, rural area in-state. She was very active in sports in high school and loved her science courses. She enjoyed the three honors science classes she took—Earth Science, Biology, and Chemistry—except for dissecting. Anita excelled in mathematics early; in the 8th grade she left her middle school to take geometry at the local high school. She completed AP Calculus her junior year and AP Statistics her senior year. She did not find her calculus teacher effective because each day was mostly focused on reviewing the homework assigned the night before that the students couldn't complete, and "that left only 30 minutes for her to actually teach. But then she would run out of time and just give us more homework." She enjoyed her AP Statistics course, which was a distance education (DE) course.

Anita took a full complement of social studies courses, include Honors Sociology, Honors Psychology, and African American History; each of these were DE courses. While she did not enjoy having to copy down copious notes in Honors U.S. History, she actively enjoyed the debates in African American History. Anita found most of her four Honors English classes pleasant, and liked reading in general. She did not, however, enjoy the amount of writing she had to do for 12th grade English.

Overall, high school did not seem difficult for Anita. She was able to complete most of her homework during class or study halls. She said that whenever she ran into difficult material, "I just opened my book."

Anita chose to come to BU as her first choice because it was in-state, and therefore, somewhat close to home. It also offered her plenty of good scholarships. For the fall 2012 semester, Anita enrolled in English 101, which she did not look forward to because she does not like writing. She also enrolled in Calculus 1; Biology 1; UP 101, an 1 credit-hour introduction to the university course required for UP students; a one-credit-hour psychology orientation course that Anita is taking because she is considering psychology as a major; and basketball. Other than dreading English, however, Anita did not have many expectations for the upcoming semester. Her priorities are to pass with at least a B "because I want to graduate with at least some honors."

Bruce

Since moving in-state from Florida four years ago, Bruce attended a nearby suburban high school, which operated on a block schedule. The block schedule allowed him to complete five math classes of four years, culminating in AP Calculus AB/BC. According to Bruce,

> It was pretty difficult. Calculus 1 was pretty easy, I got As and Bs in that. Then Calculus 2 was kind of difficult because you have to have an understanding of Calc 1 and then build off of that, so it got difficult for me.

Overall, Bruce's four years of honors science were successful. Chemistry, which he took junior year, "actually comes to me kind of naturally. So, I didn't really pay attention much and I'd get A's."

Bruce enjoyed his social studies courses, but opted out of taking history senior year. His final course, AP U.S. History was enjoyable. Even with lots of timed writings in preparation for the AP U.S. History test, "It wasn't too difficult. My teacher was really good; I liked him a lot. He was really funny. We'd mostly go over stuff in class, and then we wouldn't have any homework at all." Bruce felt confident enough in that class, took the AP exam, and brought in three hours of credit.

The other AP course Bruce took was AP English Language and Composition his junior year. He did not enjoy that class, especially the open-ended, analytical writing required. He opted, therefore, to take Honors English his senior year. Bruce found that much more enjoyable and relaxed.

Bruce said that throughout high school, "My parents were on me all the time. They kept telling me I could always do better than I did." When asked if he thought they were correct, he said,

> Yes. Freshman year, I didn't try at all. Same with sophomore year; I got straight B's. Through junior year and senior year, I was trying to bring up my GPA, because I started out with a 3.1 and I brought it up to about a 4.

Bruce attributed his shift to the beginning of the college search process: "I was looking at schools and how high GPAs had to be. And I really just realized, 'Oh, I need to get on this, otherwise I won't get in.'" Bruce's efforts paid off, and he was accepted into BU, his first choice of college. His first choice of major was engineering, but when he was not accepted into that program, he opted for UP.

Overall, Bruce felt well prepared at the beginning of the fall semester. He enrolled in Calculus 1; Chemistry 101; History of Technology; a political science course, Introduction to the American Government; and basketball. He did not have many expectations for the courses, only that "I heard Chemistry was really difficult and that it's the most failed course at BU, but I'm not sure if that's true or not. But I expect it to be pretty hard. I don't know. Chemistry comes naturally."

He wanted to study more in college than he did in high school, but when asked about priorities he said, "I would say I'm going to try to focus on academics, but my social life may change that." In the four days he lived in a residence hall before his first interview, Bruce had already made a lot of new friends and had so much fun the night before that he slept through the first interview's originally scheduled time.

Clayton

Clayton grew up in a small, rural area in-state. He was very open that he had some significant shifts in his high school career. He moved in middle school, and it took him a while to make friends. In 9th and 10th grade Clayton dated a girl who:

> took me away from my friends for like 2 years. And then 11th grade was when I started making friends again. And then 12th was when I had my friends, so I could focus on myself, and I started caring. I didn't care anymore about anything else and I just wanted to learn.

Later in the first interview, Clayton also attributed his shift to his pre-calculus teacher in 11th grade:

> Because I was just a douche in that class. I would just sleep the whole class and he'd wake me up and I'd go back to sleep. And he was a really nice guy, he cared. I would push through and go to school every day so I wouldn't have to take the final exam. I would just learn it for now, do good on the test, and then forget it. But this time he said, 'You're going to take the final exam,' so I had to start really studying, and he helped me. He stayed after school and helped me study and stuff. So I had to really push and start studying instead of seeing it as something in the way.

The shift that Clayton described carried through to his 12th grade AP Calculus class. In that class "I actually started to like math, and try to remember the stuff for remembering the stuff." Clayton took many honors science classes, included Physical Science, Earth Science, Biology, Chemistry, and Marine Biology. He liked most of the classes, except for Chemistry which "wasn't any fun, you didn't really learn anything. You just kind of went, did your work, and got out."

Clayton didn't enjoy any of the three honors history courses he took. In 9th, 10th and 11th grade, Clayton took Honors English, but:

> in 11th grade, that's when everyone else moved up to AP, and I just kind of didn't feel like taking AP because I didn't really like it back then. So I took honors... In our school, all the dumb kids did honors, and all the really dumb kids did generic, and all the kids that cared did AP. I was in there with the kids that were dumb, so it was aggravating.

In 12th grade, he moved to AP English, and it was better, though harder.

Clayton chose BU because his brother had started attending the year before and his mother wanted them to be close. UP was his first choice because he did not know which major he wanted to declare. He was not sure how prepared he was for college. On the academic side, he felt that coming from a small school, his school might have had different standards than very large schools. He was also concerned about the social side because he does not find making friends with strangers easy.

For fall, Clayton was enrolled in two math classes: Calculus 1 and 2; he enrolled in two because he was worried that Calc 2 would be too difficult. Enrolling in both would allow him to choose which one would be best for him. He was also concerned that he did not have a good chemistry background, so he took Preparatory Chemistry. He was looking forward to Biology and Psychology. He also hoped that UP 101 would not be icebreakers only.

Erik

Erik and his family recently moved in state from a suburban Massachusetts city. According to himself, Erik is "essentially a math and science geek." In high school he took Biology, Chemistry, Honors Physics, and AP Physics. He took five mathematics courses: Geometry, Algebra II, Precalculus, AP Calculus, and AP Statistics. He found AP Calculus hard at the beginning:

> because they throw you right into it, but you will actually understand it by the end, so the grades started out with a lot of people really low in our class, but by the end most of us had A's. And there were maybe like, three people who didn't get a 5, so the

class itself was really good. I learned a lot, but during most of the year it was terrifying just trying to keep up.

Erik also took three computer science courses at local higher education institutions in addition to his regular course work in high school. His senior year, he took an independent study at his high school to prepare for the AP Computer Science test. He did well on that test and transferred in six computer science credit hours.

History was minor in Erik's high school career. He took the three required histories and they were "nothing special." He also took four English classes, moving to honors junior and senior year. He does not feel very well prepared in English and mentioned that he used the high school's writing clinic often. He says he didn't have to write much in high school before senior year: "11th was a lot of SAT prep, vocabulary and things like that. There were small amounts of writing, but nothing like above three pages. Senior year we had to write eight-page papers, so that was a big difference." In high school Erik did not keep a calendar or a to-do list, instead, he went to the teacher's website to keep track of what homework was due.

Erik chose BU because his father was moving down to the area for his work. BU also has a good science and engineering program, as well as many opportunities for internships and cooperative education. His first choice as a major was computer science, but took his second choice of UP when he didn't get in.

In fall 2012, Erik enrolled in Calculus 1, Chemistry 101, Introduction to Computing Environments, English 101, and UP 101. He was not too worried about Calculus because he

could technically skip it and move into Calculus 2. He felt like it will be a good review for him, and hopefully be a GPA booster. As for Chemistry:

> I'm a bit worried. I haven't taken Chemistry since my sophomore year, so I don't remember that much. So that will be a lot of review, though it should be fine, considering chemistry and physics actually mix a bit.

He was also worried about English since he felt unprepared for it. As he moved into the fall semester, Erik's priorities were his grades:

> I'm waiting on starting to find out how I'm going to have to change what I have to do in order to keep up with the course load. The classes I've taken at the community college, I'd end up doing like four or five hours at a time and ended up finishing the homework in one night. So, I'm hoping I'll be able to do that, but I'm not sure.

Kary

Kary grew up in a small city about four hours from BU. She was active in sports, student government, and service clubs throughout high school. For the most part, Kary took Honors science courses, including Earth Science, Biology, Chemistry, and Anatomy. She also took AP Physics her junior year, and, while that course was extremely challenging, she did well on the AP exam. Her senior year science courses were more relaxed—Chemistry was taught online with open-note tests and quizzes. Anatomy required some studying, but was mostly dissecting and "watching terrible, gruesome videos."

In mathematics, Kary took Geometry, Algebra 2, Pre-calculus, and AP Statistics. Kary slightly regretted her decision to take statistics instead of calculus because the teacher

in statistics was not very good, but she did enjoy the smaller atmosphere of the statistics classroom. Kary earned three credit hours for statistics via the AP exam, but admits, "I probably could have studied more for that class. Senior year I didn't do a whole lot of studying, but I did study a little."

For social sciences, Kary alternated her schedule quite a bit. She took Civics and Economics her freshman year, AP U.S. History sophomore year, Honors World History junior year, and AP Psychology senior year. Taking an AP history course as sophomore was hard, but Kary said, "I learned a lot in that class, and learned a lot about how to study properly and how to write a good essay. My teacher was great, he'd been teaching forever." She opted not to take AP World history because:

> I discovered through AP U.S. that history is not my subject. Also, the honors world history class was taught by the sweetest lady ever and she showed movies all the time, and we pretty much slept all the time and made an A. So that was incentive.

Kary took Honors English all four years of high school. She didn't find essays especially easy to write, but, she said, "I managed through it."

Kary chose to come to BU because she thoroughly enjoyed an engineering open house she attended there her junior year. She was excited to be in UP because she is still undecided on her major. For the fall 2012 semester, Kary enrolled in Chemistry 101, Sociology of the family, Precalculus, Elementary Spanish 2, Rock Climbing, and UP 101. She was excited to start the fall semester, but not quite sure what to expect from her classes.

School is a clear priority for Kary, but "I want to like 'find my way' if that makes sense. I want to figure out what I want to do."

Lauren

Lauren was born in New York City, lived a couple of years in her family's native country, Argentina, then moved into BU's home state at the age of 7. She has two older brothers who recently graduated from another in-state university.

Close friendships played a large role in Lauren's high school career and her choice to come to BU. Most of Lauren's close friends are two years older than she is; they started at BU when Lauren began her junior year in high school. That was the year Lauren "slacked off." She said,

> it was probably because my friends left me and I came home, sat up in bed and watched TV. It was really bad, honestly. I'm surprised my mom didn't notice. Well, she did notice. I don't know what it was about senior year, but I had a work ethic, I guess. And I came home did homework every night at the table, while junior year I came in my room and told my mom I did my homework.

Lauren enjoyed most of her science classes her 9th and 10th grade years. She took Honors Bio, AP environmental science, and Honors Chemistry. When she took AP Physics her junior year, however, things did not go well. She said her teacher was not bad, "I'm not trying to blame him. But it was... I couldn't understand him. Everyone understood except like four people out of 20. So, I was one of them."

Mathematics is the subject Lauren enjoyed the most. She took honors classes 9th-11th grade: Geometry, Algebra 2, and Precalculus. Senior year she took both AP Calculus and AP Statistics. She did not enjoy statistics; calculus was "really, really difficult. But I loved it."

While Lauren was fascinated by the AP Psychology test she took her senior year, she did not enjoy most of her other social science courses. She took Honors Civics and Economics, AP World History and AP U.S. history. While she took challenging courses, she never really engaged with them. Honors English was the subject Lauren dreaded throughout her high school career: "I hate English so much. I'm such a bad reader. I don't like complex readings." She did the bare minimum for both her English and History classes, noting that "there's always a way around not reading it, unfortunately."

As mentioned before, Lauren chose to come to BU in large part because her older friends were already here, "even though that shouldn't be a factor, it really was." She originally wanted to go into accounting, but when she was deferred, she chose to go into UP. She seemed satisfied with the option because she was still undecided on potential careers.

For the fall semester, Lauren enrolled in General Biology, Calculus 2, Spanish Literature and Culture, English 101, and UP 101. She chose to take Spanish Literature and Culture because should she could get a minor in Spanish taking only three additional courses, and because, should she wish to transfer to another institution's business school, it would require a minor in a language. She had no real expectations for any of these classes. Her priority at the beginning of the semester was to do well in her courses; "I'm kind of still in that mode from senior year where I want to do well. I had a pretty good work ethic." As she

began the semester, Lauren felt nervous, but as she said, "everyone goes from the transition from high school to college and they don't do horrible."

Sara

Sara grew up in small city about an hour from BU. Her parents immigrated to the U.S. from Vietnam in the 1970s, and

> from a very early age they ingrained in my mind: academics and school. I don't know if it is like the 'typical Asian parents,' but foreign parents are like stricter on their children because they want them to have that great education that they may have not have gotten themselves. So my mom was extremely strict with my grades when I was younger and she pretty much backed off. When I got older I was more hard on myself than my mom was.

Sara was extremely active in her high school community. She was a member of several athletic teams, academic clubs, service clubs, and student government. She is quick to point out, though, that, "It was never like I did it just because 'Oh, that'll look good.' I did everything because I really enjoyed doing everything. It's just sometimes it was a little too much to juggle together."

Sara took honors classes her 9th and 10th grade years, including Geometry, Pre-calculus, Biology, Chemistry, and World history. She then moved into the IB program and took IB Mathematics, Biology, Chemistry, History, and English. When asked why she chose the IB program over AP she said:

> It wasn't really a choice. I was just kind of in it. I was already on the track for it

> because you have to take certain classes before you can actually go into IB, and I was always just kind of in the top classes anyway. I wouldn't have it any other way because... I don't know. I have this weird thing where I want to do the most I can and be the best I can, so I'm glad I did IB. It's a lot of work, but I think it prepared me.

The IB classes required a lot of writing, and Sara noted that she pulled many all-night study sessions. She enjoyed all her classes, but mostly she spoke of how much work all the classes required:

> I think it takes me longer to really process things and fully understand it. Because I'm a slow reader, I have to reread things just to make sure I know it, so I can process it. So that's how my study habits are, so I'm slower in everything else compared to my friends.

Sara chose to come to BU because she "always wanted to come here." She had attended multiple academic and sports camps on campus over the years and always liked it. Sara is excited to be in UP because she is not sure what she wants to major in. For the fall 2012 semester, Sara enrolled in Biology 1, Environmental Science 1, Psychology, Calculus 1, and UP 101. Sara was excited and a little nervous for the upcoming semester. Her statement about her math class was indicative of her general feelings going into the semester: "I'm pretty nervous about that class because it's such a huge class. I'm sure I'll be pretty prepared with what I've already done before, but it just makes me nervous." When asked about her priorities this semester, Sara responded:

> Definitely my grades, I want to keep those up. I've been told I'm kind of an

overachiever. I always want to do the best I can in anything because why do it if you're not going to do well in it. Definitely find a major that I'm really excited about. Stay involved in the community. I definitely want to do a lot.

Thomas

Thomas grew up in a suburb of one of the largest cities in-state. He attended a very small, private school; five other students graduated with him in 2012. His parents made the decision for him to go there, "I do enjoy bigger environments, but it was an environment where I felt I was being well educated, so I didn't mind it." Thomas enjoyed playing basketball for the school, and his team even won their conference championship.

Because his school was so small, Thomas's courses were not tracked into Honors and AP sections like the other participants. He took a math, science, history, and English course each year. Senior year, Thomas took chemistry, which was difficult for him and his peers. He originally tried studying with flashcards for chemistry, but "we found the best way to do that was to reread through things in the book and see where everything was connected instead of just seeing what words meant." Thomas took AP Calculus his senior year. He noted, "it started off a little bit rough, but I kind of got the hang of it, but then 3rd quarter time started running low and things got a little bit stressful."

English was very writing intensive, with a lot of instructor feedback on drafts. Thomas's senior year history course was delivered online, and required a lot of reading and memorization in preparation for the online tests.

BU was Thomas's second choice as a college; his first choice being a smaller, private in-state institution. Thomas was accepted into his first choice of major, Psychology, but opted to move into UP because he and his parents decided UP "would help me get a good start. I talked to one of the directors over there, and she said if I wasn't totally sure what I wanted to do yet, UP would be a good way to get that set in stone."

Thomas enrolled in the most credit hours of any participant: Biology 1, Calculus 1, Introduction to American Government, Psychology 101, English 101, and UP 101. He had no clear expectations for these courses other than they would be a lot of work and he was excited to start. He said,

> I feel like I'm pretty well adjusted for college life just because I had a pretty good balance of things that I did while in high school. So I feel like I'm not approaching this as a one-dimensional thing where all I did in high school was study, or all I did was socialize. I feel like I have a pretty good balance.

His priorities for college were clear:

> Doing well in my classes, and just kind of developing overall as a person because that's what college is a time for. It's a time for you to learn and learn what you want out of life, and just getting on track to getting there. I'm looking forward to meeting new people, progressing, just kind of progressing towards what I want to do.

Self-regulatory Strategies Used

The following is a detailed description of the self-regulated learning strategies that the participants used throughout the fall 2012 semester. The results are organized according to Zimmerman's (2000) model of SRL.

Please note that the research questions were designed to be open-ended and non-leading. Therefore, even though a participant did not mention using a strategy, one cannot assume that strategy was never used.

Forethought Phase

Goal Setting. All of the participants, when asked about priorities, named grades. A few were more specific. For instance, Anita wanted to make dean's list during the fall semester and graduate with honors. Bruce wanted to do really well on his political science test because if he did well enough on the first three tests, he would not have to take the final exam.

Few participants articulated a full set of specific goals that were organized hierarchically, as Zimmerman (1998) notes skillful self-regulators do. Of non-grade related goals, the most common was simply completing assigned tasks. Thomas was the only participant who mentioned reviewing material when he did not have an upcoming test. All other study sessions mentioned by the participants were either preparing for a test within the next seven days or completing an assigned task.

The next most common goal the students set was to start preparing for tests early. Clayton, for instance, found that trying to read all of the assigned chapters in his psychology

text in one night was frustrating, so he started working on that earlier. At the final interview, starting earlier was a common answer for strategies that participants wanted to use in the upcoming spring semester: for instance, Sara said, "I want to just work on making sure I get things done early or working on assignments as soon as I can, instead of thinking, 'Oh, I'll wait until this time.'"

Content and study-session specific goals were much more rare. Sara noted on her calendar during the 2nd interview to "Study EVERYTHING!" Lauren, when preparing for her biology final, noted that she was careful to review all the material possible. Kary mentioned the most specific goals related to content. She had been working hard in Chemistry all semester, but it was still challenging for her. When asked about how she would study for the upcoming final, she said, "now I need to be able to look at a question and know what I need to do with it because it could be anything from the semester. So I'm worried about that. That's going to be my hardest."

Goal Orientation. Many of the participants in this study displayed a performance orientation in their goal orientation. As seen in the goal setting section, there was a strong focus on external rewards: grades, GPA, and dean's lists. Clayton and Bruce demonstrated the strongest preference towards performance goals. Both were frustrated when they spent time studying material that was not then tested on an exam. Bruce also demonstrated his performance orientation when he was asked how he felt about the B- he earned on his first political science test; Bruce responded, "I was happy because I looked around and it was actually quite high."

While over most of the interviews Clayton seemed very focused on a performance-approach goal orientation, he offered a glimpse of a mastery orientation when talking about his expectations for Psychology 101 during his first interview:

> Someone told me that that's the class that guys take to pick up girls, and I'm like, 'That's not why I took that class.' Psychology is actually pretty interesting, so I don't want to seem like I'm just there to pick up girls. If I meet girls, that would be cool, but that's not why I took the class.

He did not find psychology interesting once he began the class and did not mention learning for learning's sake again.

Sara also demonstrated a strong focus on grades. At the final interview, she shared her anxiety about the upcoming psychology final:

> Sara: I'm pretty sure I'll get an A. Or in the A range because those test grades are pretty good, I guess. Pretty fair. I'm just really worried about the next two tests because that could really help me a lot or completely destroy me.
>
> Interviewer: When you say destroy, what do you mean?
>
> Sara: Well, like a B [laughs].

While in some respects it is the performance of that task that Sara values, she compares her work to the standards of the assignment, not to peers:

> Tuesday night I ended up staying up until 3 a.m. once again, trying to fix and critique and perfect my bio lab. Because whenever I do something, I'm not going to half do it. I've been labeled as a perfectionist. So I guess that's what... I cannot just not do

my best on something.

Thomas was the only participant who regularly mentioned his interest in the subjects and information he was learning. When describing his biology lab, he said,

> My lab group is a group of four and the girl who sits beside me is really into it too. And the girls who sit across from us are all squeamish and stuff so they're like, 'You guys can go ahead.' We're over there playing with the heart and shining lights through the heart. All that good stuff.

He also was intrigued by his English class:

> I feel like I'm learning a lot from that English, too. It's not at all what I expected. It's been examining the ideas behind writing and commercials and artwork and all that stuff. And kind of understanding the process all together. Because one of the first things he told us about is how everybody writes for a purpose, and one of the ways you can understand what is going on is if you understand what that purpose is.

While Thomas cared about the grades he received, he also seemed to enjoy the learning process.

Strategic Planning. The participants spoke in general terms about which resources they used and why. All the participants mentioned using classic study items such as textbooks and their notes. Google, Wikipedia, Wolfram Alpha, and YouTube were also used by students, but these seemed to be as a last resort, as Erik put it, "Because when all else fails, if I can't figure it out maybe the internet can." The participants saw how the resources could supplement each other. Thomas, for instance, said he needed to use both his notes and

the textbook "because some of the stuff he teaches isn't directly from the text. But if you have both of them together, it's just more information for you."

Participants showed a strong preference for any resource the instructor created, such as review sheets and practice problems for the upcoming tests. Clayton compared the two resources his chemistry professor offered: "I skim the competencies because I figure the competencies and the suggested problems would pretty much be the same. So I looked at that and made sure they lined up." When Lauren felt uncomfortable with some material in her calculus class, she made a decision: "I was like, 'Alright, her tests have kind of been like the study guides, so hopefully if I know the study guide well enough I can do decent on the test.'" Teacher created test reviews were not as prevalent in social science and humanities courses, but were valued when offered. Kary found the detailed review that her Spanish teacher gave comforting, and Thomas planned to use the sample essay questions his political science teacher gave him.

Despite the prominent nature of instructor-created review material in the participants' tools, no one mentioned going to see the course instructor. Bruce came closest, when he said he would email his political science teacher to help narrow down an essay topic. At the next interview, however, he said he had not. Instead, "I talked to another kid in my class and he was doing the same topic, so I figured it was alright."

While participants did not utilize their professors' office hours, they all mentioned studying with peers. Thomas explained the benefits:

The best thing I've been able to do is to do group studying with people. Because I

> didn't even realize it would actually end up helping me a little more with biology. But when you do it with biology, when it comes to definitions and stuff, everybody remembers it a little bit differently. And sometimes hearing things helps you remember it better than however you've been working at it.

While studying with peers was natural for Thomas, Clayton took some convincing: "I still prefer to study by myself, but my roommate was telling me about... I didn't know these people, but he knows them. And he told me they were studying chemistry in the library and I went with them." Sara was the only participant who seemed to make a conscious choice to change "study buddies." For her environmental science class, she originally studied with a peer. After earning a poor grade, she switched to a large group. When that group was even less successful, she found a new person, who she noted, "is a better study partner because if I didn't know a certain thing, I would ask him, and he would really explain the terms to me and stuff."

Finally, only a few participants mentioned going to formal, university sponsored tutoring; Clayton and Bruce both went to a university information session on tutoring, but never actually visited a tutor. Lauren went to one session immediately before a calculus test, found it useful, but did not attend another session. Kary, however, consistently went to Supplemental Instruction:

> It's like a very chill environment, just hanging out, sort of. Graham is our instructor, and he always has the little lesson plan, and he tries to get you to figure it out, or get someone to explain it to you instead of him telling you and lecturing to you about it.

> He's a student too, so he knows. I feel like it's super fun. I feel like that's the nerdy side of me coming out. I just love it. We go over whatever we've been doing in class. So instead of me sitting there at my computer with my textbook and just trying to think about it, having really no clue what's going on, I can go and figure it out with other people, and with another format.... Not my homework, but something else. And then go back and relate that back to my homework and WebAssigns and that sort of thing. And so, it's a lot of extra practice and it's really, really helpful.

Self-efficacy. At the beginning of the semester, although participants felt like they could succeed, there was a general sense of nervousness. Students from more rural areas expressed the most nervousness, as exemplified by Clayton:

> So it's different standards for me to get in here, and someone from a class of 600, they probably have to be up there. So they are probably a lot smarter than me, and there are probably a lot of people like that. So it might be tough to get used to it.

During the semester, some participants stated lower self-efficacy regarding certain subjects. Both Erik and Lauren did not feel strong in English: Erik simply stated "my grammar sucks," while Lauren struggled with what she could do better:

> With the paper, I feel like it could always be better because I don't feel like I'm the best writer. For example, when I was reading the other girl's during peer review I really liked hers, but I guess it's hard for me to put it in that way sometimes. But, I mean, I feel like I got everything across and I try to follow it as much as possible. But, I obviously think it could be better.

Anita also disliked English and felt it was not her strong suit, but it was hard for her to say if her lower grades were due to interest or ability, as shown in this interaction:

> Anita: I'm pretty sure I could put my mind to it, and seriously sat down and did it, I could probably do it. But it's so boring! I just... I like to talk about stuff. I hate writing about it.
>
> Interviewer: So, for pretty much all of these papers, you think you could have done better had you wanted to?
>
> Anita: Yea. Well, I know I probably could do better. For me, it's putting thoughts on paper is hard. I can speak what I want to say, but I can't write it the way I know it should be said.

On the other hand, some participants voiced strong self-efficacy for some subjects. In those cases, being confident reduced their anxiety. For instance, Sara describes overcoming her text anxiety on her first math test: "I knew what to do, but I blanked, so I just kept skipping until I saw the material and was like, 'I definitely got this.' Then I went back, calmed down, and took the rest of the test." Similarly, Kary found understanding her chemistry homework better "comforting."

Strong self-efficacy in a course was also the reason students reported for not doing assigned tasks. Sara expressed guilt over not doing all the assigned math problems, which she knew would not be graded:

> I had been really good about keeping on top of math homework every night, but I've kind of put that in the back burner. Or, it's not the top priority because of biology.

I'm pretty confident in my math skills. I used to do homework just because of the guilt, like, 'I cannot just not do my homework.' But I've kind of shifted... I HAD to do bio. I had to study for different things, so I thought, 'Well, I can push that back.' Lauren was so confident in her biology understanding that she explained: "it sounds bad, but I can sleep through class and be ok. As long as I study on my own, I'll be fine." Clayton explained why he did not pay attention in Psychology: "It all seems like common sense, so I just sit there. And I take my laptop to that class. So today I was looking at the local movie theaters. That's all I did because I already knew about Freud."

Both Lauren and Sara earned high marks in their most confident subjects, but high self-efficacy did not ensure success. Anita, Bruce, and Kary felt very confident about math at their final interviews, but each earned over a letter grade less than they were expecting.

Outcome expectations. Some participants shared how their outcome expectations and values affected their choices. Both Lauren and Kary took Spanish classes, not because they needed one for their intended majors, but because they saw some value in learning it. Lauren thought it would be useful to have a minor in business school; Kary said, "I'm not languagey, but I want to be able to speak Spanish. I think that would be awesome." At the end of the semester, however, both decided not to take another Spanish class. Lauren decided the minor was not worth it: "I just didn't like it; I don't think I need a minor. I was like, 'If I only need three semesters for a minor, I might as well get it,' but then I thought, 'I'm fluent, that's good enough.'" Similarly, Sara decided to complete the paperwork for IB biology credit and change her biology class to pass/fail: "I originally wanted to take biology

because I was interested in majoring in biology. And you can't do pass/fail if you wanted to major in that. Then I realized that I *don't* want to major in biology." In all three cases, they had positive outcome expectations—they believed they *could* pass the classes and succeed—but they no longer *valued* the credential.

Bruce made a clear cost/benefit analysis of the potential outcomes for his political science course, in which the professor would drop the lowest test grade. The lowest of his first test grades was an 82, so he would need to earn over that on the final to make it "worth it." He said, "I could [earn over an 82] but it's a cumulative test, and it takes a lot more studying."

Sara voiced the clearest example of outcome expectations when talking about her environmental science class: "The tests are impossible." For the first test, Sara reviewed her notes and the professor's PowerPoint slides with a friend, but felt nervous going into her test. She earned a 72, which was close to the class average. Her low grade was shocking for her, typically a high-achieving student. When it came time to study for the second test, she had a very different approach:

> the night before I was with a study group, and we crammed again, but there was so much information. And at that point it was frustrating because we already knew how his tests were. Even if you study really well like I did the first time, there's always things you're going to miss because the details are so minute. The ones he picks are minute, so it's like you miss them even if you're trying to really study all of it. So, yea, I didn't do so well.

Sara earned a 50 on the 2nd test, well below the class average. In this case, her outcome expectations were so low that she did not use her typical study strategies. Surprisingly, though, for the third test, Sara studied much harder and tried new resources, such as finding a new peer with whom to study. When asked what changed, she responded, "I realized after that 50, I really need to get it together. Really work for a good grade." In this case, while her outcome expectations were still low, the value she placed on a higher grade was worth attempting new strategies.

Performance

Attention Focusing. By far, the most common attention-focusing strategy mentioned was finding an effective study location. Sara used the library the most, often until closing time, even on Friday and Saturday evenings. She found it necessary because she and her roommate have such difference schedules: "She never has work to do. So when I'm trying to do work, that's why I always come to the library, because she'll be in there watching TV, or her friends will be over. And it's just very distracting." Kary found the laundry room of her residence hall effective, while Thomas and Clayton enjoyed the study lounge. Thomas liked to vary his space the most to keep from getting tired.

Lauren expressed intention of finding a more effective space in her second interview because her residence hall room was not effective:

> but it's more convenient. I'm going to start studying in the library. Like, for my calculus test that's Monday, I'm going to come to the library and study. Because my roommate, she'll be in there, and she'll be talking to me. And I'll tell her I need to

> get the done, but she'll still be talking to me.

She did not, however, like studying in the library. At the third interview she said:

> I came to the library again to study for that math test, but it's really annoying have to carry all... Because I had to carry everything and it literally hurts my back to come all the way to the library, and have to be really quiet around everyone. And then I was doing laundry one day, and my roommate was like, 'You should just bring your laptop down and go to that little lounge,' and I was like, 'Why didn't I think of that sooner!?' So I'm probably going to start studying there.

At the final interview, however, Lauren had completed most of her recent studying in her residence hall room.

Clayton was the only participant to mention other strategies for focusing his attention. He acknowledged that sometimes he needed to avoid getting on Twitter or Xbox in order to study. He did not feel like he was always successful, though. At the final interview he said, "I just need to get more in the zone and focus more. Sometimes, I can focus and sometimes I can't." He did not have specific strategies to help him accomplish this in the spring semester, however.

Self-instruction and Imagery. Participants did not mention many strategies concerning self-instruction and imagery. Anita and Lauren both had computer programs that helped them memorize information for biology or Spanish, respectively. Thomas used a friend's flashcards, while Sara started making her own. Clayton said just reading the periodic table was enough for him to memorize it. For Lauren, writing material down

seemed to be most useful: she made equation sheets for math tests, wrote down answers for her biology study guide, and for her Spanish test she said she just "made sure I know all the answers to all those little questions. Just write, write, write."

Self-monitoring and Metacognition. The majority of self-monitoring that the participants reported was metacognitive self-monitoring, or monitoring their understanding of the topic. Anita found LearnSmart ("McGraw-Hill LearnSmart," n.d.), a tool provided by her textbook's publisher and required by her instructor, to be a useful way to measure her learning: "you just have to learn. It's kind of hard to forget what you're doing cause the words keep coming up if you keep getting them wrong. You'll learn eventually." Sara studied minimally for one of her later math quizzes because of her self-monitoring. She walked by a group of friends studying, and

> because I really didn't know what was going on, I was trying to figure out which sections were what, and what we were going to be quizzed on. And then I was like, 'Oh, I actually know that.' I started helping my other friends and explaining things to them. Then, I think I just asked them to make a couple problems for me to do from each section to make sure I could do it or not.

In both cases, the participants assessed their knowledge of the material.

A few participants mentioned being aware that they did not understand material. Kary mentioned in two separate interviews how she struggled with chemistry: "I know what I'm doing to a point, and sometimes I look at it and I'm like, 'Ok, where do I start with that?' so I'm concerned about the exam because it's going to be everything together." Erik was

frustrated when his math professor said a topic would not be on a quiz, and then that topic appeared on the quiz. He said he would have studied the material because "I knew during class that I had no idea what he was doing." Lauren admitted that she did not know material for her biology test because she did not want to study it: "I hate cells. I don't like to know what works with what. The mitochondria, I don't know what that does still. I need to look at that." Lauren was also frustrated that she needed help from friends or notes on her homework: "it's just really annoying because I wish I could do it on my own, even though they don't help me throughout the problem."

Sometimes the participants believed they understood the material, but quiz and test grades suggested otherwise. Clayton's comment is indicative of that issue:

> His examples are hard, but then they'll be easy at the same time. So I think, 'I get this,' but the exam will blow me out of the water. I'll get it while we're going over it in class. And I'll look at the notes and I'll get it. But then I'll get to my homework and I won't get it. So I guess I didn't get it before.

Bruce, Thomas, Lauren, and Erik all mentioned thinking that they understood some material, but then being surprised at a low quiz or test score.

Sara and Thomas were the only two participants to mention monitoring their study habits. Both mentioned stopping studying because they were tired and the study session was no longer effective. Thomas, for instance, said,

> I just got tired of it eventually because, I mean, especially when you don't have examples or anything to work through, and you're just kind of quizzing yourself over

> terms and the relation of things, it just all kind of bleeds together. And you're like 'Alright.' You kind of know when you've absorbed as much as you're going to get out of them.

Only two participants described another form of self-monitoring mentioned by Pintrich (2000): Clayton and Lauren demonstrated motivation awareness. At the final interview Clayton described how he struggled with motivation: "I just need to get more in the zone and focus more. Sometimes I can focus and sometimes I can't." Similarly Lauren said, "laziness is definitely here. I'll randomly have spurts where I'll be motivated to study." These instances of motivation awareness were infrequent and tended to occur near the end of the semester. No participants described the final form of self-monitoring, context awareness.

Self-Reflection

A primary reflection the participants voiced was about starting work earlier. Anita and Sara both shared that they found "cramming" for tests not as effective. Clayton started completing his psychology reading early because, "For the first exam, I did all my reading the day before, and it sucked. So now I start a couple of days before." Erik also mentioned that he needed to start work earlier. His online homework was due at midnight, and he had started working on it at 11:30 p.m.:

> Erik: I finished one homework like 30 seconds before it was due. I was watching the clock. Then I started doing them earlier, because that was a bad idea.
>
> Interviewer: How much earlier?
>
> Erik: Now I start at 11 pm.

Participants also shared how they were trying to figure out their college courses. Thomas mentioned he was learning how to study for Biology: first, "It's a lot of making yourself remember different things, honestly" and also:

> for the first test, I covered only what I thought was going to be on the test, so I had all that stuff. But there was some stuff where I either knew it or I didn't. For this test, I covered everything that could have been on the test. I think that helped out some.

Bruce was also surprised by a test, in his case, political science:

> I didn't know how the test was going to be. On the multiple choice questions, I didn't think we going to be asked about any of the current events, but that's what they were all on. So, the current events we went over in class, I didn't have anything on that. But this next time, I'm going to write down stuff we talk about for current events.

In all of the above cases, the participants were able to list specific strategies that had not worked for them and made plans to adjust accordingly.

When test grades shifted significantly, participants attributed the reason for the shift differently. Some participants listed internal causes. Lauren and Sara both felt like their study habits were not as effective. As Sara explained:

> For the A, I studied like crazy. That was when I pretty much lived here and I was extremely stressed out with that and the lab report I had. So, this one, I still studied quite a bit, but not the way I did beforehand. It was like, pretty much a cram session. So that's why I ended up getting a 68.

Lauren said that her poor grade was because "I just straight up didn't study." When asked what increased his chemistry test grade, Bruce, however, simply said, "I guessed better."

Other participants attributed the shift to an external reason: the easiness of the material. Clayton found information on the history of biology easier, and Bruce said his math grade jumped because "It was easy. It was just differentiating equations." Kary explained the difference in her Spanish tests grades this way: "From the Spanish I've had in the past, there's things I have already learned and he's just reiterating. So I feel like my higher grades were more of things I've already gone over."

Sometimes participants shared their frustration at not being able to identify their problem areas. Math was difficult for Thomas, and he said:

> I think it was just that I... I think I didn't know how to apply all the ideas we were learning to the right problems and all. Because I understood how to do certain things, but I missed a lot of points on it because I would apply the wrong thing in the wrong situation, or I would leave out a step because I didn't know how to apply it to certain stuff.

At the final interview, Clayton wished his grades were higher, but he didn't know what else he could have done differently:

> I feel like it wouldn't have made that much of a difference. Biology: I just don't care about biology anymore. Chemistry: I wish I did better on the second exam because that exam hurt me, and I like chemistry. Math: I spent a lot of time on math, and then I get the exams, and it's different. So, I don't know if it would have changed that

> much for math. I don't know what more I could have done for math. Because math was #1 on my priority. I studied that a lot and I did all the suggested problems, pretty much. I don't know what else I could have done. I guess I could have gone to office hours, but I can't stand the TA and I didn't have any questions.

Additional Factors

Time Management

Time is an element central to self-regulated learning. Without competing demands on their time, SRL would not be necessary for the students to employ. As mentioned above, student prioritized homework and studying based on the time remaining to complete those tasks.

Overall, Thomas, Kary, and Sara were the participants who were most proactive with their time. Thomas noted:

> usually if I have a huge gap between classes, like some days I'll have a 3.5 hour gap between classes, I'll just try to get a bunch of work done, as much as I can because I only have one or two classes after that. So I just push through it.

Kary also used the time between classes to prepare for sessions. Sara felt like she had to prioritize school all the time:

> I feel like I'm just... I'm always busy. It's either homework or... Pretty much what I do free time wise, is go to the gym. But other than that, I've haven't had time, or at least any free time this week at least. I don't really do much hanging out.

Erik was at the other end of the time-management spectrum. He acknowledged that he was a procrastinator. The only time Erik mentioned working early on homework was when his friends were going to be busy the night it was due. They convinced him to work on it with him one day early.

Besides working on material close to the due date, many participants mentioned doing school work when, as Clayton said, "there's nothing better to do." Thomas worked on a paper early "because I woke up early enough. I was waiting to go out to eat with my friends, but they weren't awake yet. So I had time to." When asked why she started attending SI, Kary said, "I had been to a couple, and then I was like, I really have nothing else to do with my time, and I might as well learn chemistry, so I'm just going three times a week. Because why not?" Lauren expressed a similar thought process when choosing to work on homework over fall break:

> Lauren: I did some math because I was looking at everything. Usually I don't look at anything during the weekend school wise, unless I know there's something big. I was at my hometown, so I was like, 'I should probably see to make sure there's nothing due.' And there was some homework due for tonight. So that's all done.
>
> Interviewer: So you would have had all day today to do it?
>
> Lauren: Yea, but I was like, 'I'm probably going to have more energy to do it now, than I will tomorrow.'

Participants also often had to make choices between studying or working on homework and going to a social engagement. Sara most often chose schoolwork:

> Just these past few weeks I haven't really had a social life. It's always when I'm most busy that people want to invite me to these things. Perfect example, this past weekend, I got invited to go to the beach; I got invited to go lots of random things. 'Sorry I can't, I have a lot of work to do.' Schoolwork is definitely top priority. It's hard, but I can't do it.

Conversely, Bruce said he normally went to the social engagement:

> Bruce: I shouldn't have, but.... I mean, I still got the work done, it just happened afterwards.
>
> Interviewer: Do you remember what it was?
>
> Bruce: Just hanging out with friends. I think we were going to go see one of the movies at the student center. It was *The Dictator*, we were going to go see that. And I had to do the web-assign. But it wasn't due until the next day, so I thought it would be okay.

Bruce gave similar answers in interviews 2 and 3, but during interview 4 he said, "I always chose school if I did because I had a lot of work to get done. I can't really name a specific example."

Missing Class

The most common reason participants gave for missing class was that they were tired or overslept. Anita, Bruce, Clayton, Thomas, and Lauren all missed at least one class for that reason. Participants also missed in order to study for other classes. Clayton missed psychology in order to study for chemistry; Sara skipped math and P.E. to work on biology.

Lauren missed Spanish one day because "I applied to be an orientation leader, and I had to go to one of those seminars, and it was literally the last day, so I had to leave class early."

Participants also missed class when they did not feel it was worth their time. Erik explained that the chemistry lecture:

> isn't required, so I haven't been to all of those. Only the recitation and lab affect my grade. I usually go over the pre-class and homework and if I understand it, I'll just do the homework during the time I'd be in class.

Anita clarified why she missed multiple math classes the week of the 3rd interview:

> Monday, because I saw no point in going because we didn't learn anything new on Friday. I was like, 'Something's telling me that we're going to still be reviewing' and they were. I have two friends, one is in my English class and one is in the English class across the hall from me, and I was like, 'What did ya'll do today in Math?' and they were like, 'The same thing we did Friday.'

Despite conflicting with two faith-based organizations that she wanted to attend, Kary did not miss her math class: "Math is my 6:30-8:30 pm class, twice a week, so it's never really fun going to class, but I don't miss class. That's one thing that I've taught myself to do over the years: Is just to show up at least."

Lack of Self-Regulated Learning

For each element in Zimmerman's model of SRL, there is at least one example from the participants, but the lack of SRL was also very present in the study. A common example

is of the participants not being aware of assignments. Clayton complained about his psychology teacher:

> He just told us that there's chapters for us to read in the book, like we've supposed to been doing that, but he didn't tell us that we were supposed to be doing that. So I don't think I really even needed a book for that class. But he told us we needed to get one. I haven't even opened it yet.

Similarly, Lauren was frustrated with her Spanish instructor:

> He really wants us to keep up with the syllabus. So we'll be like 'What, we had something on the internet due?' and he'll be like, 'Yup, if you keep up with the syllabus you'll know that,' because he won't mention it. So he expects us to literally look at the syllabus.

Bruce and Erik also missed assignments, not because they were not reading their syllabi, but because they did not read it often enough.

Participants also mentioned not doing work that they knew was assigned. Clayton was proud that he never removed the shrink-wrap from his biology textbook. After fall break, Anita said, "I don't know the last time I worked on math. There's no point in doing homework, seriously." Bruce explained a poor math test grade: "I didn't study as much, and I didn't prepare really. I just kind of winged it, mostly."

Another way participants did not self-regulate was by assuming that completing homework was sufficient studying. When asked if she studied for a math test, Anita replied "Yes. I did the homework." Clayton said, "by studying, I mean I did my chemistry

homework"; Erik said, "homework is the same thing as studying, essentially." Kary made an explicit choice to make studying her homework:

> We are given WebAssigns due on the day of the test. Everything the test is on is in the WebAssigns. So I tend to save those for the week in advance, so I can go over everything again instead of do it as we learn it. Just sort of knowing it and reviewing it.

Finally, a few participants mentioned conflicting desires. This was most clear with Lauren and her high school friends. At the second interview she said, "I'm kind of sticking to my friends that I already know more than I'd like to. I love them, but I want to make new friends too." But at the end of the semester, her primary friends were still the same group. She and her roommate got along well, but neither "meshed" well with the other's social group.

Clayton was the most vocal about the everyday conflicts: he wanted to work on homework earlier, but would often get distracted. After Thanksgiving break, he explained why he could not start his math homework early in the week:

> Well, Monday was Cyber Monday and there were a lot of deals, and I decided I wanted to get a new computer. So I had to look all into that and make sure it was what I wanted. And I was up till... I was up late. And I was looking at it until right before 12:00 to be sure that I wanted to buy it.

Later in the week, he explained: "I would start and then I would take a break. There was a lot to do yesterday. They had the UP auction yesterday so I went to that." Clayton also mentioned how he liked his chemistry professor, but it was still hard to stay awake in class:

> Clayton: I get a little drowsy, but that's every class. But when I sat in the front row, that was good.
>
> Interviewer: Are you still sitting in the front row?
>
> Clayton: I did it one day, and that was for the moment, and I wanted to do it again, but now I just get to class too late to do it.
>
> Interviewer: Do you have another class in front of it?
>
> Clayton: Kind of, I have math right before it, but them I'm hungry, so I'll go eat, and then I just found the ice cream shop, so I'll go eat and then I'll go to the creamery too.
>
> Interviewer: So you've got time to eat lunch and go get ice cream. So you're not trying to do all that in 15 minutes are you?
>
> Clayton: No, it's like 30, maybe 40 minutes.

In this interaction, Clayton shows that while he values sitting near the front, he does not value it enough to rush his lunch.

How and Why to Participants Used SRL

The previous sections described the self-regulatory strategies that the participants used during their first semester in college. The sections on self-monitoring and self-reflection describe how students knew if those strategies were successful. The following section considers why students decided to self-regulate.

Foreseeable impact

All of our choices have impacts. Sometimes the impact will occur in the short term and be clearly visible. Other times the impact may not be visible for a long time. Depending on the participant's focus, SRL patterns were different.

Short-Term Focus. Participants who were focused on short-term results tended to have idiosyncratic patterns in SRL: sometimes not using it for long stretches, and sometimes showing intense focus.

Lauren's self-regulation was inconsistent through the semester. She was able to focus on her schoolwork and "make myself study." Lauren was also very aware of what she needed to do and when she was not doing it. When asked if anything surprised her recently, Lauren said, "I guess it's not surprising, but how lazy I've gotten. I just dread the schoolwork completely. 24/7." She stated that her poor third biology grade was because "I just straight up didn't study." She then said that she studied really hard for the final because, "All my other grades aren't looking too good, so I should work hard and get an A+ in Bio." She then described the process she used for studying:

> She had a study guide in the back of her lecture notes, and I literally, a week before the exam (because I knew that it takes a lot longer than expected) so I think Sunday... Well during break I started it, and that Sunday I went over, and Monday I went over it. I literally answered all the questions. Tuesday it was a review. She didn't take attendance, but I was like, 'I should go just in case.' You could answer questions and stuff. And I was answering all the questions, I felt really confident about it. There

> were still some things I hadn't gone over. And usually if I don't go over something on the study guide, and I'll see it on the test, I feel like it's stressful. So I just made sure I went over everything.

Lauren demonstrated that she can motivate herself to work early, utilize her resources, and accurately monitor her learning. Her motivation to do this was the clear reward of an A+ in biology. In a similar way, Bruce, who did not study much for his previous political science tests, studied until 5 a.m. for the third test because if he did well enough on it, he would not have to take the final exam.

Erik knew he was a procrastinator, but in the second interview he said, "It hasn't gotten me in trouble yet really, so usually that's when I start trying to fix things." It was not until he barely had time to complete an assignment that he started working earlier; and then it was only 30 minutes earlier.

Long-Term result. Conversely, Sara and Thomas were consistently focused on longer term goals of "doing well." As mentioned before, Sara utilized many resources with the goal of doing her best and getting good grades. At the second interview, Thomas was the only participant to mention reading ahead and reviewing material even if there was not an upcoming test. When asked why he did that he said:

> I'm just trying to play it cautious for now. Because I know that as time goes on I'll prioritize more and there are some things I can just read over once and I'll have it until I get the next material. But until I know exactly what those are, and how all the tests are going to work out. It's best that I don't just assume, 'Yea, I've got this.'

Other Regulation

A prominent pattern with some participants is that many participants did not self-regulate; instead their study behaviors were guided by others.

Peers. Peers played an important role when participants decided whether or not to self-regulate. For some, like Erik, it made it easier to do work; he did not often feel pressure to choose between schoolwork and social activities "cause usually everyone's doing homework at the same time." Erik and Sara also both mentioned times when their peers encouraged them to study at a time when they normally would not have.

Other the other hand, peers also discouraged studying for Bruce and Lauren. Lauren wanted to make new friends, but she found herself "sticking" to her old friends more than she would have liked. While she would sometimes take her schoolwork over to her friends' house, she noted that she never worked as well over there as she did in her own room. Bruce, likewise, often chose hanging out with friends over schoolwork.

Instructors. While no participants visited their instructor's office hours, their professors still had great influence over their study behaviors. For instance, Anita would complete all tasks assigned by the instructor—including those that were optional—but no more. When her Math TA suggested that students complete a practice test in its entirety before their next problem session, she did. However, in the final interview, when asked if she had studied recently for biology, she replied, "No, there's no LearnSmart to do." Similarly, Kary stopped studying for Spanish when her online tutorials were completed. In

each case, when the teacher ceased listing tasks, the participant did not choose new tasks to complete; and both earned lower grades in those classes than expected.

The pattern of other regulation was more subtle in Clayton: he expressed often that calculus was his priority, but in his interviews he mentioned studying more for chemistry, which had more teacher organization-specific objectives for each section listed, practice tests, and a large number of suggested problems.

Change of SRL Over Time

Overall, there was not much change in the participants' self-regulation. In some cases this was because the participants did not use much SRL, and in other cases it was because they simply continued using the same strategies they had been using all along.

Erik

As mentioned before, Erik started working on material earlier. At the final interview he said that he needed to start keeping a calendar, but otherwise, little changed over the semester.

Thomas

Thomas worked steadily and diligently throughout the semester. He noted in his initial interview that he found studying with friends helpful, and he utilized that strategy through the fall semester.

Bruce

Bruce did not proactively use strategies often. For the first three interviews he noted that he frequently chose hanging out with friends over schoolwork. In the final interview he

said, however, “I always chose school if I did [have to choose] because I had a lot of work to get done. I can’t really name a specific example.” The only other change he mentioned was after his first political science test. The class was divided into two sections: the first included current events and popular culture’s take on them, such as clips from *The Daily Show*, and the second was a more formal lecture on an aspect of American government. Before the first test, Bruce took notes only on the second part of class. When the first test included material on the current events, he started taking notes on that segment. He also stopped taking notes in the rest of class “because it was all in my book if I needed it.” For the last month of class, he did not take any notes because he knew he would not have to take the final. He remained task-oriented, with minimum effort, throughout the semester.

Anita

Anita also did not change her self-regulation much over the semester. Early in the semester she mentioned the study strategy of sitting in the first or second row in class. At the end of the semester, despite having difficulty in some classes, when asked if she would do anything differently next semester, she replied, “Not really. In most of my classes, I’m right in the front row or second row, so I’m right there so I can make sure I’m paying attention. Probably do that again.” As the semester progressed, Anita mentioned that she was very homesick and missed her mother. Around fall break, she missed a lot of classes because they were “boring” or “pointless.” By the final interview, she was attending most of her classes again, but was ready for the semester to end:

I wish exams were over. I’m just so ready to go home. I have one exam next week,

> and it's online so I could take it anywhere. So I'm basically going to be sitting in my room all next week. Because I have nothing to do until the second week of exams.

Kary

Kary shifted her SRL in two major ways over the semester. First, she started attending Supplemental Instruction for chemistry about one month into the semester. She did this because she recognized that she did not understand chemistry. She also seemed to value the social interaction that took place in SI. In sociology, however, she chose to stop using some behaviors she used in the beginning of the semester: at first, she would read all her material ahead, but by the middle of the semester she had started only skimming the material. This change seems to be due in part to the professor's teaching style (the professor seemed to focus on minute details, according to Kary), but also with Kary's personal connection:

> I feel like I've grown up in a normal family, but I feel like everyone feels like they've grown up in a normal family. But then, it's just like she's telling me that I'm the most abnormal person in the world for growing up with two parents and a sister and a dog and having a house. I don't know. It's just not my cup of tea right now.

At the final interview she said: "I just don't think we've discussed hardly anything that happens in my family. We've talked about poverty, divorce, and gay and lesbian couples. Things that I feel like don't pertain to me." Depending on whether she could find a personal connection to the course, Kary engaged more or less throughout the semester.

Lauren

Lauren altered how she self-regulated throughout the semester in an idiosyncratic way. She would have bursts of motivation and energy followed by periods of not doing much schoolwork. At the final interview:

Lauren: There were spurts of motivation throughout. Like, in Bio for example. I studied for that final. And yea, laziness is definitely here. I'll randomly have spurts where I'll be motivated to study.

Interviewer: Do you know what causes them?

Lauren: I think it's the class. Spanish, I don't feel like doing anything for that. UP [laughs]. I guess I'm mostly motivated for Calc and Bio. And I guess English… not really. I just get it done.

Interviewer: Ok. What do you think you're going to get in UP 101?

Lauren: I don't want to say. If she accepts my late work, maybe a C. That sounds really bad, I know. It's because I didn't know they added up so badly. But there's two assignments I didn't turn in. And honestly, it was just because I didn't do it. I could have done it easily. Nothing was really holding me back.

Interviewer: So that was the laziness coming in?

Lauren: Oh yea, it was bad.

Interviewer: So it seems like (and tell me if this is right or wrong), but it seems like: 1) interest in subject helps you motivate.

Lauren: Definitely.

Interviewer: So even with English, even though you don't love the course, you're liking this final topic.

Lauren: Yea.

Interviewer: And then: 2) there's also the chance of success?

Lauren: Definitely. I mean. For Spanish, I guess I could do really well, but I don't know. I don't know if it's because I'm not going to pursue a minor any more. So, I don't know. And then UP is UP. It's supposed to be easy, but yet, I still haven't done it. I don't know why.

Interviewer: So there's also relevance, maybe?

Lauren: Yea. But Bio isn't really relevant. I guess if I know it's super easy to get an A in. Like my chance of success.

Interviewer: Yea, but it's super easy to get an A in UP 101.

Lauren: Yea. I don't know why.

This interaction shows how it was hard to identify what caused these spurts.

Clayton

Clayton had a few shifts over the course of the semester. He went into the semester excited about biology and psychology, but quickly became bored with both. This mirrors his social life as well: one month into the semester he was going to lots of different clubs, even taking multiple weekend trips with clubs. By fall break he had stopped going to clubs and was aware of how much time he spent alone. By the final interview, Clayton seemed to

engage again with college life, but in a different way. The following is an excerpt from the final interview:

> Interviewer: Last time you said you didn't feel adjusted to college life. Has anything changed?
>
> Clayton: I guess I got over it. I don't know how to explain it. At home, I knew everyone because I came from a small town. But here you don't know anyone at all, and you spend a lot of time alone. I like doing it, sometimes, but sometimes I don't.
>
> Interviewer: But you're still alone a lot?
>
> Clayton: Yea, but I don't mind it. I like it a lot more now.

While Clayton still did not enjoy some of his classes, he seemed more engaged in schoolwork at his final interview. He had recently been to tutoring and study groups for the first time. He also demonstrated self-awareness: "I just need to get more in the zone and focus more. Sometimes I can focus and sometimes I can't." He already had planned to make some changes in the spring semester: "I want to study more and go to tutoring. Definitely tutoring since my math class is online. And I'll have to go to SI for chemistry." When talking about final grades, Clayton also used language that he had not used in previous interviews:

> I'm not happy about my grades, but I'm not going to go cry about. I know that I tried hard. I'll just try to do better next semester. For calculus I set a goal for a B+, and I didn't make it. But at least I set a goal instead of saying, 'I'll do my best' because in high school all I did was I did my stuff and I tried my best. I didn't care about the

grades, but now I should care about the grades.

Sara

Sara, who came into the semester with the most developed study habits of all the participants, had visible changes in her use of SRL, especially in terms of her use of seeking peer assistance. In the beginning of the semester, she served as a resource for peers in her math class and "retaught" some of the sections to a classmate. She found a peer to work with in Psychology by the end of the semester. She made the most changes in her environmental science "study buddy." For the first test, she and a peer reviewed material together, but when they got to something neither knew, "we'd be like 'I don't know what that means' and just kind of move on." After not performing as well as she liked on the first test, Sara was unmotivated for the second test because she thought, "even if you study really well like I did the first time, there's always things you're going to miss because the details are so minute." For the second test she did one "cram session" with a group of peers. After performing even worse on the second test, Sara found a better study partner:

> We did the same thing where we went through the PowerPoints and just talked about it, but this time I felt like he knew... He's a better study partner because if I didn't know a certain thing, I would ask him, and he would really explain the terms to me and stuff. And I made some flashcards. So that's the difference.

SRL and Academic Achievement

The participants in this study all successfully completed their first semester at BU and enrolled in spring 2013 courses. The GPAs ranged from a C to A+ average (see Table 3).

Surprisingly, Thomas, one of the two students who seemed most engaged with schoolwork, earned the lowest GPA.

Table 3: Fall 2012 Participants, Credit Hours, and GPA

Participant	Enrolled Credit Hours	Earned Credit Hours	GPA
Thomas	18	18	2.630
Anita	14	10	2.667
Erik	14	14	2.667
Clayton	15	15	2.978
Bruce	16	16	3.089
Kary	15	15	3.378
Lauren	15	15	3.533
Sara	15	11	4.000

There are potentially several mitigating factors in Thomas's story. First, Thomas enrolled in the most credit hours of any participant. His courses were a tough mix of writing-intensive, problem-intensive, and information-rich courses. Second, Thomas was very active in extracurricular activities. While he chose not to pledge a fraternity because of the time commitment, he took on leadership roles in residence life and spirit organizations. Third, Thomas demonstrated a heavy reliance on peers. Unlike other participants, the majority of the times Thomas described studying for his math, science, or psychology tests were with peers. While Lauren and Sara described developing their own tools for memorization, Thomas described using a peer's flashcards. Although peers can be useful resources, these courses assess learning in timed, individually completed tests. When working with peers, one may get the correct answer on homework and practice tests, but not be able to solve the

problem on one's own. Finally, Thomas had difficulty self-assessing his knowledge. In calculus, his most difficult class, he had a hard time articulating what he did not understand. He was also the only participant to overestimate each of his final grades, in some cases by a full letter grade (see Table E8). This suggests that his metacognition was not very accurate.

Anita also was not very accurate in her final grade estimations (see Table E1). She was confident that after switching biology to credit only, she would have no problem passing the course; she did not, however. Similarly, in her three interviews during the semester, Anita complained about how slow her calculus class was moving, that her peers could not understand the most basic concepts: at the first interview she said:

> It feels like, 'how did you get in this class?' Seriously. They act like... I mean, derivatives... I feel like derivatives are one of the easiest things you will ever do in calculus. People ask me questions about it, and I'm like, 'you just bring it down, and you minus one. That's *all* you do. We haven't gotten any more in depth than that.

She continued throughout the semester to say the class is pointless and just review, but she earned a D in that course. It was clear, however, that Anita did not lack for time to complete assignments and study thoroughly:

> I'm chilling. Most of my days, like Mondays, as soon as my USC class is over, I'm free until 7. Same thing for Wednesdays except for it's after basketball; I'm free until 7. Thursdays I go to work in the morning, and then I go to class after that, and then I'm done. Fridays, I'm done at 11, and then work until whenever I have to leave. And then Tuesdays and Thursdays I only have two classes. So I'm just chilling.

Anita's homesickness and boredom were clear during the later interviews; she started missing classes, sleeping in, and stopped sharing as many grades in her interviews. In addition to her subdued mood, as mentioned previously, Anita did not demonstrate much self-regulated learning; she was dependent on assigned tasks to motivate her to work. It is unclear in this study, however, if mood influenced her grades, her grades influenced her mood, or some combination.

Erik, Clayton, and Bruce shared similar characteristics regarding SRL: each often studied only the night before a test and each focused on completing the assignments, but not much more. Each also had times when they thought they were prepared for a test, but did not fully understand the material, suggesting poor metacognition. Some of the differences in their final GPAs (2.667, 2.978, and 3.089, respectively) may be attributable to their differing backgrounds and fall course load; Erik, Clayton, and Bruce also showed slight differences in SRL as well, though. Erik shared very little in his interviews that suggested SRL: he completed the tasks and no more; Erik also did not change much about his SRL over the semester. Clayton, on the other hand, started using more techniques over the semester, including planning his studying and going to study groups. Clayton, in his own words, started "caring." Another shift noticeable in Clayton was that by the end of the semester, he was *aware* that when he was not able to focus. Bruce demonstrated awareness of poor SRL throughout the semester. He noted why he did not complete all the practice problems for a math test: "I was just being lazy and didn't want to go through all of it." While neither

Clayton nor Bruce consistently demonstrated SRL throughout the semester, it is possible that using it occasionally accounted for their higher GPA over Erik.

Kary was methodical with her time usage throughout the fall semester and heavily utilized university resources for learning chemistry. Both of these strategies appear to have helped her. Like Anita, she seemed very comfortable with her math class, which was mostly review for her, but earned over a letter grade less than she expected (see Table E5).

Lauren, like Bruce, was very open about choosing social interactions over scholarly ones. Lauren shared, however, some similarities with Sara—the participant who spent the most time on schoolwork, who heavily used all of her resources, who monitored SRL closely, and who earned the highest GPA of the participants. While both Lauren and Sara had times when they were surprised by their grades, overall they were the most accurate in estimating their grades (both test and final grades). They also did not overestimate any of their final grades, while other participants overestimated at least one final grade. In addition to better metacognition, Lauren and Sara were also the only two participants who mentioned developing their own tools for memorizing information: writing extensively for Lauren and flashcards for Sara. The consistency with which Sara employed SRL most likely accounts for her earning a higher GPA.

Chapter Summary

This chapter detailed the results of the study of first-semester college students' self-regulated learning. It first described the participants and how as a group they demonstrated elements of Zimmerman's (2000) model of SRL. In general, the participants' goals centered

around grades with a performance orientation. When choosing tools, the participants prioritized tools chosen or created by the professor. The participants did not mention many strategies related to the performance phase; those that were mentioned tended to focus on environmental structuring, especially finding a study location. The participants often discovered through grades that their metacognition about their understanding was not as strong as they believed. Participants also used feedback from tests to help them reflect on which strategies had been useful and which had not. Time management was different between students: Kary, Sara, and Thomas were all fairly diligent about managing their time. Most other participants only began to work close to due dates of assignments and test dates. The chapter then detailed a lack of SRL, especially with regard to keeping up with assignments and assuming that completing homework was studying.

The chapter then considered how the participants chose whether or not to self-regulate: other regulation was often more powerful than self-regulation. Participants were more willing to self-regulate when there was a clear reward such as not having to take the final.

Overall, there was not a lot of change in terms of SRL over the participants' first semester of college. Participants tended to utilize strategies they had used in high school. The chapter then considered the previous finding in conjunction with the academic performance of the participants: those students who self-regulated tended to do better than those who did not. The final chapter includes a discussion of these findings as well as implications for research and practice.

CHAPTER 5: DISCUSSION AND IMPLICATIONS

This research developed out of curiosity about how first-semester students self-regulated their learning. The purpose of this study was to discover and describe the self-regulated learning of a group of first-semester college students. The narrative described what self-regulatory behaviors the students utilized, how students made decisions about their self-regulation, and how their self-regulation changed over their first semester. The research questions that guided this study were:

1. How and why do first-semester college students decide to self-regulate?

2. How do first-semester college students alter their self-regulation over the course of their first semester in college?

This chapter includes a summarization of the study, discussion of the results, implications of the research, and conclusion.

Summary of the Study

This multi-case, longitudinal study explored how a group of eight college students used and changed their self-regulated learning over their first semester in college. The primary data collection technique was semi-structured interviews: each student participated in a series of four interviews strategically conducted throughout the semester.

The data analysis focused on coding the transcripts for elements of SRL as well as charting the participants' journey through the first semester of college. Then, Second Cycle (Saldaña, 2009) coding was used to identify salient themes surrounding the research questions.

The findings of the study were organized around Zimmerman's (2000) model of SRL. Some aspects of the model are not specific behaviors, but instead are outlooks, such as goal orientation, outcome expectations, and self-efficacy. The participants in general had a performance orientation, valuing how they were perceived by others more than mastering the task. While many participants did not explicitly discuss outcome expectations, those who did explained that they believed they could achieve a task, but may not wish to invest the time in achieving it. In terms of self-efficacy, the participants varied. Some were unsure of their capabilities, while others were confident.

In terms of specific behaviors in Zimmerman's model, the participants overall did not engage in many of the behaviors predicted in the model. Instead of setting specific goals for a study session, the participants set general goals such as to earn an A in a class or to graduate with honors. The strategies that the students selected were most often to use the tools the instructor recommended and to study with peers.

The most common attention-focusing strategy was environmental management, or finding an effective study location. The participants did not often mention other attention-focusing strategies, methods used for self-instruction, or monitoring their studying. The participants also often struggled with accurately monitoring their learning. Many did not realize they did not fully understand some material until a grade was returned. The primary reflection participants shared about their self-regulation was the need to begin work earlier. Finally, the attributions the participants made about a grade differed: some attributed it to the efficacy of their studying, while others attributed it to the difficulty of the material.

The study also found significant opportunities for SRL that students did not use. First, at times, participants either were not aware of work assigned or did not do the work they knew was assigned. Second, many students assumed that by completing homework they had sufficiently studied for upcoming tests.

Many participants chose to self-regulate when there was a clear foreseeable benefit to doing so, such as not having to take a final exam or earning an A+. Some participants also were more attuned to other regulation, completing what the instructor assigned and no more.

Overall, there was little change in SRL over the period of the first semester. The participants seemed to choose strategies fairly close to what they used in high school. Participants' semester GPAs were roughly correlated with the self-regulated learning that they demonstrated. Participants demonstrating better metacognition earned the highest GPAs.

Discussion

This study was designed to investigate first-semester college students' self-regulated learning in a naturalistic environment. While the study relied on self-reported data, the qualitative nature provided more depth and context than questionnaires often used to measure SRL. Multiple contacts with participants provided a more nuanced picture of the strategies they used throughout the semester.

This study is based on Zimmerman's (2000) three-stage model of SRL; he states, "students are self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 5). The participants in this

study, however, did not exhibit a great deal of SRL during their first semester in college. Much of their studying was guided by others, such as peers or instructors. The social cognitive orientation of this research helps show the reciprocal interactions between the participants' behaviors, environments and personal traits (Schunk, 2001). While social resources are a critical part in learning SRL according to Zimmerman (2000), some participants experienced drawbacks.

Instructors

At the final interview, two participants—Anita and Kary—noted that there was "nothing to do" at the time to prepare for the final because their instructors had not assigned anything new to do. The reliance these participants had on their instructors' resources hindered their performance. Most likely because they lacked metacognitive awareness that they did not fully understand the material, the participants did not create new learning opportunities for themselves. Without the instructor's guidance, they did not continue to develop their understanding. While both Anita and Kary found the tools the instructors required useful tools, they did not consider using them when the material was not required, suggesting that they were *other*-regulated instead of *self*-regulated.

Clayton's statements suggested that he was in the self-control stage of Zimmerman's (2000) model of SRL development, an "independent display of the model's skill under structured conditions" (p. 29). The structure that his chemistry professor provided helped Clayton develop and carry out his own study plan. Clayton did not, however, demonstrate full self-regulation because he did not demonstrate "adaptive use of skill across changing

personal and environmental conditions" (p. 29). For instance, he did not apply similar techniques in his mathematics course.

Friends and Metacognition

Each participant mentioned studying and working on homework with friends. Such behavior is often encouraged by professors at BU; however, the participant who studied most with peers, Thomas, performed least well academically. These findings support what Pintrich et al. (1993) found in the original development of the MSLQ: "surprisingly, the use of peer learning and help-seeking were not significantly related to grades" (p. 811); the correlation with final course grades in that study was -.06 and .02, respectively. This study offers clues behind these results. All the participants mentioned studying with peers at times, but there was a difference between the ways the higher-achieving students interacted with peers. Figure 1 outlines the diverging process. The participants who performed less well, tended to: 1) assume that completing homework is sufficient studying, and 2) be less metacognitively aware and accurate. In such a case, it is understandable how peer assistance could hinder further studying. By working with peers, a student is able to complete homework successfully, but without the metacognitive awareness and accuracy to recognize how much assistance the peers (and other resources) provided, a student may believe that there is no more need to study.

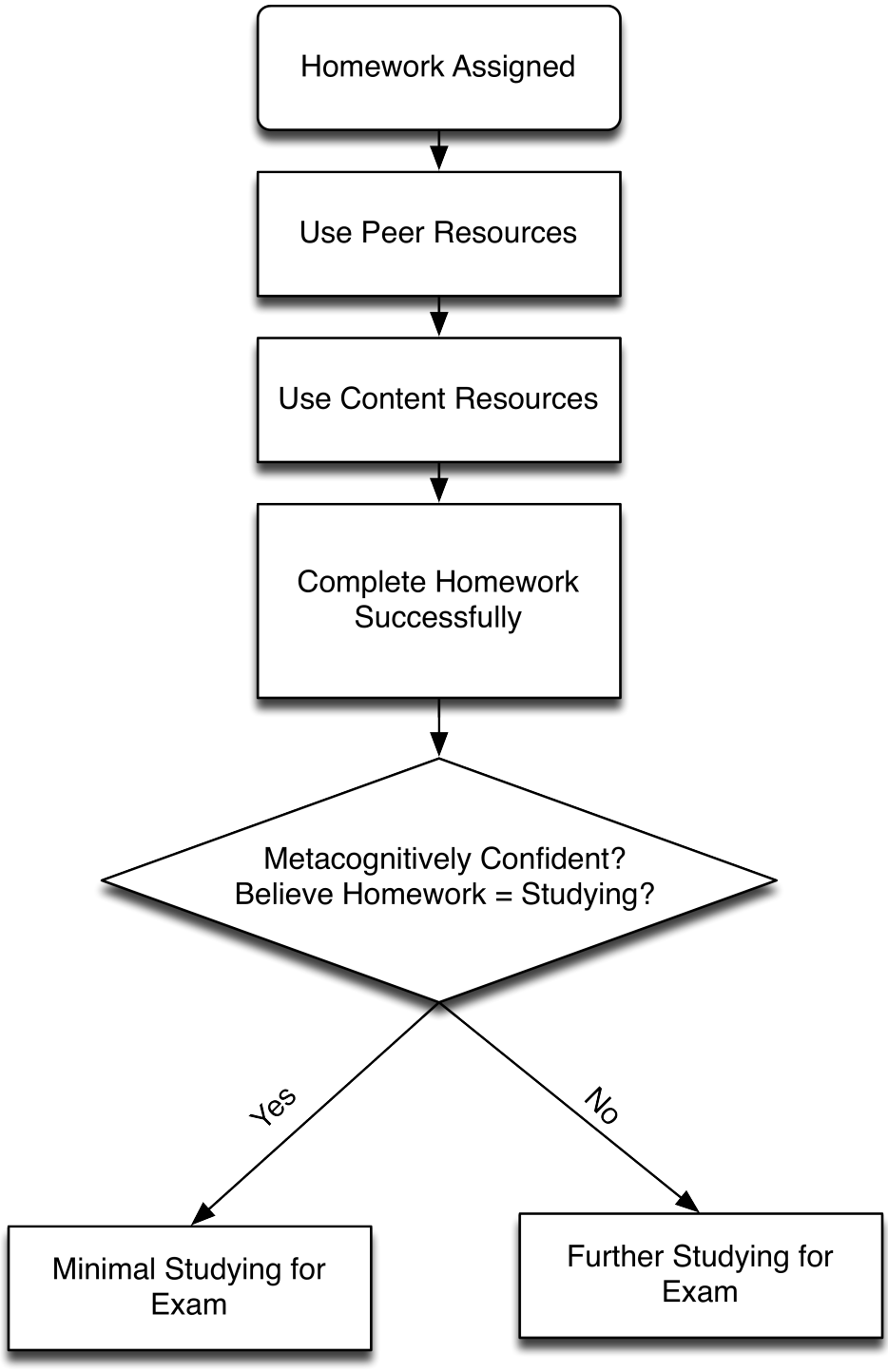

Figure 1: Model of How Metacognitive Beliefs Affect Studying

Conversely, Sara was very discerning when choosing her study partners and selected a peer who was more proficient than she was in environmental science, demonstrating that she was aware of not only her understanding, but also her peers'. Likewise, Lauren demonstrated metacognitive awareness. Lauren was frustrated that she needed help from friends on her mathematics homework: "it's just really annoying because I wish I could do it on my own, even though they don't help me throughout the problem." Lauren shows that she is not only aware of her understanding, but values self-reliance. Sara and Lauren displayed the most metacognitive awareness of all the participants, which likely mitigated the "illusion of knowing"—"the belief that comprehension has been attained when, in fact, comprehension has failed" (Glenberg, Wilkinson, & Epstein, 1982, p. 597)—that may have hindered other participants.

The overall lack of accurate self-assessment in this study mirrors Peverly, Brobst, Graham, and Shaw's (2003) finding that college students are not accurate self-monitors. Zimmerman and Paulsen (1995) note that self-monitoring:

> refers to students' efforts to observe themselves as they evaluate information about specific personal processes of actions that affect their learning and achievement in school. From this information, students can assess their progress and make necessary changes to ensure goal attainment. (p. 14)

Without self-monitoring, students cannot make necessary changes.

Inaccurate metacognition also seems to remove the effect of high self-efficacy. While many studies find correlations between self-efficacy and performance (Cassidy &

Eachus, 2000; Klassen, 2010; Stajkovic & Luthans, 1998), Schunk and Pajares (2005) note, "no amount of self-efficacy will produce a competent performance when requisite skills are lacking" (p. 87). Multiple participants mentioned going into a test confident, but their performance depended much more on the accuracy of their metacognition than the amount of their self-efficacy.

Locus of Control

Sara and Lauren also differed from other participants in their locus of control, or their attributions for their successes and failures. While Sara experienced some frustration with her environmental science tests and felt that they were "impossible" around fall break, when asked what changed by the final interview, Sara responded, "I realized after that 50, I really need to get it together. Really, work for a good grade." Sara demonstrated that ultimately, she felt responsible for her learning and performance; such attributions are considered more adaptive than those that are external (DiBenedetto & Zimmerman, 2010; Schunk, 2001). Similarly, Lauren was quick to take ownership of her choices—both *to* study and *not* to study—and their consequences.

Awareness of SRL

The academic achievement of the participants roughly correlated not just with their use of SRL, but also their awareness of it. The participant with the highest GPA, Sara, stood out from the other participants, not just in the amount of time she devoted to her schoolwork, but also in terms of the number and frequency of SRL strategies she used throughout the

semester. Sara was also openly interested in this research study, asking questions after the final interview and comparing this topic to what she was learning in psychology.

Of the other participants, those who did not self-regulate at times and *demonstrated awareness* about those choices performed better than those who did not self-regulate but *failed to demonstrate awareness*. Clayton, Bruce, and Lauren each mentioned not being able to focus, not doing work assigned, or not caring much about certain classes. Conversely, Erik, for instance, neither demonstrated much SRL throughout the semester, nor was he vocal about not doing so. Each of the participants who explicitly chose not to self-regulate demonstrated at other times that they could self-regulate if they valued an outcome enough. As with metacognition, if a student is not aware of the need, change cannot happen.

Affective Changes

Participants in this study also altered their use of SRL based on affective changes. The most notable impact of mood was with Anita, who started missing classes around fall break when her homesickness was the worst. Lauren began the semester with high hopes and enthusiasm, but over the semester it became harder for her to motivate herself. Clayton had to adjust to a sense of isolation before he could fully engage with his school work. These cases illustrate the social cognitive nature of SRL.

Group Differences

Participants in this study did not establish clear trends regarding group differences. The overall use of SRL did not seem to differ between males and females, echoing Wolters

and Pintrich's (1998) study. Student motivation was tied to subject area unlike the results found by Virtanen and Nevgi (2010).

Implications

The findings from this research suggest several implications for practitioners and scholars interested in self-regulated learning of first-semester college students. Implications follow for professors, advisors, and future research.

Implications for Professors

This research demonstrated that college students: 1) often complete homework assignments with friends and 2) often consider completing homework sufficient studying. It also suggests that metacognitive accuracy is crucial for performance. Professors can help build this accuracy by articulating action-focused learning outcomes. For instance, instead of saying the test will cover "completing the square," consider revising the statement to "solve a quadratic function by completing the square." Professors could provide these learning outcomes and sample problems to students. Professors might also suggest that students complete practice problems alone and in a timed environment to assess their preparation for the test.

This research also demonstrates the task-focused nature of first-semester college students. Especially near the end of the semester, students may not consider behaviors they can engage in without instructor prompting. Providing a brief review of all the resources that students could use and why they are beneficial may help students prepare even when "nothing is due."

Participants in this study did not demonstrate accurate self-monitoring of their understanding. Professors could remind students of how homework assignments differ from testing environments. Providing opportunities for students to estimate their knowledge and then get feedback about their knowledge immediately can disabuse students of inaccurate assessments.

Implications for Advisors

This research suggests that first-semester students are not very aware of self-regulated learning. Participants who knew about SRL performed better than those who did not, even if the participants did not always actively employ those strategies. Advisors may wish to share information about SRL and its impact with advisees. Since the participants all had a strong focus on grades, advisors may want to share with students the impact of self-regulatory strategies.

This research suggests that first-semester college students did not have well-articulated, hierarchical goals that relate specific behaviors to larger goals. Advisors could help students articulate their values and reasons for coming to college, and then develop specific, actionable goals that will help them reach their larger goals.

Participants in this study showed a distinct lack of metacognition. As demonstrated in Figure 1, it was not the use of peers that distinguished the higher-achieving students from the lower-achieving students, but the self-assessment of their understanding. Advisors might particularly focus on ways to build metacognition with advisees.

While some participants enjoyed UP 101, many found it boring or a waste of time. Generic "good student skills" lessons did not seem to make much impact on the participants; as one participant said, "It's just kind of like, 'Do your homework,' but I already do my homework." Activities like creating their own plan of courses for an intended major or estimating their semester GPA seemed to engage the students more. It may be beneficial for advisors to make introduction to college course activities as relevant to the students' courses as possible. One activity participants in this study might have benefitted from would be on reading syllabi: instead of speaking about the importance of reading syllabi, advisors could have students transfer assignments onto a master calendar. To demonstrate metacognition, advisors could have students bring in their course notes or textbooks, ask them to pick a recent problem from the class, estimate their understanding, and then attempt the problem without any assistance.

Implications for Administrators

The transition from high school to college can be difficult for many students. While all of the participants in this study remained in good academic standing, many could have earned higher grades by utilizing self-regulated learning strategies. It is not that the students are not aware of study strategies, but instead that they are not always aware they need to use them. Institutions have opportunities with their co-curricular programming to build self-regulation in areas beyond academics, such as healthy living. Modeling the self-regulatory process of setting a goal, making a plan, monitoring the implementation, and reflecting on the outcome may be easier in co-curricular environments. Because students may not

naturally apply the strategies learned in one area to another, articulating the opportunity would be important.

Implications for Further Research

Considering the lack of development of participants' SRL in this study, a longer study—into sophomore, junior, and senior years—would provide a more nuanced portrait of college students' development of SRL. Participant retention becomes harder the longer a study is, but the results would likely be worthwhile. Extended research such as this could shed light on how much of the phenomenon of SRL is attributable to the natural maturation process and how much is attributable to specific incidences.

There is also an opportunity to expand this research in terms of its content. A more focused set of interviews surrounding a specific course (in this study all the participants enrolled in a mathematics course) could elicit more strategies. A researcher with a content specialty could better question the participants' metacognition.

Conversely, the participants in this study were not enrolled in many writing-intensive courses. Those who were made generic statements about the writing they did such as "I just sat and drafted it" or were about to do "I'm going to sit down this weekend and do my paper." More specific comments could be elicited if interviews were done soon after writing and used a draft of the paper to prompt memories.

Interesting research has been done using electronic diaries in the field of drug addiction, another field interested in self-regulation. In one study, a personal digital assistant was used to prompt participants to record both mood and cravings (Epstein et al., 2009).

Using a cellphone application, future researchers could query first-semester college students about their mood and behaviors. This data would rely less on memory than the current study, but still gather data in a more realistic environment than computerized sessions (Perry & Winne, 2006; Winne, 2010). Data gathered via the electronic diary could then be used as a prompt for interview questions.

Conclusion

This study was undertaken to examine first-semester college students' use and development of SRL in a naturalistic environment. It helps fill a void described by Dinsmore et al. (2008):

> there is the opportunity to use more ethnographic or phenomenological techniques to probe the thoughts, explanations, and justifications of those who are engaged in academic tasks for which monitoring or regulation would be anticipated. It may be that neither quantitative nor qualitative approaches alone will suffice to illuminate the nature of monitoring and regulation, but that some combination is required. (p. 406).

The results provide detail and context beyond the self-report questionnaires often used to measure SRL in college students. Additionally, multiple contacts with participants throughout the semester provided a more nuanced picture of the strategies they used throughout the semester.

Since this research study began, the Educational Testing Service introduced a new assessment designed to measure attitudes and behaviors associated with completion rates

(Educational Testing Service, 2013; Fain, 2013). While the assessment does not specifically use the term self-regulated learning, the factors it comprises overlap with SRL:

- **Academic Skills**: behaviors, beliefs and skills that directly facilitate academic success
- **Commitment**: commitment to, drive toward, and perceived importance of academic success
- **Self-Management**: ability to anticipate and respond to pressure and stress related to college life
- **Social Support**: availability of resources to support academic success (Educational Testing Service, 2013)

While the creation of such a test demonstrates the increased interest in the non-academic factors related to academic success, it is hoped that research such as the current study will be considered along side any standardized, self-report questionnaire (be it the LASSI, MSLQ, or this new assessment). Students' use and understanding of SRL is a complicated, dynamic, and contextually-based phenomenon.

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APPENDICES

Appendix A: Email Invitation to Students

Dear [name of student],

I am writing to request your participation in a research study related to study behaviors of first-semester college students. I am a Ph.D. student at NC State, and I am conducting this study as a part of my dissertation research.

If you agree to participate in this study, you would be interviewed 4 times this fall (in August, late September, late October, and early December).

To encourage your participation, you would receive $55 in university bookstore gift cards. Detailed information about this study can be found in the attached informed consent form.

If you are willing to participate in this study or would like more information, please contact me via e-mail or at (###) ###-####.

Thank you for your consideration of this research project. I hope to hear from you soon.

Sincerely, Marcia Toms

Appendix B: Informed Consent Form

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

This form is valid June 21, 2012 to June 21, 2013

A qualitative analysis of self-regulated learning in first-semester college students

Primary Investigator: Marcia Toms Faculty Sponsor: Lance Fusarelli

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

What is the purpose of this study?

The purpose of this study is to better understand the study behaviors of college students during their first-semester in college. The study will look at not just how students study, but how they think and feel about their studying and how their studying changes over time.

What will happen if you take part in the study?

If you agree to participate in this study,

1. In order to select appropriate participants for this study, your demographic information has been reviewed from your school records. If you agree to participate in this study, the researcher will retain you gender, ethnic background, and hometown for analysis.
2. You will be interviewed in person between August 12, 2012 and August 17, 2012. The interview will take between 60 and 90 minutes, and will focus on your study habits during high school and your expectations for your college career.
3. You will be interviewed in late September, late October, and early December. These interviews will be between 30 and 60 minutes; they will focus on your current study habits. During these interviews, you will be asked to share materials you use to help you study and manage your time such as notes and calendars.
4. All interviews will be held in a private study room in D.H. Hill library and will be audio recorded
5. The researcher will access your academic record to retrieve your Fall 2012 grades and Spring 2013 enrollment status in January 2013.

Risks

Risk should be no more than minimal, although speaking about your schoolwork and grades may elicit some emotional reactions. If desired, you can stop the interview at any time and I will give you information about the NCSU Counseling Center.

Benefits

While there are no direct benefits to you for participating in this study, the proposed research will contribute to understanding how first-semester college students develop their study habits. With this information, institutions can better help students reach their academic goals.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on the principal investigator's personal computer on an encrypted disk image. Physical documents will be locked in a filing cabinet. No reference will be made in oral or written reports that could link you to the study. You will be given a pseudonym that will be used to record and store all data. A crosswalk linking real identities and pseudonyms will be kept in a locked filing cabinet in the principal investigator's home.

The final report will include individual responses. The responses will be identified by a pseudonym and any distinctive identifying characteristics will be changed as necessary in the final write-up in order to protect your confidentiality. If there is anything that you have said during the interview that you do not want to be used in the study reports, please let me know.

The audio recordings and crosswalk will be destroyed by January 2014.

Compensation

For participating in this study you will receive gift cards totaling $55. At the completion of each of the first three interviews, you will receive a $10 gift card to the university bookstore. At the completion of the final interview, you will receive a $25 gift card to the university bookstore. If you withdraw from the study prior to its completion, you may keep any gift cards you have already received.

What if you are a NCSU student?

Participation in this study is not a course requirement and your participation, or lack thereof, will not affect your class standing or grades at NC State.

What if you have questions about this study?

If you have questions at any time about the study or the procedures, you may contact the researcher, Marcia Toms at mltoms@ncsu.edu or (###) ###-####.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919) 515-4514.

Consent To Participate

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Subject's signature_____ **Date** _____

Investigator's signature_____ **Date** _____

Appendix C: Interview Protocols

Interview 1

I'd like to start off by thanking you for participating in this study. Before we begin, I want to make sure you understand what is being asked of you and answer any questions you may have.

First and foremost: this is completely voluntary. Your decision to participate or not participate in this study will not affect your relationship with First Year College or NC State University in any way.

If you agree to participate, this will be the first of four interviews. This interview will likely be the longest interview. I am also requesting your permission to access your fall grades, and if you are enrolled for spring classes.

There are no foreseeable risks for participating in this study. Feel free to skip a question or discontinue the interview at any time if you wish.

There are no direct benefits to you for participating, but this research will help colleges better serve students.

All of your data will be kept confidential. I will use a pseudonym to refer to you in all notes and written reports. Any distinctive identifying characteristics will be changed in the final report as well. If you have a pseudonym you would like me to use, please let me know.

So, please take you time and read the full form. Let me know if you have any questions. If you agree to participate, please sign at the bottom.

Thank you for agreeing to participate. Here is your copy of the informed consent form. If you have any questions or concerns later, my contact information is on the form, as well as the university's compliance administrator.

I'm about to start recording.

[Begin recording]

Do I have your permission to record this interview?

Thank you.

1. Why don't you start by telling me a little about yourself?
2. And why did you decide to come to NC State?
3. This study is looking at how students change (or do not change) their study behaviors during their first semester in college, so I'd first like to understand a little more about your high school.
4. What were your science courses like in High School? Possible probes:
   4.1. Difficult?
   4.2. Number of tests?
   4.3. How did you prepare?
   4.4. Time spent on HW?
   4.5. Preparation for IB or AP?
   4.6. Lab reports?
   4.7. Anything else you'd like to share about this course?
5. What were your math courses like in High School?
   5.1. Difficult?
   5.2. Number of tests?
   5.3. How did you prepare?
   5.4. Time spent on HW?
   5.5. Preparation for IB or AP?
   5.6. Anything else you'd like to share about this course?
6. What were your history courses like in High School?
   6.1. Difficult?
   6.2. Number of tests?
   6.3. How did you prepare?
   6.4. Number of essays?
   6.5. What was your writing process like?
   6.6. Amount of reading per night?
   6.7. Time spent on HW?
   6.8. Preparation for IB or AP?
   6.9. Anything else you'd like to share about this course?
7. What were your English courses like in High School?
   7.1. Difficult?
   7.2. Number of tests?
   7.3. How did you prepare?
   7.4. Number of essays?
   7.5. What was your writing process like?
   7.6. Amount of reading per night?
   7.7. Time spent on HW?
   7.8. Preparation for IB or AP?
   7.9. Anything else you'd like to share about this course?
8. [If it has not come out:]

8.1. What did you do in High School when you found the material boring?
8.2. What did you do in High School when you found the material difficult?
8.3. What did you do in High School when you found the material irrelevant?
8.4. Did you keep a calendar in High School? To do list?

9. Great! Thank you. Now I'd like to move to questions about your upcoming semester:
10. What are some potential majors you are considering?
11. What courses are you taking this fall?
12. Take each course in turn:
    12.1. What do you think ___ will be like?
    12.2. Are you planning to do anything new for this course that you haven't done in high school?
13. What are your priorities as you come into college?
14. How prepared do you feel for college life?
15. Is there anything else you'd like to share?

Thank you again for your time. Here is a small thank you token for the university bookstore. I'll be in touch in a few weeks after you've gotten into the swing of classes to set up another interview. If you have any questions or concerns, please feel free to contact me.

Interview 2

Thank you for coming in again. Please remember that this interview is part of the research project we discussed last time. Would you like to review the consent form again? Do you have any questions or concerns about your participation?

I'll start the recorder now.

[Start Recorder]

Do I have your permission to record?

Thank you. So we'll get started.

1. Please tell me about how things have been going for your these few weeks
2. Have you changed your schedule at all?
3. Tell me about your ___ class [Go through questions for each class student is taking]
   - 3.1. What is the class like?
   - 3.2. How are you studying for this class? Possible probes:
     - 3.2.1. Tell me about your last study session for ___
     - 3.2.2. Where were you?
     - 3.2.3. What materials did you use?
     - 3.2.4. How long did you spend?
     - 3.2.5. Who, if anyone, did you contact?
     - 3.2.6. How did you know when you were done?
   - 3.3. Have you made any adjustments to your studying over the past few weeks?
   - 3.4. Do you have any particular method to help you?
   - 3.5. How successful do you feel with you studying for this class?
   - 3.6. What assignments do you have coming up in the next 2 weeks?
4. How do you decide where to spend your time? How do you decide what to do with the time you're not in class?
5. Does anything surprise you about the first few weeks?
6. Is there anything else you'd like to share?

Thank you again for your time. Here is a small thank you token for the university bookstore. I'll be in touch after fall break to set up another interview. In the meantime, if you have any questions or concerns, please feel free to contact me.

Interview 3

Thank you for coming in again. Please remember that this interview is part of the research project we discussed last time. Would you like to review the consent form again? Do you have any questions or concerns about your participation?

I'll start the recorder now.

[Start Recorder]

Do I have your permission to record?

Thank you. So we'll get started.

1. Please tell me about things have been going since we spoke last.
2. How is your ___ class going? [Go through questions for each class student is taking]
   - 2.1. Have you received any major grades back?
   - 2.2. How accurate have you been in estimating your test/paper grades?
   - 2.3. Have you changed how you prepare for this class at all?
     - 2.3.1. Where did you learn this strategy?
     - 2.3.2. How did you come up with this strategy?
   - 2.4. How are you studying for this class? Possible probes:
     - 2.4.1. Tell me about your last study session for ___
     - 2.4.2. Where were you?
     - 2.4.3. What materials did you use?
     - 2.4.4. How long did you spend?
     - 2.4.5. Who, if anyone, did you contact?
     - 2.4.6. How did you know when you were done?
3. What activities other than school work are you involved in?
   - 3.1. How much time do they take?
   - 3.2. Have you ever had a situation where you have to choose between school work and this activity? What did you do?
4. Who do you go to when you have a question about life in college?
5. What/who has helped you the most in adjusting to college life?
6. Has anything surprised you recently about college life?

Thank you again for your time. Here is a small thank you token for the university bookstore. I'll be in touch before finals to set up another interview. In the meantime, if you have any questions or concerns, please feel free to contact me.

Interview 4

Thank you for coming in again. This is the final interview for this project. I greatly appreciate your time this semester. Would you like to review the consent form again? Do you have any questions or concerns about your participation?

I'll start the recorder now.

[Start Recorder]

Do I have your permission to record?

Thank you. So we'll get started.

1. Please tell me about things have been going since we spoke last.
2. How is your ___ class going? [Go through questions for each class student is taking]
   2.1. Have you received any major grades back recently?
   2.2. How accurate have you been in estimating your test/paper grades?
   2.3. Have you changed how you prepare for this class at all?
   2.4. How are you studying for this class? Possible probes:
      2.4.1. Tell me about your last study session for ___
      2.4.2. Where were you?
      2.4.3. What materials did you use?
      2.4.4. How long did you spend?
      2.4.5. Who, if anyone, did you contact?
      2.4.6. How did you know when you were done?
3. How comfortable do you feel at NCSU at this point? Why do you think the transition to college life has been [easy/hard] for you?
4. As you look forward to next semester, are you planning to do anything differently?
5. Has anything surprised you recently about college life?

Once again, thank you for participating in this project. Here's a small thank you token for the university bookstore.

Appendix D: Coding Scheme from Zimmerman and Martinez-Pons's (1988)

Self-Regulated Learning Interview Schedule

- Self-evaluation
- Organizing and transforming
- 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
- Reviewing texts
- Other

Appendix E: Longitudinal Charts

Table E1: Anita

Course	1 Month		Fall Break			Before Exams			
	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Estimated Grade	Final Grade
Calculus	Going slow; peers haven't taken class; wants to move on	Test in about a week; Feel confident. Doesn't study for quizzes	Quizzes easy, last quiz = 100; First test 83	Seems ok with it. Knew didn't study for first test	Upcoming test in 1 week; should be easy	Doesn't remember 2nd grade; hasn't gotten 3rd back	Feel fairly good	B, but not sure	D
Biology	Boring; LearnSmart good for learning; quizzes easy	Test in 1 week; Feel pretty confident	C: caused her to switch to credit only before taking 2nd test	Switch to credit only; missed class recently	Already took test 2, estimate a B	Not sure what last grade was		S	U
English	Awesome; teacher so cool		First Paper B	Cool teacher		2nd paper = C; probably going to rewrite		Feel good about upcoming paper	B+
Psychology	All right.							S	S
UP 101	Ok. Not that helpful			Advisor great			Good	A	A
Basketball	Peers slow			Playing now		96 on skills test	Good, just had final	Estimate A	A-
Notes	Not challenged		Homesick, bored, missing class			Attending classes, but still homesick.			

Table E2: Bruce

Course	1 Month			Fall Break			Before Exams			
	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Estimated Final Grade	Final Grade
Calculus	1st: 88	still pretty easy	cruising	1st: 85, 2nd 98%	Test tomorrow, still breezing		3rd: 74		A/B+	B-
CH101		Just took test, not sure how doing		1st: 94	just took 2nd test	2nd test was hard: estimate 78	2nd: 64, 3rd 106	Worried about exam.	B, B-	B
History of Technology	Bad on first quiz (technical difficulties) better on 2nd	Boring		100 on last quiz	Fine, just long		22/25	Skimped on paper	A/B/B-	B-
Political Science	82	Test on Monday		1st: 82, 2nd: 95, 3rd: 99	Studied really hard to not have to take the final				A-/B+	A-
Basketball		Fine							S	S
UP 101		Easy			joke				A	A-
Notes	Relaxing a lot			Feels very adjusted			A little bit more stressed			

Table E3: Clayton

Course	1 month			Fall Break			Before Exams			
	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Estimated Final Grade	Actual Final Grade
Calculus	50s on two quizzes	Dropped calc 2; calc 1 prof going too fast	Thinks did well on recent test. Sudied really hard. Estimate 70	60% on first test. 88 on 2nd. Quizzes getting better too	Wants a B+; started studying and grades improved; used to pace	Not sure	75; thought it should have been at least 80 because studied hard for it	ok	C+/B-	B-
Prep Chem		favorite class. Like sapling, like prof	Feels fairly confident.	85	Just had test.	Worried about most recent test	64-2nd test, 84-3rd test		C+/B-	B-
Biology		Hate lab. "Boring pill bugs"	Not sure about upcoming test	85 on 1st test	Wants to drop because of lab		71, 71-ish	still hates class; finds it pointless	C+/B-	B-
Psychology		Like class. It's interesting.	test tomorrow. Hasn't studied	95 and 90 on tests	been bored in class		90	doing great	A+	A-
UP 101		Boring			Bored				A+	A+
Notes	Trying out a lot of organizations			Stopped going to organizations; Feels a little lonely			Accustomed to college rhythm; struggles with distractions; trying new strategies (study groups)			

Table E4: Erik

Course	1 Month		Fall Break			Before Exams			
	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Estimated Final Grade	Final Grade
Calculus	just took test. No studying beyond problems	feels pretty good about test	1: 88, 2: 78	84 or 88 in class	test coming up on Friday; feels ok about it	68		B	B-
Chemistry 101	test in 1.5 weeks	not sure about exam	1: 70, 2: 92	scared of 70 in chem		3rd: 70	Prioritizes Chem whenever possible	C	C-
English 101	paper due Tuesday	feels pretty good about assignment	1st paper: 70, 2nd: 76	has 80 in class and would like higher	feel ok about	C	Working on video project	C+/B-	B
Intro to Engineering Computing Environment	fine			Regraded some things, so has to take final now			Good. Took final and passed	S	S
UP 101	fine			Fine			Missed some assignments	B/B+	B
Notes	Going to a few clubs		Quiet, aware that time management could improve			Not much change overall			

Table E5: Kary

Course	1 Month		Fall Break			Before Exams			
	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Final Grade
Precalculus	Just had test Thursday, feels good		1st: A, 2: 99	Feel good		doesn't remember	math test right before thanksgiving; feels good	A	B-
Chemistry 101	size of class intimidating	1st test on Wednesday, a little nervous	1st: 94	going to SI now; just had last test	not as sure about last test	2: 54, 3: 95	worried about	B-	B
Sociology of Family	ok		1st: 87	Not interested in it. Don't like prof		Mid/high 80s	still don't like	B	B+
Rock Climbing				fun				A	A+
Accelerated Introductory Spanish	enjoying spanish		1: 92, 2: 88, 3: 95	Fun, A		last test: 92	Not going to take next class	A	A-
Intro to Engineering Computing Environment	Not clear what it is			dropped					
UP 101	Great						Good!		A+
Notes	Enjoying college; might join track team		Decided not to do track; hectic with some housing rearrangements			Chemistry still hardest class; overall still really positive			

Table E6: Lauren

Course	1 Month			Fall Break			Before Exams			
	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Estimated Final Grade	Final Grade
Calculus 2		Hates it. People talking behind	1st test coming Monday	1: 74, 2: 85	Feel better about it		3: 82; 4: thought would make 90, got 72 on last test	Doesn't get series and sequences	B+/A-	A-
Intro to Biology	93	Good		1st test: 85		Test on Thursday. Will start studying on Tuesday	71 didn't study at all	Lots of studying for final, got 93	A+	A+
Spanish Lit		Hates it, but thinks doing decent		100 on last quiz	Fine, still doesn't like it			Doesn't know when things are due	B-	B
English 101		Better than expected	ok, but could always be better	69 paper, 50 visual; 75 2nd paper	Doesn't like as much	Just turned in group project	89		A-/B+	B+
UP 101					Dread it			Didn't turn in many assignments	C	B
Notes	With HS friends more than wanted.			Wanted to study more in library. Missed some classes recently			Consistent up and down pattern. Still few new friends.			

Table E7: Sara

Course	1 Month			Fall Break			Before Exams			
	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Final Grade
Calculus	100, but stressed about it	professor funny	feels pretty good	1st: 100, 2nd: 100	Feels good		100 on 3 tests, skipped 4th test because lowest dropped		A/ A+	A+
Biology		most worried, likes professor	guess on last test: 80	1st: 80	Feels like won't get A, so changing to PF	just took 2nd test, feels like did better, at least 85	2nd: 91, 3rd: 68	Still worried about bio	B (if had taken for grade)	S
Environmental Science		same basic concept over and over	doesn't feel good about recent test	1st: 77, 2nd: 50	class is impossible	going to try better next time	3rd: 97		A/ A-	A
Psychology			mediocre	1st: 88, 2nd: 96	doing better than class average		88, 101, 88		A	A+
PE									S	S
UP 101									A+	A+
	Going to lots of clubs			Classes more intense; worn out from Biology			Excited about doing lots of interesting extracurricular activities with policy center and environmental science clubs. Still a little nervous academically			

Table E8: Thomas

Course	1 Month			Fall Break			Before Exams			
	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Recent Grades	Status	Upcoming	Final Grade
Calculus	poor 1st quiz	a little bumpy, but now ok	feels good about test he took a week ago	1st D, not happy about it; 2nd: 90 :)	hard. Getting better	3rd test tomorrow	C's on most recent tests	Doesn't feel good; hard stage now	Hoping for B will probably get C	C-
Biology		lots of information. Likes lab	Fairly good	87	Lots of info. Learning how to study	Feels a bit better about how 2nd test went	Other test grades high C/low B	Bio professor funny; loves lab	B	B-
Political Science	90 on 1st paper	Helpful since it's an election year	Feels pretty good	no new grades	writing intensive, enjoys class		Bs and As on papers		B, maybe an A	B
Psychology		Most interesting class	fairly good	87	Forces self to take notes in order to stay awake	just had 2nd test: estimate: 83	Doesn't remember		B	C+
English		coolest teacher	feel pretty good about 1st paper	90, 88	Feels pretty good			Still really likes professor	A	B
UP 101		Good			good				A	A-
	Studying hard. Wants to pledge.			Busy. A little overwhelmed by classes. Not pledging. Leadership position in homecoming events			Overall good semester. Looking forward to next semester.			