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Goal conflicts, self-regulation, and course completion: A comparison of web-based learners to traditional classroom learners

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Goal Conflicts, Self-Regulation, and Course Completion: A Comparison of Web-Based Learners to Traditional Classroom Learners

by

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ABSTRACT

The purpose of this study was to examine the goal conflicts, self-regulation, and course completion of post-secondary learners and to compare these factors in distance and traditional learners. Participants completed a self-report survey given on-line to those who had Internet access and administered in paper format to students in traditional classrooms. Procrastination, socializing, and employment were the most common goal conflicts reported by participants. Significantly more web-based students than traditional students were employed and were employed more average hours. Web-based students also had more children under the age of 12 than did traditional students. A significantly greater percentage of web-based participants than traditional students passed the courses included in this study. Web-based participants reported a significantly greater amount of self-regulation than did traditional students. Contacting the instructor for help and analyzing assignments contributed significantly to passing courses included in this study. Distinctions between distance learners and traditional learners are becoming less clear since some traditional courses have begun to offer web completion as an option. Many students who live on or near campus and who are otherwise traditional students now include web-based courses in their schedule.

Chapter One

Introduction

Web-Based Learners May Require Special Consideration

While distance education courses meet the needs of many students, web-based classes make special demands not required of traditional classroom students. The web-based learner must be responsible for instructional time management and technical access to instruction. This student must arrange for learning space within the home or work environment. The web-based student may need to practice more instructional self-regulation habits than does a traditional learner. Instruction takes place at home or in the workplace; therefore, the web-based learner may encounter more instructional goal conflicts or may feel their impact more than the traditional learner. This study will focus on the instructional self-regulation, instructional goal conflicts, and the course completion of post-secondary students. Additionally, it will compare these factors in traditional students to those of web-based students.

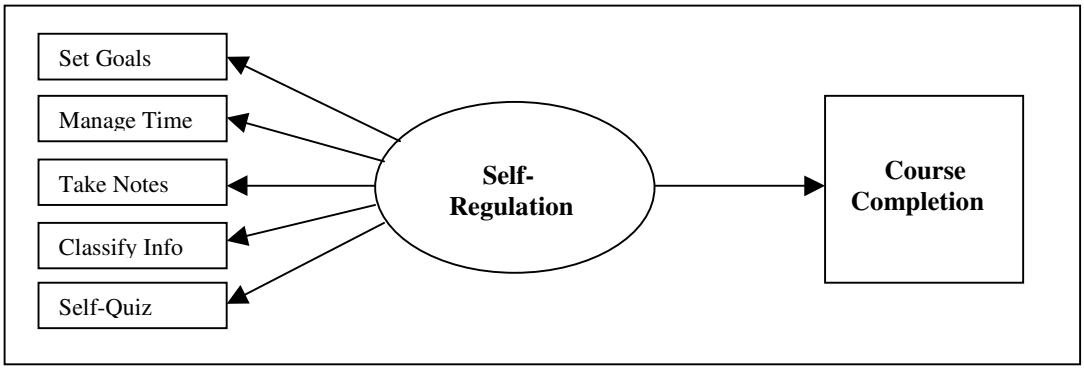
Instructional self-regulation is the pattern of behaviors or habits that students use to inquire information. Highlighting or outlining text information, making flashcards, and self-quizzing before an exam are examples of instructional self-regulation. Instructional goal conflicts are factors that may negatively affect student achievement because they conflict with or detract from learning goals. For example, a student may list one goal as the completion of a college degree. That same student may also have a

goal of putting the family first. The illness of a family member may become an instructional goal conflict for the student if he or she is required to spend considerable time caring for the family member. Corno, (1989), Schunk, (1998), Pintrich (2000), and others examined the effects of self-regulation and goal conflicts on traditional students. Instructional self-regulation and instructional goal conflicts for web-based learners may differ from those of traditional students.

Self-Regulation and Goal Conflicts in Traditional Classrooms

Research reveals that students in traditional classroom settings follow certain patterns of self-regulation in completion of tasks (Baum, 1997; Pintrich, 2000; Garcia, 1995; Zimmerman, 1990). Figure 1 illustrates some self-regulation habits that may affect course completion.

Figure 1. Self-regulation habits that may affect course completion.

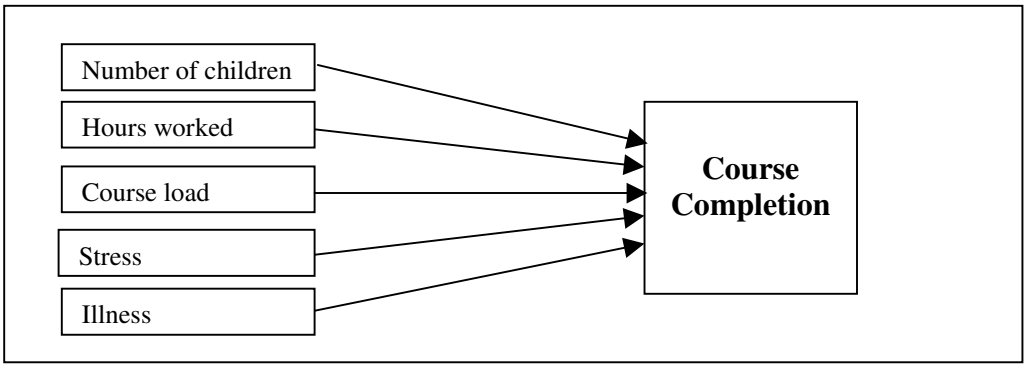


The self-regulation process consists primarily of goal-setting, goal pursuance, and monitoring of progress toward goals (Vancouver, 2000; Butler and Winne, 1995; Kerlin, 2000). Goals often conflict with one another (Nichols, 1998; Carver and Scheier, 2000; Hammer, 1998). Instructional goal conflicts are those conditions that hinder achievement because they conflict with student learning goals. Traditional students often encounter goal conflicts such as family problems, jobs, financial difficulties and

other factors (eCollege, 2000; Carver and Scheier, 2000).

Figure 2 illustrates a few of the instructional goal conflicts that may affect achievement and/or course completion.

Figure 2. Goal conflicts that may affect course completion.



Self-Regulation and Goal Conflicts for Web-Based Learners

Literature is sparse concerning self-regulation and goal conflicts in web-based learners. For distance education courses some self-regulation tasks are similar to those in traditional classrooms; however, differences exist due to the format of web-based learning. In addition to performing the self-regulation behaviors of traditional learners, web-based learners must also:

- Acquire appropriate access to technology
- Make schedules for learning at home or work
- Put aside people and activities at home or work during learning time
- Ask for help or check on grade standing via e-mail, or form virtual study teams via listserv, chat, email

The quality of instructional goal conflicts for web-based learners may be similar to

those of traditional classroom learners. For example, both traditional and web-based learners may have jobs, carry a heavy credit load, experience personal illness or illness of a family member, or have children that require their attention. However, due to the nature of their learning environment, usually home or work, web-based learners' perceptions of goal conflict magnitude may be greater than those same perceptions in classroom learners. Hence, web-based learners' family or job commitments may greatly impact their learning experience because they are learning in the home or workplace. However, web-based learners may enroll in distance courses because of additional goal conflicts that preclude taking traditional courses.

Completion Rates of Traditional and Web-based Learners

Findings regarding course completion rates and achievement for distance and traditional learners remain inconsistent. While Cohen, Ebeling, and Kulik (1981) reveal no variations in completion rates for visually based computer learners compared to traditional learners, Searcy (1993) and Hogan (1997) report that web-based learners exhibited higher course completion rates than traditional students. However, these studies were completed several years ago, and distance learning formats have evolved rapidly; findings regarding completion rates may vary today.

Results of a Pilot Study

In the fall of 2001, a pilot study was conducted at a major urban research university in the southeastern United States. Using a five-point Likert scale, participants completed a self-report survey of perceived goal conflicts and self-regulation. Both undergraduates and graduate students participated in the study. These included 171 traditional learners and 126 web-based learners in the College of Education in the study

university. Students who met with their instructors one or more times a week were considered traditional learners, while those who met with their instructors solely at the beginning and/or end of the course were deemed web-based learners. Participants were given the option of either completing the survey online or employing an identical paper and pencil survey. Data regarding student achievement or completion of the course was not collected for this pilot.

Using the SAS system, an analysis of variance using a general linear model (because the cells were unequal) compared the goal conflicts and self-regulation of web-based learners and traditional learners. Several significant variations between the two groups were revealed in areas that were considered goal conflicts or impediments to learning, as shown in Table 1. A more extensive description of the pilot study is contained in Appendix A.

Based on pilot study results various changes were made in the survey. Several goal conflicts were added at the suggestion of pilot study participants; some questions were omitted as they appeared either redundant or non-relevant when employing an exploratory factor analysis using SAS.

Table 1

Summary of Significant Findings in Pilot Study

Students reported:	*n*	*F*	Traditional *M*	Traditional *SD*	Web-based *M*	Web-based *SD*
Goal Conflicts						
Course-related stress	296	16.85***	2.87	1.29	3.50	1.35
Worried about demands of course	296	8.68***	2.68	1.27	3.10	1.71
Impact on coursework when illness or disability of friend/family member existed	295	7.45**	1.94	1.29	2.35	1.26
Self-Regulated Learning						
Related new information to old	295	5.81*	4.21	0.76	4.00	0.77
Re-read or studied notes prior to quiz or test	296	7.50**	4.56	0.77	4.31	
Joined study teams or virtual study teams	296	12.23***	2.26	1.23	1.79	1.02
Set daily or weekly goals as they worked	296	10.86**	3.32	1.19	3.75	0.99

*$p < .05$ **$p < .01$ ***$p < .001$

A design problem was encountered in the pilot study in that 117 of the 126 web-based learners were enrolled in four different educational psychology courses taught by one instructor, listed as Instructor I in Table 2. As also shown in Table 2, of the 171 traditional learners, 73 participants were in one undergraduate education course using the same content but having four different instructors. To overcome this design flaw, this study was planned to include web-based and traditional courses matched according to content. In addition, it was planned that each group would consist of a minimum of 500 participants and would contain a variety of courses.

Table 2

Pilot Study: Course Level, Instructors, and Numbers of Participants

Traditional learners						Web-based learners					
Undergraduate			Graduate			Undergraduate			Graduate		
Cse	Instr	n	Cse	Instr	n	Cse	Instr	n	Cse	Instr	n
T1	A,B,C,D	73	T2	E	38						
			T3	F	16						
			T4	G	28						
			T5	H	16	D1	H	2	D2	H	7
						D3	I	38	D4	I	17
						D5	I	34	D6	I	28

The Essential Ideas of This Study

The purpose of this study was to expand knowledge about the post-secondary learner by examining certain aspects of student learning experiences. The outcome measures included the following:

1. Number and perceived intensity of goal conflicts
2. Self-regulation
3. Course Completion

Also examined were the following:

1. The relationship of goal conflicts to course completion
2. The relationship of self-regulation to course completion
3. Differences between web-based students and traditional students in all categories of this list

The Research Questions for This Study:

1. What goal conflicts commonly arise for post-secondary learners?
2. Are there differences between post-secondary web-based learners and traditional learners in the number and perceived intensity of goal conflicts?
3. Is there a difference in the course completion rates of post-secondary web-based learners and traditional learners?
4. What is the relationship between goal conflicts and course completion of post-secondary learners?
5. Is there a difference in the instructional self-regulation of post-secondary web-based learners and traditional learners?

6. What is the relationship between the instructional self-regulation and course completion of post-secondary learners?

Answering the Research Questions

This study utilized a self-report questionnaire designed to identify learner perceptions of their own instructional goal conflicts and instructional self-regulation. The survey collected information about the number and types of goal conflicts, and the intensity of internal conflict experienced by students as a result of these goal conflicts. The instrument also allowed students to input self-regulation information such as whether they made schedules for assignment completion, used flashcards or practice quizzes, and contacted other students or the instructor for help.

A paper survey was administered in class to traditional learners, and an online version was made available for web-based learners. Traditional learners also had the option of participating online. Data was used only if the student's enrollment in a course included in this study could be verified. The questionnaire was administered during the seventh and eighth weeks after the course began. It was believed that participants would thus have had time to experience the factors in question and adjust to problems that arose early in the course. The questionnaire administration time period was also prior to the last date to withdraw without penalty.

At the end of the semester, course completion data was obtained from the instructors and each student's completion data was recorded as one the following:

- Completion with passing grade (P)
- Completion with failing grade (F)
- Withdrawal (or drop) (W)

- Incomplete granted by the instructor (I)

Subjects

The initial study data was gathered from self-reports of post-secondary undergraduate students enrolled in a major urban research university in the southeastern United States. Limited to students enrolled in undergraduate courses, the study included 604 web-based students and 540 traditional classroom students. Participants included 826 females and 318 males. Web-based participants were students who received their primary course instruction via the Internet. Traditional students were those taking courses in which the instructor met with students in person periodically.

Definitions

Asynchronous instruction. Instruction that occurs while the instructor is separated from the student by physical distance and time difference.

Distance education. Instruction that takes place with the instructor and student separated by physical distance and in some cases separated by time difference. For purposes of this study, distance education and distance learning are the same as web-based learning.

Distance learner. A student who is separated from his or her instructor by physical distance and in some cases separated by time difference. For this study, the distance learner is separated from the instructor by both time and physical distance. Either a very small amount or no real time communication occurs between instructor and students, with the exception of "chat" or chat-room meetings. For purposes of this study, the distance learner is the same as the web-based learner.

Goal conflicts. Factors that conflict with actions that an individual should be performing in order to achieve a goal.

Goal orientation. The tendency of individuals to be either task-oriented (carry out activities based on enjoyment of the task or learning) or performance oriented (carry out activities to win approval of others or gain extrinsic rewards such as degree or grades). Most individuals have some traits of each but will exhibit primarily one or the other.

Instructional goal conflicts. Factors that conflict with actions that an individual ordinarily performs to achieve an instructional goal such as course completion.

Instructional self-regulation. Self-management activities that an individual conducts to achieve an instructional goal such as course completion.

Motivation. Factors that drive or lead an individual to perform certain tasks or acquire a particular thought process.

Self-regulation. Self-management activities that an individual performs to set goals, implement them, and monitor ongoing progress.

Self-regulated learning. Self-management activities deliberately employed by a student to perform to learning tasks or acquire ideas.

Traditional classroom. A classroom in which instruction occurs with both teacher and students present periodically throughout the semester.

Web-based learner. A student who is enrolled in a course in which instruction is provided via the Internet; the student does not physically meet with an instructor except at the beginning and/or end of the course. For this study, the web-based learner is separated from the instructor by both time and physical distance. Either a very small

amount or no real time communication occurs between instructor and students, with the exception of "chat" or chat-room meetings. For purposes of this study, the web-based learner is the same as the distance learner.

Web-based learning. A type of Distance Learning Instruction that occurs via the Internet. Web-based learning in this study refers to courses in which the student does not physically meet with an instructor except perhaps for an orientation meeting and/or examinations. For purposes of this study web-based learning is the same as distance learning.

Chapter Two

Literature Review

Topics Covered in This Review of the Literature

Goal conflicts, self-regulation, and course completion were of specific interest in this study. Provided with a particular learning environment, why does one student complete a course while another fails at this task? What are the conditions that prevent a student from successfully completing a course at certain times? Past research on goal conflicts, self-regulation, and course completion all gave direction for this study.

Distance education brings special considerations for the learner. The defining characteristic of distance education is physical separation of the student from the teacher. Distance or web-based education, in the context of this study, is instruction that employs the Internet for primary instructor-learner interaction and does not utilize the traditional classroom setting except for orientation meetings and/or examinations. As there is little or no face-to-face teacher-learner interaction, the ability of the learner to self-regulate and the ensuing goal conflicts encountered are of great interest.

A review of the literature began with an examination of self-regulation and self-regulated learning. Included was literature concerning goals, goal conflicts, self-efficacy, procrastination, and task completion. This was followed by a review of research concerning distance or web-based education and a discussion of the instructional usefulness of distance learning. This chapter ends with a summary of

literature leading to the research questions of this study. Important considerations for survey research are reviewed in Chapter Three: Method.

Self-regulation

Self-regulation includes the process of behaviors that an individual follows in setting, monitoring, adjusting and achieving goals (Carver & Scheier, 1982; Jackson, MacKenzie, and Hobfoll, 2000; Demetriou, 2000). Self-regulation of the individual takes place within communities of individuals (Demetriou, 1996; Jackson, MacKenzie, and Hobfoll, 2000). Each person operates within communities consisting of families, co-workers, peers, and classmates, and each is influenced by those communities. Co-development of self-regulation occurs because of interactions within these communities (Demetriou, 1996; Jackson, MacKenzie, and Hobfoll, 2000).

Self-regulated learning. Self-regulation plays an important role in academic success (Baum, 1997; Pintrich, 2000; Garcia, 2000; Zimmerman, 2000). Pintrich and DeGroot (1990) studied 173 seventh graders from eight science and seven English classes. Using regression analysis they found that the significant predictors of the average grade ($r^2 = .22$) were self-efficacy (partial $r = .18$, $p < .02$) and self-regulation (partial $r = .22$, $p < .005$).

Shih (l997) examined the motivators of 99 students enrolled in two web-based non-major introductory courses, zoology and biology, through a Midwestern university in 1997. Thirty-two of the participants enrolled in these university courses were high school students. In a self-report survey using a five-point scale, students indicated their highest rated motivator was wanting to get better grades than other students ($M = 4.21$, $SD = 1.01$). The second highest rated motivator was expecting to do well in the class

(M = 3.77, SD = 0.84). Students also believed that they could do better if they studied in appropriate ways (M = 3.70, SD = 0.89). The study found that the most important factors in Web-based learning were motivation and learning strategies. These two factors accounted for more than one-third of student achievement and they correlated significantly with student achievement. Students who scored high on motivation and use of learning strategies scored higher in overall achievement.

Self-regulated learning includes metacognitive and behavioral strategies deliberately employed by students to enable task completion, including maintaining awareness of their learning processes and selecting and employing useful strategies. (Bandura, 1986; Zimmerman, 1989; Pintrich, 1995). Academic self-regulators choose practice techniques, memory aids, plan study time and place, ask relevant questions, and set goals (Baum, 1997).

Self-regulated learning includes three features: goals, actions, and assessment (Vancouver, 2000). In self-regulated learning, the learner creates new goals, creates means to attain or maintain the goals, and creates or changes ways to assess or perceive his or her current state. Self-regulated learners inspect situations, set goals, monitor progress, and provide internal feedback (Butler and Winne, 1995; Kerlin, 2000). Pintrich and DeGroot (1990) found that self-regulated learning consists of: "1) Student metacognitive strategies for planning, monitoring, and modifying their cognition… 2) Students' management and control of their effort on classroom academic tasks… 3) the cognitive strategies students use to learn, remember, and understand the material - for example: rehearsal, elaboration, or organizational strategies" (pg. 33).

Self-regulated learning is not easy to induce in the classroom context because

students expect teachers to set goals and follow up with motivation and monitoring. Boekarts and Niemivirta (2000) described characteristics of natural context learning, wherein self-regulation occurs simply and easily:

> First, natural learning episodes are often self-initiated or occur spontaneously. Second, they are cumulative, thus creating ongoing and unfolding learning experiences. Third, this type of learning is always socially situated. Fourth, it is driven by personal goals and therefore consequential in nature and affectively charged (p. 418).

Self-regulated learning contains the primary elements of goal setting and goal striving initiated by the learner. In traditional classrooms, self-regulation includes such practices as repeating information aloud, taking notes, rewriting notes, outlining text information, forming study teams, asking for instructor help, setting goals for time and tasks, scheduling assignments, self-quizzing or using available quizzes for practice (Winne & Perry, 2000; Pintrich & DeGroot, 1990). Self-regulation tasks for distance learners include similar tasks plus several that vary somewhat. They include such behaviors as acquiring appropriate access to technology, arranging time and place to "attend class" at home or workplace, making schedules for completion of tasks, asking for help or checking on grade standing via email, forming virtual study teams via listserv, chat, email, and using self-quizzes or automated online quizzes.

Demographic impact on self-regulated learning. Strage (1998) examined student-reported family backgrounds of university undergraduates and their self-regulation behaviors. Results suggested that the quality of students' relationships with their parents is predictive of their attitudes and behaviors regarding self-regulated

learning. Students who experienced secure, authoritative parenting were better at self-regulating behaviors than students who experienced insecure-ambivalent, authoritarian parenting. Strage's work pointed out that effects of family influence persist after students are no longer in close contact with parents.

Purdie, Douglas, and Hattie (1996) studied the differences in self-reported learning strategies used by Australian and Japanese high school students. The Australian students included 122 men and 126 women; Japanese students consisted of 98 men and 117 women. The researchers found cultural differences affected the students' conceptions of learning as well as their use of self-regulated learning strategies. Japanese students used memorization and rehearsal significantly more than their Australian counterparts. However, Japanese students were less likely to view learning as memorizing and reproducing. They used rote learning as a desirable route to understanding. Hannifin (1984 in Williams, 1996) implied that older students should have acquired more clearly developed learning strategies, therefore should display greater benefit of learner control (self-regulation) than younger students.

Goals and Goal Orientation

Goals are entities that guide the behaviors of individuals (Boekaerts & Niemivirta, 2000; Carver and Scheier, 2000; Barnhart, 1962; Meece, 1994; Hagen & Weinstein, 1995). Goals are generally regarded as attracting targets toward which efforts are directed (Sheldon, 1998; Hagen & Weinstein, 1995; Carver and Scheier, 2000; Meece, 1994).

Goal orientation, the quality of inner, often unstated goals that motivate students in their learning processes, was studied by Ames (1992), Dweck and Leggett (1988),

Dweck (1990), Harackiewicz and Elliot (1996, 1998), Pintrich & DeGroot (1990), Garcia (1995), Meece (1994), and others. Individual students exhibit a variety of goals and each student may be influenced by several goals at once. Examples of student goals include enjoying the material, scoring higher than everyone else in the class, enjoying the learning process, not failing the class, impressing one's family and/or friends, appearing smart, avoiding embarrassment due to ignorance, obtaining a better job, or hoping to comprehend the material. These goals and others, in some combination unique to the individual, compile the goal orientation of each learner.

Learner goal factors most recently were grouped into two primary divisions and, although given different labels by various researchers, they were similar in context (Boekaerts & Niemivirta, 2000; Pintrich, 2000; Hagen & Weinstein, 1995; Meece, 1994). The two major goal orientation classification groups are learning goals and performance goals. Learning goals are often called “mastery” or “task” goals and performance goals are also referred to as “ego centered” goals. Meece (1994) described two types of achievement goals. He first addressed learning-oriented or task-oriented goals, similar to Hagen and Weinstein's (1990) mastery goals, in which the learning process is valued. Secondly, he described performance-oriented or ego-oriented goals, which are similar to Hagen and Weinstein's (1990) performance goals, in which students seek to demonstrate high ability or gain favorable judgments of others. Learning goals are generally intrinsic motivators while performance goals are normally extrinsic (Dweck, 1990; Burns, 1998).

Learning goals acknowledge the student's value of learning the material, understanding ideas, learning new things, and valuing the information (Dweck, 1990;

Meece, 1994; Hagen and Weinstein, 1995). Performance goals are usually ego-centered goals, e.g. getting a good grade, attaining the top score, positively impressing family or friends (Dweck, 1990; Meece, 1994; Hagen & Weinstein, 1995). Learning goal and performance goal orientations are not mutually exclusive. While most students exhibit a combination of both mastery and performance goals, their predominant motivation factor will usually be one or the other (Hagen & Weinstein, 1995).

Each of the two major goal groups, learning and performance goals, can be further divided into two major groups called approach focus and avoidance focus goals (Carver & Scheier, 2000). Approach orientation goals pursue goals while avoidance orientation goals avoid failure. An example of an approach focus goal is the student goal to complete the course with a B or better. An example of an avoidance focus goal is the student goal not to fail the course.

In identifying and quantifying goal orientation, researchers employed various instruments, the most popular being the Motivated Strategies for Learning Questionnaire, referred to as MSLQ (Pintrich & De Groot, 1990). This instrument asks students to respond to a self-report questionnaire and quantifies the data using a Likert scale.

Pintich, DeGroot and others have studied goal orientation as it relates to self-regulation for traditional students. Their work revealed that students who are learning goal oriented acquire more efficient patterns of self-regulation compared to those who are performance goal oriented (Pintrich, 2000; Hagen & Weinstein, 1995). The higher the degree of self-regulation, the greater the learning achievement (Pintrich & De Groot, 1990). Meece (1994) asserted that the study methods students employ and what they

remember are influenced by achievement goals. She discovered that students learn best "when they focus on mastering the task at hand rather than competing with others for grades and teacher approval" (p 41).

For students in traditional classrooms, both young children and college students with mastery goals remain on task longer and use advanced strategies compared to those with performance goals (Hagen & Weinstein, 1995).

Burley, Turner, & Vitulli (1999) examined the relationship between age and goal orientation in undergraduate students enrolled in a southern university. They analyzed the data of 199 participants, whose ages ranged from 17 to 59 years, in two age groups. The younger group, mean age = 19.7 years, (SD = 1.7), included 117 participants and the older group, mean age = 36.2 years, (SD = 8.8) included 82 participants. These researchers found a significant correlation between age and learning orientation, $r(199) = .23$, $p < .001$. Their findings indicated that the older students tended to have higher learning-orientation scores than the younger students. Although the relationship was not as strong for performance orientation, $r(199) = -.13$, $p = .08$, it indicated that the younger students had higher performance-orientation scores than the older students. Using age (younger or older) as the independent variable and learning orientation as the dependent variable, the researchers conducted an analysis of variance. The mean score for learning-orientation in the younger group was 3.8 and the mean score for learning orientation in the older group was 4.0, indicating a significant difference, $F(1, 197) = 4.75$, $p = .03$. When the researchers examined age and performance orientation, they found no significant main effect for age, $F(1, 197) = 1.02$, $p = .31$.

Emotions such as task anxiety, test anxiety, and anger directed at the task or the

instructor may negatively impact student motivation (Ames C., 1992; Hatzigeorgiadis & Biddle,1999; Ntoumanis, 1998; Boekaerts, 1993). Emotions drive, determine, and predict goal orientation, rather than goal orientation preceding or determining emotion (Boekart, 1993; Seifert, 1995; Ntoumanis, 1998).

Student value of the task is the component of motivation in which the student consciously or unconsciously asks, "Why am I doing this task?" Student value of an academic task has been shown to have significant effect on student learning behaviors (Dweck & Elliott, 1983; Paris & Oka, 1986). Students who retain high value for the task and are oriented toward mastery of content are likely to persist in the task, engage in metacognition, and employ cognitive strategies (Ames & Archer, 1988; Dweck & Elliott, 1983; Paris & Oka, 1986).

Goal conflicts. Goals sometimes conflict with one another (Nichols, 1998; Carver & Scheier, 2000; Hammer, 1998). A goal to master a learning task may conflict with a goal to maintain family bonds. A goal to earn the highest grade in a course may conflict with a goal to please peers.

If one considers multiple goals, conflicting or non-conflicting, as variables affecting behaviors of individuals, a person may imagine that an event in pursuit of one goal may affect pursuit of another goal. The goal to complete college may conflict with the goal to keep a job. In 1995-96, over 50 percent of all undergraduates worked an average of 25 hours per week to pay school expenses (NCES, 1998). The report also states that the greater the number of hours worked, the more likely students reported that working negatively affected their grades. Sixty-eight percent of the students enrolled in distance learning courses work more than 30 hours per week (eCollege, 2000).

Hammer (1998) mailed a survey to 1000 part-time and full-time students who attended an urban university in the western United States for at least two years but no longer than four years and who were at least 22 years old. Participants completed and returned 375 of the surveys. High degrees of work-school conflict correlated with higher numbers of hours worked, lower levels of perceived effectiveness of support services (tutorial services, child-care, student legal services, etc.), and lower levels of satisfaction with educational experience. High levels of family-school conflict correlated with higher numbers of children and higher numbers of credits taken.

Tubre (1985) completed a meta-analysis of the relationships between role ambiguity, role conflict, and job performance. His research revealed a negative relationship between role ambiguity (expectations surrounding the job role) and job performance, but only a negligible relationship between role conflict (incompatibility of job demands) and job performance.

Procrastination

Upon viewing a series of studies concerning personalized systems of instruction (PSI), Ferrari, Johnson, and Williams (1995) reported that when left entirely to their own time schedule, students tended to procrastinate to the detriment of their completion rate or retention score. Majchrzak (2001) studied deadline contingencies in 181 pre-service teachers who participated in a content-on-demand course, similar to PSI. She reported that students who have contingency deadlines (bonus and penalty points for early or late submission) for assignments have higher posttest achievement ($M = 47.22$, $SD = 22.65$) than those who have only one deadline for all assignments ($M = 39.13$, $SD = 22.16$). A high degree of procrastination existed in students who needed to have all assignments

turned in at the end of the course with no bonus for early or late submission.

In a study of 104 college students, Saddler and Buley (1999) discovered the following predictors of procrastination: test anxiety, socially prescribed perfectionism, beliefs that outcomes are contingent on one's own efforts, fear of negative evaluation, and low personal standards for achievement. Haycock, McCarthy, and Skay, (1998) studied the relationship of self-efficacy, anxiety, age, and gender to procrastination in college students. They realized that procrastination was significantly and inversely related to self-efficacy. Additionally, while apparently not related to age or gender, procrastination was significantly and positively related to both state and trait anxiety. Ferrari, Johnson, and Williams (1995) examined theory and research concerning procrastination. They discovered that academic anxiety, irrational beliefs (inappropriately high standards), and low self-esteem were all positively related to procrastination.

Course Completion

There are mixed findings about course completion rates for distance and traditional learners. In 1981, Cohen, Ebeling, and Kulik reported no difference in completion rates for visually based computer learners when compared to traditional learners. Searcy (1993) stated that course completion rates may be higher for distance learners than traditional learners. Hogan (1997), in a study of 11 courses involving 220 distance learners and 457 traditional learners, discovered distance learners had a higher course completion rate than traditional students (75% for distance learners compared to 72% for traditional learners). However, withdrawal rates were higher for distance learners (21%) when compared to traditional learners (19%).

Sinclair Community College (1999) compared the completion and grades of 651 traditional students to those of 651 distance learning students. The groups were matched according to demographics and course. More traditional learners (70%) than distance learners (55%) completed with a passing grade. More distance learners (21%) than traditional learners (15%) withdrew. Distance learners in this study included web-based students and students who attended live-interactive off-campus distance classrooms via satellite.

Hara and Kling (2000) did a qualitative study in which they observed graduate students enrolled in a text-based distance learning course. In this study students experienced distress due to the format of the course on several occasions. Of the eight who started the course, two dropped out due to technical difficulties. This study addressed the difference in course-related distress and frustration experienced by distance learners compared to that of traditional learners, and the relationship of distress and frustration to the course completion rate.

Self-Efficacy

Self-efficacy is perceived capability to perform a given task (Bandura, 2001). Self-efficacy often presents a positive correlation with achievement (Schunk, 1985; Paris & Oka, 1986; Andrew & Viale, 1998; Zimmerman & Pons, 1990; Pintrich & DeGroot, 1990; Pajares & Schunk, 2001). Additionally, several researchers suggest that self-efficacy in distance learners is positively correlated with achievement (Miltiadou, 1999; Zhang et al, 2001). Self-efficacy may represent a major predictor of using self-regulatory learning strategies (Zimmerman & Pons, 1990). Hagen and Weinstein (1995) established that instructions to students are vital: those who believe that a task is do-able

with effort maintained high efficacy, set challenging goals, and employed appropriate learning strategies.

The self-efficacy beliefs of an individual are based on mastery experience, the vicarious experience of the effects produced by the actions of others, verbal persuasions of others, and the physiological state (Pajares, 2001). The measurement of self-efficacy for a given task involves three dimensions: level of task, strength of belief, and generality, that is, how closely the particular belief corresponds to the particular outcome (Pajares, 2001). Items in a self-efficacy instrument should be worded in terms of "can", which indicates capability, rather than "will", which indicates intention (Pajares, 2001; Bandura, 2001).

Using the Internet for Distance Education

Internet use promotes learning despite the physical separation of student and instructor, and each can participate or interact at separate times. Therefore, it appears an ideal medium for wide distribution of learning tools in a variety of circumstances. Concurrently, this format introduces special requirements for student motivation and self-regulation. Although there remains slight documented evidence in favor of web based instruction (Reeves & Reeves, 1997), "Distance education … is regarded internationally as a viable and cost effective way of providing individualized instruction." (McIsaac & Gunawardena, 1996).

Cavanaugh (1998) performed a meta-analysis of data from 19 studies of the effects of interactive distance education on K-12 learning. In comparing the achievement of 929 participants, she revealed a small effect size (0.147 with a ninety-five percent confidence interval from -1.113 to 1.407) in favor of distance education. She did,

however, discover a large negative effect size (-0.801) for language instruction via distance education. When she analyzed the data without the effects of language studies, the overall effect size of interactive distance learning on K-12 learners was 0.344 (with a ninety-five percent confidence interval from -0.686 to 1.374), a positive effect in favor of interactive distance learning.

There are several particular features of the Internet that impact greatly on education. These include an asynchronous communication environment (referring to both time separation and physical distance), rapid retrieval of information, hypertext (hyperlinking), virtual reality, and variation in format. While these features promote significant diversity in learning dynamics, they also introduce special circumstances that impact student motivation and interaction. Because the defining characteristic of distance education is the physical separation of the student from the instructor, and because a time differential in student-teacher participation is possible, the crucial feature of distance education is this asynchronous communication environment.

Asynchronous communication environment. The term asynchronous formerly referenced time differences but the advent of the Internet elicits new uses for the term, uses that refer to physical distance as well as time separation. Asynchronous communication environments exist when interaction events occur at various times and places. Asynchronous communication allows instruction to occur while student and instructor are in different places and interacting at separate times (Cartwright, G. P., 1994). When communication events on the Internet occur simultaneously, they are said to occur in real time. A person watching a live television broadcast is seeing it in real time. When people are speaking to one another face to face or on the telephone or in a

chat room, they are communicating in real time. Movies, taped television shows, letters sent in the mail, e-mail, and web pages are all forms of communication that are not in real time. Instruction can occur in both modes.

Instruction can also occur when teacher and student are in the same place, such as a traditional classroom, or not in the same place, as in televised courses or courses posted on the Web. Additionally, the Internet allows instruction to occur long after the instructor posted it on the Internet. The Internet makes possible four categories of time and place communication relationships: Same time-same place, same time-different place, different time-same place, and different time-different place (McIsaac and Gunawardena, 1996). Table 3 lists major variations of distance education in these four time-place categories.

Asynchronous instruction via the Internet offers tremendous potential for changing the structure of education. While correspondence courses available through the mail previously offered asynchronous instruction, the variation in learning formats offered by the Internet illustrates a marked improvement over the limited possibilities of the past.

Table 3

Time and Place Categories in Distance Education

Time-Place Relationship	Examples
Real Time ------- Same Place	Web enhanced instruction (in classroom)
Real Time ----- Different Place	Real Time text-based (chat, moo, mush, mud)
	Television-transmitted distance education
	Teleconferencing (audio, visual)
Different Time ------- Same Place	Web enhanced instr (same room, different times)
Different Time ----- Different Place	Television-transmitted distance education
(Asynchronous)	E-mail or other correspondence school
	Web-managed courses
	Web-delivered instruction
	Web-managed, web-delivered instruction

Variation in learning environment. There are numerous formats for delivery of instruction via the Internet. Examples include web-enhanced instruction (using the Internet to extend traditional classroom instruction), teleconferencing, web-managed instruction, web-delivered instruction, and web-managed/web-delivered instruction. One of the most practical ways of sorting and classifying the formats for distance education is to examine time and place relationships of the primary human participants: teacher and learner (See Table 3).

Rapid retrieval of information. The Internet offers momentary retrieval of information from a wide variety of resources. Research data and other information are

available through the efforts of government agencies, universities, libraries, private and public organizations, corporations, and individuals. Additionally, numerous sites offer free services such as e-mail, search engines, web site space, and chat rooms. One can locate information on prescription medicines and insurance rates, locate and print out maps, and find courses offered on-line through universities. Many other services are offered at low cost: banking services and on-line stock market purchases are available on the Internet.

Search engines, which are services for searching the Internet, make locating information or services fairly simple. E-commerce, or sales through the Internet, represents a growing part of American commerce. Accessing nearly unlimited information through the Internet is a vast improvement over physically going to a library or a series of libraries for needed data or others' research material.

Hypertext/hyperlinking. One of the most powerful features of the Internet is hypertext or hyperlink. Hypertext allows the user to navigate from place to place within a document, from document to document, and from computer to computer. If a link is available, it appears as underlined text or a navigational object, such as a button or icon. By clicking on underlined text or an icon or button, the user moves to another area in the document or to another document, which may reside in another computer. Hypertext allows users to seek information on an as-needed basis. This feature is particularly useful to students and researchers.

Henry and Worthington (1999) reported that hypertext provides positive cognitive benefits for learners. Students learn the following information:

1. There is more information than appears on the immediate page.

2. There is complexity in information.
3. Their immediate knowledge is part of the complexity.
4. Their knowledge is context dependent.

With hypertext, there are inexhaustible amounts of pertinent information. Hypertext allows otherwise linear text to become flexible and adaptive. Using linear text in instruction, the information is presented in the amount and quality decided by the teacher; the teacher decides the correctness. With hypertext, there is not always one correct answer: the answer is context dependent. Multiple understandings are possible (Henry & Worthington, 1999).

A drawback to educational use of hypertext includes student distraction from the initial topic. Unlimited use of hypertext may introduce time constraint problems and specific parameter issues with an instructional unit. The student may not be able to complete needed objectives if all hypertext links prove engaging.

Virtual reality. Virtual reality is "an interactive environment in which the learner is projected into a complete computer-generated world which responds to individual movement and actions" (Sims, 1995). Virtual reality environments constructed from animation or photography are commonly available on the Internet. The computer monitor may reveal a simulated or photographed location and the user experiences a sense of existing in that other place. By manipulating the keyboard or mouse, the user may seem to “turn” around and view the surroundings.

The educational use of virtual reality remains unexplored, yet the potential is unlimited. A quick search for the term "virtual reality" with an Internet search engine produces several sites. Web sites now offer virtual tours of famous buildings, scenic

landmarks, and homes that are for sale. Instructional sequences using virtual reality place learners in environments that closely resemble reality and allow them to manipulate and explore these surroundings. Other examples of virtual reality sites on the Internet include museums, art galleries, flight simulators, and science lab projects. Virtual reality offers a high degree of learner control, interactivity, and an open-ended learning environment, blending well with constructivist learning theory.

The Internet and constructivist learning theory. "Constructivists believe that our personal world is constructed in our minds and that these personal constructions define our personal realities" (Jonassen, 1995). A paradigm shift occurred recently in learning theories. That shift was enhanced by the advent of the Internet and its advantages for distance learning. Previously, the quality of learning was a function of how well the student reproduced the thinking of the instructor (Jonassen, 1995). In recent years, constructivist learning theories have emerged: quality learning consists of that which is discovered by the learner – knowledge is constructed. Constructivist learning theories focus on discovery learning that is specific to each instructional situation (Bruner, 1966; Jonassen, 1998). Piaget's work represents a constructivist nature: consider his developmental stages and his belief that cognition develops in an ongoing fashion as the learner develops and interacts with the environment (Kearsley, 1998).

Jonassen, in an interview with Gibson (1998), lists the primary concepts of constructivism as follows:

1. Knowledge is constructed.
2. Reality is in the mind of the knower.
3. There are multiple perspectives on the world.

4. Knowledge is built from interactions with the environment.
5. Knowledge is anchored in and indexed by relevant contexts.
6. Knowledge cannot be transmitted. "Knowledge is not an external entity that is in the physical world to be transmitted by teachers and acquired by learners, but rather it is a conscious, intentional act of meaning-making" (Gibson, 1998 p. 69).
7. A problem, question, need, or desire to know stimulates knowledge construction. People can memorize ideas that others reveal, but to construct meaning requires desire or need to understand information given by others.
8. Meaning is also socially negotiated and co-constructed. As the physical world is shared by everyone, so is some of the meaning that people interpret from it. Humans are social creatures who rely on feedback from other humans to determine their own existence and the veridicality of their personal beliefs.
9. Meaning and thinking are distributed among the culture and community.
10. Not all meaning is created equally. Nor is all meaning equally valid. The litmus test for the knowledge that is constructed by individuals is its viability in the community of practice in which people are engaged (Gibson interview with Jonassen, 1998, p. 68-69).

According to constructivist theory, knowledge equals nonspecific information that the learner constructs: it varies according to the learner and is relative to the particular situation. The learner, presented with a problem to solve, works individually or in collaboration with cohorts and constructs knowledge from the environment. The specific body of knowledge acquired is particular to the individual and remains largely dependent on the learner's cognitive developmental state.

Activity theory (Jonassen, 1998) emulates constructivism, as learning and activity are interrelated. Learning occurs as a result of the activities in which people engage. As an example, Jonassen suggests that people who are engaged in work activities will learn from experiences and tools they encounter while trying to work more effectively (1998).

Several features of the Internet that coordinate with constructivist learning theories include hypertext and massive amounts of readily available information. Henry and Worthington (1999) assert that traditional education consists of certain defined structures of knowledge that must be mastered by the student. Using hypertext introduces evolving comprehension in which the users realize that a knowledge structure is a simple intellectual jumping-off point from which the learner must construct unique and personal knowledge, building context-dependent meaning (Henry & Worthington, 1999).

Open-ended learning processes require vast resources to ensure that learners not experience unnecessary restrictions. Readily available information on demographics, history, law, health, education, government, social and cultural concerns define the Internet as the world's largest "library." The teaching task, according to constructivist theory, creates environments in which the student may discover and construct useful information. Constructivist learning theories require new instructional designs. The distance learner must identify and use information deemed helpful, yet, the lack of specific direction may be detrimental.

Problems with instructional use of the Internet. Educational use of the Internet is not problem free. This study addresses problems incurred or magnified by asynchronous

communication. Web-based classes create special demands on learners because students are separated from their instructor by both time and physical distance. The distance learner must cope with various aspects of motivation, self-regulation, and goal conflicts to a somewhat greater degree than the traditional student. McIsaac and Gunawardena (1996) state that "Although adults possess a high degree of motivation, the technology associated with distance education, coupled with the distance separating the student and instructor, leads to high degrees of anxiety." (p. 424). As previously mentioned, another problem with educational use of the Internet emerges in the form of student distraction. Unlimited use of hyperlinks may lure students away from required readings. Further, the distance learner may incur more circumstances that interfere with learning motivation than does the traditional classroom student. For example, the distance learner may experience computer equipment problems, live in a noisy household, or not manage time well. Several studies in the 1980s revealed that over 60% of adult distance learners were married, over 70% had full time jobs, and over 60% were paying for their own education (McIsaac & Gunawardena, 1996). While these factors may also be true for the traditional learner, they may particularly impact distance learners because learning occurs amid home or work distractions rather than in the traditional classroom.

One of the greatest social problems today is the “digital divide,” the growing disparity in access to technology between social and racial classes in America. Fewer people living below the poverty level have computers and Internet access in their homes than those living at or above the poverty level. Employing 1997 Census Bureau statistics, the National Telecommunications and Information Administration (NTIA) released a report titled "Falling through the net II: New data on the digital divide"

(NTIA, 1999). Compared to 1994 statistics, the income variation between high and low-income families greatly increased over time. Those who could most benefit from access to the Internet, minorities, those with low incomes, and individuals lacking a high school diploma, are least likely to have Internet access (NTIA, 1999). Yet, lack of information services forces people to live continually in poverty.

A particularly deleterious aspect of the Internet includes dangers for immature people. According to 125 researchers and developers who met to pool ideas concerning the Internet, young people with unguarded Internet access may encounter harmful situations. Roschelle and Pea (1999) described the primary issues discussed at the workshop:

1. Pedophiles who make contact with children through the Internet create physical danger.
2. Access to unlimited information represents a common dilemma.
3. A steady stream of unedited advertising accompanies most public web pages.

The Internet workshop was a project of the Center for Innovative Learning Technologies (CILT), which is funded by the National Science Foundation. The CILT workshop participants identified other Internet problems related to education:

1. Most Internet educational resources have not matched or integrated well with existing K-12 curricula, state or national standards. There is need for a uniform metadata (system of descriptors) standard.
2. One may easily find information on the Web, but it is not easy to construct knowledge using today's Web tools.
3. Hardware and software are expensive.

4. Teachers experience difficulties when integrating Web collaboration environments and fostering higher order thinking skills using the Web under current teaching conditions (Roschelle and Pea, 1999).

Several researchers investigated motivation in on-line learning. Results revealed that the highest motivator for Web-based courses include high performance expectations (Shih, 1997). Recall that in his study (n = 99), students indicated their highest rated motivator was that they wanted to get better grades than other students (M = 4.21, SD = 1.01). The second highest rated motivator was that they expected to do well in the class (M = 3.77, SD = 0.84). Hara and Kling (2000) studied students' distress in a web-based distance education course and found the two main sources of student distress were technological problems and confusing teacher instructions.

Summary of Pertinent Literature

The Internet offers a wide variety of instructional delivery formats. Students may complete courses from their homes or other location at convenient times. Distance learners' requirements differ from those of students who participate in traditional classroom settings. Distance learners must be responsible for self-motivation and self-regulation, and must resolve goal conflicts and technical equipment problems.

Goal conflicts often interfere with student ability to achieve learning goals. Several studies supplied information describing the goal conflicts of traditional students. Few studies are available concerning the goal conflicts of distance learners. The quality and importance of goal conflicts for distance learners may differ from the quality and importance of goal conflicts for traditional classroom students.

Self-regulation remains a crucial factor affecting student achievement. Self-

regulation for distance learners resembles that of traditional learners. However, it includes additional factors: acquiring appropriate access to technology, arranging time and place to access coursework, forming virtual study teams via listserv, chat, email, etc., and using self-quizzes or automated quizzes. Additional self-regulation factors for distance learners may exist, but few studies in distance learner self-regulation were reported. The effect of self-regulation on achievement may not affect distance learners as traditional learners; additional studies of distance learners and their self-regulation will expand this knowledge base.

Suggested Future Research

Boekarts and Niemvirta (2000) suggested the following future research for self-regulated learning: (1) Investigation of differences between self-regulated learners and learners who are not self-regulated. (2) Investigation of how multiple feedback loops operate and interact in learners. (3) Investigation of learners' interacting control systems… "the nature of conflicting goal processes in classrooms…and… the effect of social forces (social control) on the individual's learning" (p. 446). Zeidner, Boekaerts, and Pintrich (2000) suggested clarifying self-regulation structure and processes, exploring interactions between the environment and self-regulation and examining individual differences in self-regulatory skills. Rheinberg, Vollmeyer and Rollett (2000) proposed two aims for further research in self-regulated learning: a search for mediating variables in various situations and learning tasks, and a search for ways to overcome aversive learning activities.

Covington (2000) suggested further research on the impact of cultural values on the goals of schooling and pathways to personal excellence. He also recommended

further research addressing the various motives that operate simultaneously in any achievement setting - those constantly changing motives and the effects of their relative strengths as they impact achievement. Additionally, Covington suggested further research into the learner's valuation and appreciation of learning tasks and motivation present in individual academic pursuits.

Seifert (1995) recommended further research into clarifying goals students pursue, the emotions associated with learning experiences, and the relationship between those emotions and learning goals. Pintrich (2000) proposed defining these goals and measuring the self-regulating processes. He further proposed research defining personal characteristics and potential moderator relationships as well as the role of multiple goals. These investigations would enhance research of both traditional educational settings and distance learning. The rapid growth of distance education courses requires examination of distance learners' goal conflicts; this expanded knowledge base will improve the quality of on-line courses and increase the likelihood of student success.

Implications for This Study

Perhaps surroundings and circumstances affect learner self-regulation. This study clarifies self-regulation processes and explores interactions between the environment and self-regulation. This inquiry also addresses the effects of instructional self-regulation and instructional goal conflicts on course completion.

Previous investigation of learner motivation, goal conflicts, and learner self-regulation centered mainly on the traditional classroom student. The growth of distance education in recent years has been exponential; therefore, it is appropriate to extend the knowledge base concerning the distance learner. As the learning environment of the

distance learner varies greatly from that of the traditional student, the factors that affect course completion may differ from those of the traditional student.

Examination of the literature and suggestions offered by past researchers led to the following research questions, those that have been pursued by this study. Chapter Three: Method of this document describes the procedures followed for answering these questions.

Research Questions

1. What goal conflicts commonly arise for post-secondary learners?
2. Are there differences between post-secondary distance learners and traditional learners in the number and perceived intensity of goal conflicts?
3. Is there a difference in the course completion rates of post-secondary distance learners and traditional learners?
4. What is the relationship between goal conflicts and course completion of post-secondary learners?
5. Is there a difference in the instructional self-regulation of post-secondary distance learners and traditional learners?
6. What is the relationship between the instructional self-regulation and course completion of post-secondary learners?

Chapter Three

Method

Study Overview

Data gathered in this study of post-secondary students contained information regarding the instructional self-regulation, instructional goal conflicts, and course completion of post-secondary distance and traditional learners. Course completion consisted of completion with passing grade (P), completion with failing grade (F), withdrawal (W), or the granting of an incomplete (I) by the instructor.

Participants completed a self-report questionnaire designed to ascertain perceptions of their own instructional goal conflicts and instructional self-regulation. Traditional learners completed a paper survey in class and distance learners employed an online version of the same survey. The study included 540 traditional participants and 604 web based participants.

Time Table

May – Aug. 2003. Made arrangements for courses, contacted instructors

Aug 25. First day of classes

Sept 4. Obtained enrollment numbers

Sept 29 - Oct 2. Instructors announced survey to occur in weeks seven and eight

Oct 3. Made online survey available; notice sent to web-based students

Oct 6 - Oct. 17. Survey given to traditional classes

Oct 13. Reminded web-based students of survey deadline (start of 8th week)

Oct 20. Made online survey unavailable

Oct 31. Drew names of winners in office of Secondary Ed

Dec 15, 03 - Jan, 04. Obtained completion information: P, F, W, I

Included Courses

The study included eleven courses that were taught simultaneously as web based and traditional courses. The courses existed within the Colleges of Education, Arts and Science, Business Administration, and Nursing. Video-conferencing courses were not included because it was believed that video conferencing students might perceive close contact with their instructors and might possibly participate in classroom settings similar to traditional classroom settings. Table 4 shows the number of students enrolled in the course two weeks after classes began, the number of study participants for each instructor in each course, and the number for whom completion data was available.

Subjects

Subjects for this study were post-secondary undergraduate students enrolled in traditional and web-based distance learning courses in a major urban research university in the southeastern United States. Distance learning subjects included only students who were receiving their primary course instruction via the Internet and who did not meet with their instructor in person except for an orientation meeting and required examinations. Traditional students were those who were enrolled in courses in which the instructor physically met with students periodically throughout the course. Several courses that were scheduled to be traditional courses had the potential to become distance courses since students were not required to attend, except for the final exam,

Table 4

Courses and Instructors, Enrollment, Participation, and Completion

		Number of Participants					
		Classroom Based			Web-based		
Course	Instructor	Enrollment	Participation	Completion	Enrollment	Participation	Completion
1	A	198	97	59	75	23	15
2	B	63	9	8	0	0	0
2	C	28	2	2	0	0	0
2	D	30	3	3	0	0	0
2	E	0	0	0	38	7	7
2	F	0	0	0	36	8	7
3	G	90	70	69	0	0	0
3	H	31	17	17	0	0	0
3	I	30	16	16	20	12	12
4	I	55	51	39	0	0	0
4	J	0	0	0	28	17	12
5	K	48	39	39	0	0	0
5	L	0	0	0	30	6	5
6	M	0	0	0	25	13	13
6	N	30	18	18	0	0	0
7	O	15	4	4	0	0	0
7	P	0	0	0	24	7	7

Table 4 (continued).

		Number of Participants					
		Classroom Based			Web-based		
Course	Instructor	Enroll-ment	Partici-pation	Com-pletion	Enroll-ment	Partici-pation	Com-pletion
8	Q	90	43	43	90	5	5
9	R	25	16	16	0	0	0
9	S	50	37	37	0	0	0
9	T	32	31	31	0	0	0
9	U	0	0	0	880	477	477
10	V	112	68	60	0	0	0
10	W	145	66	63	0	0	0
10	X	0	0	0	28	21	19
11	X	25	16	16	28	26	25
	Totals:	1097	603	540	1302	622	604

and were able to submit assignments via the Internet. Students were categorized as traditional or web-based students according to their answers to several questions within the survey and instructor answers to questions regarding their course.

Inclusion of participants. To be included in the study, participants were required to be enrolled in courses included in the study. In both cases, traditional and distance learning, data was included only if the student's enrollment in a course included in this study could be verified by cross-checking ID numbers with those enrolled in included courses. The ID numbers employed were the last five numbers of students' university identification numbers. Traditional classroom students participated in the survey using pencil and paper in the classroom but had the option of submitting the survey via the Internet.

Categorizing students as web-based or traditional. It was necessary to identify students as belonging to one group or the other in order to make comparisons between web-based students and traditional students. The university in which the study took place categorized courses selected for this study as web-based or traditional and listed them as such in their course offerings. However, for this study additional criteria for included web-based courses were that the instructor and students not meet in person except at the start and end of the course and all assignments except final exams were to be submitted via the Internet. Traditional courses were those in which the instructor and students met periodically throughout the course.

There were, however, potentially two groups of students comprising a mixed category:

1. Students enrolled in traditional courses but who treated them as web-based by non-attendance and submission of assignments by e-mail with permission of the instructor.

2. Students enrolled in web-based courses but who met with their instructors periodically in person for assistance.

These students were identified using the following survey questions:

How often do you physically attend class in a traditional classroom for this course?

a) Not at all. The entire course is online.

b) I attend class only once or twice per semester (orientation and final exam).

c) The class meets weekly, but I can do most of the work without attending classes in person, so I rarely attend class.

d) I attend class only for proctored exams.

e) I attend class one or more times a month.

f) I attend class one or more times a week.

2. For this course, what face-to-face, real-time contact have you had with the instructor or course assistant in scheduled class meetings?

a) Once or twice at most.

b) More than twice but less than weekly.

c) At least weekly.

For question 1, point values of a = 1, b = 1, c = 1, d = 1, e = 3, f = 3 were assigned to responses of the participants. For question 2, point values of a = 1, b = 2, c = 3 were assigned to responses The points were then summed and students assigned to categories as follows:

- Web-based students were those whose sum equals two.
- Traditional students were those whose sum equals five or six.
- Mixed category students were those whose sum is three or four.

When a student appeared in the mixed category, the situation was examined separately by comparing responses of the instructor to the following questions, asked of all instructors via email during the course:

1. How often does this course normally meet?

    a) Never in person – entirely web-based.

    b) Once or twice at most – at start and/or end of course.

    c) More than twice during the semester but less than once a week.

    d) One or more times weekly.

    e) Other: _____

2. What screening or permitting was done before students were allowed to enroll in this course? (What questions were asked of students, if any?)
3. If this is a traditional course (that is, not categorized by the university as distance learning or web-based), can students do most of the course assignments for this class without attending class in person? (Yes/No)

If you answered "yes" to the previous question, how do students submit the assignments?

Students who were in traditional courses but treated them as web-based by non-attendance and submission of assignments by e-mail with permission of the instructor became web-based students. This occurred with one student. His responses were categorized with web-based students. If participants did not have permission of the instructor they remained traditional students who were not attending class. This occurred with six students.

The responses of students enrolled in web-based courses but who met with their instructors for personal assistance were not to be considered as web-based or traditional when answering questions in which web-based students were compared to traditional students. There were no students in this category. Two students enrolled in web-based courses reported that they attended classes regularly. Since the instructor in each case taught a classroom-based section of the course and since class attendance was allowed or encouraged by the instructor these students were categorized as traditional students for web versus traditional comparison basis.

Establishing comparability of the groups is discussed in the section of this chapter titled *Analysis of Data for Research Question Two.*

Inclusion and Exclusion of Certain Participants. In twelve cases two different participants had same ID numbers. Based on confirmation of enrollment in courses, availability of completion data, and comparison of demographic information, it was determined that in these cases participants were indeed two different people with the same last five ID numbers. Both were included in the study in each case.

In nine cases participants with duplicate numbers were probably the same person, based on comparison of demographic responses, but since each entry was

attributed to a different course and since completion data was available in each case, both entries were included in the studies. Responses regarding attitude toward the courses were different and in one case the participant passed one course and failed another.

In twenty cases pairs of entries with the same ID number appeared to be the same person enrolled in the same course. Entries were nearly identical but the second entry was more complete, thus the entries were assumed to be from the same individual and the second entry was assumed to be correct and the first entry was eliminated.

The number of participants. The sample size needed for this study was determined by evaluating the research questions individually because the questions required different types of analysis. Analysis of Research Question One, the investigation of number and intensity of goal conflicts commonly experienced by post-secondary learners, required that goal conflicts of many students be examined. The plan for this study was to examine the goal conflicts of 500 traditional learners and 500 distance learners. It was believed that this sample should display an accurate estimation of the goal conflicts experienced by students enrolled in the Colleges of Education, Arts and Science, Business Administration, and Nursing in the study university. The study outcome included the responses of 540 traditional students and 604 web-based students for the answer to this question.

Research Question Two investigated variations between post-secondary distance learners and traditional learners in the quantity and perceived intensity of goal conflicts. An analysis of variance using the general linear model was used for this investigation. Using Cohen's (1992) tables to estimate an appropriate sample size, at Power = .80 for *a*

= .05, a small effect size would result with 393 participants in each group, while a medium effect size would require 64 in each group. The study included the responses of 540 traditional students and 604 web-based students for the answer to this question.

Analysis of Research Question Three, "Is there a difference in the course completion rates of post-secondary distance learners and traditional learners?" was examined using correlation of the variables. As both variables, course format and completion rate, were dichotomous variables, final results included calculation of the phi coefficient. Using Cohen's (1992) tables to detect a medium sized difference between two populations, to estimate an appropriate sample size at Power = .80 for a = .05, a medium effect size required 177 in each group.

Analysis of Research Question Four, "What is the relationship between goal conflicts and course completion for post-secondary learners?" employed logistic regression. Course completion was considered as a dichotomous variable, while the predictor variable, goal conflicts, as a continuous variable. Goal conflicts were examined in several ways. First, the number of conflicts each student experienced were addressed by indicating whether each goal conflict was present or not by the indicators 1 or 0. To calculate the sample size needed for this part of the analysis, Powerlog was used (Friendly, 1998), a SAS macro for calculating necessary sample size for a logistic regression model using a quantitative predictor. Using an estimation that the completion rate would be .80, and estimating that there might be .5 R Square (squared multiple correlation of goal conflicts with all other predictors), if there were a one standard deviation change in the predictor goal conflicts, the sample size required to detect a five percent change in the completion rate with alpha = .05, seeking a Power = .8, the sample

size should be 569. A sample size of 144 would be needed to detect a ten percent increase in the completion rate with alpha = .05, seeking a Power = .8. Table 5 illustrates the sample sizes needed to detect .3, .5, and .10 increases in the completion rate.

Table 5

Sample Sizes Needed to Obtain Varying Power

	Probability of completion at X_mean + 1 std dev.								
	0.832 (.04% inc.)			0.84 (.05% inc.)			0.88 (.10% inc.)		
	R**2 (X, other Xs)			R**2 (X, other Xs)			R**2 (X, other Xs)		
Power	0.3	0.5	0.7	0.3	0.5	0.7	0.3	0.5	0.7
0.7	494	691	1152	311	435	725	80	112	186
0.75	564	789	1316	355	496	827	91	127	211
0.8	647	906	1510	407	569	949	103	144	241
0.85	752	1053	1754	472	661	1102	119	167	278
0.9	895	1252	2087	561	786	1310	140	197	328

The quantitative value of each goal conflict (for example, the number of children present, or the number of hours worked) was also examined as well as the impact of each conflict on the rate of course completion, holding others constant, using logistic regression. Table 5 shows that estimating the completion rate at .80, and estimating that there might be .5 *R* Square (squared multiple correlation of the goal conflicts with all other predictors), if there is a one standard deviation change in the predictor goal conflict, the sample size that would be required to detect a ten percent change in the completion rate with alpha = .05, seeking a Power = .8, the sample size should be 144.

Research Question Five, "Is there a difference in the instructional self-regulation of post-secondary distance learners and traditional learners?" was examined by comparing the self-regulation habits of distance learners to the total self-regulation habits of traditional learners. For each self-regulation question an analysis of variance was carried out using a general linear model. Using Cohen's (1992) tables to estimate an appropriate sample size, at Power = .80 for a = .05, a small effect size would be shown with 393 participants in each group, while a medium effect size required 64 in each group.

The data for Research Question Six, "What is the relationship between the instructional self-regulation and course completion of post-secondary learners?" was analyzed using logistic regression with the dependent variable, course completion, viewed as a dichotomous variable for each of the four cases, pass, fail, withdraw, or incomplete. The predictor variable, self-regulation, was calculated using the total self-regulation habits of participants by adding the scores of the self-regulation responses. For the calculation of this sample size, Powerlog was used (Friendly, 1998), a SAS

macro for predicting sample size for a logistic regression model using a quantitative predictor. Using an estimation that the passing completion rate is .80 with an average instructional self-regulation, examining the difference in non-completion (withdraw, fail or incomplete) that would exist if there is a one standard deviation change in self-regulation, the sample size that would be required to detect a 5 percent change in the completion rate with alpha=.05, seeking a Power=.8, the sample size should be 569, if there is a .5 *R* Square, which is the squared multiple correlation of self-regulation with all other predictors. Table 5 shows sample sizes needed to obtain varying amounts of power with a .04 increase and with a .05 and with .10 increase in the probability of completion when self-regulation changes by 1 standard deviation.

The goal was to include 1000 subjects for this study, five hundred in each course format, distance and traditional learning, numbers sufficient for analysis of each of the research questions. The total number of participants in the study was 1,135. Since nine students were enrolled in two different included courses, the total when examining differences in the two groups, traditional classes and web-based courses, was 1144: 540 traditional and 604 web-based students.

Procedures

Instrumentation. A self-report questionnaire was administered to university students enrolled in several traditional classroom courses and the corresponding distance learning courses at a major urban research university in the southeastern United States. The survey was comprised of questions adapted from several other studies for web-based learning, plus questions derived from results of a small pilot study (n = 10) and

later a larger pilot study (n = 297), and researcher interviews with students. The questionnaire, called The Learning Factors Survey, is shown in Appendix B.

The survey allowed each participant to quantify information such as whether he or she created a schedule for assignment completion, whether the participant contacted other students or the instructor for help, and whether the student had an illness or disability. These factors were self-scored by the participants yielding information regarding goal conflicts, self-regulation, and self-efficacy regarding course completion. Additionally, the questionnaire recorded minimal demographic information such as age, gender, college major, and race or ethnicity. Appendix C lists the survey questions sorted by demographics, goal conflicts, self-regulation, and self-efficacy regarding completion of the course.

The questionnaire was administered online over a two week period, seven and eight weeks after the course began. This allowed time for participants to experience the factors in question and correct problems that arose early in the course. It was believed that if the survey was administered earlier, respondents may not have engaged in coursework to a significant degree, may not have established self-regulatory patterns for a particular course, and would not have experienced some of the problems that might arise during the class. If the survey was administered later in the course, students may not have accurately recalled the problems they experienced early in the course. Furthermore, if administered after the last date to drop the course, most of those who choose to drop the course would have done so and their input would not have been obtained.

Development of the survey. Some of the questions on this survey were adapted from several other questionnaires designed for web-based learners. Also, some questions were derived from researcher interviews with students and from the response to two pilot studies. Creation of the instrument required research of correct survey construction. Surveys are a viable way to collect data in educational research (Holloway, 1996; Dillman, 2000). When trying to quantify educational constructs using questionnaires, one should not reduce the information gathered at the sacrifice of rich, complete research (Holloway, 1996).

Several volunteer graduate students examined the initial survey and offered their feedback about survey readability and whether the instructions and questions were clear. Later subjects in a small pilot study (n = 10) completed the survey and were also asked for feedback about comprehension factors. Following revision several questions supplied more useful answers and provided improved readability. Analysis of feedback in a larger pilot study (n = 297) led to further revision. For example, participants in the larger pilot (n = 297) suggested that their social life conflicted with their studies and that trauma made it difficult to study (the destruction of the World Trade Center Towers in New York City had occurred several months prior to the pilot study). Appendix A contains primary results of that larger pilot (n = 297) and the questions used in that study.

The following recommendations of Dillman (2000) were followed in the construction of the web survey:

- The welcome screen should be short, contain easy instructions, be motivational, emphasize survey simplicity and provide instructions about navigation
- Make the first question easy, interesting, and fully visible on screen
- Present questions in familiar format, similar to paper survey
- Don’t force the respondent to answer every question
- Restrain use of color so that consistency and readability are maintained, navigation is unimpeded and measurement properties of questions are maintained
- Avoid differences due to various screen configurations, operating systems, browsers, partial screen displays, and wrap-around text
- Provide specific instructions for handling drop-down menus, open-ended answers, radio buttons, check boxes
- Use drop-down mode sparingly; consider the mode implications and identify each with a "click here" instruction
- Use scrolling questionnaire rather than screen-to-screen for each question - gives user the chance to review other questions and answers
- For long answer list that won't fit in one screen, double-bank the answers, eliminating excess scrolling
- Provide completion information to user such as scroll bar, percent complete, or "you're almost done" messages

Dillman also suggests not to use "Check all that apply" questions that may cause considerable measurement problems or give biased responses caused by order of

possibilities. Participants may choose those at top of list more often (Israel & Taylor, 1990; Krosnick, Narayan, & Smith, 1996 - both in Dillman, 2000). Participants also sometimes check answers until they think the question has been satisfactorily answered. Instead, include "yes/no" response for each item. Open-ended questions receive notoriously short or poor answers on paper surveys; e-mail surveys elicited more detailed responses than paper (Schaefer & Dillman, 1998). Open-ended questions may be suitable for web surveys however no conclusive information exists at this time.

The paper version of the survey provided to traditional classes was nearly identical to the web survey. Chapter Five of this document contains a description of the differences between the paper survey and the web survey. In both versions participants were encouraged but not required to answer all survey questions. If a participant using the web version of the survey left questions unanswered, this fact was mentioned upon submission; numbers identified those questions that remained unanswered. This enabled the student to fill in those responses. However, if they preferred, students could still submit the survey with some unanswered questions.

Administration of the survey. To minimize sampling error and coverage error, all students in included courses were strongly encouraged to participate. Verbal introduction to traditional students and email introduction sent to web-based students enthusiastically described the study and the survey. Instructors' encouragement enhanced student participation as well. Several instructors offered extra credit for participation in the survey. However, because all instructors did not offer extra credit for participation, a cash drawing offered incentive to all students. Participants who completed the survey in either format could enter a drawing for cash prizes of $25, $50,

or $100. Traditional students received a verbal invitation to enter the drawing and a drawing entry form when they received the survey. Instructors for web-based courses received an email notice that the survey was about to begin along with a suggested announcement to students. Complete announcements to instructors and students are contained in Appendix D.

An informed consent form was given to participants in both web-based and traditional formats. Traditional students received the informed consent when they received the survey and web-based students were presented with the informed consent prior to their taking the survey. The Institutional Review Board of the study university did not require participants to sign the informed consent form. Appendix F contains the informed consent form used in this study.

Traditional classes received an oral explanation of the study and refreshments during and after the survey. Most traditional students accepted the survey and drawing entry form and returned them as soon as they had completed them. When participants finished filling out the survey and drawing entry form they placed them in separate boxes provided to prevent identification connection between the two forms.

When web-based students completed the survey they were invited to fill out an entry form for the drawing. Drawing entries went into a file that was separated from the survey responses so that participant identities could not be linked to their response data. At the end of the eighth week of the semester, after all surveys had been completed, the web-based drawing entries were printed out and placed in a box along with the entries of the traditional participants. The entries were mixed and the drawing took place in the

office of the College of Education at the university. Winners were notified by phone and their prizes were mailed to them.

Development of Goal Conflict Measures

The survey included questions designed to identify and quantify goal conflicts. Several sources, including a survey by Dailey, Carey, and White (2000) called the Distance Learning Dimensions (DLD) survey (summer 1999) and the survey by eCollege.com (2000), called the Distance Learning Survey, yielded insight to potential goal conflicts. Many of the respondents in the larger pilot survey (n = 297) suggested additional goal conflicts. The current study survey added the following potential goal conflict suggestions by participants in the pilot study:

- Procrastination
- Social life conflicts
- The effect of trauma (past or present) on schoolwork
- Possible responsibility for a senior citizen or other person who needs assistance

The current study survey presented a list of possible conflicts and allowed students to quantify, using a four point Likert scale, the degree of intensity experienced for each conflict. The study survey also offered space for participants to identify other possible interfering factors.

Goal conflict questions included on the survey: Likert – 4 point scale (not true) (rarely) (sometimes) (often)

1. I do other things when I should be studying.
2. It is difficult to study because I have other things on my mind.

3. I am under stress due to circumstances that conflict with my studies.
4. One or more distracting factors interfere with my learning.
5. Someone close to me disapproves of my taking classes.
6. My social life affects my study time.
7. World affairs or thoughts of war affect my current schoolwork.
8. I have an illness or disability that affects my schoolwork.
9. Someone close to me has an illness or disability that affects my schoolwork.
10. Intentionally or not, someone close to me sabotages my studies.
11. I procrastinate.
12. The technology needed for this course causes problems for me.

Non-Likert goal conflict questions included on the survey:

1. Including yourself, how many people live in your household or dorm room? ____
2. How many children live with you?

   Age 0 – 3 __ ; Age 4 – 7 __; Age 8 – 11 __; Age 12 – 18 ___.
3. Are you responsible for a senior citizen, child, or other person who needs assistance? Never [] Rarely [] Sometimes [] Usually [] Always []
4. How many hours per week are you employed? _____
5. How many credit hours are you enrolled in this semester? _____
6. Please add any information not previously mentioned if it affects you and your taking this course. _____

Validity of Goal Conflict Measures

Logical content analysis. Four experts in distance learning and behavior analysis examined the survey items for logical analysis of content. One is an instructor and researcher in educational psychology, two are instructors and researchers in instructional technology, and one is a behavioral psychologist retired from private clinical practice who also did ergonomic research for NASA. While they wrote no formal documents addressing the survey, they provided valuable input about the content. Following their suggestions, several questions were either altered or eliminated. The following questions were included in the original survey:

- It is difficult to choose between spending time with my family and spending time on my course assignments
- Sometimes I choose to be with my family when I would rather do my homework
- I feel that I should spend more time with my family
- Sometimes I choose to do homework when I would rather be with my family

The experts stressed the similarity among these questions; therefore the questions were narrowed to the following two in the revision:

- I do other things when I should be studying
- It is difficult to study because I have other things on my mind

The experts also suggested that questions about stress due to financial problems could be reduced by asking the participants how many hours per week they work.

A small pilot study was conducted (n = 10). Analysis of subject input led to shortening of the survey due to question similarity and the excessive time required to complete the survey. The original survey consisted of 95 questions that were reduced to

65 questions for the larger pilot study. Following feedback analysis in a larger pilot study (n = 297), the questions were further revised. Participants in the larger pilot study considered the logical content, possible confusion by any of the questions, or perceived omissions in any questions. Appendix E contains two of eleven total pages of pilot study participant input in response to the question "Briefly list sources of stress or other factors not mentioned previously that could impact your time, emotions, or attitude while taking this course." Pilot participant responses elicited changes to the wording of several questions, the addition of several questions, and the elimination of several questions from the current study survey.

Construct validity of goal conflict measures. Several goal conflict questions were suggested by the Distance Learning Dimensions (DLD) survey of Dailey, Carey, and White (2000) and the survey by eCollege.com (2000), called the Distance Learning Survey. Participants in the two pilot studies for this research described other goal conflicts that are included in this instrument (social life and mental trauma). See also Appendix E, which contains two of eleven total pages of pilot study participant input in response to the question "Briefly list sources of stress or other factors not mentioned previously that could impact your time, emotions, or attitude while taking this course." Participants in the pilot study suggested the following possible goal conflicts that were included in the survey in the proposed study survey:

- My social life affects my study time
- World affairs or thoughts of war affect my current schoolwork
- I procrastinate.
- Are you responsible for a senior citizen or other person who needs assistance?

Using data from the larger pilot study (n = 297), internal survey structure was examined by a factor analysis on the Likert response questions using the SAS system. Only Likert scale questions were included in this factor analysis because other potential goal conflicts, such as number of children or hours worked, employed varied scales. The factor analysis was run with the number of factors were forced to three, and an orthogonal rotational procedure, Varimax, was used. This resulted in a pattern of three distinct factors, self-regulation, goal conflicts, and goal-orientation. The goal conflict questions had standardized regression coefficients ranging from .378 to .675, with the exception of question 31: "My spouse/friends/family approve of my taking classes," which had a coefficient of .133. This question was replaced in the study survey by the following question: "Someone close to me disapproves of my taking classes."

Reliability of the Goal Conflict Questions

Internal consistency. Cronbach's (1951) reliability coefficient, alpha, carried out on the Likert response questions pertaining to goal conflicts, revealed general reliability scores for the Likert response goal conflicts. Cronbach's Alpha for this cluster of questions in the pilot study was 0.70. This is not an extremely high value, possibly due to the low number of items in this cluster. Chronbach's Alpha for the Likert-response goal conflict questions in the current study was 0.75.

It was not practical to administer this survey more than once to establish reliability via test-retest or parallel-form techniques. Second administration of the survey in a test-retest technique might result in changes in variable magnitude caused by situational changes or student withdrawal from the course.

Self-Regulation Scale Development

Pintrich and DeGroot (1990) developed the Motivated Strategies for Learning Questionnaire (MSLQ), an instrument designed to identify self-regulation in seventh graders. The study survey contained several similar questions, revised for post-secondary students.

Four experts in distance learning and behavior analysis offered input on self-regulation, particularly in distance learners. These individuals included an instructor and researcher in educational psychology, two instructors and researchers in instructional technology, and a behavioral psychologist retired from private clinical practice who also carried out ergonomic research for NASA. The experts wrote no formal documents for this survey. Yet, in discussions concerning the survey, they provided valuable input regarding the content. Following their suggestions, the following self-regulation entries were added:

- I e-mail or see my instructor for help when I don't understand
- I join study teams or virtual study teams via listserv, or chat, or e-mail

The Distance Learning Dimensions (DLD) survey of Dailey, Carey, and White (2000) contained several questions that were adapted and added to the current study survey:

- I complete my assignments days or weeks before they are due
- I arrange to have the technology needed for this class

Self-Regulation Items Included in the Survey:

Likert - 4 point scale (not true) (rarely) (often) (almost always)

1. I use flashcards to study course material.

2. I arrange to have the technology needed for this course.
3. When I study I intentionally categorize and classify things in my mind.
4. I deliberately block out distractions when I study.
5. I practice saying important facts over and over to myself.
6. I try to relate new information to what I already know.
7. I underline, take notes, or outline new information as I read.
8. I reread or study my notes prior to a quiz or test.
9. I do practice quizzes before taking a test.
10. I e-mail or see my instructor for help when I don't understand.
11. I make schedules for doing my assignments.
12. I analyze assignments to determine what I need to do.
13. I try to estimate the amount of time needed for each assignment.
14. I do my course assignments first, before I do other things.
15. I complete my assignments days or weeks before they are due.
16. I set daily or weekly goals for myself as I work on assignments.
17. I join study teams or virtual study teams via listserv, chat, email, etc.
18. If I don't understand one source, I get the information another way.

Validity of the Self-Regulation Items

Logical content analysis. The four previously mentioned experts in distance learning and behavior analysis examined the survey items for logical analysis of content. The experts included an instructor and researcher in educational psychology, two instructors and researchers in instructional technology, and a behavioral psychologist retired from private clinical practice, who also carried out ergonomic research for

NASA. While these experts wrote no formal documents about the survey, they supplied valuable input regarding the content. Following their suggestions the following self-regulation items were added:

- I e-mail or see my instructor for help when I don't understand
- I join study teams or virtual study teams via listserv, or chat, or e-mail

Analysis of subject input from small pilot study (n = 10) led to item revisions that supported participant comprehension. Participants in the larger pilot study (n = 297) offered suggestions about the logical content of questions, identified questions that confused them, and pointed out perceived omissions. The current study survey contained several questions that were derived from analysis of these data.

Construct validity. Many of the self-regulation questions are modifications of the self-regulation portion of Pintrich and DeGroot's (1989) Motivated Strategies for Learning Questionnaire (MSLQ). Since that instrument addressed seventh grade students some questions were irrelevant. Others required modification for post-secondary students. The Distance Learning Dimensions (DLD) survey of Dailey, Carey, and White (2000), suggested other self-regulation questions. Some questions were participant suggestions from pilot studies.

As previously described, a factor analysis was run on the Likert-scored questions of the larger pilot study (n = 297). The rotated (Varimax) analysis forced the factors to three readily identifiable groups of questions: self-regulation, goal conflicts, and goal-orientation. The self-regulation questions, Questions 41 through 56, showed coefficient values ranging from 0.22 to 0.63.

Reliability of Self-Regulation Measures

Internal consistency. Cronbach's (1951) reliability coefficient, alpha, was run on the self-regulation questions in the pilot study (numbered as Questions 41 through Questions 56 in the pilot study) to establish general score reliability for the construct goal conflicts. Cronbach's Coefficient Alpha for this cluster of questions in the pilot study was 0.79. For this current study Chronbach's Alpha was 0.84.

It was not practical to administer this survey more than once to establish reliability via test-retest or parallel-form techniques. Additionally, the second administration of the survey in a test-retest technique might result in magnitude changes of variables due to situational changes or student withdrawal from the course.

Development of Self-Efficacy Measures

Pintrich and DeGroot's (1990) Motivated Strategies for Learning Questionnaire (MSLQ) contained several items designed to reflect self-efficacy. That instrument, however, was developed for seventh graders and questions were revised for post-secondary students. The self-efficacy scale development guides of Bandura (2001) and Pajares (1996) suggested other self-efficacy questions.

As a result, the following items designed to reflect self-efficacy are included in the survey:

Likert-response questions, 4 point scale (probably not) (maybe I can) (probably I can) (definitely I can)

1. I can perform the tasks that are necessary to pass this course
2. I can do the assignments required to complete this course.
3. I can complete this course.

4. I believe I can pass this course this semester/term.
5. I can complete this course this term with a satisfactory grade.

Technology plays a crucial role in some courses, distance learning courses in particular; therefore the study survey contained the following self-efficacy statements concerning technology capability:

1. I can acquire and use the technology needed for this course.
2. I can master the technology necessary to complete this course.

Validity of Self-Efficacy Questions

The questions concerning course completion were specific to the student's self-efficacy concerning the ability to complete the course. They also provided several indicators of self-efficacy concerning the significant variable course completion. They specifically asked if the student believed he or she could complete the course, indicating capability. The self-efficacy questions concerning technology addressed the student's beliefs concerning the ability to master technology, not simply perform required academic tasks to ensure course completion. Technology mastery and student perception of technology competence are vital to the distance learner and to traditional learners in certain courses. The survey also contained technology management as a potential goal conflict and also as part of self-regulation.

Reliability of the Self-Efficacy Measures

Course completion was not part of the pilot study; therefore, participant self-efficacy concerning course completion was not included in the pilot study. Moreover, no reliability data exists for these measures. For the study Cronbach's (1951) reliability coefficient, alpha, was 0.90 for the Likert-response self-efficacy questions.

It was not practical to administer this survey more than once to establish reliability via test-retest or parallel-form techniques. Here again, a second survey administration in a test-retest technique might result in magnitude changes of variables from situational changes or student course withdrawal.

Other Factors Concerning Validity and Reliability of the Survey

External validity. The study results are not expected to be generalizable beyond the limits of this particular sample. The instrument may or may not supply similar results if used with similar participants in another post-secondary institution at the 7 - 8 week period following the semester's onset. However, this point might be verified by administration of the instrument in alternative settings. Further discourse on the generalizability of the findings from this study is found in Chapter Five: Discussion.

Predictive validity of this survey. No completion data was collected in the pilot study; thus, there exists no predictive validity of the relationship between self-regulation and course completion established for this instrument.

Consistency across time. This instrument may reveal similar results if used with similar participants in identical courses at the same institution in the 7 - 8 week period following another semester's onset. However, as Buley (2000) suggests, individuals may be differentially attentive to their surroundings. If administered to the same participants at alternate times, the survey is not expected to produce similar results; individuals may respond differently as their environment changes. If the survey had been administered earlier, the respondents may not have significantly engaged in the coursework, established self-regulatory patterns for this course, or may not have experienced

problems that arise during the class. If the survey occurred later in the course, students may not accurately recall prior problems.

Analysis of Study Data

Following revision and collection of the data, descriptive statistics were obtained using the SAS system. Descriptive statistics included the number of observations, the mean, the standard deviation, the variance, skewness, kurtosis, range, and plots showing the distribution of each indicator. Additionally, each construct's items were also analyzed as a group for descriptive statistics. These included the number of observations, the mean, the standard deviation, the variance, skewness, kurtosis, range, and plots revealing each scale's distribution.

Factor analysis for Likert-response questions. As previously described, Likert-scored questions from the pilot study (n = 297) had been analyzed by factor analysis for identification of factors. However, the final study survey used contained several questions that had been revised from the most recent pilot survey and several questions had been added for the goal conflicts construct. Further, a third construct, self efficacy (not present in the pilot survey), was added. Therefore it was appropriate to examine the data with a factor analysis using the SAS system.

Internal survey structure of the data obtained in this study was examined by an initial factor analysis on the Likert response questions using the SAS system. Identifiable factors consisted of goal conflicts, self-efficacy, self-regulation, technology, and several sub-sets of self-regulation, including study preparation and reaching out for assistance. Several other factors were not readily identifiable. A scree plot of the

eigenvalues revealed a large drop between the first four factors and a marked leveling off following the fourth factor.

The factor analysis was run again, limiting factors to those having eigenvalues greater than 1.0, using the squared multiple correlation between the variable and all other variables as the estimate of communality (PRIORS = SMC), and rotated by the Varimax method. This time when the factor analysis was run four distinct construct patterns emerged. Factor one loadings were greatest for the construct self-regulation, ranging from 0.3274 to 0.6643; factor two loadings were greatest for self-efficacy, ranging from 0.7412 to 0.9100; factor three loadings were greatest for goal conflict questions, ranging from 0.1522 to 0.6845; factor four emerged as greatest for technology-related questions, factor loadings ranging from -0.2960 to 0.6380. All rotated factor loadings are shown in Appendix G. The statement "Someone close to me disapproves of my taking classes," had a relatively low factor loading (0.152), therefore responses from this statement were analyzed for descriptive statistics and comparison analyses, but were not included in the summed goal conflict construct.

Since the student may feel different self-efficacy regarding the ability to complete two different courses, information from all 1,144 participant questionnaires was used for factor analysis. That data file that contained both response sets from the nine participants who were enrolled in two courses. Further, goal conflicts and self-regulation habits may differ in two different courses for the same participant so the data file containing both responses of the nine participants (n = 1,144) was used.

Internal consistency for measures of each construct was checked by correlation studies including Cronbach's alpha. Data was then analyzed using procedures designed to answer the individual research questions as follows:

Analysis of data for research question one. The data for research question one, "What are the goal conflicts that commonly arise for post-secondary learners?" exists as a result of participant survey responses to items about goal conflicts. Students were presented with a series of possible goal conflicts and indicated the presence and the degree of presence for each factor. For example, they answered whether they have children or not, and if so, reply how many children are in the household. They were asked whether they work and how many hours per week they contribute to that job. See Appendix C for a complete list of items pertaining to goal conflicts. Participants also described other situations that conflict with their studying or learning. The percentage of students who experience various goal conflicts could then be identified.

Analysis of data for research question two. The data for research question two, "Are there differences between post-secondary distance learners and traditional learners in the quantity and perceived intensity of goal conflicts?" were analyzed in several ways. Analysis of the data included identification of participant goal conflicts and calculation of the intensity of each conflict if present. For example, if the student was living with children, the data contained information regarding the number of children and their ages. It also contained information about the student's course load and the number of hours worked weekly.

To examine the goal conflicts, completion rate, and self-regulation of distance learners and traditional learners it was necessary establish the comparability of the two

groups. Tables comparing web-based and traditional students are located in Chapter Four: Results. The following survey items were used to assess the comparability of web-based and traditional students:

1. Age
1. Gender
2. Number of children living at home
3. Hours worked per week
4. Credit hours
5. Student illness or disability
6. Family member illness or disability
7. Prior academic achievement
8. Year in school
9. Race/ethnicity
10. Responsible for care of other individual
11. Self-efficacy
12. Marital status
13. Number of current web-based courses
14. Number of web-based courses students has completed in the past two years
15. Distance from student's residence to campus
16. Type of instructor contact outside of the classroom (Check all that apply)

    E-mail [] Phone [] Instructor's office [] Other: _____
17. Number of times student met with instructor outside of scheduled class

time: ___

18. The single most important reason that student registered for this particular format/section for this course

20. Other classes in which student is currently enrolled

After analyzing these listed items for comparability, the two groups, distance learners and traditional learners, were then analyzed for descriptive statistics as to each possible conflict. These analyses included the number of observations, the mean, standard deviation, variance, skewness, kurtosis, range, and plots revealing the distribution of each possible conflict. Additionally, a frequency table was created indicating the number of respondents participating in each course format and the number in each group experiencing each particular goal conflict. In this initial conflict data analysis, presence of the conflict was indicated by a 1, absence by a 0.

The quantity of goal conflicts is an extension of research question one, that is, identification of the conflicts. However, in this case the comparison of goal conflicts in the two groups, distance and traditional students, is important. Initial analysis of the conflict data revealed presence of the conflict. Further analysis revealed the intensity of the conflict. An analysis of variance using a general linear model revealed differences in the two groups. The general linear model was appropriate in order to accommodate size variations in the two groups.

Investigations of the differences between distance learners and traditional learners included the intensity of particular goal conflicts, such as number of children, work hours, and credit hours; the perceived intensity of conflict experienced was analyzed by totaling the Likert scale responses to feelings of conflict items.

Next, an analysis of variance using the general linear model revealed the total intensity of each conflict for each group, distance learners and traditional learners. The analysis of variance using the general linear model included an *F* ratio and allowed for cell size variations, as the number of distance learners did not equal the number of traditional learners.

Analysis of data for research question three. Research Question Three is "Is there a difference in the course completion rates of post-secondary distance learners and traditional learners?" An examination of the variable correlations was appropriate for obtaining answer to this question. Both variables, course format and completion rate, are dichotomous; thus calculations included the Phi coefficient. Next, since course format may or may not be a predictor of course completion, and because other variables may contribute to course completion, logistic regression, holding the other predicting variables constant, was appropriate for answering Research Question Four.

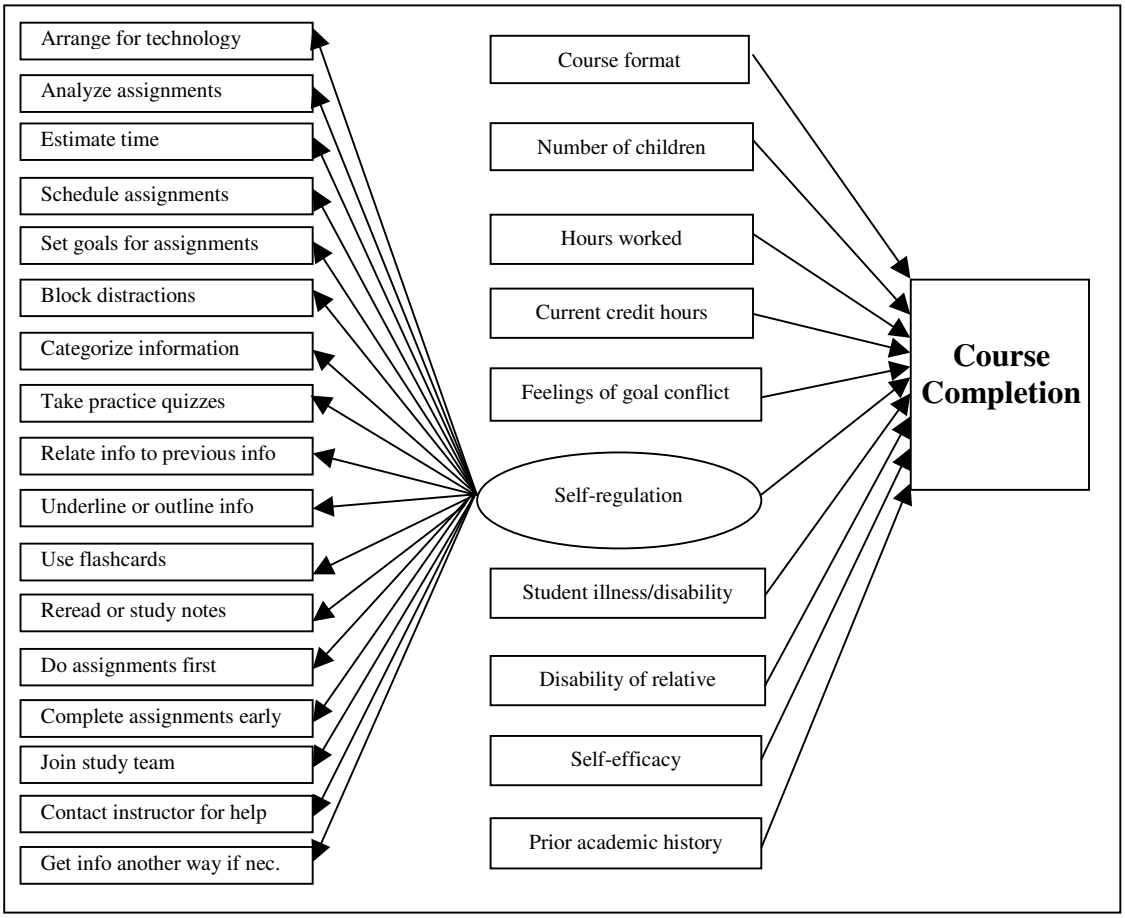
Analysis of data for research question four. The data for research question four, "What is the relationship between goal conflicts and course completion of post-secondary learners?" was analyzed by logistic regression using various possible goal conflicts, course format, self-efficacy, and previous academic achievement as predictors of course completion. The dependent variable, course completion, was viewed as a dichotomous variable for each of the four cases:

- Did the student pass the course?
- Did the student fail the course?
- Did the student withdraw?
- Did the student receive an Incomplete?

In each example, the answer was yes or no, thus creating a dichotomous dependent variable. Logistic regression was chosen instead of multiple regression because logistic regression is appropriate when the dependent variable, or course completion, is a dichotomous variable. Logistic regression also sufficed instead of discriminant function analysis, which is often used when the dependent variable is represented by a nominal scale. However, unlike discriminate function analysis, logistic regression does not assume that the independent variables are normally distributed or that there are homogeneous variance-covariance matrices for all groups being contrasted (Glass & Hopkins, 1996). When examining the pilot data descriptive statistics, it was discovered that responses to some of the questions were not normally distributed.

Note that many factors contribute to a student's completion of a course. Research reveals that past academic performance is often a good indicator, as is self-efficacy. Therefore, these two indicators were included in the model, but were not part of the research questions for this study. Figure 3 illustrates the relationship of the variables considered in Research Question Four.

Figure 3. Factors that may contribute to course completion.



Analysis of data for research question five. The data for Research Question Five, "Is there a difference in the instructional self-regulation of post-secondary distance learners and traditional learners?" was examined by comparing the total self-regulation habits of distance learners to those of traditional learners. The descriptive statistics for self-regulation in the two groups included the number of observations, mean, standard deviation, variance, skewness, kurtosis, and range. An analysis of variance using a general linear model included the *F* ratio and allowed for differences in cell numbers.

Analysis of data for research question six. Research Question Six is "What is the relationship between the instructional self-regulation and course completion of post-

secondary learners?" The predictor variable, self-regulation, was calculated using the total self-regulation habits of participants by adding the scores of the self-regulation responses. Next, since self-regulation may or may not be a predictor of course completion and considering there are other variables that contribute to course completion, logistic regression was again employed, holding the other predicting variables constant. This analysis is similar to the one described in answering Research Question Four, which examined the relationship of goal conflicts to course completion.

Chapter Four

Results

Demographics of Participants

Participants completed 1,144 surveys for which course completion data was available. Eighty-one others completed the survey but completion data was not available either because the participant did not include an ID that matched instructor lists or the instructor did not supply completion data.

Of those for whom completion data was available, 826 were female and 318 were male. Eight females and one male were registered for two included courses. Participants included 540 students who were registered in classes that were scheduled to be traditional courses, those in which the instructor met with students in person on a regular basis. There were 604 students who had registered for web-based courses. Table 6 displays a comparison of participant gender to course format.

Table 6

Gender of Participants Compared to Course Format

	Format		
Gender	Traditional	Web-based	Total
Female	399	427	826
Male	141	177	318
Total	540	604	1,144

Table 7 displays the number of participants in each course in each format, traditional and web, for whom there was completion data available. Instructors of some sections of included courses chose not to participate or did not respond to the request for participation. However all sections of Courses Two, Three, Eight, and Nine, as listed in Table 7, were included in the study. Table 4, found in Chapter Three of this document, contains a complete list of courses and instructors, identified by numbers and letters, total enrolled for each instructor, the number of participants for each instructor and the number for whom completion data was available.

Table 7

Number of Participants in Courses by Format

	Format		
Course	Classroom	Web	Total
1.	59	15	74
2.	13	14	27
3.	102	12	114
4.	39	12	51
5.	39	5	44
6.	18	13	31
7.	4	7	11
8.	43	5	48
9.	84	477	561
10.	123	19	142
11.	16	25	41
Total	540	604	1,144

The two web-based sections of Course Nine had 880 students enrolled, of which 477 participated in this study. The web-based participants enrolled in the two sections of this one course, both taught by the same instructor, comprised 79% of the web-based

participants in this study. When the study was in the planning stages this course was selected because it was taught in both traditional classroom and web formats. However, it was not anticipated that there would be so many enrolled in the web sections of the class. The demographics of the Course Nine web-based participants were compared to those of the other web-based participants. The results of that comparison are found later in this chapter at the end of the section comparing web-based students to traditional students.

Proc Univariate via the SAS (SAS Institute, 2004) system yielded descriptive statistics and Proc Frequency, also using the SAS system, yielded frequencies of events in categorized groups such as gender, format, etc. Table 8 displays results of Proc Univariate on participant responses to questions regarding demographics such as age (M = 21.98, SD = 5.20), high school GPA (M = 3.44, SD = 0.50), and hours worked per week (M = 18.18, SD = 14.695). When Proc Univariate was first run on the number in each household, all households were included. However fourteen participants reported living in households of eighteen or more residents, including one who reported living in a household of 76. These households are assumed to be dorms or Greek housing. The analysis was repeated with those households removed. The statistics for both are included in Table 8, which follows.

Table 8

Summary of Demographics Reported by Students

Demographics	*n**	*M*	*SD*	*Sk**	*K**	max	min
Age of participants	1,141	21.976	5.202	3.168	11.685	53	17
High School GPA	1,134	3.441	0.500	-0.882	4.906	5.831	2.000
College GPA	994	3.110	0.490	-0.995	4.421	4.000	2.000
Number of current web courses	1,136	0.963	0.922	1.135	2.221	6	0
Past web courses taken	1,139	1.012	1.481	2.134	6.038	10	0
Times met instr outside class	1,142	0.166	0.603	7.228	83.985	10	0
Number in all households**	1,138	3.397	3.436	11.466	197.146	76	1
Number in household***	1,124	3.180	1.298	0.514	0.695	9	1
Hours worked per week****	1,142	18.181	14.695	0.322	-0.535	75	0
Current credit hours carried	1,144	13.22	2.890	-0.760	2.333	24	3

* *n* refers to the number who responded to the question out of 1,144 participants, *sk* refers to the skewness, and *K* indicates kurtosis.

** Included all households, including those which appear to be dorms, Greek housing.

*** Proc Univariate run on households which did not appear by size to be dorms or Greek housing. Removed 14 values ranging from 18 to 76 in household.

**** Effect of outlier removed (participant stated she worked 440 hours).

Descriptive Statistics of the Likert Response Questions

Descriptive statistics for the construct self-efficacy. Self-efficacy is important to this study because it is believed to contribute to task completion. Therefore participants answered seven questions regarding their self-efficacy concerning course completion.

Participants answered the self-efficacy questions by choosing one of four Likert-type responses. The possible answers were "Probably Not," "Maybe I can," "Probably I can," and "Definitely I can," having corresponding point values of 1.0 (Probably Not) to 4.0 (Definitely I can). The descriptive statistics for their responses are shown in Table 9. Most participants perceived themselves as capable of completing the course. While very few did respond "Probably Not" to one or more of the questions, the mean scores ranged from 3.67 to 3.86 for these questions. The range for all responses was 1.0 to 4.0.

The three planned constructs for this survey were self-efficacy, self-regulation, and goal conflicts. It is interesting to note that the mean scores of the two self-efficacy questions relating to technology were the lowest of the means for that group, 3.67 and 3.69. These two questions plus a third technology question "I arrange to have the technology needed for my coursework," which was placed in the survey as part of self-regulation, formed a fourth factor as shown by the factor loadings in Appendix G of this document.

Table 9

Descriptive Statistics for the Construct Self-efficacy

Item	*n*	Likert scores ranging from 1 – 4 *M*	*SD*	*Sk*	*K*
I can acquire and use the technology needed for this course.	1,144	3.693	0.584	-2.018	4.129
I can master the technology necessary to complete this course.	1,144	3.671	0.593	-1.781	2.737
I can perform the tasks that are necessary to pass this course.	1.143	3.757	0.519	-2.262	5.237
I can do the assignments required to complete this course.	1,144	3.812	0.455	-2.531	6.536
I can complete this course.	1,144	3.857	0.434	-3.478	13.348
I believe I can pass this course this semester/term.	1,143	3.838	0.484	-3.417	12.527
I can complete this course this term with a satisfactory grade.	1,144	3.782	0.554	-2.764	7.561

Descriptive statistics for the construct self-regulation. Table 10 shows the descriptive statistics for each question included in the construct self-regulation. Most students responded to the self-regulation questions, n = 1,140 to 1,144. The possible answers for these questions were "Not true," "Rarely," "Often," and "Almost always." The corresponding answers were scored from 1.0 (Not true) to 4.0 (Almost always). Respondents' answers ranged from 1.0 to 4.0 on the four point Likert scale.

As shown in Table 10, the highest mean score for the self-regulation questions was in response to the statement " I reread or study my notes prior to a quiz or test," (M = 3.57, SD = 0.67). Another relatively high mean score was in response to the statement "I analyze assignments to determine what I need to do," (M = 3.36, SD = 0.67). The lowest mean score for the self-regulation questions was in response to the statement " I join study teams or virtual study teams via listserv, chat or e-mail, etc," (M = 1.77, SD = 0.84). Other relatively low mean scores were in response to the statements " I complete my assignments days or weeks before they are due," (M = 2.25, SD = 0.84), and " I use flashcards to study course material," (M = 2.32, SD = 1.04).

Table 10

Descriptive Statistics for the Construct Self-Regulation

Item	*n*	Likert scores 1 – 4 *M*	*SD*	*Sk*	*K*
I arrange to have the technology needed for my coursework.	1,143	3.22	1.01	-1.10	0.01
I analyze assignments to determine what I need to do.	1,143	3.36	0.67	-0.75	0.15
I try to estimate the amount of time needed for each assignment.	1,142	3.11	0.79	-0.55	-0.28
I make schedules for doing my assignments.	1,144	2.76	0.93	-0.18	-0.91
I set daily or weekly goals for myself as I work on assignments.	1,144	2.80	0.95	-0.28	-0.91
I deliberately block out distractions when I study.	1,142	2.58	0.80	-0.11	-0.45
When I study I intentionally categorize and classify things in my mind.	1,142	2.80	0.84	-0.34	-0.34
I practice saying important facts over and over to myself.	1,144	2.90	0.86	-0.49	-0.32
I try to relate new information to what I already know.	1,140	3.16	0.72	-0.57	0.13

Table 10 (continued).

Item	*n*	Likert scores 1 – 4 *M*	*SD*	*Sk*	*K*
I underline, take notes, or outline new information as I read.	1,144	3.14	0.87	-0.71	-0.35
I use flashcards to study course material.	1,143	2.32	1.04	-0.27	-1.08
I reread or study my notes prior to a quiz or test.	1,144	3.57	0.67	-1.60	2.36
I do practice quizzes before taking a test.	1,140	2.70	0.93	-0.19	-0.85
I do my course assignments first, before I do other things.	1,144	2.72	0.78	-0.22	-0.30
I complete my assignments days or weeks before they are due.	1,144	2.25	0.84	0.22	-0.56
I join study teams or virtual study teams via listserv, chat or e-mail, etc.	1,144	1.77	0.84	0.83	-0.12
I e-mail or see my instructor for help when I don't understand.	1,144	2.60	0.92	-0.05	-0.85
If I don't understand one source, I get the information another way.	1,143	2.95	0.76	-0.42	-0.08

Descriptive statistics for the construct goal conflicts. Table 11 shows the descriptive statistics for the Likert-response goal conflict questions. The possible responses for the Likert-scored goal conflict statements were "Not true," "Rarely," "Sometimes," and "Often," with corresponding score values from 1.0 to 4.0. Participant responses to these questions ranged from 1.0 to 4.0. The highest mean score was in response to the statement " I do other things when I should be studying," (M = 3.18, SD = 0.73). Other relatively high mean scores resulted from responses to the statement "I procrastinate," (M = 3.10, SD = 0.89) and the statement "It is difficult to study because I have other things on my mind," (M = 3.07, SD = 0.79).

The lowest goal conflict mean score was indicated in response to the statement "Someone close to me disapproves of my taking classes, (M = 1.11, SD = 0.44). Responses to this statement also exhibited skewness of 4.595 and kurtosis of 21.922, reflecting the fact that over 90% of respondents scored “1 ” for this statement, indicting it was not true. It should be noted that the factor loading for this statement was relatively low, 0.152, when the statement was grouped with the goal conflicts factor (See Appendix G).

Table 11

Descriptive Statistics for Construct Goal Conflicts

Item	*n*	Likert scores 1 – 4			
		M	*SD*	*Sk*	*K*
I do other things when I should be studying.	1,143	3.177	0.725	-0.600	0.122
It is difficult to study because I have other things on my mind.	1,142	3.069	0.790	-0.551	-0.149
I am under stress due to circumstances that conflict with my studies.	1,142	2.781	0.916	-0.287	-0.757
One or more distracting factors interfere with my learning.	1,142	2.658	0.856	-0.181	-0.590
Someone close to me disapproves of my taking classes.	1,143	1.107	0.440	4.595	21.922
My social life affects my study time.	1,141	2.267	0.962	0.220	-0.938
World affairs or thoughts of war affect my current schoolwork.	1,142	1.423	0.653	1.459	1.624
Intentionally or not, someone close to me sabotages my studies.	1,142	1.496	0.812	1.495	1.186
I procrastinate.	1,142	3.097	0.887	-0.710	-0.297
The technology needed for this course causes problems for me.	1,143	1.472	0.770	1.523	1.401

Comparing Traditional Classroom Students to Web-Based Students

Demographics gathered to compare traditional classroom students to web-based students included age, number and ages of children, hours worked, high school and college GPA, and credit hours carried. These results are shown in Table 12. It should be noted that the question regarding the number of past online surveys was only given to participants who completed the survey online. There were 139 traditional students who answered this question, indicating that they completed the survey online. One student, enrolled in a traditional course, responded that he had completed 100 online surveys, so results for that question are given both with and without this outlier.

As shown by Table 12, the mean age of web-based students (M = 23.33, SD = 5.74) was several years older than traditional students (M = 20.46, SD = 4.02). Course Nine fulfilled an exit requirement for many students and many who enrolled in the web-based section of this course were third and fourth year students. Those students nearing their bachelor's degree would be several years older than the many freshman and sophomore participants. In fact, the Course Nine web students were younger than the other web-based participants. The mean age of Course Nine web-based students (M = 22.76, SD = 4.83) was several years younger than the other web-based students (M = 25.14, SD = 7.74). The 477 web-based participants in Course Nine moderated several other differences between web-based participants and traditional students. These differences will be discussed later in this chapter. For now let us examine the differences between traditional and web-based participants.

Table 12

Comparison of Web-based to Traditional Student Demographics

Survey Variable	Traditional students			Web-based students			F Ratio	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
Number of online surveys completed in the past	139	2.769	9.142	596	1.102	3.454	12.33	.0005
Number of online surveys completed in the past (effect of outlier who reported 100 past surveys removed)	138	2.065	3.831	596	1.102	3.454	1.44	0.2303
Age	537	20.456	4.016	604	23.328	5.739	93.68	<.0001
High school GPA (on a 4.0 scale)	534	3.501	0.439	600	3.388	0.544	14.70	<.0001
College undergraduate GPA (on a 4.0 scale)	392	3.157	0.505	602	3.080	0.478	5.84	0.0159
Total number of web-based courses currently taking	532	0.498	0.799	604	1.373	0.824	327.79	<.0001
Prior to and not counting this semester, number of web-based courses taken in the past two years	535	0.576	1.019	604	1.399	1.703	94.92	<.0001
Number of times met with the instructor in person outside of scheduled class time	538	0.190	0.547	604	0.146	0.648	1.51	0.2193
Number of hours per week employed (effect of outlier who reported working 440 hours weekly removed)	539	14.195	13.191	603	21.745	15.060	80.35	<.0001
Number of credit hours enrolled in this semester	540	13.357	2.402	604	13.096	3.265	2.33	0.1270
Number of children aged 0 – 3 living with participant	540	0.037	0.208	604	0.094	0.359	10.61	0.0012
Number of children aged 0 – 3 living with participant (effect of participants who reported never responsible for others removed)	540	0.026	0.181	604	0.073	0.312	9.38	0.0002
Number of children aged 0 – 7 living with participant	540	0.070	0.337	604	0.177	0.534	15.91	<.0001
Number of children aged 0 – 7 living with participant (effect of participants who reported never responsible for others removed)	540	0.041	0.216	604	0.139	0.472	19.75	<.0001

Table 12 (continued).

Survey Variable	Traditional students			Web-based students			F Ratio	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
Number of children aged 0 – 11 living with participant	540	0.104	0.409	604	0.245	0.646	19.02	<.0001
Number of children aged 0 – 11 living with participant (effect of participants who reported never responsible for others removed)	540	0.061	0.302	604	0.192	0.578	22.27	<.0001
Number of children aged 0 – 18 living with participant (effect of participants who reported never responsible for others removed)	540	0.115	0.441	604	0.290	0.749	23.92	<.0001

Table 12 shows that traditional students reported higher high school and college GPA than web-based students, carried more credit hours at the time of the survey, and met with their instructors outside of scheduled class time more often than web-based students. Web-based students, however, were employed more hours and had more children than traditional students. Appendix H shows more detail regarding the frequencies of participants living with specific numbers of children in certain age brackets. The last cluster of children's ages shown in Appendix H, participants living with children ages 12 to 18, is in all likelihood biased because examination of individual participant data revealed that many who were aged 24 or less stated that they were living with one or more children aged 12 to 18 years of age, yet had no responsibility for the care of a child or other person. It is believed that many of these participants may have been living at home with their parents and siblings or may have been referring to roommates who were aged 17 or 18. As previously mentioned, fourteen participants reported living in households of eighteen or more residents, including one who reported living in a household of 76. These households are assumed to be dorms or Greek housing.

Table 13 displays the frequencies of web-based to traditional students as regards their year in school or school status. As shown, 31.30% of traditional participants were freshmen, while only 10.74% were seniors. In contrast, only 1.49% of web-based participants were freshmen, while 46.36% were seniors. This concurs with the age difference between web-based and traditional students. Recall from Table 12 that the mean age of traditional students was 20.46 years while the mean age of web-based participants was 23.33 years.

Table 13

Frequency of Year in School or Status by Format

	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
Freshmen	169	31.30	9	1.49	178	15.56
Sophomore	138	25.56	55	9.11	193	16.87
Junior	168	31.11	237	39.24	405	35.40
Senior	58	10.74	280	46.36	338	29.55
Graduate	2	0.37	8	0.32	10	0.87
Other - including those below	5	0.93	15	2.48	20	1.75
Teacher certification	0	0.00	5	0.83	5	0.44
Post-bachelor or 2nd degree	1	0.19	7	1.16	8	0.70
Misc. undergraduate	1	0.19	2	0.33	3	0.26
Non-degree seeking	1	0.19	0	0.00	1	0.09

A higher percentage of web-based students (13.91%) were married than traditional students (5.19%) as indicated by Table 14. Similarly, 29.64% of web-based students were living with a significant other while only 10.56% of traditional students were doing so. Most web-based students are older and further along in their college career than traditional students; they are also more likely to have chosen a living or marital mate.

Table 14

Marital Status by Format

	Traditional		Web-based		Total	
Status	*n*	% of 540	*n*	% of 604	*n*	% of 1,144
Married	28	5.19	84	13.91	112	9.79
Living with significant other	57	10.56	179	29.64	236	20.63

Of the 540 participating traditional students 41.11% were education majors while only 15.40% of the 604 web students were education majors. Further, while only 8.15% of traditional students were majoring in business, 27.65% of the web-based students were business majors. Twenty-seven different majors were represented in this study. Table 15 lists many of the college majors and the number of participants in each, sorted by format (web or traditional). Once again differences in the age and year in school were apparent in the number of participants in each format who were undecided about their major. Of the 540 traditional students who participated 9.63% were undecided about their major while only 1.66% of the 604 web-based participants were undecided about their major. A complete listing of all majors indicated by participants is shown in Appendix J.

Table 15

Partial Listing of Frequency of College Majors Sorted by Format

Major	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
Education	222	41.11	93	15.40	315	27.53
Business	44	8.15	167	27.65	211	18.44
Bio Sciences, Pre-Med, Pre-dental	70	12.96	69	11.42	139	12.15
Communications, MIS, LIS	17	3.15	63	10.43	80	6.99
Undecided	52	9.63	10	1.66	62	5.42
Psychology	11	2.04	46	7.62	57	4.98
Nursing	35	6.48	17	2.81	52	4.55
Criminology	9	1.67	37	6.13	46	4.02
Engineering	15	2.78	7	1.16	22	1.92
Wellness, wellness educ, sports med	14	2.59	2	0.33	16	1.40

An examination of the data regarding race of the participants reveals that the majority of both web-based and traditional respondents were Caucasian. Table 16 shows that 62.22% of traditional students and 58.61% of web-based students were Caucasian. A slightly greater percentage of web-based students (17.05%) than traditional students (13.15%) were Black. The percentage of web-based Hispanic students (13.74%) was

slightly higher than the percentage of Hispanic traditional (12.59%) participants. Again, these figures were based on 540 traditional students and 604 web-based students who participated.

Table 16

Frequency of Race by Format

	Traditional		Web-based		Total	
Race	*n*	% of 540	*n*	% of 604	*n*	% of 1,144
American Indian	3	0.56	3	0.50	6	0.52
Asian	24	4.44	37	6.13	61	5.33
Black	71	13.15	103	17.05	174	15.21
Caucasian	336	62.22	354	58.61	690	60.31
Hispanic	68	12.59	83	13.74	151	13.20
Middle Eastern	6	1.11	4	0.66	10	0.87
Other	29	5.37	20	3.31	49	4.28
No Response	3	0.56	0	0.00	3	0.26

The distance from home to campus was greater for web-based students than traditional students. Table 17 shows that 24.26% of traditional participants lived on campus while only 6.62% of web-based respondents lived that close. However, a greater percentage of web-based students than traditional students were in each of the other distance categories.

Table 17

Distance From Home to School by Format

Distance from home to school	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
Zero miles - Live on Campus	131	24.26	40	6.62	171	14.95
1 to 5 miles	189	35.00	252	41.72	441	38.55
6 to 20 miles	139	25.74	176	29.14	315	27.53
21 to 50 miles	69	12.78	101	16.72	170	14.86
Greater than 50 miles	12	2.22	35	5.79	47	4.11

Nevertheless, the primary reason students enrolled in the included distance courses was not location (or non-location) or avoidance of driving or parking problems. As shown in Table 18, the primary reason that both traditional (50.19%) and web-based (26.82%) participants chose the particular format of their class was that it fit their class schedule. However, the second most important reason that web-based students, 21.69%, chose the particular section of their course was that it fit their work schedule while only 6.85% of traditional students stated that their work schedule was the reason they chose their class format. The second most important reason that traditional students (13.33%) enrolled in their particular included course section was that it was the only one available.

Table 18

Primary Reason Participant Enrolled in the Class

Reason	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
It fits my class schedule	271	50.19	162	26.82	433	38.85
It fits my work schedule	37	6.85	131	21.69	168	14.69
It was the only one available	72	13.33	40	6.62	112	9.79
Preference for web courses	8	1.48	102	16.89	110	9.62
Fulfills major or exit requirement	65	12.04	46	7.61	111	9.70
Preference for traditional classes	48	8.89	1	0.17	49	4.28
Convenience for family obligations	2	0.37	30	4.97	32	2.80
Convenient location (or non-location)	1	0.19	25	4.14	26	2.27
To avoid driving hassles	2	0.37	18	2.98	20	1.75
Preference for this instructor	5	0.93	13	2.15	18	1.57
To avoid parking hassles	3	0.56	14	2.32	17	1.49
To accommodate physical disability	1	0.19	0	0.00	1	0.09
Other	22	4.07	22	3.64	44	3.85
No response	3	0.56	0	0.00	3	0.26

Table 19 compares the household size of web-based participants to those of traditional participants. The majority of students in both formats lived in households of two to four people. A greater percentage of web-based students (28.64%) lived in

two person households than any other size household. The largest percentage of traditional students (32.59%) lived in four person households while fewer web-based students (24.83%) lived in four person households. Twelve web-based students (1.99%) but no traditional students stated that they lived in households that consisted of 18 to 28 persons. These were probably dorms or Greek housing or co-operative housing. It should be noted that six students did not respond to the question "Including yourself, how many people live in your household?" In addition, six other students responded that zero people, including themselves, lived in their households. It is also interesting to note that only 14 participants indicated that there are nine or more individuals residing in their household while twenty-three participants indicated that they live in Greek housing in answer to the open response question that asked them to list other goal conflicts.

Table 19

Participant Household Size Sorted by Format

Participant household size, including participant	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
0	6	1.11	0	0.00	6	0.52
1	40	7.41	59	9.77	99	8.65
2	125	23.15	173	28.64	298	25.14
3	132	24.44	135	22.35	267	23.34
4	176	32.59	150	24.83	326	28.50
5	34	6.30	50	8.28	84	7.34
6	15	2.78	13	2.15	28	2.45
7	3	0.56	2	0.33	5	0.44
8	3	0.56	1	0.17	4	0.35
9	0	0.00	2	0.33	2	0.17
18 to 28*	0	0.00	12	1.99	12	1.05
39	1	0.19	0	0.0	1	0.09
76	1	0.19	0	0.0	1	0.09
No Response	6	1.11	0	0.0	6	0.52

* No participant listed 10-17 or 29-38 persons in their household.

Comparing the students of Course Nine to other web-based students. As previously mentioned, 477 out of 880 students who were enrolled in the two web-based sections of Course Nine participated in this study. The participants enrolled in these two sections of this one course, both taught by the same instructor, comprised 78.97% of the web-based participants in this study. This does bias the results to some degree. When the study was in the planning stages this course was selected because it was taught in traditional classroom and web-based formats. However, it was not anticipated that there would be so many enrolled in the web sections of the class. Thus the demographics of the Course Nine web-based participants must be compared to those of other web-based participants.

The gender ratios of Course Nine web-based students, all other web-based students, and traditional students were similar in that all three groups contained more female than male participants. However, as shown by Table 20, the group consisting of all other web-based participants had a greater percentage of females than did either the Course Nine group or the traditional group. Females comprised 77.95% of all other web-based students, 73.89% of traditional students, and 68.76% of the 477 Course Nine web-based students.

Table 20

Gender of Course Nine Participants Compared to Other Participants

	Format					
	Course 9		All web except Course 9		Traditional	
Gender	*n*	% of 477	*n*	% of 127	*n*	% of 540
Female	328	68.76	99	77.95	399	73.89
Male	149	31.24	28	22.05	141	26.11
Total	477	100.00	127	100.00	540	100.00

Recall from Table 12 that the mean age of traditional students was 20.456 years (*SD* = 4.016), while the mean age of web-based students was 23.328 years (*SD* = 5.739). As shown in Table 21, the mean age of Course Nine we-based participants was 22.757 years (*SD* = 4.831) while that of the other web-based participants was 25.472 years (*SD* = 7.973). Thus the difference in age between traditional and most web-based students may in fact be greater than shown by this study since web-based students in Course Nine were significantly younger than other web-based students.

Examination of data displayed in Table 21 shows other differences between Course Nine web-based participants (*n* = 477) and the other web-based participants (*n* = 127) in this study. As shown in this table, Course Nine web-based students were taking fewer web-based courses (*M* = 1.308, *SD* = 0.767) than all other web-based

Table 21

Comparison of Course Nine to All Other Web Student Demographics

Survey Question	Course Nine web students			All other web-based students			F Ratio	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
Number of online surveys completed in the past	471	1.015	3.522	125	1.432	3.173	1.44	2.2303
Age	477	22.757	4.831	127	25.472	7.973	23.29	<.0001
High school GPA (on a 4.0 scale)	475	3.387	0.512	125	3.389	0.653	0.00	0.9576
College undergraduate GPA (on a 4.0 scale)	476	3.076	0.414	126	3.096	0.667	0.18	0.6697
Total number of web-based courses currently taking	477	1.308	0.767	127	1.614	0.976	14.14	0.0002
Prior to and not counting this semester, number of web-based courses taken in the past two years	477	1.260	1.472	127	1.921	2.312	15.49	<.0001
Number of times met with the instructor in person outside of scheduled class time	477	0.120	0.652	127	0.244	0.626	3.73	0.0541
Number of hours per week employed (effect of outlier who reported working 440 hours weekly removed)	476	20.723	14.648	127	25.575	16.003	80.35	<.0001
Number of credit hours enrolled in this semester	477	13.312	2.973	127	12.284	4.098	10.11	0.0016
Number of children aged 0 – 3 living with participant	477	0.057	0.281	127	0.236	0.541	26.19	<.0001
Number of children aged 0 – 3 living with participant (effect of participants who reported never responsible for others removed)	477	0.040	0.226	127	0.197	0.505	26.43	<.0001

Table 21 (continued).

Survey Question	Course Nine web students			All other web-based students			F Ratio	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
Number of children aged 0 – 7 living with participant	477	0.113	0.405	127	0.417	0.821	34.31	<.0001
Number of children aged 0 – 7 living with participant (effect of participants who reported never responsible for others removed)	477	0.088	0.350	127	0.331	0.746	27.69	<.0001
Number of children aged 0 – 11 living with participant	477	0.166	0.514	127	0.543	0.941	36.28	<.0001
Number of children aged 0 – 11 living with participant (effect of participants who reported never responsible for others removed)	477	0.134	0.462	127	0.409	0.858	23.57	<.0001
Number of children aged 0 – 18 living with participant (effect of participants who reported never responsible for others removed)	477	0.153	0.530	127	0.520	1.083	28.83	<.0001

students (M = 1.614, SD = 0.976) and had taken fewer web-based courses in the past (M = 1.260, SD = 1.472) than had all other web-based students (M = 1.921, SD = 2.312). The difference in both cases was significant, as shown in Table 21.

As previously shown in Table 12, the mean hours worked per week by all web-based students is 21.745 (SD = 15.06) and the mean hours worked per week by traditional students is 14.195 (SD = 13.191), which is a significant difference, $F(1, 1{,}142) = 80.35$, $p = <.0001$. However, the effect of Course Nine web-based students is visible when we examine Table 21, which shows that Course Nine web-based students worked fewer hours per week (M = 20.723, SD = 14.648) than all other web-based students (M = 25.575, SD = 16.00). Thus the value of hours worked by all web-based students (M = 21.745, SD = 15.06) is very much moderated by the value of the hours worked by Course Nine students.

As previously shown in Table 12, there was not a significant difference between the number of credit hours carried by traditional students (M = 13.357, SD = 2.402) and the number of credit hours carried by all web-based students (M = 13.096, SD = 3.265). There was, however, a significant difference $F(1, 604) = 10.11$, $p = 0.0016$, in credit hours carried by Course Nine web-based participants (n = 477, M = 13.312, SD = 2.973) when compared to all other web-based participants (n = 127, M = 12.284, SD = 4.098).

Web-based students in this study had more children of all ages living with them than did traditional students as shown in Table 12. However, the 477 Course Nine web-based students heavily influenced the number of children of web-based students. For example the mean number of children under age 12 for traditional students was 0.061

(*SD* = 0.302) and the mean number of children under age 12 for all web-based participants was 0.192 (*SD* = 0.578) which is a significant difference, as seen in Table 12. As Table 21 shows, all other web-based students had significantly more children under 12 (*M* = 0.409, *SD* = 0.858) than did Course Nine web-based students (*M* = 0.134 *SD* = 0.462). Thus the mean number of children under 12 for all web-based participants shown in Table 12 (*M* = 0.192, *SD* = 0.578) may not accurately represent the average for most web-based students since such a large percentage of web-based students consisted of Course Nine students.

As shown by Table 22, a large percentage of Course Nine web-based students were seniors (50.10%) while 32.28% of all other web-based students and only 10.74% of traditional students were seniors.

Table 22

Comparison of Levels of Course Nine Students to Other Students

	Traditional		All Web		Course Nine Web		All Other Web	
	n	% of 540	*n*	% of 604	*n*	% of 477	*n*	% of 127
Freshmen	169	31.30	9	1.49	1	0.21	8	6.3
Sophomore	138	25.56	55	9.11	30	6.29	25	19.69
Junior	168	31.11	237	39.24	201	42.14	36	28.35
Senior	58	10.74	280	46.36	239	50.10	41	32.28
Graduate	2	0.37	8	1.32	1	0.21	7	5.51
Other	5	0.93	15	2.48	5	1.05	10	7.87

Table 23 shows that more Course Nine web-based students were business majors (32.49%) than any other major, while 42.52% of all other web-based students were education majors, which was the greatest percentage of any single major for this group. A greater percentage of traditional students (41.11%) were also education majors than any other major. The large number of education majors is reflected by the fact that most of the included courses in this study were education courses.

Table 23

Frequency of Participants' College Majors Sorted by Format

	Format							
	Traditional		Web-based		Course Nine Web		All other web	
Major	*n*	% of 540	*n*	% of 604	*n*	% of 477	*n*	% of 127
Education	222	41.11	93	15.40	38	7.97	54	42.52
Business	44	8.15	167	27.65	155	32.49	11	8.66
Nursing	35	6.48	17	2.81	13	2.73	4	3.15
Other	244	45.19	329	54.47	271	56.81	58	45.67

The majority of participants were Caucasian including 57.02% of Course Nine web-based students, 64.57% of all other web-based students, and 62.22% of traditional students. Course Nine web-based participants consisted of 13.42% Hispanics, while 14.96% of all other web-based students and 12.59% of traditional students were Hispanic. Course Nine web-based students consisted of 19.08% blacks while only

9.45% of all other web-based students and 13.15% of traditional students were black. Table 24 shows the frequency of the race in the three groups: Course Nine web-based, all other web-based, and traditional classroom participants.

Table 24

Race of Course Nine Participants Compared to All Other Participants

	Course Nine Web-based		All Other Web-based		Traditional	
Race	*n*	% of 477	*n*	% of 127	*n*	% of 540
American Indian	0	0.00	3	2.36	3	0.56
Asian	32	6.71	5	3.94	24	4.44
Black	91	19.08	12	9.45	71	13.15
Caucasian	272	57.02	82	64.57	336	62.22
Hispanic	64	13.42	19	14.96	68	12.59
Middle Eastern	4	0.84	0	0.00	6	1.11
Other	14	2.94	6	4.72	29	5.37
No Response	0	0.00	0	0.00	3	0.56

There were some differences in the reasons that Course Nine web-based participants enrolled in their particular class when compared to the reasons that all other web-based participants enrolled in their class. Table 25 is similar to Table 18 in that it compares the reasons participants enrolled in the particular class section they did, but in this case Course Nine web-based students are compared to all other web-based students

and to traditional students. As shown in Table 25, many Course Nine web-based students (29.77%) and traditional students (50.19%) stated that the primary reason they enrolled in their particular course or course section was that it fit their class schedule. Only 15.75% of all other web-based students chose their particular course because it fit their class schedule. Many of all other web-based students (32.28%) stated that the reason they chose the particular class and section was that it fit their work schedule, while only 18.87% of Course Nine web-based students and 6.85% of traditional students chose their course because of their work schedule.

Table 25

Primary Reason Course Nine Participants Enrolled in This Class

Primary reason stated by participant	Course Nine web-based *n*	% of 477	All other web-based *n*	% of 127	Traditional participants *n*	% of 540
It fits my class schedule	142	29.77	20	15.75	271	50.19
It fits my work schedule	90	18.87	41	32.28	37	6.85
It was the only one available	30	6.29	10	7.87	72	13.33
Preference for web courses	84	17.61	18	14.17	8	1.48
Fulfills major or exit requirement	44	9.22	2	1.57	65	12.04
Preference for traditional classes	1	0.21	0	0.0	48	8.89
Convenience for family obligations	17	3.56	13	10.24	2	0.37
Convenient location (or non-location)	19	3.98	6	4.72	1	0.19
To avoid driving hassles	10	2.10	8	6.30	2	0.37
Preference for this instructor	13	2.73	0	0.0	5	0.98
To avoid parking hassles	13	2.73	1	0.79	3	0.56
To accommodate physical disability	0	0.0	0	0.00	1	0.19
Other	14	2.94	8	6.30	22	4.07
No response	0	0.0	0	0.00	3	0.56

Other demographic differences between Course Nine web-based students and all other web-based students are shown in Table 26. As indicated in this table Course Nine

web-based students were in several ways more like traditional participants than all other web-based participants. For example, while 30.71% of all other web-based students were married, only 9.43% of Course Nine Web-based participants and 5.19% of traditional participants were married. While 12.60% of all other web-based participants stated that they had a disability or illness, only 7.13% of Course Nine web-based participants and 6.48% of traditional students reported disabilities or illness. Further, 15.75% of all other web-based participants were always responsible for the care of a child or other person, while only 5.66% of Course Nine web-based participants and 4.63% of traditional participants were responsible for another person.

More traditional participants (24.26%) lived on campus than either Course Nine web-based participants (6.92%) or all other web-based participants (5.51%). However more Course Nine web-based participants (46.12%) lived one to five miles from campus than all other web-based participants (25.20%) or traditional students (35.00%). Table 26 shows, however, that a far greater percentage of all other web-based participants (41.65%) lived 21 miles or more from campus than did Course Nine web-based participants (17.40%) or traditional participants (15.00%).

Table 26

Course Nine Participant Lifestyles Compared to Other Participants

Demographic	Course Nine web-based *n*	% of 477	All other web-based *n*	% of 127	Traditional Participants *n*	% of 540
Married	45	9.43	39	30.71	28	5.19
Living with Significant Other	126	26.42	53	41.73	57	10.56
Reported Disability or Illness	34	7.13	16	12.60	35	6.48
Affected Some or a Lot by Disability	18	3.77	13	10.24	18	3.33
Close Friend or Relative with Disability	84	17.61	25	19.69	105	19.44
Affected by Disability of Other Person	39	8.18	9	7.09	51	9.44
Always Responsible for Child or Person	27	5.66	20	15.75	25	4.63
Distance from home to campus						
0 - Lives on campus	33	6.92	7	5.51	131	24.26
1 to 5 miles	220	46.12	32	25.20	189	35.00
6 to 20 miles	141	29.56	35	27.56	139	25.74
21 to 50 miles	65	13.63	36	28.35	69	12.78
Greater than 50 miles	18	3.77	17	13.30	12	2.22

Answering the Research Questions for This Study:

What goal conflicts commonly arise for post-secondary learners? The survey for this study listed goal conflicts that had been gathered from several sources previously mentioned, including participant input from a pilot study. The listed goal conflicts included working, being responsible for the care of a child or senior citizen, carrying a heavy load of credit hours, disabilities or illness, disabilities or illness of people close to the student, having other things on their mind, stress, distractions, disapproval of others, social life, concern about world affairs, intentional or unintentional sabotage of studies by others, procrastination, and problems with technology needed for a course.

Table 11, shown previously, lists the questions pertaining to goal conflicts that were written in the Likert-response format on the survey and displays the descriptive statistics for responses to the goal conflict questions. Possible responses were "Not true," "Rarely," Sometimes," and "Often." The highest mean scores for this set of questions were in response to the statements “I do other things when I should be studying,” and “I procrastinate.” Table 27 lists the number of participants who stated that they experience to some degree those conflicts appearing as Likert-response questions contained in the survey. To gather this information Proc Frequency was carried out using the SAS system. The conflicts were keyed as present if the participant responded anything other than "Not true." Therefore, if the participant responded "Rarely," "Sometimes," or "Often True" the conflict was scored as present for that participant. The total number of completed surveys used to identify goal conflicts was 1,144.

Table 27

Participants Who Experienced Some Degree of Goal Conflicts

Conflict	*n*	Experience some conflict	% of 1,144
Procrastination	1142	1,073	93.79
Socializing	1141	856	74.83
Employment	1142	826	72.20
Concern about world affairs	1142	389	34.00
Sabotage by others (intentional or not)	1142	368	32.19
Technology problems	1141	370	32.34
Close friend or relative with disability	1141	214	18.71
Always/usually responsible for others	1141	104	9.09
Having disability	1142	85	7.43
Someone close disapproves of school	1143	76	6.64

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One free response portion of the survey requested that participants list any other conflicts not previously mentioned in the survey. The survey question was "Please add any other situations that affect your study time for this course." Table 28 lists conflicts mentioned by participants in response to this open-ended question. Sixty-nine participants cited extracurricular activities, such as membership in organizations and volunteering, as taking time from studies. Twenty-seven students reported that

participation in sports competed for study time. Twenty-four stated that their residence in a Greek fraternity or sorority impacted their studies.

Table 28

Other Conflicts Mentioned by Participants

Conflict	Number of participants who added this as a conflict	Percent of 1,144
Extra curricular activities	69	6.03
Participation in sports	27	2.36
Residence in Greek housing	24	2.10
Family problems	16	1.40
Loud roommates	14	1.22
Television (noise from or watching)	13	1.14
Long commute to school	13	1.14
Telephone	13	1.14
Pregnancy	10	0.87
Sleep problems - too much or too little	11	0.96
Planning a wedding	10	0.87
Activities of children	5	0.44
Working out, fitness program	4	0.35
Clinical depression	3	0.26

Table 29 lists goal conflicts reported according to gender of participant. A greater percentage of males (95.51%) agreed to some degree other than "Not true" with the statement "One or more distracting factors interfere with my learning," while only 90.07% of females responded that this was true to any degree. In response to the statement "My social life affects my study time," 84.59 % of males agreed to some degree other than "Not true," while 71.07% of females responded that this was true to any degree. On the other hand, a greater percentage of females (20.70%) than males (11.32%) stated that they sometimes, usually, or always have responsibility for the care of another individual. As shown later, this corresponds to the greater percentage of females (12.71%) compared to males (9.12%) who stated that they have children aged 11or under.

Table 29

Goal Conflicts Reported by Gender

Variable	Item #	Females		Males		Total	
		n	% of 826	n	% of 318	n	% of 1,144
I do other things when I should be studying.	30	807	97.70	313	98.43	1,120	97.90
It is difficult to study because I have other things on my mind.	31	799	96.73	303	95.28	1,102	96.33
I am under stress due to circumstances that conflict with my studies.	32	746	90.31	289	90.38	1,035	90.47
One or more distracting factors interfere with my learning.	33	744	90.07	291	95.51	1,035	90.47
Someone close to me disapproves of my taking classes.	34	50	6.05	26	8.18	76	6.64
My social life affects my study time.	35	587	71.07	369	84.59	856	74.83
World affairs or thoughts of war affect my current schoolwork.	36	284	34.38	105	33.02	389	34.00
Intentionally or not, someone close to me sabotages my studies.	37	274	33.17	94	29.56	368	32.17
I procrastinate.	38	771	93.34	302	94.97	1,073	93.79
The technology needed for this course causes problems for me.	39	268	32.45	102	32.08	370	32.34
Responsible for care of another person sometimes, usually, or always	22	171	20.70	36	11.32	207	18.09
Have disability or illness	27	67	8.11	18	5.66	85	7.43
Effected to some degree or a lot by disability or illness	27 a	35	4.23	14	4.40	49	4.28
Disability or illness of someone close	28	165	19.98	49	15.40	214	18.71
Effected to some degree or a lot by disability or illness of someone close	28 a	74	8.96	25	7.86	99	8.65

Table 30 lists the numbers and ages of children living with participants sorted by gender. Overall most students did not have children. For example, 87.29% of females and 90.88% of male participants had no children under the age of 12. For those who did have children, however, in each category more female participants had children than male participants. For example, 9.32% of females had children ages 0 to 7, while only 7.23% of males had children in this age bracket.

Table 30

Number of Children Sorted by Gender of Participants (n = 1,144 includes siblings and roommates aged 18 and under).

	Gender of Participants			
	Male		Female	
Participants living with children	*n*	% of 318	*n*	% of 826
1 child 0 to 3	9	2.83	38	4.60
2 children 0 to 3	5	1.57	10	1.21
Total living with children ages 0 to 3	14	4.40	48	5.81
Total living with no children ages 0 to 3	304	95.60	778	94.19
1 child aged 0 to 7	10	3.14	53	6.42
2 children ages 0 to 7	11	3.46	20	2.42
3 children ages 0 to 7	1	0.31	3	0.36
4 children ages 0 to 7	1	0.31	1	0.12
Total living with children ages 0 to 7	23	7.23	77	9.32
Total living with no children ages 0 to 7	295	92.77	749	90.68
1 child aged 0 to 11	14	4.40	67	8.11
2 children ages 0 to 11	9	2.83	30	3.63

Table 30 (continued).

	Gender of Participants			
	Male		Female	
Participants living with children	*n*	% of 318	*n*	% of 826
3 children ages 0 to 11	5	1.57	6	0.73
4 children ages 0 to 11	1	0.31	2	0.24
Total living with children ages 0 to 11	29	9.12	105	12.71
Total with no children ages 0 to 11	289	90.88	721	87.29
1 child aged 0 to 18	22	6.92	122	14.77
2 children ages 0 to 18	18	5.66	41	4.96
3 children ages 0 to 18	5	1.57	22	2.66
4 children ages 0 to 18	4	1.26	7	0.85
More than 4 children under age 19	4	1.26	2	0.24
Total living with children ages 0 to 18	53	16.67	194	23.49
Total living with no children ages 0 to 18	265	83.33	632	76.51

Participants were asked how many people live in their household, including themselves. Table 31 indicates the responses. Note that at least six participants indicated that no one lived in their household, indicating that they, plus possibly others, misinterpreted the question and indicated the number in their household in addition to themselves.

Table 31

Total Number of People in Participant's Household

Number reported in participant household	Number of participants who reported this
Zero people reported in household	6
Living alone	99
Two in household	298
Three in household	267
Four in household	326
Five in household	84
Six in household	28
Seven in household	5
Eight in household	4
Nine in household	2
Eighteen or greater in household	11
Participants who did not respond to question	6

Are there differences between post-secondary distance learners and traditional learners in the number and perceived intensity of goal conflicts? The total of participants for this section was 1,144, which included both responses of nine participants who were enrolled in two included courses. Distance and traditional learners were presented with possible goal conflicts such as employment, credit hours, children, and feelings of conflict. Participants indicated quantification when possible for demographic indicators such as hours worked and credit hours currently carried and used a Likert scale to indicate feelings of conflict in other cases.

The quantity or intensity of the goal conflicts was analyzed and the two groups were compared. Table 32 shows the descriptive statistics and comparison of the number of hours worked, the number of credit hours carried, and the number of children under the age of 12. There was no remarkable difference between web-based students and traditional students in the number of credit hours carried. However web-based students worked more hours (M = 21.745, SD = 15.060) than did traditional students (M = 14.195, SD = 13.191). As shown in Table 32, an analysis of variance using the general linear model revealed this to be a significant difference, $F(1, 1{,}142) = 80.35$, $p = <.0001$. There was also a significant difference between web-based and traditional students in the average number of children under the age of 12 living with students. Children under the age of 12 were used for this analysis since there was indication that some respondents included roommates in next group, children aged 12 – 18. In addition, the effect of participants who reported that they never had responsibility for a child or other person was removed.

Table 32

Some conflicts of Web Students Compared to Traditional Students

Variable	Traditional students			Web-based students			F Ratio		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*F* *	*p*
Number of hours worked (effect of participant who reported 440 hrs removed)	539	14.195	13.191	603	21.745	15.060	1,142	80.35	<.0001
Number of credit hours carried	540	13.357	2.402	604	13.096	3.265	1,144	2.33	0.1270
Responsible for care of another person sometimes, usually, or always	498	1.309	0.756	542	1.419	0.912	1,040	4.41	0.0361
Have responsibility for children under age 12	540	0.061	0.301	604	0.192	0.578	1,144	22.27	<.0001

* Numerator degrees of freedom = 1 for all F tests.

Web-based participants had an average of 0.192 (*SD* = 0.578) children under the age of 12 while traditional students each had an average of 0.061 (*SD* = 0.301) children under 12 living with them. Analysis of variance using the general linear model revealed this to be a significant difference, $F(1, 1{,}144) = 22.27$, $p = <.0001$.

Table 33 displays the descriptive statistics of the Likert scored feelings of conflict reported by participants, comparing web-based to traditional students. Web-based students reported moderately higher Likert-scored feelings (*M* = 2.842, *SD* = 0.910) than traditional students (*M* = 2.712, *SD* = 0.919) when responding to the statement "I am under stress due to circumstances that conflict with my studies."

Analysis of variance revealed this was a modestly significant difference, $F(1, 1{,}141) = 5.73$, $p = 0.0169$. Web-based students felt somewhat more intensely (*M* = 1.136, *SD* = 0.511) than did traditional students (*M* = 1.074, *SD* = 0.342) the disapproval of someone close to them regarding their taking classes, $F(1, 1{,}142). = 5.70$, $p = 0.0171$. Traditional students, on the other hand, indicated that their social life affected their study time to a somewhat greater degree (*M* = 2.333, *SD* = 0.973) than did web-based students (*M* = 2.210, *SD* = 0.949). Analysis of variance on this Likert-scored question revealed an *F* ratio $(1, 1{,}140) = 4.69$, $p = 0.0306$. Both traditional and web-based students stated that they procrastinated. While both groups had mean scores over 3.0, based on a Likert scale of 1 – 4, concerning feelings about the statements "I do other things when I should be studying," and "I procrastinate," there was not a significant difference between the two groups regarding either statement.

Table 33

Likert-Scored Conflicts of Web-based Compared to Traditional Students

Survey Statement	Traditional students			Web-based students			F Ratio	
	n	*M*	*SD*	*n*	*M*	*SD*	*F**	*p*
I do other things when I should be studying.	540	3.167	0.712	602	3.186	0.738	0.20	0.6523
It is difficult to study because I have other things on my mind.	539	3.076	0.781	602	3.063	0.799	0.08	0.7825
I am under stress due to circumstances that conflict with my studies.	539	2.712	0.919	602	2.842	0.910	5.73	0.0169
One or more distracting factors interfere with my learning.	540	2.615	0.850	601	2.699	0.861	2.74	0.0981
Someone close to me disapproves of my taking classes.	540	1.074	0.342	602	1.136	0.511	5.70	0.0171
My social life affects my study time.	540	2.333	0.973	600	2.210	0.949	4.69	0.0306
World affairs or thoughts of war affect my current schoolwork.	540	1.396	0.620	601	1.448	0.681	1.75	0.1856
Intentionally or not, someone close to me sabotages my studies.	539	1.475	0.781	602	1.517	0.838	0.75	0.3870
I procrastinate.	539	3.115	0.874	602	3.080	0.899	0.45	0.5026
The technology needed for this course causes problems for me.	540	1.491	0.795	602	1.457	0.747	0.55	0.4575

* Numerator degrees of freedom = 1 for all F tests.

While there was not a significant difference between traditional students and web-based students regarding the statement "I do other things when I should be studying," there was a significant difference regarding this statement between Course Nine web-based participants and all other web-based students, $F(1, 602) = 12.27$, $p = 0.0005$. Course Nine web students reported a mean of 3.240 ($SD = 0.707$) on a Likert scale of 1 – 4, while all other web-based participants reported a mean of 2.984 ($SD = 0.816$). Course Nine web respondents also reported higher scores ($M = 2.310$, $SD = 0.948$) for the statement "My social life affects my study time," than did all other web-based participants ($M = 1.833$, $SD = 0.856$). This was a significant difference, $F(1, 600) = 26.18$, $p = <.0001$. Appendix K shows the descriptive statistics of the Likert-scored conflicts and the F ratios of the Likert-scored conflict measures of Course Nine web-based students compared to all other web-based students.

Frequency tables were created, indicating the number of respondents in each course format and the number in each group experiencing each particular goal conflict. Table 34 shows the frequency of students who stated that they experienced various conflicts to some degree. Likert scores were not considered in Table 34. Instead, these conflicts were scored as present if anything other than "never" was indicated. These are sorted by course format and by the percentage of students who stated they experienced each conflict. A large percentage (93.79%) of participants stated that they procrastinated but as previously mentioned there was not a significant difference between web-based students and traditional students in procrastination. The majority (74.83%) of all participants stated that socializing interfered with their studies.

Table 34

Other Conflicts Reported by Traditional and Web-based Students

	Traditional		Web-based		Total	
Conflict	*n*	% of 540	*n*	% of 604	*n*	% of 1,144
Procrastination present	512	94.81	561	92.88	1073	93.79
Socializing present	417	77.22	439	72.68	856	74.83
Concern for world affairs present	179	33.15	210	34.77	389	34.00
Sabotage by others present	171	31.67	197	32.62	368	32.17
Technology problems present	176	32.59	194	32.12	370	32.34
Friend or relative with disability	105	19.44	109	18.05	214	18.71
Responsible for another at least some	81	15.00	126	20.86	207	18.09
Rarely responsible for others	51	9.44	50	8.28	101	8.83
Having disability	35	6.48	50	8.28	85	7.43
Extra curricular activities	23	4.26	46	7.62	69	6.03
Participation in sports	10	1.85	17	2.81	27	2.37
Residence in Greek housing	6	1.11	18	2.98	24	2.10
Family problems	7	1.30	9	1.49	16	1.40
Planning a wedding	5	0.93	5	0.83	10	0.87
Loud roommates	5	0.93	9	1.49	14	1.22
Television (watching or noise from)	4	0.74	9	1.49	13	1.14
Long commute to school	4	0.74	9	1.49	13	1.14
Telephone	4	0.74	9	1.49	13	1.14

Table 34 (continued).

Conflict	Traditional *n*	Traditional % of 540	Web-based *n*	Web-based % of 604	Total *n*	Total % of 1,144
Pregnancy	4	0.74	6	0.99	10	0.87
Sleep problems	6	1.11	5	0.83	11	0.96
Depression	1	0.19	2	0.33	3	0.26

In this case, the previously mentioned difference between web-based and traditional students was modestly significant, $F(1, 1{,}141) = 4.84$, $p = 0.0280$, in that a greater percentage of traditional students (77.22%) than web-based students (72.68%) stated that socializing interfered with their studies. Over 30 percent of all students stated that concern for world affairs, sabotage by others (intentional or not) and technology problems interfered to some degree with their studies.

As previously mentioned, web-based students had significantly more children under the age of 12, $F(1, 1{,}144) = 22.27$, $p = <.0001$, than did traditional, classroom-based students. Those are the figures for children of participants. However, others, even those who reported that they never had responsibility for a child or other person reported that they lived with children. It is assumed that these were siblings or children of others in their home. Table 35 shows the frequencies of various ages of the children living with participants in both groups, even though the participant may not have had responsibility for the child.

Table 35

Frequencies and Ages of Children Living with Participants (Includes siblings, roommates, and children of roommates)

	Traditional		Web-based		Total	
Participants living with children	*n*	% of 540	*n*	% of 604	*n*	% of 1,144
1 child 0 to 3	16	2.96	31	5.13	47	4.11
2 children 0 to 3	2	0.37	13	2.15	15	1.31
Total living with children ages 0 to 3	18	3.33	44	7.28	62	5.42
Total living with no children ages 0 to 3	522	96.67	560	92.72	1082	94.58
1 child aged 0 to 7	23	4.26	40	6.62	63	5.51
2 children ages 0 to 7	4	0.74	27	4.47	31	2.71
3 children ages 0 to 7	1	0.19	3	0.50	4	0.35
4 children ages 0 to 7	1	0.19	1	0.17	2	0.17
Total living with children ages 0 to 7	29	5.38	71	11.75	100	8.74
Total living with no children ages 0 to 7	511	94.63	533	88.25	1044	91.26
1 child aged 0 to 11	30	5.56	51	8.44	81	7.08
2 children ages 0 to 11	8	1.48	31	5.13	39	3.41
3 children ages 0 to 11	2	0.37	9	1.49	11	0.96
4 children ages 0 to 11	1	0.19	2	0.33	3	0.26
Total living with children ages 0 to 11	41	7.59	93	15.40	134	11.71

Table 35 (continued).

	Traditional		Web-based		Total	
Participants living with children	*n*	% of 540	*n*	% of 604	*n*	% of 1,144
Total with no children ages 0 to 11	499	92.41	511	84.60	1010	88.29
1 child aged 0 to 18	57	10.56	87	14.40	144	12.59
2 children ages 0 to 18	18	3.33	41	6.79	59	5.16
3 children ages 0 to 18	13	2.41	14	2.32	27	2.36
4 children ages 0 to 18	2	0.37	9	1.49	11	0.96
5 children ages 0 to 18	0	0.00	2	0.33	2	0.17
7 children ages 0 to 18	1	0.19	1	0.17	2	0.17
18 children ages 0 to 18	0	0.00	1	0.17	1	0.09
75 children ages 0 to 18	1	0.19	0	0.00	1	0.09
Total living with children ages 0 to 18	92	17.03	155	25.66	247	21.59
Total living with no children ages 0 - 18	448	82.96	449	74.34	897	78.41

As shown in Table 35, the majority of all students (88.16%) lived with no children under the age of 12. In fact, most participants (72.99%) stated they were never responsible for the care of another person. Table 36 reveals that 10.76% of web-based participants and 7.22% of traditional students stated that they were either usually or always responsible for some other person, such as a child or senior citizen.

Table 36

Responsibility for Child or Other Person Who Needs Assistance

	Traditional		Web-based		Total	
Responsible for care of other person	*n*	% of 540	n	% of 604	*n*	% of 1,144
Never	408	75.56	427	70.70	835	72.99
Rarely	51	9.44	50	8.28	101	8.83
Sometimes	42	7.78	61	10.10	103	9.00
Usually	14	2.59	18	2.98	32	2.80
Always	25	4.63	47	7.78	72	6.29
No response	0	0.00	1	0.17	1	0.09

However, a breakdown of these data shows there were significant differences between traditional participants and web-based participants, and also significant differences between Course Nine web-based respondents and all other web-based respondents. Responses of students regarding responsibility for another person were converted to numbers: Never = 0, Rarely = 1, Sometimes = 2, Usually = 3, and Always = 4. Proc Univariate (SAS) yielded descriptive statistics and an analysis of variance using the general linear model compared the groups for significant differences. It is believed that the individuals with 18 and 75 in their households were referring to living in a dorm or Greek housing in which there may be many students under aged 19.

Table 37 shows the responsibility for others reported by traditional participants as compared to web-based participants, as well as differences between Course Nine web-based respondents and all other web-based respondents.

Table 37

Comparison of Reported Responsibility for Others

	n	*M*	*SD*	*sk*	*k*
Traditional	540	0.513	1.058	2.148	3.683
Web-Based	603	0.687	1.239	1.696	1.586
	$F(1, 1{,}143) = 6.42$		$p = 0.0114$		

	n	*M*	*SD*	*sk*	*k*
Course Nine Web	477	0.589	1.135	1.911	2.552
All other web	126	1.056	1.520	1.073	-0.446
	$F(1, 603) = 14.45$		$p = 0.0002$		

Appendix I displays the way traditional and web-based participants answered each of the Likert-response goal conflict questions. As Appendix I shows, 33.33% of traditional students and 35.76% of web-based participants stated that they often did other things when they felt they should be studying. Stress due to circumstances that conflicted with their studies caused problems for 22.41% of traditional students and 25.33% of web-based students. Many participants, 37.58% of web-based students and 39.44% of traditional students, stated that they procrastinate often. Most participants, 67.41% of traditional students and 67.92% of web-based students, stated that the technology needed for their course did not cause them problems.

Is there a difference in the course completion rates of post-secondary distance learners and traditional learners? As shown in Table 38, over 97% of web-based participants passed the courses in which they were enrolled, while 88.7% of traditional students passed their courses. This was a significant difference, X^2 (1, 1,144) = 30.6709, p = <.0001. The correlation between passing and being a web-based student was not large (Phi coefficient = 0.1637). There was also a significant difference in the failure rate of participants, X^2 (1, 1,144) = 33.1679, p = <.0001. in that a higher percentage of traditional participants failed than did web-based participants. Here again, the correlation between failing the course and being a traditional student was not large (Phi Coefficient = -0.1703). While 9.26% of traditional students failed their course, 1.26% of web-based students failed the course they were enrolled in. There was no significant difference in the rates of withdrawal or receiving an incomplete in the courses.

Table 38

Course Completion of Traditional Students Compared to Web Students

	Format						Correlation		
	Traditional		Web-based		Total				
Course completion	*n*	% of 540	*n*	% of 604	*n*	% of 1,144	X^2	*P*	*Phi*
Pass	479	88.70	586	97.02	1,065	93.09	30.6709	<.0001	0.1637
Fail	50	9.26	10	1.66	60	5.24	33.1679	<.0001	-0.1703
Withdraw	10	1.85	7	1.16	17	1.49	0.9351	0.3336	-0.0286
Incomplete	1	0.19	1	0.17	2	0.17	0.0063	0.9368	-0.0023
Total	540		604		1,144				

What is the relationship between goal conflicts and course completion of post-secondary learners? Several variables included in this study can be considered goal conflicts. The predictor variable labeled conflict was calculated by adding the scores of the participant responses to Likert-scored questions regarding feelings of conflict. Other indicators that could act as goal conflicts, such as number of children, number of employed hours, number of credit hours, were also entered in the logistic regression model as having possible impact on course completion. Since it was not known whether goal conflicts are predictors of course completion and since there are other variables that contribute to course completion, logistic regression was employed, holding other predicting variables constant. Figure 3, shown in Chapter Three, displays the model for this analysis.

Table 39 displays the results of the SAS logistic regression procedures that were run to identify possible predictors of passing the included course. The model for this procedure corresponds to the model displayed in Figure 3. Tables 40 and 41, found in Appendix L, display the results of logistic regression procedures following the same model as Figure 3 showing the possible predictors for failing or withdrawal from the included course. Self-efficacy was found to be the greatest predictor of passing, X^2 (1, 1,119) = 64.1669, p = <.0001, or not failing X^2 (1, 1,119) = 37.7352, p = <.0001, in included courses. The self-efficacy odds ratio for passing was 1.339, indicating that an individual who scored one point higher on the Likert scale for the self-efficacy questions (for example a 3 instead of a 2) had odds of passing that were 1.339 times the odds of passing than he had at the lower score. The self-efficacy odds ratio for failure was 0.792, with a negative maximum likelihood estimate, indicating that an individual who scored one pointer higher on the Likert scale for the self-efficacy questions (for example a 3 instead of a 2) had odds of failing that were 0.792 times the odds of failing than he had at the lower score.

Table 39

Logistic Regression for Possible Predictors of Passing Course

n = 1,143 Pass = 1041 Not pass = 78

24 observations not used due to missing values

Results of logistic regression

	Analysis of maximum likelihood estimates		Type III analysis of effects		Odds ratio estimates		
Predictor Variable	Maximum likelihood estimate	Standard error	X^2	p	Odds ratio	95% Wald confidence estimates	
Intercept:	-5.1475	1.8883	7.4307	0.0064			
Course format (Traditional)	-1.0446	0.3498	8.9208	0.0028	0.352	0.177	0.698
Number children	-0.1855	0.2797	0.4399	0.5072	0.831	0.480	1.437
Number hrs worked*	-0.0342	0.0104	10.7277	0.0011	0.966	0.947	0.986
Credit hours	0.0107	0.0567	0.0357	0.8502	1.011	0.904	1.130
Conflicts (feelings of)	-0.0085	0.0364	0.0548	0.8148	0.992	0.923	1.065
Arrange technology	-0.0936	0.1431	0.4280	0.5130	0.911	0.688	1.205
Analyze assignments	0.6096	0.2432	6.2829	0.0122	1.840	1.142	2.963
Estimate time	-0.1423	02267	0.3938	0.5303	0.867	0.556	1.353
Make schedules	0.0610	0.2149	0.0806	0.7764	1.063	0.698	1.620
Set assignment goals	0.0785	0.2107	0.1388	0.7095	1.082	0.716	1.635
Block distractions	-0.1237	0.2105	0.3449	0.5570	0.884	0.585	1.335
Categorize info	0.0557	0.2085	0.0714	0.7893	1.057	0.703	1.591
Practice important facts	-0.0007	0.1931	0.0000	0.9972	0.999	0.684	1.459
Relate information	-0.0967	0.2345	0.1702	0.6799	0.908	0.573	1.437
Underline/outline info	-0.2030	0.2033	0.9970	0.3180	0.816	0.548	1.216
Use flashcards	-0.0784	0.1555	0.2540	0.6142	0.925	0.682	1.254

Table 39 (continued).

n = 1,143 Pass = 1041 Not pass = 78

24 observations not used due to missing values

Results of logistic regression

	Analysis of Maximum Likelihood Estimates		Type III Analysis of Effects		Odds Ratio Estimates		
Predictor Variable	Maximum likelihood estimate	Standard error	X^2	p	Odds ratio	95% Wald confidence estimates	
Reread/study notes	0.3290	0.2126	2.3951	0.1217	1.390	0.916	2.108
Do practice quizzes	0.0265	0.1716	0.0238	0.8774	1.027	0.734	1.437
Do assignments first	0.1572	0.2281	0.4747	0.4908	1.170	0.748	1.830
Complete work early	-0.2953	0.2061	2.0536	0.1518	0.744	0.497	1.115
Join study team	-0.2237	0.1961	1.3008	0.2541	0.800	0.544	1.174
Contact instructor	0.5309	0.1816	8.5481	0.0035	1.700	1.191	2.427
Get info another way	-0.4485	0.2094	4.5856	0.0322	0.639	0.424	0.963
Student disability (not having disability)	0.6250	0.4471	1.9542	0.1621	1.868	0.778	4.488
Disability of relative (not present)	-0.5558	0.4032	1.9006	0.1680	0.574	0.260	1.264
Self-Efficacy	0.2920	0.0365	64.1669	<.0001	1.339	1.247	1.438
Prior academic achv	0.1496	1.1053	2.0170	0.1555	1.161	0.945	1.428

* Effect of outlier removed (participant reported 440 hours worked).

Course format was also an important predictor in passing, $X^2(1, 1{,}143) = 8.9208$, p = 0.0028, or failure $X^2(1, 1{,}119) = 12.9946$, p = 0.0003. The odds ratio for passing the course was 0.352 with a negative maximum likelihood estimate, indicating that a traditional participant was 0.352 times more likely to pass the course as a web-

based participant. As pointed out in answering research question 3, over 97 % of web-based participants passed the courses in which they were enrolled, while 88.7 % of traditional students passed their courses. The odds ratio for failing the course was 4.457 with a positive maximum likelihood estimate, indicating that a traditional student was 4.457 times as likely to fail the course as a web-based participant.

Feelings of conflict were calculated by summing the scores of the Likert response goal conflict questions. As shown in Tables 39 - 41, conflict feelings reported by participants did not contribute to a significant degree to participant course completion consisting of pass, fail, withdraw, or incomplete. The number of hours of employment acted as predictor of passing the course X^2 (1, 1,119) = 10.7277, p = 0.0011. However, the maximum likelihood estimate was –0.0342, indicating that the relationship was inverse: those who passed worked fewer hours than those who did not pass. The odds ratio for hours worked was 0.966, indicating that for every hour more a participant worked his odds of passing the course was 0.966 times his odds of passing if he worked the original number of hours. For example, a participant who worked 41 hours per week, rather than 40 hours per week, had odds of 0.947 times the odds of passing if the participant worked 40 hours per week. Proc GLM (SAS, 2004) was performed to compare the hours worked of those who passed their courses to the hours worked of all those who failed, withdrew, or took an incomplete. This procedure revealed that those who passed worked fewer hours (M = 18.045 hours, SD =14.568) than those who did not pass (M = 19.577 hours, SD =16.437). Participants who worked more hours were somewhat more likely to fail, X^2 (1, 1,119) = 5.9581, p = 0.0146, or withdraw,

X^2 (1, 1,119) = 4.4994, p = 0.0339, from their included course. The odds ratio for failure was 1.028 for every hour more worked, and the odds ratio for withdrawal was 1.051 for every hour more worked.

Logistic regression revealed that participants who stated that they had a disability or illness were somewhat more likely than those who did not have a disability to fail their included course in this study, X^2 (1, 1,119) = 4.8174, p = 0.0282. This was a yes or no question for which the odds ratio = 0.354 with a negative maximum likelihood estimate, indicating that those who did not have a disability or illness had 0.354 times the odds of failing their course than those who did have a disability or illness. Frequency studies revealed that 13.99% of those who failed stated they had a disability or illness, while 7.10% of those who did not fail (passed, withdrew, or received an incomplete) had a disability or illness. The disability of a close relative or friend did not significantly impact the completion rate of participants.

Neither the number of credit hours carried nor the number of children had a significant effect on passing, failure, or withdrawal. The number of credit hours carried may have impacted participants who received an incomplete. However, there were only two participants who received an incomplete and there therefore this analysis could not be carried out.

Is there a difference in the instructional self-regulation of post-secondary distance learners and traditional learners? Using a four-point Likert scale, web-based participants reported greater self-regulation than did traditional participants in response to all self-regulation questions. Table 42 displays the comparison of descriptive statistics of the Likert-scored (scale = 1-4) self-regulation responses of traditional and web-based participants. Next an analysis of variance was carried out using a general linear model for each self-regulation question. There was a significant difference in the responses of web-based participants compared to traditional students in several cases. As Table 42 reveals, there were significant differences ($p = <.0001$) in response to the following statements: "I arrange to have the technology needed for my coursework," "I analyze assignments to determine what I need to do," "I try to relate new information to what I already know," "I e-mail or see my instructor for help when I don't understand," and "If I don't understand one source, I get the information another way." There were also modestly significant differences ($p = <0.05$) in response to these statements: "I make schedules for doing my assignments," "I set daily or weekly goals for myself as I work on assignments," "I reread or study my notes prior to a quiz or test," and "I do practice quizzes before taking a test."

Table 42

Self-Regulation of Web-based Compared to Traditional Students

Survey Statement	Traditional students			Web-based students			*F* Ratio *	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
I arrange to have the technology needed for my coursework.	540	3.033	1.062	603	3.386	0.923	36.17	<.0001
I analyze assignments to determine what I need to do.	540	3.256	0.696	603	3.451	0.641	24.05	<.0001
I try to estimate the amount of time needed for each assignment.	538	3.059	0.786	604	3.151	0.797	3.77	0.0524
I make schedules for doing my assignments.	540	2.703	0.930	604	2.816	0.929	4.18	0.0412
I set daily or weekly goals for myself as I work on assignments.	540	2.722	0.957	604	2.868	0.946	6.64	0.0101
I deliberately block out distractions when I study.	538	2.533	0.803	604	2.613	0.799	2.78	0.0959
When I study I intentionally categorize and classify things in my mind.	538	2.755	0.818	604	2.831	0.857	2.36	0.1244
I practice saying important facts over and over to myself.	540	2.851	0.846	604	2.942	0.863	3.17	0.0752
I try to relate new information to what I already know.	540	3.076	0.728	600	3.243	0.699	15.67	<.0001
I underline, take notes, or outline new information as I read.	540	3.111	0.832	604	3.172	0.909	1.39	0.2380
I use flashcards to study course material.	539	2.271	0.989	604	2.366	1.078	2.39	0.1222
I reread or study my notes prior to a quiz or test.	540	3.528	0.703	604	3.611	0.636	4.41	0.0359
I do practice quizzes before taking a test.	538	2.604	0.910	602	2.799	0.940	12.59	0.0004

Table 42 (continued).

Survey Statement	Traditional students			Web-based students			*F* Ratio *	
	n	*M*	*SD*	*n*	*M*	*SD*	*F*	*p*
I do my course assignments first, before I do other things.	540	2.680	0.789	604	2.748	0.766	2.23	0.1356
I complete my assignments days or weeks before they are due.	540	2.244	0.850	604	2.253	0.839	0.03	0.8593
I join study teams or virtual study teams via listserv, chat or e-mail, etc.	540	1.722	0.829	604	1.810	0.846	3.10	0.0785
I e-mail or see my instructor for help when I don't understand.	540	2.454	0.951	604	2.722	0.878	24.56	<.0001
If I don't understand one source, I get the information another way.	540	2.857	0.782	603	3.040	0.733	16.56	<.0001

* Numerator degrees of freedom = 1 for all F-tests.

What is the relationship between the instructional self-regulation and course completion of post-secondary learners? There were many facets of the construct self-regulation. Each of eighteen self-regulatory practices shown in Appendix C was placed into the model leading to course completion. Since it was not known whether self-regulation is a predictor of course completion and since there are other variables that contribute to course completion, logistic regression was employed, holding other predicting variables constant. The dependent variable, course completion, was viewed as a dichotomous variable for each case: pass, fail, withdraw, or incomplete.

As shown in Table 39, participants were somewhat more likely to pass their included course if they answered positively to the following statement: "I analyze assignments to determine what I need to do." Logistic regression for passing the course revealed that for this question X^2 (1, 1,119) = 6.2829, p = 0.0122. The odds ratio for the data from responses to this question was 1.84, indicating that an individual who scored one point higher on the Likert scale for the statement (for example a 3 instead of a 2) had odds of passing that were 1.84 times the odds of passing than the student who scored 2 for this question. The likelihood that the participant would pass their included course was also increased when participants answered positively to the statement "I email or see my instructor for help when I don't understand." For this question X^2 (1, 1,119) = 8.5481, p = 0.0035, and the odds ratio = 1.70. If participants answered positively to the statement "If I don't understand one source, I get the information another way," their odds of passing were decreased, as indicated by the negative value of the maximum likelihood estimate. In this case X^2 (1, 1,119) = 4.5856, p = 0.0322 and the odds ratio = 0.639.

Participants were also slightly more likely than not to fail their included course if they answered the Likert-scaled statement that they did not or rarely did "analyze assignments to determine what I need to do," X^2 (1, 1,119) = 6.1787, p = 0.0129, odds ratio = 0.514. The maximum likelihood estimates for both of these questions were negative values indicating an inverse relationship, a fact that corresponds to the small odds ratio in each case.

Participants were slightly more likely to withdraw from their included course if they answered that they did not or rarely did "email or see my instructor for help when I don't understand," X^2 (1, 1,119) = 7.4234, p = 0.0064, odds ratio = 0.346.

Next, a predictor variable, self-regulation, was calculated by summing the scores of the individual self-regulation practices of each participant. Logistic regression was run again for each case of completion, pass, fail, withdraw, or incomplete. This time the self-regulation construct replaced the individual self-regulation practices shown in Figure 3. As shown in Table 43, self-regulation as a summed construct was not found to be a predictor of passing, failing, or withdrawal from the courses included in this study. Only two participants received an incomplete and it was not possible to create a valid model for-self regulation as a predictor of receiving an incomplete from these courses using logistic regression.

Table 43

The Construct Self-Regulation as Predictor of Course Completion

	n = 1,143	6 observations not used due to missing values				
	Results of Logistic Regression					
	Analysis of Maximum Likelihood Estimates		Type III Analysis of Effects		Odds Ratio Estimates	
	Maximum Likelihood estimate	Standard error	χ^2	*p*	Odds ratio	95% Wald confidence estimates
Pass	0.0083	0.0181	0.2110	0.6460	1.008	0.973 1.045
Pass = 1050						
Not pass = 79						
Fail	-0.0335	0.0203	2.7302	0.0985	0.967	0.929 1.006
Fail = 60						
Not Fail = 1078						
Withdraw	0.0939	0.0378	6.1743	0.0130	1.098	1.020 1.183
Withdraw = 17						
Not WD = 1,121						
Incomplete*						
Incomplete = 2						
Not Incom = 1136						

* There were only two participants who received Incomplete therefore it was not possible to run this analysis.

Chapter 5

Discussion

Major Findings in this Study

The purpose of this study was to identify the goal conflicts and self-regulation habits of post-secondary learners, to determine the effect of these factors on course completion, and to compare these issues in distance and traditional learners. To begin this discussion let us examine the major findings for each research question.

What goal conflicts commonly arise for post-secondary learners?

Procrastination, socializing, and employment appeared as goal conflicts for more participants than did other conflicts in this study. Over 93% of participants experienced procrastination as a goal conflict at least part of the time and nearly 75% of respondents found socializing to be in conflict with their studies at least some of the time. Employment became a conflict for learning at some point in their academic life for more than 72% of participants.

Gender related differences appeared in some goal conflicts. More men (84.59%) than women (71.07%) stated that their social life affected their studies at least sometimes. On the other hand, nurturing and childcare appeared to be a responsibility for women more often than for men. More women (20.70%) than men (11.32%) reported responsibility for the care of another individual and a larger percentage of females (12.71%) compared to males (9.12%) stated that they have children 11 or under.

The study revealed that in addition to actual, physical conditions such as employment, having children, or caring for other individuals, feelings and mental stimuli can also interfere with learning. Over 90% of all students responded positively to some degree to the following Likert-scored statements (shown in parentheses for each are the percentage of total participants who responded any way except "not true," and the mean and standard deviation of their Likert response on a scale of 1- 4):

- I do other things when I should be studying (97.90%, 3.18, 0.73)
- It is difficult to study because I have other things on my mind (96.33%, 3.07, 0.79)
- I am under stress due to circumstances that conflict with my studies (90.47%, 2.78, 0.92)
- One or more distracting factors interfere with my learning (90.47%, 2.66, 0.86)
- I procrastinate (93.79%, 3.10, 0.89)

Thus, the study confirmed that mental processes were important conflicts in learning situations.

Are there differences between post-secondary distance learners and traditional learners in the number and perceived intensity of goal conflicts? This study found that there were significant and interesting goal conflict differences between traditional and web-based participants. Significantly more web-based students than traditional students were employed and were employed more average hours than traditional students. Web-based participants also had more children under 12 than did traditional participants. However, Course Nine participants heavily influenced the differences between web-

based students and traditional students. Course Nine students comprised a great majority (78.97%) of web-based learners so differences between Course Nine participants and all other web-based participants were important.

There was a significant difference, $F(1, 1{,}142) = 80.99$, $p = <.0001$, in the number of hours worked. Web-based students worked an average of 21.745 hours per week, ($SD = 15.060$) while traditional students worked an average of 14.195 hours per week, ($SD = 13.191$). Course Nine web-based participants worked fewer hours ($M = 20.723$, $SD = 14.648$) than did all other web-based participants ($M = 25.575$, $SD = 16.003$). This difference was also significant, $F(1, 603) = 10.57$, $p = 0.0012$.

Web-based students also had more children under the age of 12 ($M = 0.192$, $SD = 0.578$) than did traditional students ($M = 0.061$, $SD = 0.302$). Here again, Course Nine web participants had fewer children ($M = 0.134$, $SD = 0.462$) under the age of 12 than did all other web-based participants ($M = 0.409$, $SD = 0.858$), thus shifting the overall data of web-based respondents.

There were also several significant differences between traditional and web-based students in Likert-scored feelings of conflict. Web-based students reported modestly significantly higher Likert-scored feelings, $F(1, 1{,}141) = 5.73$, $p = 0.0169$, than traditional students when responding to the statement "I am under stress due to circumstances that conflict with my studies." Web-based students felt somewhat more intensely than did traditional students the disapproval of someone close to them regarding their taking classes, $F(1, 1{,}142) = 5.70$, $p = 0.0171$. Traditional students, on the other hand, indicated that their social life affected their study time to a somewhat greater degree than did web-based students $F(1, 1{,}140) = 4.69$, $p = 0.0306$. Both

traditional and web-based students stated that they procrastinated. While both groups had mean scores over 3.0, based on a Likert scale of 1 – 4, concerning feelings about the statements "I do other things when I should be studying," and "I procrastinate," there was not a significant difference between the two groups.

Course Nine web-based participants scored significantly higher than all other web-based participants in their responses to the statements "I do other things when I should be studying," and "My social life affects my study time." These differences could be due to the influence of their younger age and being close to campus.

Is there a difference in the course completion rates of post-secondary distance learners and traditional learners? Significantly more web-based participants passed their included courses than did traditional participants. Further, more traditional participants failed their included courses than did web-based participants. This could be due to the youth of traditional students and distractions in the lives of the younger, campus-based participants.

What is the relationship between goal conflicts and course completion of post-secondary learners? The number of hours participants worked per week influenced their course completion: the more hours a participant worked, the more likely he was to not pass the course, either by failing or withdrawal. Students who reported a disability or illness were somewhat more likely to fail than those who did not report a disability or illness. Neither the number of children under 12 nor the credit hours appeared to affect the course completion of participants.

Is there a difference in the instructional self-regulation of post-secondary distance learners and traditional learners? Respondents used a four-point Likert scale

to score their responses to a series of self-regulation statements. Web-based participants reported greater self-regulation than did traditional participants in response to all self-regulation questions. In responding to several statements, web-based participants reported significantly greater self-regulation than did traditional learners. There were significant differences (p = <.0001) in response to the following statements: "I arrange to have the technology needed for my coursework," "I analyze assignments to determine what I need to do," "I try to relate new information to what I already know," "I e-mail or see my instructor for help when I don't understand," and "If I don't understand one source, I get the information another way." There were also modestly significant differences (p = <0.05) in response to these statements: "I make schedules for doing my assignments," "I set daily or weekly goals for myself as I work on assignments," "I reread or study my notes prior to a quiz or test," and "I do practice quizzes before taking a test."

Based on the findings of this study there is no indication as to whether web-based students are naturally better self-regulators or whether the nature of the course format required web-based students to be better at self-regulation in order to participate in the course. A third possibility is that web-based students are simply more likely than are traditional students to report themselves as better self-regulators.

What is the relationship between the instructional self-regulation and course completion of post-secondary learners? Participants were more likely to pass their included course if they answered positively to several self-regulation statements: "I analyze assignments to determine what I need to do," or "I email or see my instructor for help when I don't understand." If participants answered positively to the statement "If I

don't understand one source, I get the information another way," their odds of passing were decreased, as indicated by the negative value of the maximum likelihood estimate.

Participants were slightly more likely to withdraw from their included course if they answered that they did not or rarely did "email or see my instructor for help when I don't understand." Self-regulation as a summed construct was not found to be a predictor of passing, failing, or withdrawal from the courses included in this study.

Web-based participants scored themselves higher than traditional students did on all facets of self-regulation and a higher percentage of web-based participants than traditional participants did pass their included course.

Implications of Study Findings

Significantly more web-based participants passed their included courses than did traditional participants. This result agrees with the findings of Searcy (1993), and Hogan (1997) but is in conflict with the results of the study by Sinclair Community College (1999). This is possibly due to the self-reported greater amount of self-regulation of distance learners than traditional learners. Since one of the predictors of passing the course was responding positively to the statement "I analyze assignments to determine what I need to do," instructors might build in a course assignment analysis and require that students complete the analysis and fill in self-designated goal assignment completion dates.

The survey responses of study participants identified their major learning conflicts. Subsequently the conflicts of web-based participants were compared to those of traditional students. Important findings were that web-based students do have more

conflicts than traditional students. They have more children under twelve, more of them are employed, and they work more hours than do traditional students.

Web-based students reported modestly significantly higher Likert-scored feelings than traditional students when responding to the statement "I am under stress due to circumstances that conflict with my studies." Web-based students also felt somewhat more intensely than did traditional students the disapproval of someone close to them regarding their taking classes. Due to the nature of their learning environment, usually home or work, web-based learners' perceptions of goal conflict magnitude may be greater than are those of traditional learners. Web-based learners' family or job commitments may greatly impact their learning experience, because they are learning in the home or workplace. However, web-based learners may enroll in distance courses because of additional goal conflicts that preclude taking traditional courses.

Another important finding was that these conflicts do not appear to affect course completion since web-based participants were more likely to pass their included course than were traditional students. This may be related to the finding that web-based participants reported greater scores in all self-regulation practices listed in the survey than did traditional learners. As previously discussed, this may be because web-based learners are required to perform more self-regulatory habits than are traditional learners in order to perform the tasks required by their distance coursework. A second possibility is that, by nature, the web-based learner may be more inclined to perform self-regulatory tasks than is the traditional learner. Again, the third possibility is that web-based students may be more likely to report higher self-regulation scores than are traditional students even though possibly the actual self-regulatory practices may be

approximately equal to those of traditional students. It seems most likely that the distance coursework may require web-based learners to exhibit more self-regulation than does traditional coursework. Web-based learners must perform the self-regulation behaviors of traditional learners and also must:

- Interact with their instructor and obtain course instructions via the Internet
- Resolve coursework questions via Internet or another source
- Acquire and use the technology required to access their coursework
- Make schedules for learning at home or work
- Put aside people and activities at home or work during learning time
- Ask for help or check on grade standing via e-mail, or form virtual study teams via listserv, chat, email

Students were more likely to pass their course if they responded positively to the statement "I email or see my instructor for help when I don't understand." In order to support learners, instructors might find it helpful to require students to contact the instructor periodically throughout the course. This could be done via required email feedback regarding course progress or chat room participation.

Since procrastination was a conflict experienced by most participants, instructors may find it helpful to require that assignments be handed in according to periodic deadlines during the course, rather than allowing assignments to be handed in at the end of the course. This coordinates with the findings of Majchrzak, (2001), who found that students scored higher on post-tests when they had periodic contingency deadlines rather than being allowed to hand in all assignments all at once. It also complements the

findings of Ferrari, Johnson, and Williams (1995), who reported that student completion rate suffered when students were allowed to set their own assignment time schedule.

A major goal of the study was to identify factors that prevented students from learning which, in this case, translated to failure or withdrawal from their included course. The study revealed that those who passed worked fewer hours than those who did not pass. The more hours participants worked, the more likely they were to fail or withdraw from their included course. While there is a correlation between hours of employment and the rate of passing the course, this study did not identify employment as a cause of not passing. Also, participants who stated that they had a disability or illness were somewhat more likely to fail their included course than those who did not have a disability or illness. The study revealed that 13.99% of those who failed reported having a disability or illness, while 7.10% of those who did not fail (passed, withdrew, or received an incomplete) reported a disability or illness. Here again, correlation does not imply causality. The disability or illness of a close relative or friend did not significantly impact the completion rate of participants. Neither the number of credit hours carried nor the number of children had a significant effect on passing, failure, or withdrawal.

The study repeated many past findings that self-efficacy is a major predictor of academic success, which includes course completion. Zimmerman & Pons, (1990) had previously established that self-efficacy may represent a major predictor of using self-regulatory learning strategies. Hagen and Weinstein (1995) demonstrated that instructions to students are vital: those who believe that a task is do-able with effort maintained high efficacy, set challenging goals, and employed appropriate learning strategies. In order to establish high student self-efficacy regarding their coursework,

instructors in both traditional and web formats would do well to give explicit instructions to students regarding course assignments, and, further, to break down coursework into small tasks that students perceive as do-able.

While the study revealed some differences between web-based and traditional students, it also revealed that lines of distinction between the two groups are becoming less clear. For example, some traditional courses have begun to offer web completion as an option and many students who live on or near campus and who are otherwise traditional students now include web-based courses in their schedule. The many campus-based students who take web-based courses soften the differences between the traditional students and web-based students.

This study found there is a higher completion rate for web-based students and that the number of hours of employment affect the completion rate. Therefore, it is suggested that universities encourage students who are employed to seek courses that are offered in web format or offer web participation as an option for traditional courses. The web format would allow the student to arrange his hours for study around his working hours.

Conclusions

It is important to recognize the blending of course formats as instructors attempt to meet the needs of learners. The goal conflicts and self-regulation habits noted in this study may be helpful in planning future instruction. Information concerning the relationships of those goal conflicts and self-regulation to course format and to course completion may also be helpful in designing instruction for both classroom and web-based formats

Caution should reign in making any assumptions or generalities concerning the demographics of web-based and traditional students. The study originated in the college of education in a major urban university, thus many of the courses were education courses and many participants were education majors. Course Nine fulfilled Gordon Rule requirements for those wanting to graduate, and so it attracted students from other majors, business in particular.

Due to rapid changes in learner populations and in instructional formats, findings from this study should not be generalized beyond the study itself. As seen in Chapter Four, it is increasingly more difficult to classify learners as traditional or web-based students. Students who were once strictly traditional learners often now take one or more web-based course during the same semester that they are in traditional classroom settings for other classes. Further, courses that once were strictly traditional in presentation format now often contain elements of distance learning. In some courses students form on-line study groups or have options of submitting their work via email. The blending of formats will most probably increase as instructors and learning institutions seek to meet learner needs.

Suggestions for Further Studies

Further studies concerning learner goal conflicts may yield information that will help students overcome instructional conflicts. This study revealed that the more hours students worked, the less likely they were to complete their course with a passing grade. Future studies should examine this phenomenon in greater detail. Studies into the number of hours worked, the days and time of employment, the type of employment, cooperation levels of employers, the incentives for further education offered by

employers, and the location of employment relative to student's home and school would be appropriate.

This study found that students who had a disability or illness were more likely to not pass than those who did not have a disability. Studies into details of this phenomenon would be helpful. For example further studies into the nature of student disabilities and illnesses, adaptations made by the student with disabilities and adaptations offered by the educational institution and individual instructors are suggested.

Further examination of self-regulation is appropriate. In this study web-based participants reported greater self-regulation than did traditional participants. As previously mentioned, this could be because web-based students are more likely than traditional students to participate in self-regulatory practices. It is also possible that people with greater self-regulation are more likely to take web-based courses. Further, it is possible that participation in web-based courses force students to become better self-regulators. Investigation into this phenomenon might yield insight into learner characteristics and give information on better meeting learner needs.

This study revealed that participants were more likely to pass their included course if they answered positively to the following self-regulation statements: "I analyze assignments to determine what I need to do," or "I email or see my instructor for help when I don't understand." Therefore future research should include studies into the methods of analysis of assignments, analysis of planning and scheduling, and comparison of actual study time to planned study time. In addition, since the effectiveness of instructor-student communication is vital to the outcome of student

course completion, studies that compare differences in instructor-student interaction between sections of courses and between traditional and web-based formats of the same course are appropriate.

Inquiries into particular study habits could advance the pursuit of satisfactory course completion. Suggested research includes studies concerning where and when web-based and traditional students do their course assignments, the nature of study activities, and the length of time spent in study sessions. Also helpful would be exploration into activities performed in preparation for quizzes and examinations.

Limitations to This Study

Generalizability of the study. This study took place at one research-based urban university located in the southeast during one fall semester. The results of the study should not be generalized to other universities or other localities. Similar studies in other localities or other universities in different settings might obtain different results. Even the semester of the study or time of year might make a difference in outcome.

Changes in technology and its use are occurring rapidly, therefore results would likely differ should the study be repeated at a different point in time. Technology itself is advancing exponentially, as is student ability to use technology. Only a few years ago adults struggled to grasp computer skills in order to perform necessary tasks. In some cases this is still occurring. Most students today learn to use computers while they are in elementary and high school and arrive at college comfortable with the use of technology. Instructional delivery methods are changing rapidly and often include a variety of technology-based options. Thus, should the study be repeated at a different time, results may be different from the results obtained in this particular study.

Elevated type1 error rate. There exists a strong possibility that the type 1 error rate may be elevated since many different tests were run on the same data for this study and since .05 was used for a test of significance for each test. For this reason terms such as "somewhat more" and "modestly significant" have been used to describe those results that have a probability greater than .01 and less than .05.

Possible bias caused by Course Nine web-based participants. Several of the research questions in this study deal with differences between web-based students and traditional students. Some important demographic differences became apparent in this study. Most web-based students are older and further along in their college career than traditional students; they are also more likely to have chosen a living or marital mate. However, 477 (78.97%) of the web-based students in this study were enrolled in the same course, Course Nine, and were taught by the same instructor. Many comparisons between Course Nine participants, all other web- based participants, and traditional participants were pointed out in Chapter Four. The data representing the demographics of Course Nine participants were often between those of traditional students and all other web-based students. Thus, a bias existed in this study. Had the study not included Course Nine web-based participants, the values of web-based participant demographics may have revealed even older students who lived further from campus, worked more hours, had more children, etc. On the other hand, since there were more Blacks and Asians in Course Nine than in all other web-based courses, the number of Blacks and Asians in all web-based courses may have been exaggerated. Similarly, since Course Nine students carried more credit hours than did all other web-based students, all web-based students may actually carry fewer credit hours.

However, it is also true that many web-based courses are now offered and are taken by students who are campus-based and who are younger than the average off-campus web-based student. Thus students who were formerly traditional students are now also web-based students.

Assumption of equality of instruction. This study proceeded with the assumption that when different sections of one course were taught by more than one instructor, instructional effectiveness and grading protocol for all sections were approximately equal. Syllabi for the courses included in this study were collected and examined. Requirements for course completion were approximately the same for instructors of different sections of the same course.

There may be differences in the effectiveness of instructor-student communication. If these differences were great the outcome of this study could be effected.

Mechanical problem with web version of the survey. It became apparent that there was a problem when it was noted that 63 web-based participants indicated that they attended their included course weekly. This was not possible for these particular students since they were enrolled in the classes of Instructor U, who taught only web-based courses that semester. Examination of the web survey revealed that there was a mechanical problem for the web-based responses to the following questions:

- How often do you physically attend class in a traditional classroom for this course?
- For this course, what face-to-face, real-time contact have you had with the instructor or course assistance in scheduled class meetings?

If the web-based respondent used a scroll roller on the mouse to go to the next question while the response to either of these questions was highlighted, the highlighted response was changed according to the length of the scroll. Further examination of the web-based survey indicated that this phenomenon did not occur elsewhere in the survey. One student of Instructor A and one of Instructor I signed up for web courses but indicated weekly attendance. This was entirely possible since these two instructors taught both traditional and web-based sections of their courses. These participants were changed from web to classroom, however these students also could have used the mouse scroll roller and the "weekly" responses could have been an error that resulted from the mechanical problem described.

Classifying participants as web-based or traditional. There may have been errors in other cases of changing or not changing participant format from the reported format. In addition to the two participants mentioned who were changed from web to traditional format, two other participants, one each for the same two instructors, were changed from traditional to web-based classification. They were enrolled in traditional sections but indicated rare attendance. These two participants were changed to web-based classification since they could complete the course via the web.

Eight students were enrolled in traditional classes but indicated they rarely attended. Their instructors indicated that they did not offer students the option of turning in work via the web. These participants were retained in the traditional classroom category, even though they were not attending regularly.

Close attention was paid to the format of respondents and the study proceeded with the assumption that participant format was correctly identified. Since over 1,100

students participated in this study it seems likely that should there be error in the format of a very few respondents, there would be very little distortion in the resulting data.

Unequal incentives for study participation. One instructor in this study offered extra credit to his students who took the study survey. Several instructors introduced me and strongly encouraged their students to participate. Still other instructors showed little enthusiasm regarding the survey but allowed their students to participate. Students taking Course Two did not hear of the survey until a week after it was made available to other students. Thus there existed possible variation in student motivation to take the time to fill out a survey thoughtfully, completely, and honestly. Therefore all participants were offered an opportunity to enter a drawing for $25.00, $50.00, and $100.00. It was hoped that that this enticement would equalize to some degree the appeal to complete the survey. It is not known whether this procedure made little or great difference in the number of participants, but it did serve to make one identical inducement that could be offered to all potential participants.

Calculating the number of children of participants. Many students who were under the age of 24 stated that they were living with one or several children aged 18 and under, yet stated that they never had responsibility for the care of a child or other person. Fourteen participants stated that they were living with 18 to 75 children under the age of 19. It is believed that these participants were living in a dorm or other student housing and counted fellow students as children under 19 years of age. Since it was not probable that a participant under the age of 28 was parent to 12-18 year old, children aged 12 to 18 reported by participants who reported their age as 28 or less were not counted. Also, participants who stated they were never responsible for the care of a child or other

individual were omitted in calculation of the number of children. This problem may have been avoided if participants had been asked if they lived in a dorm or had the question limited answers to include only children of participants.

Missing completion data. While 1,225 students completed the survey, there were 81 participants for whom no completion data was available. These participants entered the wrong ID number or entered no ID number at all and their data is not included. Thus the data analyzed includes the responses of only the 1,144 participants for whom completion data is available. Speculation as to the reasons that no ID was entered or an incorrect ID was entered led to the possibility that students were wary of entering even part of their social security number, which was being used as students' ID number at the time of this study. Another possibility is that participants did not realize that entering the correct number was crucial to the study. Yet another possibility is that they may have completed more than one survey, using different ID numbers in each case, in hopes of winning the drawing. In any event, the effect on the study was that 81 fewer total participants could be included in the study, however the number of included participants was sufficient for answering each study question.

Low participation by Course Two students. Instructors B, C, D, E, and F all taught Course Two, as shown in Table 4. Students in all sections of those classes did not hear of the survey until six days later than the other included courses due to a problem in their on-line course communications. These students were not offered credit or extra credit for participation in the survey, however the notice sent to them did include my message and the information about entering the drawing. As it turned out, fourteen of the 121 enrolled (11.57%) in the classroom-based sections of Course Two participated in

the study, compared to 54.39% average participation by all traditional sections. Fifteen of the 74 (20.27%) enrolled in the web-based sections of Course Two participated, compared to 49.43% average participation by all included web-based sections.

Differences between paper and web versions of the survey. There were 1,144 participants in this study for whom completion data was available. Of these, 747 participants took the survey on-line, while 397 filled out a paper version of the same survey. All 604 web-based participants took the survey on line. In addition, 143 of the 540 traditional classroom-based participants took the on-line survey instead of the paper version.

The paper survey differed from the on-line version in several minor ways. In the on-line survey participants selected their instructor, course, and section from a list, while the paper survey asked participants to write their instructor, course and section in the space provided. There was a question on the on-line survey asking participants how many on-line surveys they had completed in the past. This question was not on the paper survey. Of the 540 traditional students who completed the survey and for whom completion data was available, 143 took the survey on-line and 139 answered this question. There were only 735 total responses to this question. Those who did not respond to the question were those who were not asked the question (those who took the paper survey) or who did take the on-line survey but did not answer the question. It cannot be assumed that those who did not respond had never filled out an on-line survey previously, thus zero was not entered for these participants. Instead, the average was the average of the 735 who did respond to the question. Repetition of the study should include the question of all participants, including those who take a paper survey.

Assumption of truthfulness in participants. This study proceeded with the assumption that participants answered completely and truthfully. However, there is a possibility that some students may not have had time or the inclination to be thorough or honest in their answers. When the paper survey was administered to traditional classes it appeared that most students were taking their time and were being sincere with their answers. It is believed that a great majority of the over-1000 participants did answer as honestly and completely as they could.

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Appendices

Appendix A

Pilot Study

In the fall of 2001, a pilot study was introduced at a major urban research university in the Southeast. The participants included 171 traditional learners and 126 distance learners in the College of Education. Both undergraduate and graduate students participated in the study. A self-report survey addressing perceived goal conflicts and self-regulation was conducted. Participants selected either the survey on-line or an identical paper and pencil survey. The questions included on the pilot survey are listed at the end of Appendix A.

The pilot survey was administered during weeks 10 - 12 of the 2001 fall semester. It was planned that course achievement data would be collected at the end of the semester. However, variations in grading protocol and slight differences in grades received rendered this information unusable. Student achievement or course completion data was not collected for the pilot.

The participants ranged in age from 18 to 51, having a mean age of 27 years. In that study, 297 participants completed the survey. Of that number, 126 were distance learners and 171 were traditional learners. Participants included 145 undergraduate students and 152 graduate students.

The pilot study presented design problems in the participant number in each course format (distance learning or traditional classroom) and also in the number of participants taught by each instructor. Of the 126 distance learners, 117 were enrolled in four different educational psychology courses taught by one instructor. Of the 171

traditional learners, 73 participants enrolled in an undergraduate education course including the same content; however, four different instructors headed the classes. Sixty-six were in two graduate education measurement courses with different instructors; sixteen were in a graduate web programming course, and 16 were in a graduate research course. Table 44 is a frequency table that illustrates the course format, instructor, and graduate/undergraduate status and the number of participants in each course.

Analysis of Pilot Data

Descriptive statistics, including the number of observations, the mean, the standard deviation, the variance, skewness, kurtosis, range, and plots showing the distribution of each indicator, were obtained using the SAS system. Likert responses to several questions were not normally distributed. High school GPA and college GPA choices on this pilot survey were listed as number ranges. For example, 3.0 to 3.49 was one choice. Choices for hours worked per week were also listed in ranges, such as 5 to 9 hours per week. These number ranges presented analysis problems. Therefore, the current study questionnaire will itemize the choices in individual numbers.

Internal survey structure was examined by an exploratory factor analysis on the Likert response questions, unrotated, using the SAS system. Only Likert scale questions were included in this factor analysis because other potential goal conflicts, such as number of children or hours worked, employed varied scales.

Table 44

Pilot Study: Course Level, Number of Participants, and Instructor in Each Class

Traditional learners						Web-based learners					
Undergraduate			Graduate			Undergraduate			Graduate		
Cse	Instr	n	Cse	Instr	n	Cse	Instr	n	Cse	Instr	n
T1	A,B,C,D	73	T2	E	38						
			T3	F	16						
			T4	G	28						
			T5	H	16	D1	H	2	D2	H	7
						D3	I	38	D4	I	17
						D5	I	34	D6	I	28

The factor analysis was run with the number of factors were forced to three, and an orthogonal rotational procedure, Varimax, was used. This resulted in a pattern of three distinct factors, self-regulation, goal conflicts, and goal-orientation. The goal conflict questions had standardized regression coefficients ranging from .378 to .675, with the exception of question 31: “My spouse/friends/family approve of my taking classes,” which had a coefficient of .133. This question was replaced in the study survey by the following question: “Someone close to me disapproves of my taking classes.” The self-regulation questions, Questions 41 through 56, showed coefficient values ranging from 0.22 to 0.63.

Cronbach's (1951) reliability coefficient, alpha, was run on the Likert response questions pertaining to goal conflicts (questions 29 through 35 in the pilot study) to establish general score reliability for the construct goal conflicts. Cronbach's Alpha for this cluster of questions was 0.70. This is not an extremely high value, possibly because there are few items in this cluster of questions.

Cronbach's (1951) reliability coefficient, alpha, was run on the self-regulation questions in the pilot study (Questions 41 through 56 on the survey) in order to establish general reliability of the scores for the construct goal conflicts. Cronbach's Coefficient Alpha for this cluster of questions was 0.79.

Using the SAS system, an analysis of variance using a general linear model for unequal cells was performed comparing the goal conflicts and self-regulation of distance learners and traditional learners. Several significant variations existed between the two groups as a result of this self-report questionnaire using a five point Likert scale. The most significant findings are listed in Table 45.

In open-ended questions, participants in the pilot study (n = 297) were questioned as to the logical content of questions, whether they were confused by any of the questions, and whether they perceived omissions in the questions. Appendix E contains two of eleven total pages of pilot study participant input in response to the question "Briefly list sources of stress or other factors not mentioned previously that could impact your time, emotions, or attitude while taking this course." Several questions were added to the current study survey and several questions were reworded as result of participant response to this question.

Table 45

Summary of Significant Findings in Pilot Study

Construct	*n*	*F*	Traditional *M*	Traditional *SD*	Web-based *M*	Web-based *SD*
Goal Conflicts						
Course-related stress	296	16.85***	2.87	1.29	3.50	1.35
Worried about demands of course	296	8.68***	2.68	1.27	3.10	1.71
Impact on coursework when illness or disability of friend/family member existed	295	7.45**	1.94	1.29	2.35	1.26
Self-Regulated Learning						
Related new information to old when Learning	295	5.81*	4.21	0.76	4.00	0.77
Re-read or studied notes prior to quiz or test	296	7.50**	4.56	0.77	4.31	0.80
Joined study teams or virtual study teams via listserv or e-mail	296	12.23***	2.26	1.23	1.79	1.02
Set daily or weekly goals as they worked on assignments	296	10.86**	3.32	1.19	3.75	0.99

*$p < .05$ **$p < .01$ ***$p < .001$

Survey Changes as a Result of the Pilot Study

Several goal conflicts were added at the suggestion of pilot study participants. Also several questions were reworded to clarify meaning. Some questions were omitted as they appeared to be either redundant or non-relevant when an exploratory factor analysis was performed by SAS.

- Question 53 was "I make schedules for working on and completing my assignments." This has been eliminated and replaced with a new survey question: "I make schedules for doing my assignments." Numbers on the new survey do not match those on the pilot survey.
- Question 49 was "I schedule my work so that assignments are done on time." This has been reworded as: "I make schedules for doing my assignments."
- Question 53 was "I make schedules for working on and completing my assignments." This was eliminated and replaced with a new survey question: "I make schedules for doing my assignments."
- Question 31 was "My spouse/friends/family approve of my taking classes." This now reads: "Someone close to me disapproves of my taking classes."
- Question 32 was "Illness or disability (my own) affects my schoolwork." Reworded, it now reads: "I have an illness or disability that affects my schoolwork."
- Question 33 was "The illness or disability of a family member or friend affects my schoolwork." It now reads: "Someone close to me has an illness or disability that affects my time."

- Question 35 was “My spouse/partner/friends either subtly or overtly, sabotage my studies.” This has been reworded as: “Intentionally or not, someone close to me sabotages my studies.”
- Participants suggested the following potential goal conflicts during the pilot study and will be included in the survey in the proposed study:
    - I procrastinate.
    - My social life affects my study time.
    - World affairs or thoughts of war affect my current schoolwork.

The pilot survey contained questions designed to identify the goal orientation of participants. These questions were omitted from the new research survey.

Survey Questions in the Pilot Survey

1. ID: Please enter the last five numbers of your I.D
2. Instructor's last name
3. Please select your course number.
4. Course assistant's name: Please enter the name of your course assistant.
5. I enjoy learning new things.
6. It's important to become an acknowledged expert in my field.
7. Understanding the content is important to me.
8. I care what others think of my grades.
9. I like to learn material in my major area of interest.
10. It's important to get a better grade than most of my classmates.
11. My grades are important to my friends/family.

12. Knowing the material is more important to me than a grade.

13. It's important to appear smart and capable.

14. I do my assignments because I want to learn the material.

15. I believe that I will learn a lot in this course.

16. I have heard that this is a difficult course.

17. I believe that I will get a good grade in this course.

18. This course is being presented in a format that I expected.

19. I am comfortable with the format of this course.

20. I feel confident I can do the assignments required for this course.

21. This course is stressful for me.

22. Which of the following will be the most important reward for completing this course?

    - Maintaining a high GPA
    - Approval of family and friends
    - Knowing a lot about the subject
    - Understanding things I didn't know before

23. Which of the following will be the most important reward for getting your degree?

    - Increase in income
    - Approval of family and friends
    - Knowing a lot about my major area of interest
    - Gaining recognition as being knowledgeable.
    - Being able to use what I have learned.

- Becoming expert in my field.

24. I am comfortable with the technology needed for this class.

25. Even when new material is difficult, I believe that I can learn it.

26. I am worried about the demands of this course.

27. Before taking a test I am anxious.

28. I am comfortable while taking exams.

29. I often have to do other things when I should be studying.

30. At times it is difficult to study because I have other things on my mind.

31. My spouse/friends/family approve of my taking classes.

32. Illness or disability (my own) affects my schoolwork.

33. The illness or disability of a family member or friend affects my schoolwork

34. I am under stress due to circumstances that conflict with my studies.

35. My spouse/life partner/friends either subtly or overtly, sabotage my studies.

36. How many children under 18 live in your household?

37. How many hours per week are you employed?

38. How many credit hours are you taking?

39. (Open ended - fill in text) Briefly list any other sources of stress or other factors not previously mentioned that could negatively impact your time, emotions, or attitude while taking this course.

40. The factor(s) mentioned in the last question interfere with my learning:

(all of the time) (most of the time) (sometimes) (rarely) (never)

41. When I study, I intentionally categorize and classify things in my mind.

42. I deliberately block out distractions when I study.

43. I practice saying important facts over and over to myself.

44. I try to relate new information to what I already know.

45. I underline, take notes, or outline new information as I read.

46. I reread or study my notes prior to a quiz or test.

47. I do practice quizzes before taking a test.

48. I e-mail or see my instructor for help when I don't understand the material.

49. I schedule my work so that assignments are done on time.

50. I use flashcards to study course material.

51. I analyze assignments to determine what I need to do.

52. I try to estimate the amount of time needed for each assignment.

53. I make schedules for working on and completing my assignments.

54. I set daily or weekly goals for myself as I work on assignments.

55. I join study teams or virtual study teams via listserv, chat, email, etc.

56. If I don't understand one source, I try to get the information another way.

57. Major?

58. Gender?

59. Age?

60. College GPA (on a 4.0 scale)?

61. High school GPA (on a 4.0 scale)?

62. Race/Ethnicity:

63. Current year in school or status.

Feedback

(Open ended - fill in text)

64. Please describe questions that were confusing for you to answer.

65. Please add any information that you feel should be added.

Appendix B

Learning Factors Survey

This study was designed to gain a better understanding of the demographics, lifestyles, and learning factors of traditional and distance students. It is hoped that the results of this survey will help instructors better meet the needs of learners.

Your responses to questions in this survey will be kept strictly confidential and individual responses will not be identified or reported.

Your participation is appreciated.

Please enter the last five numbers of your Soc. Sec #: | | | | | |

Instructor: _____

Course name/number: _____ Section (if known) _____

I. Demographics: We are studying some of the ways that distance and traditional students differ. For this reason we ask that you share the following information:

A. Please indicate your current year in school or status:

Freshman [] Sophomore [] Junior [] Senior [] Graduate Student [] Other []

B. Gender: [] Male [] Female

C. Age? _____

D. What was your high school GPA (on a 4.0 scale)? _____

E. What is/was your undergraduate college GPA (on a 4.0 scale)? _____

F. Race/Ethnicity: Black [] Caucasian [] Hispanic [] Asian []
Middle Eastern [] American Indian [] Other []

II Please complete the following statements by selecting the appropriate answer:

A. How often do you physically attend class in a traditional classroom for this course?

[] Not at all. The entire course is online.
[] I attend class only once or twice per semester (orientation and final exam).
[] The class meets weekly, but I can do most of the work without attending classes in person, so I rarely attend class.
[] I attend class only for proctored exams.
[] I attend class one or more times a month.
[] I attend class one or more times a week.

B. For this course, what face-to-face, real-time contact have you had with the instructor or course assistant in scheduled class meetings?

[] Once or twice at most.
[] More than twice but less than weekly.
[] At least weekly.

C. **Counting this course, what is the total number of web-based courses you are currently taking?**

None [] 1 [] 2 [] 3 [] 4 [] 5 [] More than 5 []

D. Prior to and not counting this semester how many web-based courses have you taken in the past two years?

None [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] More than 8 []

E. How far do you live from campus?

On campus [] 1-5 miles [] 6-20 miles [] 21-50 miles [] Greater than 50 miles []

F. What contact have you had with the instructor outside of the classroom?

(Check all that apply.)

E-mail [] Phone [] Chat Room [] Instructor's office []Other (describe)

D. How many times have you met with the instructor in person outside of scheduled class time:

None [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] More than 6 []

E. What is the single most important reason that you registered for this particular format/section for this course?

[] It was **available** and no other section was available.
[] It fits my **class schedule**.
[] It fits my **work schedule**.
[] Convenience for my **family obligations**.
[] **Religious or cultural** concerns.
[] To accommodate a **physical disability** that I have.
[] To accommodate a **learning disability** that I have.
[] To avoid **driving hassles**.
[] To avoid **parking hassles**.
[] Convenient **location** (or non-location if web-based).
[] Preference for this **instructor**.
[] **Preference for traditional** classroom courses.
[] **Preference for web-based courses**.
[] Other (describe): _____

F. What is the format of other courses you are taking this semester?

[] Primarily Web-based (meet face to face only once or twice per semester).
[] Primarily Traditional (usually meet one or more times a week).
[] Primarily Traditional (usually meet one or more times a month).
[] Meet at least once a week but I can do most of the work without attending classes in person.
[] Mixed - some are web-based or don't require attendance, and some are traditional.
[] Not applicable – this is the only course I am taking this semester.

III. **Instructional Goal Conflicts: For all of us, there are several areas in our lives that compete with our studies. To help us understand your busy schedule and home situation, please answer the following questions:**

A. Including yourself, how many people live in your household or dorm room?
_____

B. How many children live with you?
Age 0 – 3 __ ; Age 4 – 7 __; Age 8 – 11 __; Age 12 – 18 ___.

C. Are you responsible for a senior citizen, child, or other person who needs assistance? (Please select the appropriate response.)

Never [] Rarely [] Sometimes [] Usually [] Always []

D. How many hours per week are you employed? _____

E. How many credit hours are enrolled in this semester? _____

F. **Are you married?** Yes [] No [] **Living with a significant other?** Yes [] No []

G. Do you have an illness or disability? Yes [] No []

If so, does it affect your studies? Very little [] Somewhat [] A lot []

H. Does someone close to you have illness or disability? Yes [] No []

If so, does it affect your studies? Very little [] Somewhat [] A lot []

Please add any other situations that affect your study time for this course:

_____

For these items please select the one response that best reflects whether you do these things and, if so, how often. Try to quantify with numbers ranging from 1 (Not true) to 4 (often).	**(1) Not True**	**(2) Rarely**	**(3) Sometimes**	**(4) Often**
a. I do other things when I should be studying.	1 []	2 []	3 []	4 []
b. It is difficult to study because I have other things on my mind.	1 []	2 []	3 []	4 []
c. I am under stress due to circumstances that conflict with my studies.	1 []	2 []	3 []	4 []
d. One or more distracting factors interfere with my learning.	1 []	2 []	3 []	4 []
e. Someone close to me disapproves of my taking classes.	1 []	2 []	3 []	4 []
f. My social life affects my study time.	1 []	2 []	3 []	4 []
g. World affairs or thoughts of war affect my current schoolwork.	1 []	2 []	3 []	4 []
h. Intentionally or not, someone close to me sabotages my studies.	1 []	2 []	3 []	4 []
i. I procrastinate.	1 []	2 []	3 []	4 []
j. The technology needed for this course causes problems for me.	1 []	2 []	3 []	4 []

IV. Learning Strategies: We all have personal strategies for learning new material. Which of the following do you use?

Directions: For these items please select the one response that best reflects whether you do these things and, if so, how often. Try to quantify with numbers ranging from 1 (Not true), to 4(Almost Always)	**(1) Not true**	**(2) Rarely**	**(3) Often**	**(4) Almost Always**
A. I arrange to have the technology needed for my coursework.	1 []	2 []	3 []	4 []
B. I analyze assignments to determine what I need to do.	1 []	2 []	3 []	4 []
C. I try to estimate the amount of time needed for each assignment.	1 []	2 []	3 []	4 []
D. I make schedules for doing my assignments.	1 []	2 []	3 []	4 []
E. I set daily or weekly goals for myself as I work on assignments.	1 []	2 []	3 []	4 []
F. I deliberately block out distractions when I study.	1 []	2 []	3 []	4 []
G. When I study I intentionally categorize and classify things in my mind.	1 []	2 []	3 []	4 []
H. I practice saying important facts over and over to myself.	1 []	2 []	3 []	4 []
I. I try to relate new information to what I already know.	1 []	2 []	3 []	4 []
J. I underline, take notes, or outline new information as I read.	1 []	2 []	3 []	4 []
K. I use flashcards to study course material.	1 []	2 []	3 []	4 []
L. I reread or study my notes prior to a quiz or test.	1 []	2 []	3 []	4 []
M. I do practice quizzes before taking a test.	1 []	2 []	3 []	4 []
N. I do my course assignments first, before I do other things.	1 []	2 []	3 []	4 []
O. I complete my assignments days or weeks before they are due.	1 []	2 []	3 []	4 []
P. I join study teams or virtual study teams via listserv, chat or e-mail, etc.	1 []	2 []	3 []	4 []
Q. I e-mail or see my instructor for help when I don't understand.	1 []	2 []	3 []	4 []
R. If I don't understand one source, I get the information another way.	1 []	2 []	3 []	4 []

V. Do you have other strategies for learning new things? If so, please describe them:

_____

I. Other Learning Factors: These items have to do with your confidence regarding technology, doing the assignments, and completing the course.

Directions: For these items please select the one response that best reflects the extent to which you believe you can perform each task. Try to quantify with numbers ranging from 1 (Probably not), to 4 (Definitely I can).	**(1) Probably not**	**(2) Maybe I can**	**(3) Probably I can**	**(4) Definitely I can**
1. I can acquire and use the technology needed for this course.	1 []	2 []	3 []	4 []
2. I can master the technology necessary to complete this course.	1 []	2 []	3 []	4 []
3. I can perform the tasks that are necessary to pass this course.	1 []	2 []	3 []	4 []
4. I can do the assignments required to complete this course.	1 []	2 []	3 []	4 []
5. I can complete this course.	1 []	2 []	3 []	4 []
6. I believe I can pass this course this semester/term.	1 []	2 []	3 []	4 []
G. I can complete this course with a satisfactory grade.	1 []	2 []	3 []	4 []

Thank you for your participation.

.

Appendix C

Survey Questions Sorted by Demographics and Constructs

Demographics

1. Gender?
2. Age?
3. High school GPA (on a 4.0 scale)?
4. College (Undergraduate) GPA (on a 4.0 scale)?
5. Race/Ethnicity:
6. Current year in school or status.

Identification of Web-Based and Traditional Classroom Students

1. How often do you physically attend class in a traditional classroom for this course?

   [] Not at all. The entire course is online.

   [] I attend class only once or twice per semester (orientation and final exam).

   [] The class meets weekly, but I can do most of the work without attending classes in person, so I rarely attend class.

   [] I attend class only for proctored exams.

   [] I attend class one or more times a month.

   [] I attend class one or more times a week.

2. For this course, what face-to-face, real-time contact have you had with the instructor or course assistant in scheduled class meetings?

   [] Once or twice at most.

   [] More than twice but less than weekly.

   [] At least weekly.

2. Counting this course, what is the total number of web-based courses you are currently taking? None [] 1 [] 2 [] 3 [] 4 [] 5 []

3. Prior to and not counting this semester how many web-based courses have you taken in the past two years?

None [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 []

4. How far do you live from campus?

On campus [] 1-5 miles [] 6-20 miles [] 21-50 miles [] Greater than 50 miles []

5. What contact have you had with the instructor outside of the classroom?

(Check all that apply.)

_E-mail [] Phone [] Chat Room [] Instructor's office []Other (describe)

6. How many times have you met with the instructor in person outside of scheduled class time? None [] 1 [] 2 [] 3 [] 4 [] 5 [] 6 []

7. What is the single most important reason that you registered for this particular format/section for this course?

[] It was available and no other section was available.

[] It fits my class schedule.

[] It fits my work schedule.

[] Convenience for my family obligations.

[] Religious or cultural concerns.

[] To accommodate a physical disability that I have.

[] To accommodate a learning disability that I have.

[] To avoid driving hassles.

[] To avoid parking hassles.

[] Convenient location (or non-location if web-based).

[] Preference for this instructor.

[] Preference for traditional classroom courses.

[] Preference for web-based courses.

[] Other (describe): _____

8. What is the format of other courses you are taking this semester?

[] Primarily Web-based (meet face to face only once or twice per semester).

[] Primarily Traditional (usually meet one or more times a week).

[] Primarily Traditional (usually meet one or more times a month).

[] Meet at least once a week but I can do most of the work without attending classes in person.

[] Mixed - some are web-based or don't require attendance, and some are traditional.

[] Not applicable – this is the only course I am taking this semester.

Table 46

Goal Conflict Questions and Their Variable Names

Item #	Likert response goal conflict question	Variable name
30.	I do other things when I should be studying.	DOOTHER
31.	It is difficult to study because I have other things on my mind.	ONMIND
32.	I am under stress due to circumstances that conflict with my studies.	STRESS
33.	One or more distracting factors interfere with my learning.	DISTRACT
34.	Someone close to me disapproves of my taking classes.	DISAPPRO
35.	My social life affects my study time.	SOCIAL
36.	World affairs or thoughts of war affect my current schoolwork.	WORLDAFF
37.	Intentionally or not, someone close to me sabotages my studies.	SABOTAGE
38.	I procrastinate.	PROCRAST
39.	The technology needed for this course causes problems for me.	TECHPROB

A. Including yourself, how many people live in your household or dorm room?

B. How many children live with you?

Age 0 – 3 __ ; Age 4 – 7 __; Age 8 – 11 __; Age 12 – 18 ___.

C. Are you responsible for a senior citizen, child, or other person who needs assistance? (Please select the appropriate response.)

Never [] Rarely [] Sometimes [] Usually [] Always []

D. How many hours per week are you employed?

E. How many credit hours are enrolled in this semester?

F. Are you married? Yes [] No [] Living with a significant other? Yes [] No []

G. Do you have an illness or disability? Yes [] No []

If so, does it affect your studies? Very little [] Somewhat [] A lot []

H. Does someone close to you have illness or disability? Yes [] No []

If so, does it affect your studies? Very little [] Somewhat [] A lot []

I. Please add any other situations that affect your study time for this course.

Table 47

Self-Regulation Questions and Their Variable Names

Survey Statement	Variable name
I arrange to have the technology needed for my coursework.	ARRTECH
I analyze assignments to determine what I need to do.	ANALYZE
I try to estimate the amount of time needed for each assignment.	ESTITIME
I make schedules for doing my assignments.	SCHEDULE
I set daily or weekly goals for myself as I work on assignments.	SETGOALS
I deliberately block out distractions when I study.	BLOCKDIS
When I study I intentionally categorize and classify things in my mind.	CATGORIZ
I practice saying important facts over and over to myself.	PRACTICE
I try to relate new information to what I already know.	RELATE
I underline, take notes, or outline new information as I read.	UNDERLIN
I use flashcards to study course material.	FLASHCAR
I reread or study my notes prior to a quiz or test.	REREAD
I do practice quizzes before taking a test.	PRCTQUIZ
I do my course assignments first, before I do other things.	FIRST
I complete my assignments days or weeks before they are due.	EARLY
I join study teams or virtual study teams via listserv, chat or e-mail, etc.	STUDYTEM
I e-mail or see my instructor for help when I don't understand.	CONTACT
If I don't understand one source, I get the information another way.	ANOTHER

Table 48

Self-Efficacy Questions and Their Variable Names

Self-Efficacy questions	Variable name
I can acquire and use the technology needed for this course.	USETECH
I can master the technology necessary to complete this course.	MASTTECH
I can perform the tasks that are necessary to pass this course.	PERFORM
I can do the assignments required to complete this course.	DOASSIGN
I can complete this course.	CANCOMPL
I believe I can pass this course this semester/term.	CANPASS
I can complete this course this term with a satisfactory grade.	SATISGRADE

Appendix D

Traditional students received the following verbal announcement concerning the survey and the drawing:

> My name is Barbara Moore. I am a doctoral candidate in the College of Education and I am conducting the research for my dissertation.
>
> I am studying instructional goal conflicts (things that stop you from studying), instructional self-regulation (the way you study), and their relationship to course completion (pass, fail, withdraw, incomplete).
>
> I will also compare these items in web-based courses to the same in classroom-based courses. This course has been chosen because it is offered in both formats.
>
> I have created a survey to gather the information and I need your input!
>
> Your instructor may or may not be offering you credit or extra credit for participation in this study, therefore I am offering, as a thank you/incentive for your participation, one entry per participant in a drawing for the following: one $100 gift, one $50 gift and two $25 gifts.
>
> Please take a few minutes to complete the survey and the drawing entry form, then place them in the two separate boxes near the door. Thank you.

The following email announcement was sent to web-based instructors Friday, October 3,

2003:

My survey is available online and will be available to your students through Sunday, October 19. If you would like to check out the survey yourself, please feel free to do so. If you try out the survey or drawing entry, please let me know what student number you enter and course you select (or name used on the drawing entry) so that I can remove that data before analysis.

Please contact your students either via email or a posting on your course web site, using the announcement below.

Thanks,
Barb
********** Message to Students Follows **********

The following message has been received from Barbara Moore, doctoral candidate in the College of Education, regarding her dissertation research. Please note the information about the drawing - $100, $50, $25!

You are invited to please participate in a survey! It will be available for two weeks only.

I am studying instructional goal conflicts (things that stop you from studying), instructional self-regulation (the way you study), and their relationship to course completion (pass, fail, withdraw, incomplete).

I will also compare these items in web-based courses to the same in classroom-based courses. This course has been chosen because it is offered in both formats.
Your input is very much needed!

Your instructor may or may not be offering you credit or extra credit for participation in this study, therefore I am offering, as a thank you/incentive for your participation, one entry per participant in a drawing:

One $100. gift to be given away.
One $50. gift to be given away.
Two $25. gifts to be given away.

When you submit your responses to the survey, you will be directed to an on-line form to fill out. At that point your survey information will be separated from the entry form. The entry form requires contact info from you so that I can contact you if your entry

form is drawn. Only one entry per participant will be considered. Winner's enrollment in a participating course must be verified before award is made. The drawing will be held in the Secondary Ed office, 4th floor EDU, at 4 p.m. on Friday, October 31, 2003. You need not be present to win. Information on the entry form will be discarded following the drawing and will not be used in any other way.

To take survey go to: http://www.math.usf.edu/~tmajchrz/barb/intro.html

Thank you!
Barb Moore
bmoore@tempest.coedu.usf.edu

Appendix D (continued)

Traditional classroom participants received the entry form below and were requested to fill it out and return it when they turned in their survey. An on-line version of the entry form was offered to participants upon submission of the survey.

As incentive and thank you for completing this form, I am offering a chance in a drawing that will be held in the Secondary Ed office (3rd floor, EDU) on Friday, October 31, 2003, at 4 pm. You need not be present to win but I need contact information if you want to be included in the drawing. The information will not be connected in any way to the survey or your responses to the survey. After the drawing, the information will be discarded and not used in any other way.

The following reward/incentives will be offered: Two gifts of $25. each, one gift of $50. and one gift of $100. Winners will be drawn in the order listed above.

If you wish to be included in the drawing, please fill in enough information so that I can contact you if your name is drawn.

Name: _____

Address:_____

Phone: _____

Thank you for your participation in the survey.

Barb Moore

Only one drawing entry per student will be considered. Your chances of winning depend on the total number of valid entries received.

Appendix E

Pilot Participant Responses Regarding Other Goal Conflicts

Pilot study (n = 297) participants' responses to Question 39 on the pilot survey, "Briefly list sources of stress or other factors not mentioned previously that could impact your time, emotions, or attitude while taking this course." (This is only a partial listing of typical responses - 11 pages total are available.)

7152 I am currently mentoring several candidates for National Board (NBPTS) certification. I'm also mentoring a beginning teacher and helping to facilitate my county's new teacher induction program.

9247 I have so much school work, trying to graduate in three years, maintaining a job, and a boyfriend that is an hour away. I am close with my family so I go home a lot as well. I am in a sorority so that takes up too much time as well.

01127 sorority life, boyfriend problems

01337 Class, boyfriend, work, homework, not understanding classwork.

01389 work demands

01604 I am a full-time teacher. I have returned to teaching after 15 years in business. The education course demands that the state has placed on me and the short amount of time that I have to complete these courses in heightens my stress level. Furthermore I have three preparations this semester, two of which are courses that I have never taught before. In order to do a good job, it takes time to prepare. And as you can see from my course load, I am taking two other distance courses besides Dr. **********'s. Very little time is left for anything else.

01675 other course requirements. practicum requirement. over 40hour work week. Still maintaining a household and raising a teenager.

01688 Middle school children and their activities

02941 health issues, boyfriend, and other classes.

03765 I am 9 months pregnant with a high risk pregnancy

03916 my wedding was 10/27/01. i am a full-time kindergarten teacher (2nd yr) and this requires too much of my time, i have taken four courses at a time and spent less time on homework. A lot of the questions have faults in them - that makes it hard for me to absorb information.

03926 Slow internet connections, bills, lesson plans, other course that requires reading, pets, projects at work & learning new materials & learning how to use new resources at work, traffic

04636 Terrorist attacks and keeping up w/news

05323 illness, family problems, living problems, friend problems

05467 stress from work, money, family status meaning their health specifically my grandmother, the person I live with is noisy, other class requirements and deadlines

05666 An on-line Measurement class!!!! A second job!!! And EVERY EXTRA HOUR UNTIL 11:30 P.M. DOING COURSEWORK EVERY DAY!!!....NO LIFE. All I do is learn, learn, learn! I should have taken the class version of these courses.

05760 The amount of time and work that is needed to complete this course, work, my reading disability, illness of my father and a good friend.

Appendix F

Informed Consent

Information about this research:

Title of Study:	Learning Factors
Principal Investigator:	Barbara Moore
Study Location:	University of South Florida

You are being asked to participate because I am collecting information about the goal conflicts, self-regulation, and course completion of students taking this course.

General Information about the Research Study

The purpose of this research study is to examine the goal conflicts of post-secondary learners

and the effect of goal conflicts on self-regulation and course completion. Data collection, concerning distance learners as well as students in traditional classrooms, will utilize a self-report questionnaire.

Plan of Study

- You are requested to please fill out the following survey. It should take 10 - 15 minutes.
  - The data you submit will be added to a database of responses.
  - In addition to the information you submit, your course completion data (pass, fail, withdraw or incomplete) will be used in the study. Your instructor will make your completion data available to me attached to only the last 5 numbers of your social security number, so that I will not have information as to your name or any other identifying information.
- There is no financial payment for your participation in the study.

Benefits of Being a Part of this Research Study

- You will not directly benefit from participating in this survey, unless your instructor has agreed to provide extra credit for its completion.

It is expected that you will utilize the survey as a simple and quick process to give input/feedback regarding the course and the learning process in this learning environment. It is further anticipated that the results of this study will assist in the design of effective instruction in both distance learning courses and traditional classroom settings.

Risks of Being a Part of this Research Study

- There are no known risks as a result of participating in this study.

Confidentiality of Your Records

- Your privacy and research records will be kept confidential to the extent of the law.

Authorized research personnel, employees of the Department of Health and Human Services and the USF Institutional Review Board may inspect the records from this research project.

- The results of this study may be published. However, the data obtained from you will be combined with data from other people in the publication. The published results will not include your name or any other information that would in any way personally identify you.
- As primary investigator in this research, I will have knowledge of only the last five digits of your social security number. This will be used to verify with your instructor that you are enrolled in this course. I will not have knowledge of your name or any other identifying information. Your instructor will not have access to your individual response to the survey, but will have only the information that you

did complete the survey.

- The data obtained in this study will be stored in a file on a server at the University of South Florida, and, although a password is required to access this file, there is a possibility that others may see the data.

Volunteering to Be Part of this Research Study

- Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. If you choose not to participate, or if you withdraw, there will be no penalty. Your decision will not adversely affect your course grade.
- Your Consent:

  By completing the survey I agree that:

  - I have fully read, or have had read and explained to me in my native language, this informed consent form describing a research project.
  - I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.
    - I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.
    - I have been given a copy of this informed consent form, which is mine to keep.

  Questions and Contacts

  - If you have any questions about this research study, contact Barbara Moore, (813) 784-5525.

- If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-5638.

Investigator Statement:

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board. That contains the nature, demands, risks and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

Institutional Approval of Study and Informed Consent

This research project/study and informed consent form were reviewed and approved by the University of South Florida Institutional Review Board for the protection of human subjects. This approval is valid until 8/31/04

. The board may be contacted at (813) 974-5638.

Appendix G

Table 49

Rotated Factor Pattern (Standardized Regression Coefficients)

Variable	Factor1	Factor2	Factor3	Factor4
DOOTHER	-0.37796	0.03022	0.59443	0.17991
ONMIND	-0.22910	-0.03796	0.68452	0.02778
STRESS	0.00060	-0.05201	0.61956	-0.06691
DISTRACT	-0.15054	-0.06282	0.64775	-0.05684
DISAPPRO	0.02290	-0.03671	0.15223	-0.16070
SOCIAL	-0.20927	0.00256	0.38714	0.03108
WORLDAFF	0.10250	-0.02297	0.32704	-0.05610
SABOTAGE	0.02505	-0.01646	0.36013	-0.05935
PROCRAST	-0.43083	0.07466	0.45198	0.17097
TECHPROB	0.02004	-0.02049	0.29219	-0.29599
ARRTECH	0.14473	0.05793	0.02074	0.30764
USETECH	0.09121	0.30891	-0.04758	0.63797
MASTTECH	0.13474	0.38343	-0.00047	0.59044

Table 49 (continued).

Variable	Factor1	Factor2	Factor3	Factor4
ANALYZE	0.51870	0.10213	0.02063	0.20314
ESTITIME	0.54386	0.04851	0.01165	0.03399
SCHEDULE	0.65226	0.03607	-0.07162	-0.14783
SETGOALS	0.66434	0.07333	-0.07456	-0.14103
BLOCKDIS	0.53852	0.06514	-0.26231	-0.00467
CATGORIZ	0.60317	0.06151	-0.02711	0.00417
PRACTICE	0.49906	0.01431	0.03411	0.08461
RELATE	0.47765	0.06161	0.04445	0.18614
UNDERLIN	0.50820	0.03095	-0.05382	0.12885
FLASHCAR	0.35490	-0.01063	-0.01446	0.03016
REREAD	0.32739	0.06810	-0.04314	0.25826
PRCTQUIZ	0.42979	0.02057	-0.07247	0.16108
FIRST	0.59341	-0.00178	-0.26434	-0.04728
EARLY	0.53555	0.01268	-0.30143	-0.04422
STUDYTEM	0.39031	-0.00384	-0.08275	-0.00520
CONTACT	0.40972	0.10062	0.01171	0.08584
ANOTHER	0.37020	0.05349	-0.02501	0.19709

Table 49 (continued).

Variable	Factor1	Factor2	Factor3	Factor4
PERFORM	0.08427	0.74123	-0.03424	0.35542
DOASSIGN	0.11483	0.74999	-0.06218	0.27538
CANCOMPL	0.05240	0.88780	-0.02498	0.10463
CANPASS	0.06999	0.90995	-0.06210	0.03004
SATISGRADE	0.08953	0.84251	-0.05937	0.05523

Appendix H

Table 50

Number of Participants Living with Children

Number of children	Traditional		Web-based		Total	
	n	% of 540	n	% of 604	*n*	% of 1,144
1 child 0 to 3	16	2.96	31	5.13	47	4.11
2 children 0 to 3	2	0.37	13	2.15	15	1.31
Total living with children ages 0 to 3	18	3.33	44	7.28	62	5.42
Total living with no children ages 0 to 3	522	96.67	560	92.72	1082	94.58
1 child aged 0 to 7	23	4.26	40	6.62	63	5.51
2 children ages 0 to 7	4	0.74	27	4.47	31	2.71
3 children ages 0 to 7	1	0.19	3	0.50	4	0.35
4 children ages 0 to 7	1	0.19	1	0.17	2	0.17
Total living with children ages 0 to 7	29	5.38	71	11.75	100	8.74
Total living with no children ages 0 to 7	511	94.63	533	88.25	1044	91.26
1 child aged 0 to 11	30	5.56	51	8.44	81	7.08
2 children ages 0 to 11	8	1.48	31	5.13	39	3.41
3 children ages 0 to 11	2	0.37	9	1.49	11	0.96
4 children ages 0 to 11	1	0.19	2	0.33	3	0.26
Total living with children ages 0 to 11	41	7.59	93	15.40	134	11.71
Total with no children ages 0 to 11	499	92.41	511	84.60	1010	88.29

Table 50 (continued).

Number of children	Traditional		Web-based		Total	
	n	% of 540	n	% of 604	*n*	% of 1,144
1 child aged 0 to 18	57	10.56	87	14.40	144	12.59
2 children ages 0 to 18	18	3.33	41	6.79	59	5.16
3 children ages 0 to 18	13	2.41	14	2.32	27	2.36
4 children ages 0 to 18	2	0.37	9	1.49	11	0.96
5 children ages 0 to 18	0	0.00	2	0.33	2	0.17
7 children ages 0 to 18	1	0.19	1	0.17	2	0.17
18 children ages 0 to 18	0	0.00	1	0.17	1	0.09
75 children ages 0 to 18	1	0.19	0	0.00	1	0.09
Total living with children ages 0 to 18	92	17.03	155	25.66	247	21.59
Total living with no children ages 0 - 18	448	82.96	449	74.34	897	78.41

Appendix I

Table 51

Comparing Goal Conflict Likert Responses by Format

Question	Response	Traditional *n*	Traditional % of 540	Web-Based *n*	Web-Based % of 604
I do other things when I should be studying.					
	Not true	9	1.67	14	2.32
	Rarely	72	13.33	76	12.58
	Sometimes	279	51.67	297	49.17
	Often	180	33.33	216	35.76
It is difficult to study because I have other things on my mind.					
	Not true	17	3.15	23	3.81
	Rarely	94	17.41	105	17.38
	Sometimes	259	47.96	286	47.35
	Often	169	31.30	189	31.29
I am under stress due to circumstances that conflict with my studies.					
Not true	Not true	51	9.44	56	9.27
Rarely	Rarely	174	32.22	136	22.52
Sometimes	Sometimes	193	35.74	258	42.72
Often	Often	121	22.41	153	25.33
No Response	No Response	1	0.19	1	0.17

Table 51 (continued).

Question	Response	Traditional *n*	Traditional % of 540	Web-Based *n*	Web-Based % of 604
One or more distracting factors interfere with my learning.					
	Not true	55	10.19	52	8.61
	Rarely	174	32.22	185	30.63
	Sometimes	235	43.52	258	42.72
	Often	76	14.07	107	17.72
	No Response	0	0.0	2	0.33
Someone close to me disapproves with my taking classes.					
	Not true	511	94.63	556	92.05
	Rarely	20	3.70	20	3.31
	Sometimes	7	1.30	19	3.15
	Often	2	0.37	8	1.32
	No Response	0	0.00	1	0.17
My social life affects my study time.					
	Not true	123	22.78	162	26.82
	Rarely	186	34.44	211	34.93
	Sometimes	159	29.44	169	27.98
	Often	72	13.33	59	9.77
	No Response	0	0.00	3	0.50

Table 51 (continued).

Question	Response	Traditional n	Traditional % of 540	Web-Based *n*	Web-Based % of 604
World affairs or thoughts of war affect my current schoolwork.					
	Not true	361	66.85	392	64.90
	Rarely	148	27.41	157	25.99
	Sometimes	27	5.00	47	7.78
	Often	4	0.74	6	0.99
	No Response	0	0.00	2	0.33
Intentionally or not, someone close to me sabotages my studies.					
	Not true	368	68.15	406	67.22
	Rarely	98	18.15	105	17.38
	Sometimes	61	11.30	70	11.59
	Often	12	2.22	22	3.64
	No Response	1	0.19	1	0.17
I procrastinate.					
	Not true	27	5.00	42	6.95
	Rarely	97	17.96	95	15.73
	Sometimes	202	37.41	239	39.57
	Often	213	39.44	227	37.58
	No Response	1	0.19	1	0.17

Table 51 (continued).

Question	Response	Traditional *n*	Traditional % of 540	Web-Based *n*	Web-Based % of 604
The technology needed for this course causes problems for me.	Not true	364	67.41	409	67.92
	Rarely	101	18.70	125	20.70
	Sometimes	61	11.30	57	9.44
	Often	14	2.59	12	1.99
	No Response	0	0.00	1	0.17

Appendix J

Table 52

Frequency of Participants' College Majors Sorted by Format

Major	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
Education	222	41.11	93	15.40	315	27.53
Business	44	8.15	167	27.65	211	18.44
Bio Sciences, Pre-Med, Pre-dental	70	12.96	69	11.42	139	12.15
Communications, MIS, LIS	17	3.15	63	10.43	80	6.99
Undecided	52	9.63	10	1.66	62	5.42
Psychology	11	2.04	46	7.62	57	4.98
Nursing	35	6.48	17	2.81	52	4.55
Criminology	9	1.67	37	6.13	46	4.02
Engineering	15	2.78	7	1.16	22	1.92
Wellness, wellness educ, sports med	14	2.59	2	0.33	16	1.40
Political Science, law, pre-law	4	0.74	9	1.49	13	1.14
Chemistry, Physics, Math	6	1.11	7	1.16	13	1.14
Finance/ economics	3	0.56	10	1.66	13	1.06
Marketing, advertising	4	0.74	8	1.32	12	1.05
International Studies, Internat'l Business	3	0.56	9	1.49	12	1.05

Table 52 (continued).

Major	Traditional		Web-based		Total	
	n	% of 540	*n*	% of 604	*n*	% of 1,144
Accounting	4	0.74	7	1.16	11	0.96
Fine Arts: dance, art, theater, music	4	0.74	7	1.16	11	0.96
Architecture	4	0.74	2	0.33	6	0.52
Sociology	4	0.74	3	0.50	7	0.61
Computer Sci, computer engineering	4	0.74	2	0.33	6	0.52
Anthropology, history	1	0.19	6	0.99	7	0.61
Social Work	1	0.19	5	0.83	6	0.52
English	1	0.19	2	0.33	3	0.26
Other Languages	0	0.0	2	0.33	2	0.17
Journalism	1	0.19	0	0.00	1	0.09
Philosophy	0	0.0	1	0.17	1	0.09
Humanities	0	0.0	1	0.17	1	0.09
Liberal Arts	1	0.19	0	0.00	1	0.09
No Response					18	1.57
Total					1144	100.

Appendix K

The Likert-scored Conflict Measures of Course Nine Students Compared to all other Web-Based Students.

Table 53

Likert-Scored Conflicts of Course Nine Web Students Compared to All Other Web-Based Students

	Course Nine students					All other web-based students				
Variable	*n*	*M*	*SD*	*Sk*	*K*	*n*	*M*	*SD*	*Sk*	*K*
DOOTHER	475	3.240	0.707	-0.666	0.265	127	2.984	0.816	-0.504	-0.192
ONMIND	475	3.086	0.771	-0.538	-0.107	127	2.976	0.895	-0.561	-9.427
STRESS	475	2.846	0.895	-0.420	-0.551	127	2.827	0.969	-0.443	-0.745
DISTRACT	475	2.703	0.833	-0.210	-0.498	126	2.683	0.960	-00148	-0.938
DISAPPRO	475	1.133	0.521	4.206	17.470	127	1.150	0.473	3.201	9.271
SOCIAL	474	2.310	0.948	0.137	-0.931	126	1.833	0.856	0.796	-0.057
WORLDAF	474	1.479	0.701	1.352	1.211	127	1.331	0.592	1.621	1.576
SABOTAGE	475	1.537	0.852	1.457	1.072	127	1.441	0.783	1.558	1.156
PROCRAST	475	3.124	0.874	-0.759	-0.164	127	2.913	0.976	-0.605	-0.584
TECHPROB	475	1.432	0.712	1.544	1.534	127	1.551	0.861	1.469	1.192

Table 54

F Ratios of Likert-Scored Conflict Measures Comparing Course Nine Students to All Other Web-Based Students

Survey statement	*n*	*F* Ratio *F*	*p*
I do other things when I should be studying.	602	12.27	0.0005
It is difficult to study because I have other things on my mind.	602	1.90	0.169
I am under stress due to circumstances that conflict with my studies.	602	0.05	0.830
One or more distracting factors interfere with my learning.	601	0.06	0.811
Someone close to me disapproves of my taking classes.	602	0.11	0.740
My social life affects my study time.	600	26.18	<.0001
World affairs or thoughts of war affect my current schoolwork.	601	4.77	0.029
Intentionally or not, someone close to me sabotages my studies.	602	1.31	0.253
I procrastinate.	602	5.55	0.019
The technology needed for this course causes problems for me.	602	2.58	0.109

Appendix L

Table 40

Logistic Regression for Possible Predictors of Failing Course

n = 1143 Fail = 59 Not fail = 1060

24 observations not used due to missing values

Logistic regression results

	Analysis of maximum likelihood estimates		Type III analysis of effects		Odds ratio estimates		
Predictor variable	Maximum Likelihood estimate	Standard error	X^2	*p*	Odds ratio	95% Wald confidence estimates	
Intercept:	3.4292	2.0575	2.7777	0.0956			
Course format	1.4945	0.4146	12.9946	0.0003	4.457	1.978	10.044
(Traditional) Number children	0.0228	0.3540	0.0041	0.9487	1.023	0.511	2.047
Hrs worked*	0.0278	0.0114	5.9581	0.0146	1.028	1.005	1.051
Credit hours	0.0447	0.0683	0.4290	0.5125	1.046	0.915	1.196
Conflicts feelings	0.0164	0.0406	0.1627	0.6867	1.016	0.939	1.101
Arrange technol	0.0957	0.1574	0.3700	0.5430	1.100	0.808	1.498
Analyze assignments	-0.6653	0.2677	6.1787	0.0129	0.514	0.304	0.869
Estimate time	0.1337	0.2458	0.2960	0.5864	1.143	0.706	1.851
Schedule assignments	0.0769	0.2372	0.1050	0.7459	1.080	0.678	1.719
Set goals	-0.1835	0.2278	0.6491	0.4204	0.832	0.533	1.301
Block distractions	0.1218	0.2358	0.2667	0.6056	1.130	0.711	1.793
Categorize info	-0.1262	0.2268	0.3096	0.5779	0.881	0.565	1.375
Practice main facts	-0.0430	0.2129	0.0409	0.8398	0.958	0.631	1.454
Relate information	0.0028	0.2540	0.0001	0.9912	1.003	0.610	1.650
Underline/outline info	0.3086	0.2274	1.8420	0.1747	1.362	0.872	2.126
Use flashcards	0.0899	0.1751	0.2640	0.6074	1.094	0.776	1.542

Table 40 (continued).

n = 1143 Fail = 59 Not fail = 1060

24 observations not used due to missing values

Logistic Regression Results

	Analysis of maximum likelihood estimates		Type III analysis of effects		Odds ratio estimates		
Predictor variable	Maximum Likelihood estimate	Standard error	χ^2	*p*	Odds ratio	95% Wald confidence estimates	
Reread/study notes	-0.3910	0.2269	2.9713	0.0848	0.676	0.434	1.055
Practice quizzes	-0.2154	0.1902	1.2831	0.2573	0.806	0.555	1.170
Do assignments first	-0.2586	0.2544	1.0330	0.3095	0.772	0.469	1.271
Complete work early	0.2492	0.2298	1.1757	0.2782	1.283	0.818	2.013
Join study team	0.0466	0.2258	0.0427	0.8364	1.048	0.673	1.631
Contact instructor	-0.2845	0.2000	2.0224	0.1550	0.752	0.508	1.114
Get info another way	0.4018	0.2326	2.9840	0.0841	1.494	0.947	2.358
Student disability (no disability)	-1.0393	0.4735	4.8174	0.0282	0.354	0.140	0.895
Disability of relative (not present)	0.8168	0.4666	3.0641	0.0800	2.263	0.907	5.648
Self-Efficacy	-0.2327	0.0379	37.7352	<.0001	0.792	0.736	0.853
Prior achievement	-0.1040	0.1156	0.8105	0.3680	0.901	0.719	1.130

* Effect of outlier removed (participant reported 440 hours worked).

Table 41

Logistic Regression for Possible Predictors of Withdrawing from Course

n = 1143 Withdraw = 17 Not Withdraw = 1102

24 observations not used due to missing values

Logistic Regression Results

	Analysis of maximum likelihood estimates		Type III analysis of effects		Odds ratio estimates		
Predictor variable	Maximum Likelihood estimate	Standard error	X^2	*p*	Odds ratio	95% Wald confidence estimates	
Intercept:	-0.9914	4.2071	0.0555	0.8137			
Course format (Traditional)	-0.1506	0.7412	0.0413	0.8390	0.860	0.201	3.677
Number children	0.2069	0.5285	0.1532	0.6955	1.230	0.436	3.465
Hrs worked*	0.0497	0.0234	4.4994	0.0339	1.051	1.004	1.100
Credit hours	-0.0494	0.1143	0.1869	0.6655	0.952	0.761	1.191
Conflicts feelings	0.0544	0.0780	0.4853	0.4860	1.056	0.906	1.230
Arrange technol	0.0160	0.3138	0.0026	0.9594	1.016	0.549	1.879
Analyze assignments	-0.1845	0.5620	0.1077	0.7428	0.832	0.276	2.502
Estimate time	-0.0678	0.5204	0.0170	0.8963	0.934	0.337	2.591
Schedule assignments	-0.4746	0.4288	1.2250	0.2684	0.622	0.268	1.442
Set goals	-0.0811	0.4911	0.0272	0.8689	0.922	0.352	2.415
Block distractions	0.4293	0.4807	0.7979	0.3717	1.536	0.599	3.941
Categorize info	0.0460	0.5099	0.0081	0.9281	1.047	0.385	2.845
Practice main facts	0.2863	0.4695	0.3718	0.5420	1.331	0.530	3.342
Relate information	0.5471	0.5911	0.8568	0.3546	1.728	0.543	5.505
Underline/outline info	0.2380	0.5043	0.2228	0.6369	1.269	0.472	3.409
Use flashcards	0.0138	0.3128	0.0019	0.9649	1.014	0.549	1.872

Table 41 (continued).

n = 1143 Withdraw = 17 Not Withdraw = 1102

24 observations not used due to missing values

Logistic Regression Results

	Analysis of maximum likelihood estimates		Type III analysis of effects		Odds ratio estimates		
Predictor variable	Maximum likelihood estimate	Standard error	X^2	*p*	Odds ratio	95% Wald confidence estimates	
Reread/study notes	-0.3880	0.5825	0.4438	0.5053	0.678	0.217	2.125
Practice quizzes	0.5177	0.4071	1.6170	0.2035	1.678	0.756	3.727
Do assignments first	0.4677	0.5132	0.8306	0.3621	1.596	0.584	4.364
Complete work early	0.5179	0.4366	1.4073	0.2355	1.678	0.713	3.949
Join study team	0.7569	0.3868	3.8290	0.0504	2.132	0.999	4.550
Contact instructor	-1.0615	0.3896	7.4234	0.0064	0.346	0.161	0.742
Get info another way	0.2437	0.4544	0.2876	0.5918	1.276	0.524	3.109
Student disability	0.6182	1.1598	0.2842	0.5940	1.856	0.191	18.017
(no disability)							
Disability of relative	0.3431	0.8997	0.1454	0.7030	1.409	0.242	8.220
(not present)							
Self-Efficacy	-0.3967	0.0703	31.8440	<.0001	0.673	0.586	0.772
Prior achievement	-0.1451	0.2339	0.3846	0.5352	0.865	0.547	1.368

* Effect of outlier removed (participant reported 440 hours worked).

About the Author

Barbara Moore received her Bachelor of Science degree from Michigan State University, her teaching credentials from Madonna University, and a Master of Education in Curriculum and Instruction from the University of South Florida. She presented *Higher Level Thinking Skills and Individual Differences: Bridging Gaps with Technology*, at the SITE 2000 Conference in San Diego in February of 2000. She collaborated in the writing of a summary of many of the papers and presentations presented at the same conference. *Preservice Teacher Education*, (Moore, B., Burkett, R., White, J., & Feyten, C.), was published in Willis, D., Price, J., & Willis, J. (Eds.), SITE 2000: Society for Information Technology and Teacher Education 11th International Conference Proceedings. Ms. Moore was named Teacher of the Year at East Bay High School for the 2003 –2004 school year. She is currently serving as Chairman of the Science Department at Spoto High School in Hillsborough County, Florida.