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The Impact of Student Motivation on Participation and Academic Performance in Distance Learning

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The impact of student motivation on participation and academic performance in distance

learning

By

Candice Nicole Pittman

A Dissertation
Submitted to the Faculty of
Mississippi State University
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The impact of student motivation on participation and academic performance in distance

learning

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This study investigated the impact of motivation on students' participation and

academic performance in distance learning. Distance learning continues to grow in

popularity as more and more students enroll in distance education courses. These courses

require more responsibility on the part of the student. Some students are unaware of the

amount of work that is involved with these courses which can cause them to become

overwhelmed and discouraged, possibly leading them to drop the course. Students need

to be able to rely on their own individual abilities to be successful in distance learning

(Hodges, 2005).

At the same time, educators must also modify their instructional design when

transitioning from face-to-face instruction to web-based instruction (Lei & Gupta, 2010).

Improved technologies can provide the means for instructors to increase the quality of

learning in distance education. Technologies, such as asynchronous discussion boards

allow instructors to become facilitators of learning while providing students with the

opportunity to learn from one another through interaction. The use of asynchronous

technologies has been known to provide several benefits for students. Those benefits

include: (a) increasing student learning by helping students develop high-level concepts and skills, (b) decreasing the likelihood of procrastination, and (c) strengthening students' self-motivation and responsibility (Abrami & Bures, 1996; Barker, 2003; Kitchen & McDougall, 1999).

Twenty-nine upperclassmen and graduate students participated in this study during the summer of 2012. Using data gathered from the Motivated Strategies for Learning Questionnaire (MSLQ) and discussion board content, the researcher found student motivation to be associated with participation but not with academic performance. Also, associations were found to exist between participation and academic performance. In addition, self-efficacy, intrinsic and extrinsic goal orientation was found to be predictors of participation. The results indicate that some motivational constructs are contributing factors of student success in distance learning. Instructors and instructional designers should seek to include tools that can allow students to help themselves remain motivated while actively participating in the course. Future research should examine other learning strategies variables to determine if they may have an impact on participation and academic performance.

Key words: student motivation, participation, academic performance, distance learning

DEDICATION

I would like to dedicate this research to my family, especially my mom, whose tireless efforts, sacrifices, and unwavering support has helped me to reach this milestone in my life. This research is also dedicated to my friends, church members, and other loved ones for their continued support, prayers, and words of encouragement. Last, but not least, I would like to dedicate this research to my two rheumatologists: Dr. George Housley and Dr. Graciela Alarcón who have helped me to learn how to manage my condition and prevail despite the horrible side effects and constant pain I have endured.

For that, I would like to say THANK YOU!!! And, I appreciate everything that each of you has done. Whether small or large, each of you has played a special part in helping me to accomplish my goals. This dissertation is dedicated to all of you.

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CHAPTER I

INTRODUCTION

Introduction

Over the past several years, distance learning has grown exceedingly in

popularity. A 2011 report from the National Center for Education Statistics (NCES)

indicated that 20 % of all undergraduates and 22 % of all graduate students took at least

one distance learning course during the 2007-2008 academic year. At the same time, 4%

of all undergraduates and 9% of all graduate students took their whole degree program

through distance education (NCES, 2011). Distance learning has evolved from mail-order

correspondence courses and basic teacher-centered classroom instruction to web-based

environments where students and teachers could struggle daily to collaborate and/or

communicate effectively. A 2006-2007 study by the NCES indicated that of all the two-

year and four-year Title IV degree-granting postsecondary institutions, two-thirds of

them reported offering online, hybrid/blended online, or other distance education courses

(NCES, 2008).

Lei and Gupta (2010) believed that educators must change their approach to

instructional design when moving from classroom-centered instruction to web-based

instruction (p. 616). Distance learning environments require students to take more

responsibility for their learning. It is important for students to be able to work

independently in distance learning and not require constant dependence on the instructor

in order to be successful. Hodges (2005) suggested that students need to be able to rely on their individual abilities to complete assignments and to meet deadlines (p. 376). In other words, in order for students to be successful in distance learning, they will need to use self-regulated learning strategies.

Of all the Title IV degree-granting postsecondary institutions participating in the NCES (2008) study, most used asynchronous technologies for instructional delivery in distance education, while about 31% used synchronous technologies (p. 3). With the emergence of improved distance learning technologies, the use of online discussion boards is now a widespread channel for learning and communication in distance learning courses (Palmer, Holt, & Bray, 2008). The use of asynchronous technologies, such as online discussion boards, has been shown to increase student learning in addition to providing several benefits on behalf of the student, which substantiate findings from supporters of computer-mediated communication (CMC) as a part of computer-supported collaborative learning (CSCL). Researchers have identified several benefits of CMC and CSCL, such as helping students to achieve higher-level concepts and complex skills, decreasing the likelihood of procrastination, and strengthening self-motivation and responsibility (Abrami & Bures, 1996; Barker, 2003; Kitchen & McDougall, 1999).

Statement of the Problem

The continual emergence of new technologies has quickly helped to increase the demand for expansion in distance learning. Distance learning courses now incorporate live interactive audio or videoconferencing, pre-recorded instructional videos, webcasts, podcasts, the use of cds and dvds, and other computer-based systems (NCES, 2011). Despite the continual growth in distance learning, retention rates still present reasons for

concern for educators. The 2006-2007 study by the NCES indicated that out of all enrollments in distance education programs at degree-granting postsecondary institutions, 77 % of students are enrolled in online courses (NCES, 2008).

Although distance learning provides several benefits for students, it also presents a number of challenges as well. Challenges such as feelings of isolation, lack of interest, communication and technical issues, falling behind with course work, or increase in family or work responsibilities were reasons students indicated as causes for dropping out of distance learning courses (Ashby, 2004). Research has indicated a greater percentage of students have a tendency to drop out of distance learning courses compared to those in traditional face-to-face courses (Hiltz, 1997; Phipps & Merisotis, 1999). One researcher developed a model to explain factors causing learners to drop out of distance learning courses (Rovai, 2003). This model suggested that internal factors such as academic and social integration, self-esteem, and study habits affect whether or not students are retained in distance learning courses. Also, contact and support from instructors have also been shown to have an effect on student retention in distance learning (Nichols, 2010).

With the continual changes in technology and rapid expansion in distance education, research on strategies that can help improve distance learning are becoming increasingly important. Researchers are now attempting to discover new methods that can help instructors become more effective in facilitating distance learning courses while increasing retention rates. Not only are researchers attempting to discover methods to help instructors, but they are also making an effort to identify techniques to provide students with the best learning experience possible while keeping them engaged and motivated in the course. Motivation is important in distance learning because it helps

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students to work independently without the usual interaction found in traditional face-to-face environments (Marble, 2011).

Research has indicated that isolation is often associated with student enrolled in distance learning courses (Angelino, Williams, & Natvig, 2007). Other research has suggested that such feelings of isolation and alienation could cause online learners to become disconnected (Hara & Kling, 1999), while another study described these feelings as a psychological separation (Bauman, 1997) that could have an impact on their motivation. As a result, Alias (2012) believed "it is necessary to provide motivational support to learners in the online learning environment" (p. 137).

Social factors, such as participation through the use of online discussion boards, have been identified as important elements in CMC and CSCL (Guan, Tregonning, & Keenan, 2008). Research has shown that when using CMC in distance learning, it is the social factors rather than the technical factors that are the main determinants of student success or failure in learning (Guan et al., 2008). Guan et al. (2008) believed such findings "mirror views of proponents of the social constructivist theory or socio-cultural theory that knowledge is co-constructed through social dialogues" (p. 172)

Using the social cognitive theory as a theoretical framework, the researcher examined the motivational constructs of self-efficacy, goal orientation, and task value and the learning strategy of self-regulation as they relate to students' behavior in distance learning. These factors were used to determine the role academic performance and participation played in the distance learning courses. For the purposes of this study, participation was discussed in terms of online discussion board participation. The main

focus of this study was to investigate whether student motivation can predict participation and academic performance in distance learning.

Statement of the Problem

Motivation has been described as one of the most important components in any educational environment (Maehr, 1984). Although earlier research separated cognitive and motivational factors when assessing student learning and achievement, current research focuses on how these factors interact to influence student learning and achievement (Linnenbrink & Pintrich, 2002). A number of issues such as technical and technology problems, communication issues, and feelings of isolation can all cause online student motivation to vary (Beffa-Negrini, Cohen, & Miller, 2002). In addition, motivation is known as an "enabler for academic success" (Linnenbrink & Printrich, 2002, p. 314). As a result, it is imperative for instructors to be aware of such things in order for them to help keep students involved and engaged in distance learning courses.

Motivational models based on the social cognitive theory stressed the importance of being aware that students can be motivated in a variety of ways. At the same time, it is also important for instructors to realize "how and why students are motivated for school achievement" (Linnenbrink & Pintrich, 2002, p. 313). Three basic assumptions have been made regarding the social cognitive theory's models of motivation. According to Linnenbrink and Pintrich (2002), those assumptions are:

1. These models stress that students can be motivated in various ways.

2. Students' motivation can fluctuate based on the situation or environment.

3. It is not just the student's personal or cultural characteristics that influence motivation and achievement, but also the student's regulation of his or her

own motivation, behavior, or thinking that facilitates the relationships

between the person, context, and eventual achievement (pp. 313-314)

Based on these assumptions, the researcher identified a number of motivational

constructs and learning strategies that can be used to help facilitate student learning and

achievement. This study looked at the motivational constructs of self-efficacy, task value,

and goal orientation and the learning strategies of self-regulation and effort regulation

while investigating whether student motivation can impact participation and academic

performance in distance learning. All of the motivational constructs and the learning

strategies of self-regulation and effort regulation are important factors related to retention

in distance learning.

This study investigated whether students' motivation had an impact on

participation and academic performance in distance learning. Students were administered

a self-report questionnaire that was designed to measure their motivation in several

different areas. In addition to measuring student motivation, students' online discussion

board posts were also analyzed. The purpose of this study was to use the motivational

constructs of self-efficacy, intrinsic goal orientation, extrinsic goal orientation, and task

value along with the learning strategies of self-regulation and effort regulation to

examine associations between students' participation and academic performance in

distance learning.

Research Questions

The following questions will be examined during this research study:

1. Is there a relationship between students' motivation and their

    participation and academic performance in distance learning?

2. Is there a relationship between students' use of learning strategies and their participation and academic performance in distance learning?

3. Is there a relationship between students' participation and their academic performance in distance learning?

4. Can student motivation predict participation and academic performance in distance learning?

5. Can students' use of learning strategies predict participation and academic performance in distance learning?

Significance of the Study

Distance learning courses are becoming significant parts of distance education programs at higher education institutions. Administrators at these institutions are encouraging their faculty to develop more distance learning courses, although current studies have indicated that limited research has been performed related to distance learning course design or on educational learning theory related to distance learning. It has also been noted that many instructors are complying by transferring the material used in face-to-face environments to electronic or digital materials for use in their distance learning courses (Hara & Kling, 1999). A large amount of research in the area of distance learning focuses on academic comparisons with face-to-face courses or other descriptive studies.

Many studies have investigated the motivational constructs identified by the social cognitive theory to identify the impact they have on students in distance learning. The results from these studies indicated that student motivation can impact academic achievement in face-to-face environments (Corno & Rohrkemper, 1985; Linnenbrink &

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Pintrich, 2002; Pintrich & De Groot, 1990); however, other research has suggested that further research is needed to warrant more effective distance learning practices (Miltiadou & Savenye, 2003). Additionally, a number of previous researchers have emphasized the lack of inquiries regarding the motivational needs of students in distance learning (Astleitner & Keller, 1995; Gabrielle, 2003; Huett et al., 2007; Means, Jonassen, & Dwyer, 1997; Shellnut, Knowlton, & Savage, 1999; Visser & Keller, 1990).

In addition to more research on students' motivational needs, the researcher has determined the impact these motivational constructs may have on students' participation in online discussion boards and academic performance in distance learning courses. Research on self-regulation suggested more research is needed to examine the role personal characteristics, control, and regulation have on learning (Pintrich, 2000b). Artino and Stephens (2009) suggested that the social cognitive theories of self-regulation should be used to further research the relationships between students' thoughts, feelings, and actions during distance learning. A 2005 study by Hodges provided evidence that the use of self-regulated learning strategies can help students be successful in distance learning, but more research is needed to identify the strategies used by students to effectively regulate their learning.

In an effort to decrease retention rates and to help increase the overall success of students enrolled in distance learning courses, the researcher identified several key characteristics affecting distance learning outcomes for students. The current study expanded upon previous research (Puzziferro, 2008; Schunk & Zimmerman, 1998; Zimmerman, 1989) and examined the motivational constructs of self-efficacy, goal orientation, and task value along with the learning strategy of self-regulation to determine

relationships between participation and academic performance in distance learning. These motivational constructs along with the learning strategy of self-regulation were also used to explain the role of motivation in predicting distance learning behaviors.

Delimitations

This study was delimited in that it only focused on five courses offered online through a department of instructional systems housed in a college of education at a large research university in southeastern United States. The courses consisted of one graduate level course and four split-level courses (consisting of both undergraduate and graduate students) offered during either the first 5-week summer term or the second 5-week summer term in 2012. Students' evaluation of their motivation was delimited to the options available on the Motivated Strategies for Learning Questionnaire (MSLQ) instrument.

Limitations

This study is limited in a number of ways and makes the following assumptions:

1) Due to the study relying on students to answer a self-report questionnaire, the researcher assumes that the participants answered the questionnaire honestly and to the best of their abilities.

2) The population consisted of students from five courses offered in an instructional systems department at a large research university in the southeastern United States. Therefore, students in this study would not necessarily be representative of the entire student population.

3) The courses were taught by different instructors with different teaching styles.

4) Each course differed in its overall structure.

Definitions of Terms

For the purpose of this study, terms that are unique to this study, technical in nature, or subject to multiple interpretations are defined as follows:

1. Academic Performance - The total number of points from activities in the course. The number of possible points was different for each group.

2. Asynchronous - Communication between students or users that do not occur at the same time.

3. Computer-Based Systems - A system in which the computer is used to interact.

4. Computer-Mediated Communication (CMC) - A text-based communication environment where two or more computer users can interact.

5. Computer-Supported Collaborative Learning (CSCL) - An instructional approach where learning occurs through interaction by means of computer usage.

6. Discussion Board - An asynchronous communication tool used by teachers and students to interact in distance learning courses by posting comments or questions.

7. Distance Education - A division of education where the teacher and student are not in the same place.

8. Distance Learning - A form of distance education where instruction is delivered through the use of the Internet.

9. Effort Regulation (ER) - The ability to regulate one's learning while facing adversities or distractions. Measured by MSLQ subscale.

10. Extrinsic Goal Orientation (EGO) - Reasons students' engage in particular tasks, specifically to avoid looking bad to others, to get rewards, or to earn good grades. Measured by MSLQ subscale.

11. Impact - For the purposes of this study, impact means the influence something may have on students.

12. Intrinsic Goal Orientation (IGO) - Reasons students' engage in particular tasks, specifically to accomplish something or for the challenge. Measured by MSLQ subscale.

13. Motivational Construct - Concept or idea that may lead to motivation.

14. Motivation - An emotional feeling that causes students to complete assignments and tasks and directs them toward particular paths.

15. Participation - The number of messages posted to the discussion board. The amount of required messages was different for each group.

16. Retention - Keeping students enrolled in a course.

17. Self-Efficacy (SE) - One's perception of their ability. Measured by MSLQ subscale.

18. Self-Regulation (SR) - The ability to regulate one's learning. Measured by MSLQ subscale.

19. Social Cognitive Theory - Theory that proposes students learn from experience with personal, environmental, and behavioral factors.

20. Social Constructivist Theory- Theory that proposes culture can provide the cognitive tools needed for an individual to develop.

21. Socio-Cultural Theory- Theory that proposes interactions between an individual and society can impact an individual's development.

22. Synchronous - Communication between students or users that occur at the same time.

23. Task Value (TV) - Students' perceptions of tasks in terms of importance or value. Measured by MSLQ subscale.

24. Title IV - A program that provides assistance or benefits to eligible students enrolled in postsecondary education. Some example of benefits include: the Federal Pell Grant, Federal Work Study Program, and the Federal Stafford Loan Program.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to review the literature in terms of research relevant to this study. The purpose of this study was to use the motivational constructs of self-efficacy, intrinsic goal orientation, extrinsic goal orientation, and task value along with the learning strategies of self-regulation and effort regulation to examine associations between students' participation and academic performance in distance learning. An introduction to distance learning was provided to construct a solid base for this study. Next, it discusses motivation and the different constructs within motivation and how those constructs can affect students in distance learning. Also, the nature of interaction in distance learning is discussed. Lastly, the literature review culminates with an in-depth discussion of Moore's theory of transactional distance and how it relates to interaction in distance learning.

Distance Learning: History, Benefits, and Challenges

In a 2008 study, the NCES defined distance education as a formal education process in which the student and instructors are not in the same place. Distance learning has become an ever-growing process in the 21st Century. The increase in the popularity of distance education gives professional schools a way to improve student access to higher education (Horvath & Mills, 2011). Distance education has evolved from basic

teacher-centered classroom instruction, mail-order instruction, and home-schooled environments to a web-based environment that requires more from students and teachers to collaborate and/or communicate effectively.

Casey (2008) noted that the history of education actually spans over a period of 300 years and began with basic vocational courses that were delivered through the postal service (p. 45). Today, the online instructional delivery systems utilized in distance learning programs are capable of conferring doctoral degrees (Casey, 2008). Distance learning continues to flourish in the United States due to the increasing number of students who are deciding to attend college. Casey (2008) indicated three reasons distance learning is flourishing in the United States as (a) geographic and socioeconomic differences between the students and the educational institutions, (b) the desire to attain an education and (c) rapid technological innovations (p. 45). These three elements will continue to play an important role in distance learning.

History of Distance Learning

The earliest instructional delivery system within distance learning was through the use of correspondence courses (Perry & Pilati, 2011). It was not until 1892 that distance learning achieved academic recognition from academic institutions. The University of Chicago was the first institution to develop a college-level distance learning program (Casey, 2008). Advances in radio broadcasting and technology in the early 1920s provided students with the opportunity to hear their instructors. As a result, instructors no longer had to rely solely on mail delivery (Casey, 2008). The development of the television provided another instructional method for distance learning. In 1934, the University of Iowa was the first educational institution to broadcast courses by television

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(Casey, 2008). In 1969, a new technology called the Internet was being developed by the United States Department of Defense (Perry & Pilati, 2011). Distance learning instructional methods were transformed yet again by the development of the microcomputer during the 1970s. Improvements to the computer and the development of the World Wide Web provided greater possibilities for distance learning. With the development of the first graphical Web browser in 1991, "the Web" was launched (Perry & Pilati, 2011). According to Casey (2008), "with the introduction of the high-speed broadband transmission, distance learning over the Internet became the next instructional frontier" (p. 48). "A new generation of multimedia designers have now filled online repositories with Web-based course materials for students to access at their convenience" (Baggaley, 2008, p. 44). With the development of online course management systems such as WebCT and Blackboard, instructors were able to better facilitate learning with students. Distance learning has now become an integral part of the higher education environment (Perry & Pilati, 2011). Distance learning, as we know it today, is still a fairly new learning environment.

Benefits of Distance Learning

Distance learning can provide numerous benefits for teachers and students. One of the most commonly noted reasons students choose to take distance learning courses is the flexibility they offer. Such flexibility provides students with the opportunity to use the motivational constructs within the social cognitive theory to direct their own learning. A study by Dyrbye, Cumyn, Day, and Heflin (2009) found that the online learning format provided convenience and flexibility that enabled students to overcome constraints that would otherwise have prohibited their participation (p. e41). Lei and Gupta (2010) noted

that distance learning provided students with the opportunity to work at their own pace. This benefit can prove crucial to students who are employed full-time. Distance learning allows them to work by day, and complete class assignments and activities during available time in the evenings.

Accessibility is another benefit of distance learning. Distance learning provides unlimited access for students to course information, notes, and/or assignments 24 hours a day and seven days a week (Li & Irby, 2008). Such access to course materials allows students to be able to work on assignments any day and time. According to Li and Irby (2008), "because of the availability of information, students can study in any location at any time of the day according to their schedule" (p. 453). One study cited allowing students to facilitate their own learning and providing time to reflect about the material as other advantages of distance learning (Dyrbye et al., 2009). Lei and Gupta (2010) noted that the development of practical skills, such as time management skills, critical thinking skills, and problem-solving skills, is another advantage of distance learning. A study by Hurt (2008) noted that distance learning can help students develop self-discipline and better technology skills. Hurt (2008) believed practical benefits of distance learning included the flexibility and convenience of being able to work on a course or degree when one has time available to do so.

Distance learning can also be beneficial for students with disabilities. According to Lei and Gupta (2010), students with a learning disability can learn outside of the classroom and work at their own pace while avoiding potential distractions from neighboring students. In addition, students with physical disabilities would not have to worry about the challenges of traveling regularly from home to a college campus (Lei &

Gupta, 2010). Many students with disabilities use distance learning to avoid the problems of access that are posed by face-to-face environments (Jelfs & Richardson, 2010). The benefits provided by distance learning provide such students with the opportunity to further their education while overcoming barriers that may have otherwise prevented them from reaching their goals and possibly their true potential.

Challenges of Distance Learning

Although there are many benefits in distance learning, some challenges also exist. Some of the most common challenges in distance learning are due to communication problems. Lei and Gupta (2010) believed students often lose a number of key resources when taking distance learning classes. For example, instructors are not able to help students with impromptu questions which could lead to delayed responses from instructors (Lei & Gupta, 2010). In addition, there is also a lack of direct assistance and explanations from instructors (Lei & Gupta, 2010). According to Hurt (2008), "students may feel isolated and alienated because of the absence of face-to-face contact" (p. 8). Hurt (2008) also noted that the degree of isolation may depend on the number of opportunities for interaction that an instructor builds into his or her class. Asynchronous communication can also present challenges to distance learning. Dyrbye et al. (2009) made the following comment regarding the asynchronous communication environment: "while flexible and convenient, it presented challenges for communicating clearly, collaborating, sharing the workload, and establishing relationships" (p. e42). At the same time, asynchronous communication can often make it difficult to understand others' point of view (Dyrbye et al., 2009).

A lack of feedback from instructors can also present challenges in distance learning. In addition, the lack of face-to-face instruction can also make understanding assignments and/or other instructions more difficult. Research by Li and Irby (2008) added that there is a much greater potential for misunderstanding in the online environment. E-mail responses can sometimes come across as being vague, rude, or critical when they were not intended to be. Distance learning can provide a greater chance for a breakdown in communication by both students and teachers that may not be realized until it is too late (Dykman & Davis, 2008).

Other challenges in distance learning can occur as a result of technical issues. Technical issues can sometimes cause students to become very frustrated. Slow Internet lag time or computer-related issues can always cause unexpected technical difficulties (Lei & Gupta, 2010). In regard to students in rural areas, instructors complained of slow download times, and they also explained how the dial-up connections that many of their students have in the rural service area prohibited them from using additional technology (Hurt, 2008). Instructors can struggle with technical difficulties in distance learning just as much as students. According to Li and Irby (2008), "online teachers may also struggle with a lack of technical support and/or resources to design appropriate materials" (p. 455).

Overview of the Social Cognitive Theory

The Social Cognitive Theory

The social cognitive theory suggests that a portion of a person's knowledge acquisition can be attributed to or directly related to the observance of others through their experiences and social interactions. The social cognitive theory uses the idea of

triadic reciprocal causation to describe psychosocial functioning (Bandura, 1986).

Bandura (1986) noted the following regarding the social cognitive view:

>People are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interesting determinants of each other. (p. 18)

Bandura (1999) described the factors in the model of triadic reciprocality as being able to "influence one another bi-directionally" (p. 23). In the model, links are present between each of the three factors. The link between behavior and environmental represents an instructional sequence in which the instructor presents information to students and directs their attention to materials that provide instructional assistance (Schunk, Pintrich, & Meece, 2008). The link between the behavior and personal factors characterizes the use of self-efficacy. The last link connecting the personal and environmental factors can be interpreted as personal factors being able to influence environmental factors (Schunk et al., 2008).

The Behavioral, Personal, and Environmental Factors

Bandura also believed that the environment played an important role in human functioning. Bandura (1999) identified three environmental structures that people encounter. Teachers can structure environments that direct students' attention to instructional materials (Schunk et al., 2008). The three structures are: (a) the imposed environment, (b) the selected environment, and (c) the constructed environment (Bandura, 1999). Students can develop environmental strategies that would be more conducive for studying. Students should choose places with limited noise, adequate

lighting, and sturdy place to write (Zimmerman, 1989). Additionally, Bandura (1999) believed that people's choice of acquaintances, their activities, and their surroundings helps to establish their environment. Bandura (1986) noted the following regarding choices under the social cognitive theory:

Choices are not completely and involuntary determined by environment events. Rather, making choices is aided by reflective cognitive activity through which self-influence is largely exercised. People exert some influence over what they appraise their capabilities to execute successfully the possibilities they are entertaining. Indeed, it is because thought can affect action that people can make causal contribution to their own behavior. (p. 39)

Oftentimes, people have a choice over the environment in which they reside; however, others are placed in environments by no choice of their own. Although these individuals may not have a choice over their environment, they do have a choice in how they will react to situations within that environment.

The personal factor within the social cognitive theory also includes cognitive, motivational, and affective processes. People's belief about themselves is a key mechanism within the cognitive process. According to Bandura (1989), "among the mechanisms of personal agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over events that affect their lives" (p. 1175). Students with higher self-efficacy have been known to use better learning and study techniques (Kurtz & Borkowski, 1984). It is these cognitive processes that are often the reasons some individuals are able to recover more quickly from disappointments, failures, or setbacks, while those who are less resilient find it more difficult. The personal

factor is also known to influence students' choice of task, persistence, and effort (Schunk, 1989b, 1989c, 1995; Schunk & Pajares, 2002).

Knowledge structures serve as guides to help individuals develop behavior patterns (Bandura, 1999). Such knowledge structures, according to Bandura (1999), "are formed from behaviors and styles that are modeled from exploratory activities, verbal instruction, and innovative cognitive syntheses of acquired knowledge" (p. 24). In addition, behavior factors are known to affect learning and learning behaviors. Observing others' outcomes influences the type of action that may be taken in a given situation. Thus, human learning occurs as a result of observing the actions and/or consequences of others.

Motivation and the Social Cognitive Theory

What is Motivation?

Motivation comes from the Latin verb *movere,* which means to move (Schunk et al 2008). Motivation is an internal state that arouses learners, steers them in particular directions, and keeps them engaged in certain activities (Ormrod, 2008). Schunk et al. (2008) defined motivation as "the process whereby goal-directed activity is instigated and sustained" (p. 4). Xie and Ke (2010) believe motivation is "the internal force that drives an individual to engage in a particular behavior" (p. 4).

Motivation and the Social Cognitive Theory

The social cognitive theory categorizes motivation into three categories. According to Zimmerman and Schunk (2003), the first area is reciprocal interactions among personal, behavioral, and environmental factors. The second area discusses the

relationship between learning and motivation. The third focuses on enactive and vicarious learning. The social cognitive learning theory views motivation as a function of individuals' thoughts. Six motivational constructs have been classified using the social cognitive learning theory that is divided within three families (Pintrich & De Groot, 1990). Those constructs were (a) self-efficacy, (b) locus of control, (c) attributions, (d) goal orientation, (e) intrinsic versus extrinsic motivation, and (f) self-regulation (Miltiadou & Savenye, 2003).

Research has indicated that several assumptions are based on the social cognitive theory's motivation models. According to Linnenbrink and Printrich (2002), "one of the most important assumptions of social cognitive models of motivation is that motivation is a dynamic, multifaceted phenomenon that contrasts with the quantitative view taken by traditional models of motivation" (p. 313). This statement implies that newer social cognitive theory motivational models do not suggest that students are either motivated or not motivated; instead, students can actually be motivated in a variety of ways (Linnenbrink & Pintrich, 2002). The second assumption indicates that although students can be motivated in a variety ways, their motivation can fluctuate based on the environment or situation (Linnenbrink & Pintrich, 2002). The third assumption based on the social cognitive theory's motivational models is centered on cognition's role in the model. According to Linnenbrink and Pintrich (2002), "students' own thoughts about their motivation and learning play a key role in mediating their engagement and subsequent achievement" (p. 314).

The Relationship between Motivation and Learning

Motivation is one of the most important components of learning in any educational environment (Maehr, 1984). Keller (2008) identified the following five principles of motivation:

1. Motivation to learn is promoted when a learner's curiosity is aroused due to a perceived gap in current knowledge.

2. Motivation to learn is promoted when the knowledge to be learned is perceived to be meaningfully related to a learner's goals.

3. Motivation to learn is promoted when learners believe they can succeed in mastering the learning task.

4. Motivation to learn is promoted when learners anticipate and experience satisfying outcomes to a learning task.

5. Motivation to learn is promoted and manipulated when learners employ volitional (self-regulatory) strategies to protect their intentions. (pp. 176-178)

The social cognitive theory distinguishes learning from the performance of previously learned actions (Schunk et al., 2008). People can learn from observing many different instances of an action, but they may not use those acquired skills until a later date and time (Rosenthal & Zimmerman, 1978). Schunk et al. (2008) believe that people can in fact learn skills, but they may not use those skills until they are motivated to do so. This belief falls right in line with the social cognitive theory's view on motivation and learning, which suggests that people are able to learn and acquire skills without displaying them when learned (Schunk et al., 2008).

Motivation, therefore, is very important for learner's success. Because the social cognitive theory says that learning and motivation are somewhat related, people will continue to acquire skills but may not actually use those skills until they are motivated to do so. Simpson (2008) noted that some educators would argue that motivation is not only a needed condition for success, but is also a sufficient one.

The Significance of Motivation in Learning

Motivation plays a very significant role in learning. The social cognitive view notes that people's actions are indeed affected by personal, behavioral, and environmental factors. In other words, people can learn from their surroundings. Schunk (1995) believes motivation can influence what, when, and how we learn. According to Simpson (2008), "a learner who is fully motivated will overcome barriers of situation and time, find ways of developing appropriate skills and be able to deal with the stress of study with very little extra external support" (p. 160). Järvela, Violet, and Järvenoja (2010) noted that the characterization was based on the assumption that motivation is a psychological phenomenon and that social context has an impact on individuals' motivation to engage in learning activities.

The social cognitive theory notes that motivation is significant in learning because motivation affects learning; however, it is not necessarily essential for learning (Schunk et al., 2008). Schunk et al. (2008) also believe that motivation to perform previously learned skills may stem from the belief that the skills are appropriate in the situation. This belief ties back to the social cognitive view that people can acquire skills but would not demonstrate those skills until they were motivated to do so. Motivation is significant in learning because it helps to engage students in learning. Zimmerman (2000) believed that

students motivated to learn about a topic are apt to engage in activities they believe will help them learn.

Motivational Constructs in the Social Cognitive Theory

This section of the literature review provides a discussion of self-efficacy, self-regulation, goal orientation, and task value. Each of these components plays a significant role in motivating students to learn.

Self-Efficacy

The self-efficacy theory hypothesizes that "people acquire information to appraise efficacy from their performance accomplishments, vicarious (observational) experiences, forms of persuasion, and psychological indexes" (Schunk, 1991, p. 208). Under the social cognitive framework, Bandura (1986) defines self-efficacy as "peoples' judgments of their capabilities to organize and execute courses of action are required to attain designated types of performance" (p. 391). One study defined self-efficacy as "a person's confidence in his or her abilities to complete tasks or reach goals" (DeTure, 2004, p. 24).

Self-efficacy affects many choices people make. In fact, self-efficacy affects peoples' choice of activities, effort, and persistence (Schunk et al., 2008). The way students view a particular situation or academic subject could cause their self-efficacy to increase or decrease depending on a specific outcome. According to Hodges (2005), "self-efficacy beliefs influence students' behavior by influencing the decisions of which tasks in which to engage, what level of effort they will expend, and how long they will persevere in the face of difficulty" (p. 377). At the same time, Schunk (1991) noted that

teacher feedback and information processing can also affect students while they are working on a particular project.

Bandura (1989) believes "self-efficacy beliefs function as an important set of proximal determinants of human motivation, affect, and action" (p. 1175). The higher a person's self-efficacy, the higher the goals he or she may set out to reach. On the other hand, the weaker their self-efficacy, the lower their standards will be set. According to Hill, Song, and West (2009), "from a social learning perspective, self-efficacy is context-dependent, associated with social anxiety and attention" (p. 96). Self-efficacy plays a critical role in motivating students to learn. Figure 1 illustrates the different levels of self-efficacy and outcome expectations.

	Outcome Expectation	
Self-Efficacy	*Low-outcome expectation*	*High-outcome expectation*
High self-efficacy	Social activism Protest Grievance Milieu change	Assured, opportune action High cognitive engagement
Low self-efficacy	Resignation Apathy Withdrawal	Self-devaluation Depression

Figure 1.   Levels of Self-Efficacy and Outcome Expectations

Levels of Self-efficacy and Outcome Expectations. From A. Bandura (1982). Self-efficacy mechanism in human agency, American Psychologist, 37. Copyright 1982 by American Psychological Association. Reprinted with Permission.

Research has indicated that students' motivation and willingness to learn is influenced by their self-efficacy beliefs regarding their ability to process academic

material (Schunk, 1991). People with high self-efficacy are more likely to visualize themselves as being successful, whereas those with low self-efficacy often visualize themselves failing at whatever task is at hand. Additionally, students with higher self-efficacy are more likely to complete activities they believe will lead to success. In the social cognitive theory, self-efficacy beliefs and outcome expectations usually are related, but it is possible for a student to have relatively high self-efficacy for a task but a negative outcome expectation (Schunk et al., 2008).

Self-Regulation

Self-regulation is another critical aspect of motivation. Under the framework of the social-cognitive theory, according to Hsu, Ching, Mathews, and Carr-Chellman (2009), "self-regulation is deemed to be influenced by the cyclical process of the interactions among behaviors, environmental variables, and personal factors" (p. 111). Self-regulation is the process used by students to control and understand their own learning. Zimmerman (1994) believed learners who self-regulate possess three important characteristics. Those characteristics include actively controlling their own learning by using different cognitive strategies to assist in learning material; using planning and monitoring to control their progress toward goals; and being intrinsically motivated, focused, and able to control emotions during difficult times. Self-regulated learning is often seen as a method to help illustrate the academic differences among students (Schunk, 2005).

Research has shown that self-regulated learners are more self-efficacious and believe that they can learn by using their self-regulatory skills (Zimmerman, 2000). According to Schunk (2005), "good self-regulation requires that learners evaluate

whether they will be able to accomplish the task, whether the environment is conducive to learning, and what changes are needed for better learning" (p. 87).

Self-Regulatory Processes. According to Zimmerman (2002), "social learning psychologists view the structure of self-regulatory process in terms of three cyclical phases" (p. 67). Those three phases included (1) performance phase, (2) forethought phase, and (3) self-reflection phase. The forethought phase includes processes that occur before learning. The performance phase includes the processes that occur during the application of learning, and the self-reflection phase includes processes that occur after learning has occurred. Figure 2 provides an overview of the processes and sub-processes within each phase.
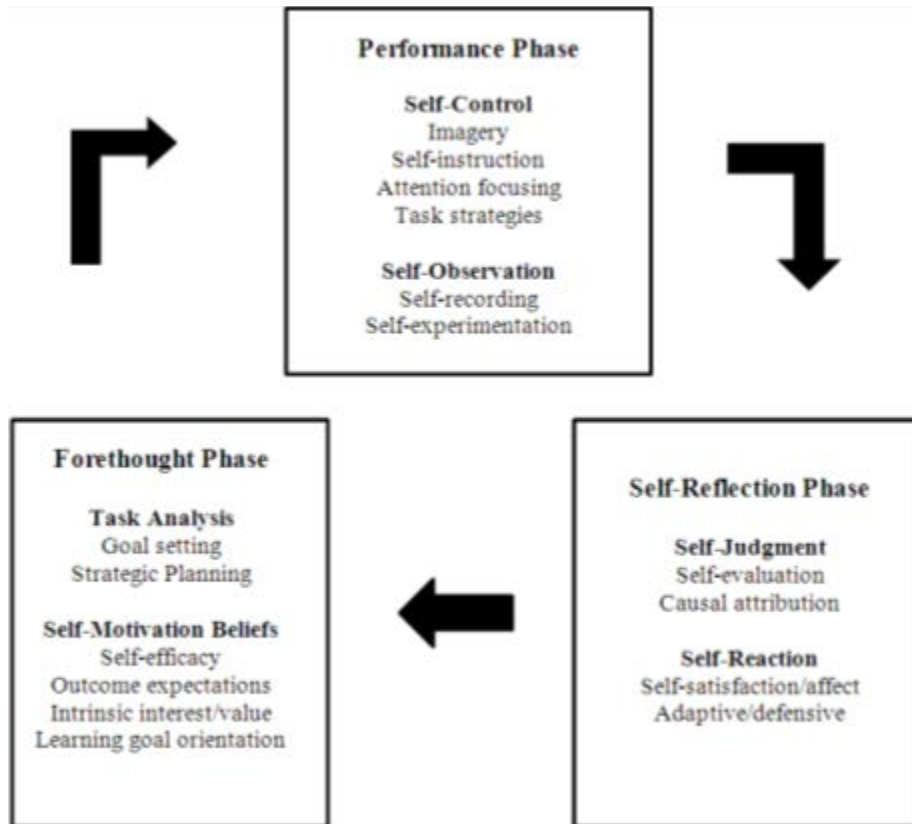
Figure 2. Processes and Sub-Processes of the Three Cyclical Phases of Self-Regulation

Phases and Subprocesses of Self-Regulation. From B. J. Zimmerman and M. Campillo (2002). Motivating self-regulated problem solvers. In J. E. Davidson and Robert Sternberg (Eds.), *The Nature of Problem Solving*. New York: Cambridge University Press. Copyright by Cambridge University Press. Reprinted with permission.

According to the social cognitive theory, self-regulation is comprised of three processes. Those processes include self-observation, self-judgment, and self-reaction. Self-observation refers to deliberate attention to aspects of one's behavior (Mace, Belfiore, & Hutchinson, 2001). Schunk (2005) defines self-observation as "attention and awareness of one's actions and their outcomes" (p. 86). Self-recording is a common observational technique. Self-recording can allow students to monitor their study behaviors and make necessary adjustments as needed (Zimmerman, 2002). Because performances of students cannot be regulated if they are unaware of what they are doing,

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self-observation is critical in order to be able to monitor the progress of activities (Schunk et al., 2008).

Self-judgment refers to "comparisons of self-observed performances against some standard, such as one's prior performance, another person's performance, or an absolute standard of performance" (Zimmerman, 2002, p. 68). Research has indicated that self-regulation and motivation are affected by the specificity, proximity, and difficulty of goals (Schunk et al., 2008). With that being said, these properties of goals can assist students in either maintaining or modifying their self-regulatory strategies based upon the judgment of their own progress. However, those who do not care about their performance may not put forth the effort to improve it (Bandura, 1986).

Zimmerman and Schunk (2004) defined self-reactions as behavioral, cognitive, and affective responses to self-judgment. Assessing performance on class activities and assessments can motivate students and help them regulate their learning. Efforts to increase motivation when learners notice that their motivation has diminished are also a part of self-reactions (Schunk, 2005). Self-satisfaction is one component within self-reaction and can have a positive effect on performance (Zimmerman, 2002). Although increased self-satisfaction can enhance motivation, a decrease can be detrimental to learning efforts (Schunk, 1991). The social cognitive theory states that it is the anticipated consequences of behavior, rather than the actual ones, that will eventually enhance motivation (Bandura, 1986).

Goal Orientation

Lin, Lin, and Laffey (2008) referred to goal orientation as "one's orientation toward different types of goals in achievement situations" (p. 7). Goal orientation is often classified into two categories: intrinsic and extrinsic goal orientation.

Intrinsic goal orientation is also known as learning goal orientation. With intrinsic goal or mastery orientation, students focus more on mastering the tasks at hand and learning (Dweck, 1990). Research has also indicated that students focusing on intrinsic goal orientation exhibited characteristics of being innovative and creative while taking on more risks and challenging tasks (Schunk et al., 2008). Challenge, curiosity, control, and fantasy are four identified major sources of intrinsic goal orientation (Lepper & Hodell, 1989).

Extrinsic goal orientation is also known as performance goal orientation. These students, according to Lin et al. (2008), "tend to avoid 'looking bad' to others" (p. 7). In addition, these students are more apt to learn to avoid failure or for the sake of their grade (Pintrich & Schunk, 2001). Research found that college students often try to set extrinsic goals for attaining good grades as a way to help them maintain their motivation (Wolters, 1998). The behavior characteristics exhibited by these students include selecting easier tasks, being less likely to take on challenging tasks, and being less willing to try new tasks.

Previous research discussing the social cognitive theory have identified goal setting as an important motivational process (Bandura, 1988, 1997; Shunk, 1989a). Goals can impact other motivation constructs. According to Schunk et al. (2008), "students with a goal and a sense of self-efficacy for attaining it are apt to engage in activities they

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believe will lead to attainment" (p. 142). Goal orientation has been identified as an important motivation construct in predict academic success (Miltiadou & Savenye, 2003). One research study found that the type of goals students choose is not important, but rather the goals lead to cognitive involvement in the task (Harackiewicz, Barron, & Elliot, 1998). The social cognitive theory has indicated that goals within close reach offer the greatest motivational benefits for students (Schunk et al., 2008).

Task Value

Task value has been defined as students' beliefs about the value, interest, and usefulness of the task or learning content (Ray, Garavalia, & Murdock, 2003). Students with high levels of task value exhibit more frequent use of critical thinking skills and are more likely to perform better academically (Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992). Task value is comprised of four components: attainment value, intrinsic value, utility value, and cost belief. Schuck et al. (2008) indicated that these four components work interchangeably to determine the value a particular task may have for an individual (p. 64). Research has indicated these values are said to represent logical decision making model of motivation with resemblance to other theories such as goal theory and expectancy-value theory (Locke & Latham, 1990).

<center>**Motivational Constructs in Distance Learning**</center>

According to the social cognitive theory, people are affected by behavioral, personal, and environmental factors (Bandura, 1986). In distance learning, these factors are also known to have a great impact on student motivation. The social cognitive theory notes that these motivational constructs are key characteristics in assessing student

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motivation. Not only are these motivational components important aspects of student motivation, but they also play a very critical role in the success of students in distance learning.

Self-Efficacy in Distance Learning

The motivational construct of self-efficacy is a critical element in distance learning for students. According to Miltiadou and Savenye (2003), Bandura describes self-efficacy as "individuals' confidence in their ability to control their thoughts, feelings, and actions, and therefore influence an outcome" (p. 83). Self-efficacy beliefs can affect how students approach different learning situations. Research has shown that students with higher academic self-efficacy are known to be more flexible in the learning strategies they use than students with lower self-efficacy (Bandura, 1997). A study by Chyung (2007) found that age and gender affects improvements in self-efficacy and academic performance in online courses (p. 220). Findings show that students' self-efficacy beliefs usually increase if they have a successful online experience (Clayton, Blumberg, & Auld, 2010).

Students' self-efficacy beliefs can also have huge influences on their motivation to learn. The influence self-efficacy has on behavior is particularly important in distance learning (Puzziferro, 2008). Self-efficacy beliefs help students decide whether to remain or withdraw from a distance learning course. Puzziferro (2008) noted that personal factors can impact students' self-efficacy beliefs, which in turn affects students' decisions to persist in the course. A study by Wang and Newlin (2002) identified some reasons students chose to enroll in distance learning courses. They found that students with higher self-efficacy enrolled because they preferred distance learning courses to the traditional

face-to-face courses. Students with lower self-efficacy were more likely to enroll in distance learning courses due to the availability of the course (Wang & Newlin, 2002). One researcher noted the importance of self-efficacy beliefs in influencing students' task choices along with their use of self-regulated learning strategies (Greene, Miller, Crowson, Duke, & Akey, 2004; Pajares, 2008). At the same time, self-efficacy beliefs have also been known to impact academic performance (Chemers, Hu, & Garcia, 2001; Robbins et al., 2004).

A study by Prat-Sala and Redford (2010) examined the relationship between motivation, self-efficacy, and approaches to studying. Based on their review of literature, they identified some characteristics of both students with high self-efficacy and low self-efficacy. Students with high self-efficacy are able to succeed when faced with difficult situations. At the same time, these students are not as likely to feel disappointed when they fail or are unsuccessful at a particular task. On the other hand, students with low self-efficacy are more strongly affected by setbacks and failures (Prat-Sala & Redford, 2010). The results of their study indicated that not only does motivation influence students' study approaches, but there is also a relationship between students' belief in their abilities and the approach they take in studying (Prat-Sala & Redford, 2010). Therefore, this study demonstrates that students' motivation can in fact influence the study approach of students in distance learning courses, thus confirming the importance of student motivation in distance learning.

Students' belief in their technological abilities is an important factor in success in distance learning. Miltiadou and Savenye (2003) noted that it was the students'

confidence with the technologies used in distance learning that would actually play an important role in their interaction with peers and instructors in distance learning (p. 93).

Self-Regulation in Distance Learning

Based on the framework of the social cognitive theory, the motivational construct of self-regulation is another critical element in distance learning for students. Over the past decade, a number of scholars have implied that "online learners require motivation and self-regulation to stay engaged…and regulate their effort" (Dabbahg & Kitsantas, 2004; Hartley & Bendixen, 2001; Schunk & Zimmerman, 1998). Several researchers have provided definitions of self-regulated learning as it applies to distance learning. Pintrich (2000a) used academic self-regulation and self-regulated learning interchangeably. Pintrich (2000a) defined self-regulated learning as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment" (p. 453). Another researcher believed self-regulated learning was the motivational orientations and learning strategies that students employ to attain desired goals (Zimmerman, 1989).

Artrino's (2007) study maintained that because distance learning requires more independence from students, there is a greater importance on the use of self-regulated learning. Using the social cognitive theory as a theoretical framework, Artrino and Stephens (2009) investigated the importance of students' self-efficacy and task-value beliefs as they are related to course grades and their use of self-regulated learning strategies. Their study showed that students who possess the adaptive motivation-emotion profile would most likely experience greater success in an online learning environment

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than their counterparts (Artrino & Stephens, 2009). In addition, it revealed that students were more likely to have higher grades and increased satisfaction with distance learning courses when they have a higher level of motivational beliefs than negative emotions. This study suggested that performance is increased when negative emotions are minimize.

According to Puzziferro (2008), "online courses require more proactive and self-directed involvement on behalf of the student due to the high degree of teamwork and peer interaction required for the course" (p. 74). Puzziferro (2008) also noted that learners must use their own learning processes to help them develop structure and strategies to be successful in the course. Hodges (2005) noted that not only should instructors help students understand the features of distance learning courses that can assist them in regulating their own learning, but also, that further research is needed to determine which strategies can help students promote self-regulation.

Goal Orientation in Distance Learning

Research has shown that goal orientation is an important motivational construct under the social cognitive theory. Studies by Dweck (1986) and Dweck and Leggett (1988) categorized goal orientation into two motivational patterns known as learning and performance goals. Learning goals are also referred to as mastery goals, task goals, or task-focused goals (Ames & Archer, 1988; Maehr & Midgley, 1991; Nicholls, 1984). According to Schunk et al. (2008), these goals focus on learning, understanding, and mastering tasks. Clayton et al. (2010) noted that achievement goals are concerned with the reasons or purposes for engaging in academic-related tasks. Conversely, performance goals focus on being superior or being the best at a task in comparison to others (Schunk

et al., 2008). Performance goals are also sometimes referred to as ego-involved goals. Research has indicated that learning goals may lead to higher self-efficacy in students than performance goals (Miltiadou & Savenye, 2003).

Goal orientation is an important component of students' success in distance learning. Hodges (2005) indicated that goal intentions are the mediating concept between self-efficacy beliefs and self-regulation. The results from a study by Hu and Gramling (2009) mentioned that goal-setting, control/time management is a combined category of strategies perceived by participants as the most helpful strategies in online learning. Goal orientation is very important to student outcomes in distance learning courses. A study by Hu and Gramling (2009) examined learners' use of self-regulated learning strategies in distance learning. Their study indicated that students were more likely to use goal-setting strategies that were centered-around assignment completion in distance learning courses. According to Hu and Gramling (2009), one participant noted discussion board questions and assignments as immediate goals to motivate themselves to complete the work. Another participant stated, "The goals I'm working for in this course is to become more familiar with IT tools. The plan I choose to achieve this goal is to stay on top of things and study" (Hu & Gramling, 2009, p. 131). The approach students take towards goal orientation in distance learning can have a huge impact on whether or not students are able to be successful in the course.

Task Value in Distance Learning

Artrino and Stephens (2009) implied the motivational construct of task value has been receiving greater attention in distance learning literature. Artrino (2007) identified task value as "the extent to which learners find a task interesting, important, and/or

valuable" (p. 193). Research has proven that task value is "context-specific" (Kitsantas, Winsler, & Huie, 2008, p. 47), meaning a student could exhibit high task value in one particular course without exhibiting that same level of value in another. Research on the impact of task value in online environments has indicated that task value beliefs can positively predict academic performance and satisfaction as well as students' use of cognitive and metacognitive learning strategies (Artrino, 2008; Artrino & Stephens, 2006; Miltiadou & Savenye, 2003).

Because distance learning courses require students to work more independently and take more control of their learning, task value is of particular importance. One study noted that it is students' achievement values that caused them to decide whether or not to be cognitively involved in learning tasks (Wigfield, 1994). Additionally, achievement values also help students decide whether or not they will enroll in similar courses in the future (Wigfield, 1994). Previous research suggested those who view a learning task as valuable are more likely to experience a greater outcome academically (Pintrich, 1999). The values of distance learning students often influence them to enroll in courses they believe will be useful for their future goals. Artrino & Stephens (2009) suggested "little is known about how students' task-value beliefs relate to other adaptive outcomes in online environments" (p. 574).

The Nature Interaction in Distance Learning

Interaction among students is a key variable for success in distance learning. Advancements in teaching and learning technologies have played a key role in the continual growth of distance learning. This section of the literature review highlights the

importance of using CMC tools in distance learning, their relation to CSCL, and the importance of these methods in helping to facilitate interaction in distance learning.

Computer-Mediated Communication (CMC)

Research has shown CMC to be a developing area for research in fields such as education, communication, psychology, and technology (Hara, Bonk, & Angeli, 2000). Romiszowski & Mason (2004) referred to CMC as "an asynchronous text-based communication and computer conferencing environment where interactions occur between computer users" (p. 397). Donnelly and Gardner's (2011) study noted that in an online environment, CMC tools provided students with the opportunity to swap information while "encouraging interaction" (p. 2). Many instructors are using CMC tools because they can easily integrate them into their courses (So, 2008). So (2008) indicated that asynchronous online discussion forums are some of the "simplest CMC tools" (p. 143). These discussion forums help students gain understanding and knowledge by incorporating principles from both constructivism and social interactions (Moore & Marra, 2005).

Research has shown that asynchronous discussion forums can offer the following advantages:

- It enhances two-way communication, reducing student isolation and helping with dialog among students (Kirkwood & Price, 2005).

- It provides students with time to reflect between postings that could possibly lead to more well-thought-out responses (Garrison, Anderson, & Archer, 1999).

- It helps to create a sense of community (Davies & Graff, 2005).

- It provides students with the opportunity to express their ideas more

  clearly without being interrupted (Hara et al., 2000).

Other studies revealed that CMC could provide students with more opportunities

for learner-to-learner interaction while facilitating the development of better reflective

and critical thinking skills (Collins & Collins, 1996; Ward & Tiessen, 1997). Palmer,

Holt, and Bray (2008) indicated that while research has shown that asynchronous

discussions can in fact enhance student learning, more research is needed to determine

the impact of online discussion participation on student course performance.

Computer-Mediated Communication (CMC) in Computer-Supported Collaborative Learning (CSCL)

CSCL is often used by instructors to help facilitate learning in online discussion

forums. These online discussion forums, such as asynchronous discussions, are used as a

place to collaborate learning through interaction dialogs and computer support. Resta and

LaFerriere (2007) defined the term computer-supported collaborative learning as "a range

of situations in which interactions take place among students using computer networks to

enhance the learning environment" (p. 67). New trends in CSCL can be divided into three

main areas that focus on (1) using constructivist principles in teaching and learning, (2)

developing learning environments that focus more on engaging students, and (3)

developing and using new collaborative support tools. Other approaches in this field

include teaching techniques, constructivism, socioculture approaches, and models to

analyze both cognitive and social aspects (Ke & Xie, 2009; Miller & Benz, 2008;

Thompson & Ku, 2006).

It is imperative to understand the differences between collaborative learning and cooperative learning when attempting to understand CSCL. Collaborative learning and cooperative learning have been used interchangeably by many researchers; however, there are clear differences between the two. Johnson and Johnson (2004) noted that collaborative learning is usually less-structured and focuses more on student-centered learning approaches than cooperative learning. Cooperative learning is more appropriate for tasks that need to be tightly structured. In addition, there is a difference in the work distribution among group members in collaborative and cooperative learning. Individual tasks are assigned by dividing the workload in cooperative learning, while tasks are jointly distributed in collaborative learning based on participants whose purpose is to work together in order to construct knowledge (Joung & Keller, 2004; Resta & LaFerriere, 2007). So (2008) also noted that cooperative learning provides students with limited opportunities to "develop mutual engagement, knowledge and skills exchange, and interpersonal communication skills" (p. 146). On the other hand, collaborative learning emphasizes mutual engagement to achieve the goals of the group (So, 2008).

Literature has illustrated a number of benefits from using CSCL environments. Those benefits include:

- It increases critical thinking skills and higher-level concepts (Abrami & Bures, 1996; Persico, Pozzi, & Sarti, 2010).

- It improves the development of group problem-solving abilities (Persico et al., 2010).

- It helps to prepare to work in a diverse and geographically separated environment (Dede, 1996).

- It helps to decrease procrastination among students (Kitchen & McDougall, 1999).

Additional benefits of CSCL, such as student satisfaction, academic achievement, and being able to positively impact group learning, have been mentioned; however, research in these particular dimensions have been described as "shallow" (Joung & Keller, 2004).

Literature has indicated limited inquiry in areas containing information on participation rates, interaction dynamics, and social and cognitive aspects of online learning. One investigative study suggested the need to further investigate the impact of student participation on academic performance in the course, while another pointed out the need to study whether online interaction has an impact on academic performance (Davies & Graff, 2005; Hara et al., 2000). Additionally, Fung (2004) revealed that although developments in information and communication technology have played a very critical role in developing applications in distance learning, research is limited in two important areas (1) online group dynamics and (2) the social and psychological aspects of distance learning (Fung, 2004, p. 147).

Types of Interaction

Research has classified interaction into three categories (Anderson & Garrison, 1998; Moore & Kearsley, 1996). The first type of interaction is *learner-centered interaction,* which consists of interaction between the student and subject matter or content. This type of interaction can help learners increase their understanding of the content.

The second type, *learner-instructor interaction*, is interaction that occurs between the learner and the instructor. Moore and Kearsley (1996) indicated this type of

interaction is considered to be highly desirable for educators while being essential for the

majority of learners (p. 129). In addition, this type of interaction allows learners to draw

from the experiences of the instructor while continuing to interact with course content.

The third type of interaction is *learner-learner interaction*. This type of

interaction occurs between learners either as a group or individually. At the same time,

learner-learner interaction does not require the presence of an instructor to occur.

Moreover, this type of interaction was believed to be more stimulating and motivating

(Moore & Kearsley, 1996).

The Importance of Quality Interaction

For many years, interaction has been a significant and vital part of the educational

process and environment (Anderson, 2003). Interaction is said to serve the following

purposes in educational operations according to Sims (1999):

- Allowing learner control

- Facilitating program adaptation based on learner input

- Allowing various forms of participation and communication

- Aiding the development of meaningful learning

Dialogue is an important part of interaction. Dialogue provides the means through

which interaction can occur. Dialogue consists of interaction between learners and

instructors or interactions between learners. Dialogue is said to focus on the relationship

between ideas, actions, words, and any other interaction that may occur between learner

and instructor (Moore & Kearsley, 1996). Research has pointed out the importance of

dialogue in serving as the leading instrument in decreasing the opportunity for miscommunication during interaction (Stein, Wanstreet, & Calvin, 2009).

Baglione and Nastanski (2007) indicated online interaction decreases participation anxiety for shy students, allowing them to interact more freely. Also, online interaction can help students develop better critical thinking skills. Such interactive discussion, according to Bonwell and Elson (1991), "engenders greater understanding of memory retention than the participatory techniques because it requires interpretation through analysis, synthesis and evaluation, in sum, a higher-order learning" (p. iii).

A common problem with the use of CMC in CSCL environments is that students sometimes develop feelings of loneliness that could translate into less productive environments. As a result, it is possible for such feelings to impact students' interaction in the course. To improve students' beliefs regarding interaction, emphasizing the importance of interaction quality is imperative. Interaction could very well keep students from feeling isolated in distance learning courses. One study revealed that a lack of guidance on how to work within groups contributed to a lack of interest (Oliver & Omari, 2001).

Despite the fact students taking part in the Thompson & Ku (2006) study indicated they enjoyed and recognized the importance of providing feedback to their peers, frustration over communicating with their peers decreased their initial positive attitudes toward online collaborative learning. As a result, the task now is to construct a more constant learning environment where both group and individual accountability is taken into account (Thompson & Ku, 2006) and where students are more actively engaged in the course.

A number of complex issues must be addressed in order to integrate interaction into a distance learning course. Establishing social presence can also become an issue for interaction when developing online courses. Social presence is defined as "the ability of learners to project themselves socially and affectively into a community of inquiry" (Rourke, Anderson, Archer & Garrison, 1999, p. 53).

Previous research has indicated that interaction can provide a number of benefits in CSCL environments. Because so many of these environments depend heavily on asynchronous communication, learners can experience "a sense of community" (Rovai, 2002, p. 321). Garrison et al. (1999) developed a model in which they described what they believed to be the elements necessary to achieve an educational experience (See Figure 3). An element critical in helping students acquire a "sense of community" is social presence. One study pointed out that an important element critical to the development a community of inquiry is social presence (Garrison & Anderson, 2003). According to Guan et al. (2008), CMC research has revealed that it is "social rather than technical factors" that are the main indicators of learning success or failure (p. 172).

The Community of Inquiry Model
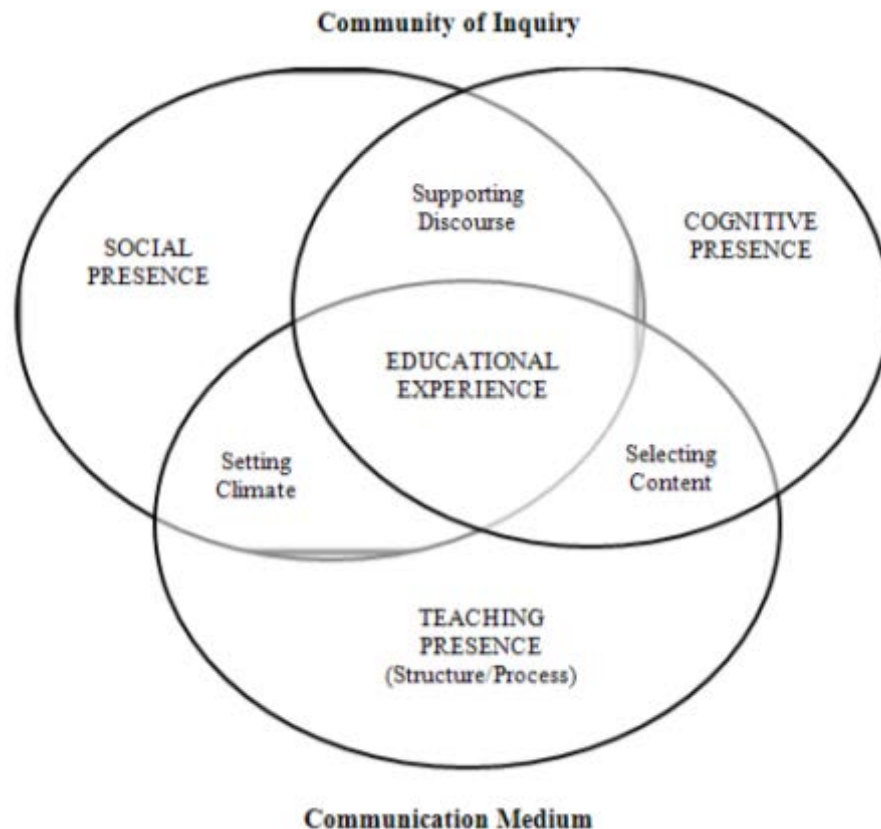
Figure 3.   Elements of an Educational Experience

Elements of an Educational Experience. From "Assessing Social Presence in Asynchronous Text-based Computer Conferencing," by L. Rourke, T. Anderson, D. Garrison, and W. Archer, 1999, Journal of Distance Education, 14(2), p. 51. Reprinted with permission.

The community of inquiry model (see Figure 3) illustrates the relationship between three major elements believed to be necessary in order for an educational experience to be obtained. The first element consists of cognitive presence, which is said to be "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Rourke, Anderson, Garrison, & Archer, 2001, p. 89). Cognitive presence was described as being the most essential to higher education success (Garrison et al., 1999).

The second major element, social presence, was defined as "the degree to which participants in computer-mediated communication feel affectively connected one to another" (Swan, Garrison, & Richardson, 2009, p. 9). One study found that social presence was able to predict 60% of the variance in students' satisfaction with the communication environment (Gunawardena & Zittle, 1997). In addition, social presence assists affective objectives in that it helps to produce more engaging and attractive group interactions. Social presence allows students to show their personalities in the discussions through the use of text (Gunawardena, 1995).

The third element in the community of inquiry model is teaching presence. Teaching presence serves two purposes in that it (a) is responsible for the selection and appearance of the course content, along with the planning and creation of the learning activities and examinations; and (b) is responsible for the distribution of the facilitation duties (Garrison et al., 1999). Research has shown that teaching presence as being important in helping students develop a sense of community (Shea, Li, Swan, & Pickett, 2005). Swan et al. (2009) believed that it is extremely difficult for teachers to manage the responsibilities of teacher presence in an online environment dependent mostly upon text (p. 13).

One of the most fundamental goals of higher education is to facilitate deep and significant learning through the community of inquiry (Rourke et al., 1999). That community, according to Rourke et al. (1999), is comprised of "instructors and learners who operate as contributors in the educational process" (p. 51). The community of inquiry model links the elements of cognitive, social, and teaching presence and uses them to facilitate learning through interaction.

Theory of Transactional Distance

Under the theory of transactional distance, Moore & Kearsley (1996) defined distance as a "pedagogical phenomenon" (p. 200). Transactional distance theorists are interested in the effect that this distance has on the following areas:

1) Instruction, the learners, and the teachers

2) The forms of communication and interaction

3) The curriculum

4) The management of the program (p. 200)

Transactional distance is different from distance learning in that transactional distance focuses more on the differences in understandings and/or barriers that teachers, students, and educational institutions must overcome in order for learning to occur (Moore & Kearsley, 1996).

Moore developed the theory of transactional distance because he believed it played an important role in interaction (Moore & Kearsley, 1996). According to Boyd and Apps (1980), transactional distance is comprised of "the interplay among the environment, the individuals, and the patterns of behaviors in a situation" (p. 5). This description presents a similar connection to Bandura's (1986) social cognitive theory, which suggested that people are influenced by personal, behavioral, and environmental factors. Moore and Kearsley (1996) described transactional distance as "the physical distance that leads to a communication gap, a psychological space of potential misunderstandings between the behaviors of instructors and those of the learners" (p. 200).

A review of Moore's theory of transactional distance by (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009) provided a more contemporary view, which stated "…the particularities of space and time pertaining to teacher and learner which characterize distance learning, creating particular behavioral models for the teacher and the learner, psychological and communication distance between them, and insufficient understanding of each other" (p. 2). Transactional distance will continue to have an impact on interaction as long as there is some distance between the learner and the instructor.

Dialog, Structure, and Learner Autonomy

Research has identified three elements that are important in the theory of transactional distance as (1) dialogue, (2) structure, and (3) learner autonomy. Dialogue is an important element in learning environments but is especially important in distance learning. Gorsky and Caspi (2005) noted that dialogue is essential in human learning as it relates to distance learning. Dialogue can include interactions between students and teachers, interactions between students, and dialogue with oneself through reflective thought (Webb, Jones, Barker, & van Schaik, 2004). According to Gorsky & Caspi (2005), dialogue may also be "face to face or mediated by communications media; if mediated by media, it may be synchronous or asynchronous" (p. 139).

Giossos et al. (2009) believed that dialogue consisted of more than just two-way communication and instead took all forms of interaction into account "within the context of clearly defined educational targets, cooperation and understanding on the part of the teacher, and, ultimately, it culminates in solving the learners problems" (p. 2). Another important factor to be considered when discussing dialogue is its effectiveness in

development of resolutions for learner problems (Moore, 1997). Today, dialogue is the primary medium through which communication occurs in CSCL environments.

Structure in the theory of transactional distance is identified as an element in the course design (Moore & Kearsley, 1996). According to Moore and Kearsley (1996), the following are items in a course that can be structured:

- Learning objectives

- Content themes

- Presentations and illustrations

- Case studies

- Exercises and projects

- Tests (p. 202)

Like dialogue, structure is also determined by the educational philosophy of the instructors, educational institution, and academic level of the student (Moore & Kearsley, 1996).

Learner autonomy is the third and final element in the theory of transactional distance. Moore and Kearsley (1996) believed "the greater the transactional distance, the more responsibility the learner has to exercise over their learning" (p. 204). The idea of learner autonomy posits that learners possess the ability to make the decisions necessary regarding their own learning (Moore & Kearsley, 1996). In fact, the extent of the existence of learner behaviors is an important aspect of all distance learning programs (Moore & Kearsley, 1996). Falloon (2011) indicated learner autonomy is somewhat dependent upon dialogue and structure in that dialogue can significantly affect a learner's

sense of self-direction or self-determination, along with the flexibility in the course

design.

Saba and Shearer's Model

Saba (1988) developed a systems dynamics model that provided a flexible

solution to increase dialogue by decreasing structure. Figure 4 illustrates Saba and

Shearer's (1994) updated model.
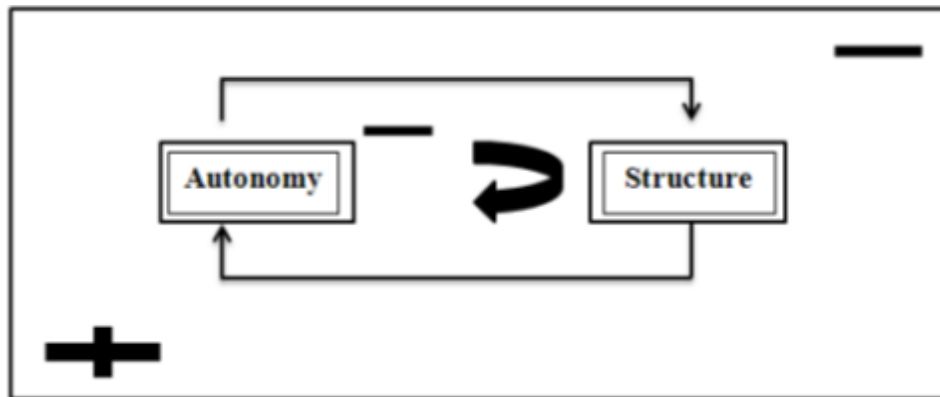
Figure 4.   Negative Feedback Loop Systems Dynamics Model

Saba (1988) described Figure 4 as follows:

The negative flow diagram represents an inverse relationship between levels of

dialogue and structure. As dialogue increases, structure decreases, and as structure

decreases, dialogue increases to keep the system stable. In negative feedback

loops, the stability of the system depends on interventions from outside the loop.

The level depends on the actions of teacher and learner. In a plausible scenario,

the need for decreasing structure is communicated to the teacher. Consultation

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automatically increases dialogue; then adjustments in goals, instructional

materials, and evaluation procedures occur and the learner achieves the desired

level of autonomy. (p. 22)

Summary

The initial section of the literature review provided a synopsis of distance

learning, its origins, and some benefits and challenges associated with distance learning.

The second section provided an overview of the social cognitive theory as it relates to

motivation in distance learning. The third section discussed the three motivational

constructs that are the focus of this study. The next section examined the importance of

motivational constructs and their impact on student motivation in distance learning. The

fifth section provided an overview of interaction and tools used to facilitate interaction in

distance learning. Lastly, Moore's theory of transactional distance was discussed in

relation to interaction in distance learning.

CHAPTER III

METHODOLOGY

The review of literature indicated limited research related to the association between the characteristics of students and their success in distance learning courses. Previous research has suggested that not only is there a need to explore characteristics of student learning, but also there is a need to explore the perceptions students have about assigned tasks in the distance learning environment (Artrino & Stephens, 2009; Miltiadou & Savenye, 2003). Previous research has also proposed that identifying strategies used by students to regulate effectively their learning can provide information on improving students' success in distance learning.

This chapter explains the research and analysis methodologies that were used to investigate the impact of student motivation on participation and academic performance in distance learning. This chapter is divided into the following seven sections (a) research design, (b) variables, (c) setting, (d) participants, (e) measurement/instrument, (f) procedures, and (g) data analysis.

Purpose of the Study

The purpose of this study was to use the motivational constructs of self-efficacy, intrinsic goal orientation, extrinsic goal orientation, and task value along with the

learning strategies of self-regulation and effort regulation to examine associations

between students' participation and academic performance in distance learning.

Research Design

The research design for this study was a non-experimental, correlational research

design. Data were collected to determine whether relationships exist and the degree to

which those relationships exist between two or more quantifiable variables in

correlational research (Gay et al., 2009). At times, correlational research is discussed as

being a type of descriptive research due to the nature of the research in providing

descriptions to existing conditions (Gay et al., 2009). Fraenkel, Wallen, & Hyun (2012)

indicated that the two main functions of correlational research are to (a) help explain

human behavior or (b) predict likely outcomes.

With the different functions of correlational research designs, the researcher used

a predictive correlational research design for the study in order to determine which

independent variables are more highly related to the dependent variable. Specifically, the

design was used to examine the relationship between the dependent variables,

participation and academic performance, and the independent variables of self-efficacy,

self-regulation, and intrinsic and extrinsic goal orientation.

Variables

The independent variables in all of the data analysis were self-efficacy, intrinsic

goal orientation, extrinsic goal orientation, task value, self-regulation, and effort

regulation. The dependent variables were participation and academic performance.

Academic Performance

Academic performance was measured by the total number of points for activities in the course and was used as continuous data. Academic performance was used to determine its relationship to student motivation and participation.

Participation

Participation was used to measure online discussion content by measuring posting behaviors in the online discussion environment.

Student Motivation

The independent variables in this study were the concepts used to measure student motivation and learning strategies.

The motivation concepts include:

- Self-efficacy

- Intrinsic goal orientation

- Extrinsic goal orientation

- Task value

The learning strategies concepts include:

- Self-regulation

- Effort regulation

The motivation and learning strategies variables were collected as ordinal data using the MSLQ. The total points from class activities and discussion board posts were collected as continuous data. During analysis, all of the variables were measured as continuous data and were used to determine whether they can predict participation and

academic performance by averaging the scores of the concepts to provide an average score which was used during data analysis. Jaccard and Wan (1996) provided the following explanation regarding the use of ordinal data in statistical procedures assuming interval data: "for many statistical tests, rather severe departures (from intervalness) do not seem to affect Type I and Type II errors dramatically" (p. 4).

Setting

Five online courses in a department of instructional systems at a large research university in the southeastern United States were used, and they were offered asynchronously using the Blackboard course management system. Each course lasted five weeks and was delivered entirely online. All of the coursework and course participation was managed through Blackboard. The areas that were discussed in the courses included the following: (a) the exploration of technological methods that could be used to integrate technology into teaching to help facilitate more meaningful learning; (b) an examination of the changing workforce and educational environments by the exploration of cultural facts and assumptions; (c) an exploration of the resources and instructional methods used for teaching information and communication technology; (d) the development of methods and strategies in instruction in industry; and (e) the exploration of the history, aims, and purposes of vocational education.

Description of the Population

The population of this study consisted of undergraduate and graduate students enrolled in five courses taught by four professors an instructional systems department housed in a college of education at a large research university in the southeastern United

States. For the purposes of this study, those courses were grouped by professor and were referred to as Professor A, Professor B, Professor C, and Professor D (two courses).

The MSLQ was used to collect the data from the students. Demographic information from the participants included gender, ethnicity, and experience with online courses. The MSLQ was emailed to 60 students enrolled in the five classes. Out of the 60 questionnaires emailed, 29 were returned. Figure 5 shows the return rate for the questionnaires. Students who were enrolled in multiple online courses included in the population were surveyed for only one course.
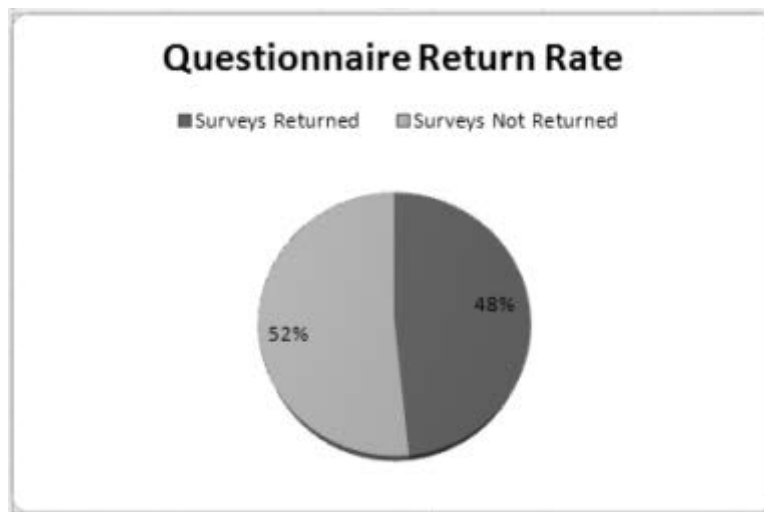
Figure 5.   Questionnaire Return Rate

Data Validation

In order to validate the data of the population, the researcher performed a repeated-measures analysis. Analyses were performed three times. The first analysis contained responses from the first 10 participants who responded. The second analysis contained the responses from the initial 10 participants along with the next 10

participants, and the third analysis contained responses from all 29 participants. A comparison of the means was performed between each of the three groups. Table 1 shows the results from the summary statistics for groups 1, 2, and 3. The results of the repeated-measures analysis of variance (ANOVA) table (see Table 2) indicated that there was not a significant difference between the groups at $F (2, 705) = .02$, $p = .98$. As a result of the repeated-measures analysis, there was no indication that a larger population would have had an influence on the outcome data.

Table 1

Summary Statistics for Repeated Measures Analysis of the Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Self-Efficacy, Self-Regulation, and Effort Regulation Scales

Groups	Average	Variance
First 10 Participants	5.31	3.00
20 Participants	5.34	2.63
29 Participants	5.34	2.69

Table 2

ANOVA for Repeated Measures Analysis of the Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Self-Efficacy, Self-Regulation, and Effort Regulation Scales

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.10	2	0.05	0.02	0.98	3.01
Within Groups	1921.56	705	2.73			
Total	1921.67	707				

Measurement/Instrument

In order to assess effectively the quantity of online discussion content, the researcher used a two-prong approach. The initial approach measured the degree of student participation. The second approach measured how well students perform academically.

The MSLQ was used to measure motivation. Participation was measured using the number of posts. In addition to measuring motivation and participation, the researcher used the total number of points earned in the class to measure academic performance.

Motivated Strategies for Learning Questionnaire (MSLQ)

The MSLQ (see Appendix D) was administered through Blackboard e-mail and/or university e-mail. The questionnaire consisted of three sections. The initial section collected demographic information from the participants: age, number of distance learning courses taken, class level, and reasons for taking the course. The second section, the motivation section, was comprised of 22 items that are designed to assess students' goals and value beliefs for the course. Lastly, the third section, known as the learning strategies section, was comprised of 16 items and focused on assessing students' use of different cognitive and metacognitive strategies and student management of different resources. Using a seven point Likert-type scale, participants rated themselves from 1 (Not at all true of me) to 7 (Very true of me).

For the purposes of this study, four concepts (self-efficacy, intrinsic goal orientation, extrinsic goal orientation, and task value) measuring different aspects of motivation and two learning strategies concepts (self-regulation and effort regulation)

measuring students' use of different cognitive and metacognitive strategies were used.

Table 3 provides a description of the measured concepts.

Instrument Validity and Reliability. The MSLQ has been utilized in numerous studies to measure students' motivation and use of learning strategies. The validity of the MSLQ and the reliability coefficients of each sub-scale have been calculated by the instruments' authors (Pintrich, Smith, Garcia, & McKeachie, 1993). The instrument was developed to measure the concepts of student motivation and learning strategies; six variables examined in this study (Table 3).

Table 3

MSLQ Concepts

Concept	Definition	Number of Questions Used
Motivation		
Intrinsic Goal Orientation	The extent the student identifies why he or she is participating in a particular task, such as for a challenge or curiosity.	4
Extrinsic Goal Orientation	The extent the student identifies why he or she is participating in a particular task, such as rewards, grades, or competition.	4
Task Value	The extent to which the student evaluates how important, interesting, or useful a task may be.	6
Self-Efficacy	The extent the student believes he or she has the ability to master a task.	8
Learning Strategies		
Self-Regulation	The monitoring and regulating of one's self.	12
Effort Regulation	The ability to manage and complete one's goals even in the presence of distractions.	4

The validity of these concepts has been established by the researchers who developed the MSLQ, and it was determined that each sub-scale was found to have a low association with final grades (see Table 4) during the 1990 study. Effort regulation was found to be significantly correlated to student grades during their 1990 study (Pintrich et al., 1993).

Table 4

Concept Validity and Reliability of MSLQ

Scale	Coefficient Alpha	*r* with Final Course Grade
Motivation Scales	.68	
Intrinsic Goal Orientation	.74	.25
Extrinsic Goal Orientation	.62	.02
Task Value	.90	.22
Self-Efficacy for Learning and Performance	.93	.41
Learning Strategy Scales	.62	
Metacognitive Self-Regulation	.79	.30
Effort Regulation	.69	.32

Concept Validity and Reliability of MSLQ. A Manual for the use of the Motivated Strategies for Learning
Questionnaire by P. R. Pintrich, D. A. Smith. T. Garcia. And W. J. McKeachie, 1991, Reprinted with permission

Internal consistency was established by the coefficient alphas for the motivational

scales. Reliability for the motivation scales and the learning strategies scales were

established from the reliability coefficients that were calculated by Pintrich, Smith,

Garcia, & McKeachie (1993) and were found to be .68 and .62, respectively.

Participation

The first approach in assessing learning in distance learning was the evaluation of

posting behavior that may lead to a more active online discussion environment. The

posting behavior was measured by the total number of original posts made by students.

Table 5 provides a breakdown of variables several researchers suggest could be used to

measure participation.

Table 5

Suggested Variables to Measure Participation

Approach	Variable	Study
Active Participation	Number of posts	Palmer et al. (2008); Poole (2000); Normore & Braylock (2011)
	Number of discussion posts read	Poole (2000)
	Number of post responses	Normore & Braylock (2011)
	Quality of posts (length of post or words per post)	Poole (2000)
	Day and time of posts	Poole (2000)

Academic Performance

The final approach in assessing learning in distance learning is measuring how well students performed in the course. Academic performance is operationalized as the total number of points (measured as continuous data) earned from completion of course activities. In this study, Table 6 provides a breakdown of variables research indicated could also be used to assess academic performance.

Table 6

Variables that can be used to Assess Academic Performance

Approach	Variable	Study
Academic Performance	Final grade	Palmer et al. (2008)
	Amount of interaction	Battalio (2009)
	Average score of group	Thompson & Ku (2010)

The courses used a variety of instructional methods including discussions and independent assignments. Requirements for the courses included class discussions, examinations, and journals. Exams were generated by the instructor and were based on readings from the required course textbook. The exam questions were randomly selected from the course test bank, making the possibility of two students having the exact same exam very unlikely.

Procedure/Data Collection

Before the study began, an IRB application was submitted to the Institutional Review Board for review and approval. After approval was granted by the IRB (Appendix A), the research study began.

Data were collected over five-week summer terms in June and July 2012. Data were collected from the MSLQ once during the terms. During the first week of the course, a recruitment letter (Appendix B) was sent through e-mail to potential study participants. Students who agreed to participate by signing the recruitment letter were then sent an informed consent form (Appendix C) to sign. The informed consent form served as a reminder to the participants of their agreement to participate in the study. At the same time, the informed consent form also provided the participants with the opportunity to withdraw their consent if they chose to do so. Students who provided consent were immediately transitioned to the beginning of the questionnaire. However, students who withdrew their consent were immediately exited to a "Thank You" screen. Reminder emails were sent to those who signed the consent form, reminding them to complete the questionnaire if they had not yet done so. The gathered data were then used

to analyze the students' motivation, use of various learning strategies, amount of participation in the course, and academic performance in the course.

Data Analysis

The data collected from the MSLQ were analyzed using the Windows version of Predictive Analytics Software 19.0. Descriptive statistics along with variability (ranges and standard deviations), measures of central tendency (means and medians), and correlations were calculated in order to provide a complete and descriptive profile of the participants. Additionally, descriptive statistics were used to provide some descriptive characteristics of the participants.

Fraenkel et al. (2012) defined multiple regression analysis as "a technique that enables researchers to determine a correlation between a criterion variable and the best combination of two or more predictor variables" (p. 334). Equation 1 illustrates the multiple regression equation. For this equation, X_1 and X_2 represent the predictors and b_0 represents the intercept.

$$\hat{Y} = a + b_1X_1 + b_2X_2 + b_3X_3 \qquad \text{(Equation 1)}$$

The correlation coefficient, symbolized by R, is used to analyze the correlation among the predictor variables (Fraenkel et al., 2012). To interpret the results and determine the relationship among the variables, the B coefficient is used. A positive relationship is indicated by a positive B coefficient, whereas a negative relationship is indicated by a negative B coefficient (Statsoft Inc., 2012). Also, Fraenkel et al. (2012) noted the higher the R, the more reliable the prediction will be (p. 335). R^2 represents the

coefficient of determination and indicates the amount of variability between the variables that is accounted for by the model (Statsoft Inc., 2012).

Correlation research seeks to provide descriptions for the relationship among existing variables (Fraenkel et al., 2012). Positive correlations indicate that a high or low score on one variable suggests a similar score on the other variable, while a negative correlation indicates that a high score on one variable suggests a low score on the other variable or vice versa (Fraenkel et al., 2012).

Multiple regression analysis and correlation analysis are similar in that each analysis seeks to find relationships among measured variables. Additionally, neither can be used to establish causation (http://www.britannica.com/EBchecked/topic/690049/correlation).

In this study, a multiple regression analysis was used to indicate the extent to which the motivation and learning strategies variables predicted participation and academic performance. The use of multiple regression analysis was appropriate to examine the relationship of the dependent variable to the independent variables. A correlation analysis was used to determine if a relationship exists between students' academic performance and their participation. Table 7 shows the data analyses used to address each research question.

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Table 7

Analytical Methods Used to Analyze Research Questions

Question	Variables	Analytical Method
1. Is there a relationship between students' motivation and their participation and academic performance in distance learning?	*Independent Variables:* Self-efficacy, extrinsic goal orientation, intrinsic goal orientation, task value *Dependent Variables:* Participation and academic performance	Correlation Analysis
2. Is there a relationship between students' use of learning strategies and their participation and academic performance in distance learning?	*Independent Variables*: Self-regulation and effort regulation *Dependent Variables:* Participation and academic performance	Correlation Analysis
3. Is there a relationship between students' participation and their academic performance in distance learning?	*Independent Variable:* Participation *Dependent Variable:* Academic Performance	Correlation Analysis
4. Can student motivation predict participation and/or academic performance in distance learning?	*Independent Variables:* Self-efficacy, extrinsic goal orientation, intrinsic goal orientation, task value *Dependent Variables:* Participation and academic performance	Regression Analysis
5. Can students' use of learning strategies predict participation and/or academic performance in distance learning?	*Independent Variables:* Self-regulation and effort regulation *Dependent Variables:* Participation and academic performance	Regression Analysis

Synopsis

This chapter described the methodologies that were used to address the research questions for this study. This chapter also provided a description of the research design, variables, participants, measurement/instruments, setting, procedures, and data analysis.

To address the reliability and validity of the instruments, the researcher cited several empirical studies to provide support in using these instruments.

CHAPTER IV

DATA ANALYSIS AND RESULTS

Distance learning is becoming an increasingly popular mode of instruction. Research performed by the NCES indicated two-thirds of all two-year and four-year universities offered either completely online, hybrid/blended online, or other distance education courses (NCES, 2008). These courses require students to work independently and to take more responsibility for their learning. As a result, more students are likely to drop out of online courses than traditional face-to-face courses (Hiltz, 1997; Phipps & Merisotis, 1999). Alias indicated in a 2012 study that "it is necessary to provide motivational support to learners in the online learning environment" (p. 137). The following research questions were developed to guide this study:

1. Is there a relationship between students' motivation and their participation and academic performance in distance learning?

2. Is there a relationship between students' use of learning strategies and their participation and academic performance in distance learning?

3. Is there a relationship between students' participation and their academic performance in distance learning?

4. Can student motivation predict participation and academic performance in distance learning?

5. Can students' use of learning strategies predict participation and academic performance in distance learning?

Characteristics of the Population

The population of this study consisted of undergraduate and graduate students enrolled in five courses taught by four professors in an instructional systems department in a college of education at a large research university in the southeastern United States. For the purposes of this study, those courses were grouped by professors who were referred to as Professor A, Professor B, Professor C, and Professor D.

Demographic information was among the information collected from the survey that was completed by the participants. This section provides the description of the population.

Gender, Ethnicity, and Year of High School Graduation

The data presented in Figure 6 show that 69% females and 31% males participated in the study. The majority (59%) of the participants identified themselves as African-American/Black, while 46% identified themselves as Caucasian (see Table 8). The participants' high school graduation year ranged from 1971 to 2009 (see Table 9).
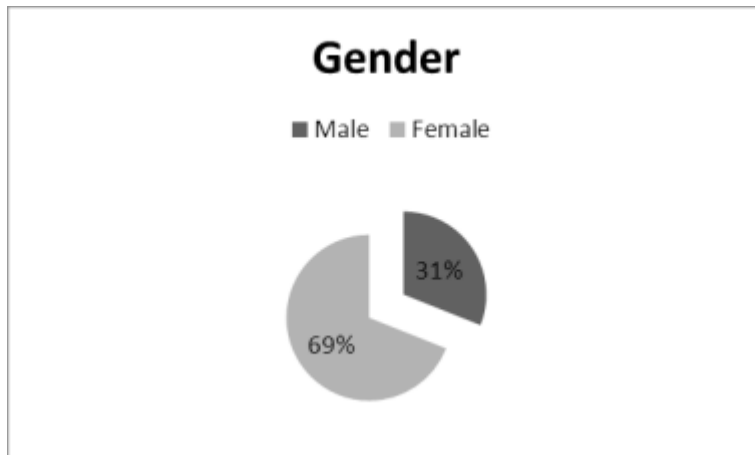
Figure 6.   Gender of Participants

Table 8

Ethnicity of Participants

Category	Frequency	Percentage
African-American Black	15	54%
Asian- American	0	0%
Caucasian	13	46%
Hispanic	0	0%
Other	0	0%

Table 9

Year of High School Graduation

HS Graduation YR	
Range	38
Earliest Graduation Year	1971
Latest Graduation Year	2009

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Academic Major and Educational Level

As shown in Table 10, the participants in this study came from a wide array of academic majors. Of the participants, 24% were enrolled in the instruction systems and workforce development program, 14% were enrolled in the secondary teacher alternate route program, 10% were enrolled in the elementary education program, and the remainder of the participants was enrolled in a variety of other degree programs. Figure 7 displays the educational level of the participants. Seventy-two percent of the participants were graduate students.

Table 10

Academic Majors of the Participants

Major	Frequency	Percentage
Instructional Systems & Workforce Development	7	24%
Secondary Teacher Alt Route	4	14%
Elementary Education	3	10%
Curriculum and Instruction	2	7%
Technology	2	7%
Secondary Education	2	7%
Ag & Ext Education	1	3%
Education	1	3%
Technology Teacher Education	1	3%
Public Policy & Administration	1	3%
Instructional Technology	1	3%
Business Administration	1	3%
Special Education	1	3%
Interdisciplinary Studies	1	3%
Undecided	1	3%
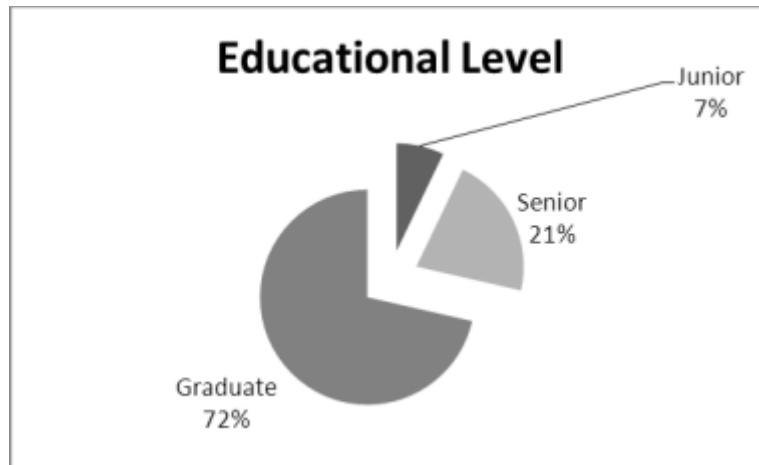
Figure 7.   Educational Level.

Experience with Distance Learning Courses, Reasons for Taking Distance Learning Courses, and Amount of Time Spent Studying for Course

The data displayed in Table 11 display the student's experience with distance learning courses. The average number of online courses taken by the participants was 9. Table 12 shows students' reasons for taking the distance learning course. The majority of participants (11) enrolled in distance learning courses because the courses were required and only available in distant format during the time of the study. Table 12 also provides a breakdown of the other choices students selected as reasons they enrolled in the courses. The participants also noted the number of hours they spent studying for the course every week. The participants spent an average of 6.70 hours per week studying for the courses (see Table 13).

Table 11

Experience with Distance Learning Courses

Number of Online Courses Taken	
Mean	9
Range	23
Minimum	2
Maximum	25

Table 12

Reasons for Taking Distance Learning Courses

Reason	Number of Students
Fulfills course requirement	1
Content seems interesting	8
Is required of all students at college	2
Will be useful to me in other courses	6
Is an easy elective	0
Will help improve my academic skills	9
Is required for major	11
Was recommended by a friend	1
Was recommended by an advisor	6
Will improve career prospects	9
Fit into my schedule	9

Table 13

Hours Spent Studying for the Course Per Week

Hrs Spent Per Wk Studying for Course	
Mean	6.70
Minimum	0
Maximum	25

Number of Courses Taken During the Term and Hours Spent Working per Week

During the term these courses were taken, participants were also enrolled in other

courses. The participants were enrolled in an average of 2 courses (see Table 14) during

the term. Many of the participants also reported working while being enrolled in their

distance learning course. Participants reported working an average of 37 hours per week

while enrolled in their distance learning course (see Table 15).

Table 14

Number of Courses Taken During the School Term

Number of Classes Taken During Term	
Average Number of Courses	2
Minimum	1
Maximum	6

Table 15

Hours Worked Per Week

Hours Worked Per Week	
Mean	37.22
Minimum	0
Maximum	60

Data Analysis from the Motivated Strategies for Learning Questionnaire (MSLQ)

Six scales selected from the MSLQ were used to obtain information regarding the

students' motivation and self-regulated learning. The participants answered the

questionnaire based on a seven-point Likert-type scale ranging from the lowest score of

one through the highest possible score of seven. Based on research from Duncan and

McKeachie (2005), "higher scores indicate greater levels of the construct of interest" (p. 119). Pintrich et al. (1991) provided information for interpreting the scores of the scales indicating that scores of 4-7 indicates high scores while 1-3 represents low scores (p. 51). According to Pintrich et al. (1991) "if your scores are above 3, then you are doing well" (p. 51). Table 16 shows responses from the selected scales. The results from the students' responses (Table 16) indicated that overall the students produced high scores on both the motivation and learning strategies scales.

Table 16

Responses from the Motivation and Learning Strategies Scales

Scale	Average Score	SD
Motivation	5.74	1.21
Intrinsic Goal Orientation	5.36	1.30
Extrinsic Goal Orientation	5.47	1.78
Task Value	5.94	1.16
Self-Efficacy for Learning and Performance	6.19	0.91
Learning Strategies	4.36	2.01
Self-Regulation	4.61	1.75
Effort Regulation	4.10	2.27

Correlation Interpretation

A Pearson Product Moment Correlation was used to analyze several of the research questions. For the purposes of this study, the correlations were interpreted according to Table 17.

Table 17

Interpretation of Correlation Strength

Value of r	Strength of Association
.80	Very strong
.60	Strong
.40	Moderate
.20	Low
0	Very Low

Data Analysis of All Participants

Descriptive Statistics for Student Participation and Academic Performance for All Participants

This section of analysis analyzed the data from the participants as one large

group. Participants logged onto the course management system an average of 69.55 times

and spent an average of 21 hours and 17 minutes logged in during the five-week term.

Table 18 shows the descriptive statistics for the motivation, learning strategies,

participation and academic performance variables. The average score column contains

the average score for the scales of the indicated variables. Table 18 also shows the

average number of posts (39) and the average number of points (academic performance)

per student (646.93) for this group.

Table 18

Descriptive Statistics of the Motivation Variables, Learning Strategies Variables,

Participation, and Academic Performance for All Participants

Variable	Average Score	SD	N
Intrinsic Goal Orientation (IGO)	5.36	1.30	116
Extrinsic Goal Orientation (EGO)	5.47	1.78	116
Task Value (TV)	5.94	1.16	174
Self-Efficacy (SE)	6.19	.91	232
Self-Regulation (SR)	4.61	1.75	327
Effort-Regulation (ER)	4.10	2.27	116
Participation (# of posts)	39.00	28.43	29
Academic Performance	646.93	474.17	29

Analysis of Research Question #1 for All Participants

Research Question one was: Is there a relationship between students'

motivation and their participation and academic performance in distance learning?

Student motivation was measured by intrinsic goal orientation (IGO), extrinsic goal

orientation (EGO), task value (TV), and self-efficacy (SE). The researcher performed a

Pearson Product Moment Correlation to determine if relationships exist between student

motivation and participation. Participation was measured by the number of messages

posted to the discussion board. Academic performance was measured by the total number

of points from activities. Table 19 shows the Pearson Correlation for student motivation

and participation.

Table 19

Pearson Correlation for the Motivation Variables and Participation for All Participants

	IGO	EGO	TV	SE	Participation
IGO	1				
EGO	.06	1			
TV	.01	.03	1		
SE	.19[*]	-.00	.00	1	
Participation	-.15	.20	.07	.09	1

*Correlation is significant at the 0.05 level (2-tailed).

The results of the Pearson Product Moment Correlation shown in Table 19 revealed a very low significant association between SE and IGO (r = .19).

Table 20 provides the results of the correlation analysis performed to analyze if relationships exist between the motivational variables of SE, IGO, EGO, and TV and academic performance.

Table 20

Pearson Correlation for the Motivation Variables and Academic Performance for All Participants

	IGO	EGO	TV	SE	Academic Performance
IGO	1				
EGO	.06	1			
TV	.01	-.03	1		
SE	.19[*]	-.00	.00	1	
Academic Performance	.26	-.22	-.08	.11	1

*Correlation is significant at the 0.05 level (2-tailed).

The results from the Pearson Product Moment Correlation shown in Table 20 revealed a very low significant correlation between SE and IGO (r = .19).

Analysis of Research Question #2 for All Participants

       Research Question two was: Is there a relationship between students' use of learning strategies and their participation and academic performance in distance learning? Learning strategies were measured by self-regulation (SR) and effort regulation (ER). Participation was measured by the number of messages posted to the discussion board. Academic performance was measured by the total number of points for the class. A correlation analysis (see Table 21) was used to determine whether relationships exist between the learning strategies of SR and ER and students' participation in distance learning.

Table 21

Pearson Correlation for the Learning Strategies Variables and Participation for All Participants

	SR	ER	Participation
SR	1		
ER	-.05	1	
Participation	-.03	.01	1

       The results of the Pearson Product Moment Correlation revealed no significant associations.

       Table 22 shows the correlation analysis used to determine whether relationships exist between the learning strategies of SR and ER and academic performance in distance learning.

Table 22

Pearson Correlation for the Learning Strategies Variables and Academic Performance

for All Participants

	SR	ER	Academic Performance
SR	1		
ER	-.05	1	
Academic Performance	.15	-.18	1

The results of the Pearson Product Moment Correlation shown above in Table 22 revealed no significant associations.

Analysis of Research Question #3 for All Participants

Research Question three was: Is there a relationship between students' participation and their academic performance in distance learning? A Pearson Product Moment Correlation analysis was performed to determine if a relationship exists between participation and academic performance in distance learning. Table 23 shows the results of the Pearson Correlation between participation and academic performance.

Table 23

Pearson Correlation between Participation and Academic Performance for All

Participants

	Participation	Academic Performance
Participation	1	
Academic Performance	-.92[**]	1

[**]Correlation is significant at the 0.01 level (2-tailed).

The results from the Pearson Product Moment Correlation shown in Table 23 revealed a strong significant negative association between participation and academic performance (r = -.92) which suggests that as participation increases, academic performance is more likely to decrease.

Analysis of Research Question #4 for All Participants

Research Question four was: Can student motivation predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the motivational variables of SE, IGO, EGO, and TV can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, SE, IGO, and EGO and TV were entered into the model and were then systematically removed, leaving only the most useful predictor variables. The following tables provide the results of the multiple regression analysis. Table 24 shows the model summary statistics. Table 25 displays the ANOVA table and Table 26 shows the regression coefficients table.

Table 24

Summary Statistics of the Model for the Motivation Variables and Participation[a] for All Participants

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.36[b]	.13	-.01	28.62
2	.32[c]	.10	-.01	28.53
3	.26[d]	.07	-.01	28.51
4	.15[e]	.02	-.01	28.62

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, EGO, TV, IGO
[c]Predictors: (Constant), SE, EGO, IGO
[d]Predictors: (Constant), SE, IGO
[e]Predictors: (Constant), IGO

Table 25

ANOVA for the Motivation Variables and Participation[a] for All Participants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2968.61	4	742.15	.91	.48[b]
	Residual	19655.39	24	818.97		
	Total	22624.00	28			
2	Regression	2273.45	3	757.82	.93	.44[c]
	Residual	20350.55	25	814.02		
	Total	22624.00	28			
3	Regression	1494.95	2	747.48	.92	.41[d]
	Residual	21129.05	26	812.66		
	Total	22624.00	28			
4	Regression	503.63	1	503.63	.62	.44[e]
	Residual	22120.37	27	819.27		
	Total	22624.00	28			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, EGO, TV, IGO
[c]Predictors: (Constant), SE, EGO, IGO
[d]Predictors: (Constant), SE, IGO
[e]Predictors: (Constant), IGO

Table 26

Regression Coefficients for the Motivation Variables and Participation[a] for All

Participants

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	-18.72	52.20		-.36	.72
IGO	-5.97	4.44	-.31	-1.34	.19
EGO	2.92	2.64	.21	1.11	.28
TV	5.45	5.92	.18	.92	.37
SE	6.915	5.34	.30	1.29	.21
2 (Constant)	20.33	30.39		.67	.51
IGO	-5.13	4.34	-.27	-1.18	.25
EGO	2.54	2.60	.19	.98	.34
SE	5.66	5.15	.15	1.10	.28
3 (Constant)	34.29	26.81		1.28	.21
IGO	-5.46	4.32	-.29	-1.26	.22
SE	5.68	5.15	.25	1.10	.28
4 (Constant)	54.11	19.99		2.71	.01
IGO	-2.85	3.63	-.15	-.78	.44

[a]Dependent Variable: Participation

The results from the regression analysis revealed non-significant models. Thus, there was no indication that any of the motivational variables were likely to predict participation.

The following tables provide the results of the regression analysis that was used to determine if the motivational variables of SE, IGO, EGO, and TV could predict students' academic performance in distance learning. Table 27 shows the model summary statistics. Table 28 displays the ANOVA table and Table 29 shows the regression coefficients table.

Table 27

Summary Statistics of the Model for the Motivation Variables and Academic

Performance[a] for All Participants

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	$.36^b$	.13	-.02	478.25
2	$.35^c$	.12	.02	469.95
3	$.33^d$	.11	.04	465.27
4	$.26^e$	.07	.03	466.70

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, EGO, TV, IGO
[c]Predictors: (Constant), EGO, TV, IGO
[d]Predictors: (Constant), EGO, IGO
[e]Predictors: (Constant), IGO

Table 28

ANOVA for the Motivation Variables and Academic Performance[a] for All Participants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	806084.61	4	201521.15	.88	.49[b]
	Residual	5489389.93	24	228724.58		
	Total	6295474.54	28			
2	Regression	774251.09	3	258083.70	1.17	.34[c]
	Residual	5521223.45	25	220848.94		
	Total	6295474.54	28			
3	Regression	667154.11	2	333577.06	1.54	.23[d]
	Residual	5628320.42	26	216473.86		
	Total	6295474.54	28			
4	Regression	414625.91	1	414625.91	1.90	.18[e]
	Residual	5880848.62	27	217809.21		
	Total	6295474.54	28			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, EGO, TV, IGO
[c]Predictors: (Constant), EGO, TV, IGO
[d]Predictors: (Constant), EGO, IGO
[e]Predictors: (Constant), IGO

Table 29

Regression Coefficients for the Motivation Variables and Academic Performance[a] for All

Participants

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1058.21	872.39		1.21	.24
IGO	94.83	74.27	.30	1.28	.21
EGO	-50.96	44.11	-.22	-1.16	.26
TV	-74.84	98.90	-.15	-.76	.46
SE	-33.30	89.26	-.09	-.37	.71
2 (Constant)	882.80	722.07		1.22	.23
IGO	79.06	59.99	.25	1.32	.20
EGO	-50.38	43.32	-.22	-1.16	.26
TV	-65.45	93.99	-.13	-.70	.49
3 (Constant)	466.31	400.54		1.16	.26
IGO	75.93	59.23	.24	1.28	.21
EGE	-45.78	42.39	-.20	-1.08	.29
4 (Constant)	213.39	325.96		.66	.52
IGO	81.64	59.17	.26	1.38	.18

[a]Dependent Variable: Academic Performance

The results from the regression analysis revealed non-significant models. Thus, there was no indication that any of the motivational variables were likely to predict academic performance.

Analysis of Research Question #5 for All Participants

**Research Question five was: Can students' use of learning strategies predict participation and academic performance in distance learning?** A multiple regression analysis was used to determine if the learning strategies variables of SR and ER can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, the researcher entered the SR and ER variables into the model and then systematically removed, leaving only the most useful predictor variables. Table 30 shows the model summary statistics. Table 31 displays the ANOVA table and Table 32 shows the regression coefficients table.

Table 30

Summary Statistics of the Model for the Learning Strategies Variables and Participation[a] for All Participants

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.03[b]	.00	-.08	29.48
2	.03[c]	.00	-.04	28.93

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

Table 31

ANOVA for the Learning Strategies Variables and Participation[a] for All Participants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.02	2	11.01	.01	.99[b]
	Residual	22601.98	26	869.31		
	Total	22624.00	28			
2	Regression	21.20	1	21.20	.03	.88[c]
	Residual	22602.80	27	837.14		
	Total	22624.00	28			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictor: (Constant), SR

Table 32

Regression Coefficients for the Learning Strategies Variables and Participation[a] for All

Participants

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	40.71	15.79		2.58	.02
SR	-.44	2.77	-.03	-.16	.88
ER	.07	2.16	.01	.03	.98
2 (Constant)	40.96	13.41		3.06	.01
SR	-.43	2.72	-.03	-.16	.88

[a]Dependent Variable: Participation

The results from the regression analysis revealed non-significant models. Thus, there was no indication that any of the learning strategies variables were likely to predict participation.

The following tables provide the results of the regression analysis used to determine whether the learning strategies of SR or ER could predict academic

performance in distance learning. Table 33 shows the model summary statistics. Table 34

shows the ANOVA table and Table 35 shows the regression coefficients table.

Table 33

Summary Statistics of the Model for the Learning Strategies Variables and Academic

Performance[a] in for All Participants

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.24[b]	.06	-.02	478.06
2	.18[c]	.03	-.00	474.88

[a]Dependent Variable: Academic Performance
[a]Predictors: (Constant), ER, SR
[b]Predictor: (Constant), ER

Table 34

ANOVA for the Learning Strategies Variables and Academic Performance[a] for All

Participants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	353383.35	2	176691.67	.77	.47[b]
	Residual	5942091.19	26	228541.97		
	Total	6295474.54	28			
2	Regression	206574.40	1	206574.40	.92	.35[c]
	Residual	6088900.14	27	225514.82		
	Total	6295474.54	28			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 35

Regression Coefficients for the Learning Strategies Variables and Academic

Performance[a] for All Participants

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	612.67	256.02		2.39	.02
SR	36.01	44.93	.15	.80	.43
ER	-33.86	34.99	-.18	-.97	.34
2 (Constant)	773.08	158.59		4.88	.00
ER	-33.26	34.75	-.18	-.96	.35

[a]Dependent Variable: Academic Performance

This analysis provided no significant results and found that no significant learning

strategies variables were able to predict academic performance.

Data Analysis for Professor A

Descriptive Statistics for Student Participation and Academic Performance for Professor A

Professor A taught two sections an integrating technology for learning course

during June 2012. Eight out of the 29 participants were enrolled in this course.

Participants logged into the course management system for an average of 56.25 times and

spent an average of 5 hours and 28 minutes logged in during the five-week term. Table

36 shows the descriptive statistics for the variables that were analyzed for this group. The

average score column contains the average score for the scales of the indicated variables.

Table 36 also shows the average number of posts (53.38) and the average number of

points (academic performance) per student (391.25) for this group.

Table 36

Descriptive Statistics of the Motivation Variables, Learning Strategies Variables,

Participation, and Academic Performance for Professor A

Variable	Average Score	SD	N
IGO	5.25	1.52	32
EGO	4.81	2.09	32
TV	6.31	.99	48
SE	6.28	1.06	64
SR	4.88	1.94	96
ER	4.03	2.57	32
Participation	53.38	5.98	8
Academic Performance	391.25	5.65	8

Analysis of Research Question #1 for Professor A

Research question one was: Is there a relationship between students'

motivation and their participation and academic performance in distance learning?

Student motivation was measured by IGO, EGO, TV, and SE. Participation was

measured by the number of messages posted to the discussion board. Academic

performance was measured by the total number of points in the course. In order to answer

this question, the researcher used a Pearson Product Moment Correlation. Table 37 shows

the Pearson Correlation.

Table 37

Pearson Correlation for the Motivation Variables and Participation for Professor A

	IGO	EGO	TV	SE	Participation
IGO	1				
EGO	-.17	1			
TV	.05	-.16	1		
SE	.50**	-.09	-.10	1	
Participation	.21	-.42	.63	-.79*	1

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Based on the results of the Pearson Product Moment correlation, there was a strong association between students' SE ($r = -.79$) and their participation in distance learning. There was also a strong association between TV and participation in distance learning ($r = .63$). Additionally, there was a moderate association between the motivational constructs of SE and IGO ($r = .50$).

A Pearson Product Moment correlation was also performed to determine if relationships exist between student motivation and academic performance in distance learning. Academic performance was measured based on the total number of points from activities in the course. The potential for total points in the courses were the same. Table 38 shows the correlation analysis for academic performance for Professor A.

Table 38

Pearson Correlation for the Motivation Variables and Academic Performance for

Professor A

	IGO	EGO	TV	SE	Academic Performance
IGO	1				
EGO	-.17	1			
TV	.05	-.16	1		
SE	.50**	-.09	-.10	1	
Academic Performance	.39	.15	.39	.23	1

**Correlation is significant at the 0.01 level (2-tailed).

The results from the correlation analysis indicated a moderate association between students' sense of SE and their IGO in distance learning ($r = .50$) which might suggest that students with a higher sense of SE were more likely to set goals that were challenging in nature, but beneficial to them in the future.

Analysis of Research Question #2 for Professor A

Research question two was: Is there a relationship between students' use of learning strategies and their participation and academic performance in distance learning? Learning strategies were measured by SR and ER. Participation was measured by the number of messages posted to the discussion board. Academic performance was measured by the total number of points from activities. A Pearson Product Moment Correlation analysis was performed to analyze whether or not relationships exist between students' use of learning strategies and their participation in distance learning. Table 39 provides the results of the correlation analysis between learning strategies and participation.

Table 39

Pearson Correlation for the Learning Strategies Variables and Participation for

Professor

	SR	ER	Participation
SR	1		
ER	.08	1	
Participation	-.18	-.46	1

The results from Table 39 revealed a moderate negative association between ER

and participation (r = -.46).

Table 40 provides the results of the correlation analysis between the learning

strategies variables and academic performance.

Table 40

Pearson Correlation for the Learning Strategies Variables and Academic Performance

for Professor A

	SR	ER	Academic Performance
SR	1		
ER	.09	1	
Academic Performance	.25	.18	1

The results of the Pearson Product Moment Correlation analysis provided in

Table 40 did not reveal any significant associations.

Analysis of Research Question #3 for Professor A

Research question three was: Is there a relationship between students'

participation and academic performance in distance learning? A Pearson Product

Moment Correlation analysis was performed to determine if a relationship exists between participation and academic performance in distance learning. Participation was measured by the number of messages posted to the discussion board. Academic performance was measured based on the total number of points from activities in the course.

Table 41 shows the results of the Pearson Correlation between participation and academic performance.

Table 41

Pearson Correlation between Participation and Academic Performance for Professor A

	Participation	Academic Performance
Participation	1	
Academic Performance	.24	1

The results from the Pearson Product Moment Correlation shown in Table 41 did not reveal a significant association between participation and academic performance.

Analysis of Research Question #4 for Professor A

Research question four was: Can student motivation predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the motivational variables of SE, IGO, EGO, and TV can predict participation in distance learning. Using SPSS, the researcher entered the SE, IGO, EGO, and TV variables into the model and then systematically removed one variable at a time leaving only the most useful predictor variables. Table 42 shows the model summary from the regression analysis between the motivation variables and participation. Table 43 shows the ANOVA table from the regression analysis between the motivation variables

94

and participation. Table 44 shows the regression coefficients table between the

motivation variables and participation.

Table 42

Summary Statistics of the Model for the Motivation Variables and Participation[a] for

Professor A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.92[b]	.85	.64	3.59
2	.91[c]	.82	.69	3.34
3	.88[d]	.78	.70	3.30
4	.79[e]	.62	.56	3.99

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, IGO, EGO, TV
[c]Predictors: (Constant), SE, EGO, TV
[d]Predictors: (Constant), SE, TV
[e]Predictor: (Constant), SE

Table 43

ANOVA for the Motivation Variables and Participation[a] for Professor A

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	211.31	4	52.83	4.11	.14[b]
	Residual	38.57	3	12.86		
	Total	249.88	7			
2	Regression	205.27	3	68.43	6.14	.66[c]
	Residual	44.60	4	11.15		
	Total	249.88	7			
3	Regression	195.41	2	97.71	8.97	.02[d]
	Residual	54.47	5	10.89		
	Total	249.88	7			
4	Regression	154.47	1	154.47	9.72	.02[e]
	Residual	95.40	6	15.90		
	Total	249.88	7			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, IGO, EGO, TV
[c]Predictors: (Constant), SE, EGO, TV
[d]Predictors: (Constant), SE, TV
[e]Predictor: (Constant), SE

Table 44

Regression Coefficients for the Motivation Variables and Participation[a] for Professor A

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	60.07	17.28		3.82	.03
IGO	.72	1.05	.17	.69	.54
EGO	-.69	.65	-.27	-1.05	.37
TV	2.16	1.73	-.32	1.25	.30
SE	-4.13	1.56	-.63	-2.65	.08
2 (Constant)	67.61	15.95		4.24	.01
EGO	-5.41	.58	-.21	-.94	.40
TV	2.45	1.56	.36	1.57	.19
SE	-4.19	1.45	-.64	-2.89	.05
3 (Constant)	62.70	14.90		4.21	.01
TV	2.87	1.48	.43	1.94	.11
SE	-4.27	1.43	-.66	-2.99	.03
4 (Constant)	86.06	10.58		8.13	.00
SE	-5.13	1.65	-.79	-3.12	.02

[a]Dependent Variable: Participation

The results from the model summary (Table 42) revealed that model 4 accounted for 56% of the variance in participation. The results from the backward method shown in Table 43 provided a significant model 4 at $F (1, 6) = 9.72$, $p < 0.05$. In model 4 of the regression coefficients table (see Table 44), SE was the only motivational variable found to be significant in predicting participation. Model 4 also showed there was a positive coefficient for SE, which indicates the higher the students' sense of SE, the more likely they are to participate in online discussions for the course.

Table 45 displays the model summary statistics for the motivation variables and academic performance. Table 46 displays the ANOVA table for the motivation variables and academic performance Table 47 displays the results for the regression coefficients table for the motivation variables and academic performance.

Table 45

Summary Statistics of the Model for the Motivation Variables and Academic

Performance[a] for Professor A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.65[b]	.42	-.35	6.56
2	.63[c]	.40	-.06	5.80
3	.53[d]	.28	-.01	5.67
4	.39[e]	.15	.01	5.63

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, IGO, EGO, TV
[c]Predictors: (Constant), SE, EGO, TV
[d]Predictors: (Constant), SE, TV
[e]Predictors: (Constant), TV

Table 46

ANOVA for the Motivation Variables and Academic Performance[a] for Professor A

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.44	4	23.61	.55	.72[b]
	Residual	129.06	3	43.02		
	Total	223.50	7			
2	Regression	88.79	3	29.60	.88	.52[c]
	Residual	134.71	4	37.68		
	Total	223.50	7			
3	Regression	62.73	2	31.37	.98	.44[d]
	Residual	160.77	5	32.15		
	Total	223.50	7			
4	Regression	33.14	1	33.14	1.04	.35[e]
	Residual	190.36	6	31.73		
	Total	223.50	7			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, IGO, EGO, TV
[c]Predictors: (Constant), SE, EGO, TV
[d]Predictors: (Constant), SE, TV
[e]Predictors: (Constant), SE

Table 47

Regression Coefficients for the Motivation Variables and Academic Performance[a] for

Professor A

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	347.53	31.61		11.00	.00
IGO	1.19	1.92	.29	.62	.58
EGO	.43	1.89	.18	.36	.74
TV	3.23	3.17	.51	1.02	.38
SE	2.35	2.85	.38	.83	.47
2 (Constant)	350.57	26.96		13.00	.00
EGO	1.41	1.61	.35	.88	.43
TV	2.84	2.63	.45	1.08	.34
SE	2.43	2.52	.39	.97	.39
3 (Constant)	356.18	25.60		13.91	.00
TV	3.21	2.54	.50	1.26	.26
SE	2.36	2.46	.38	.96	.38
4 (Constant)	375.91	15.14		24.82	.00
TV	2.46	2.40	.39	1.02	.35

[a]Dependent Variable: Academic Performance

The results from the regression analysis indicated that the model accounted for

1% of the variance in academic performance (Table 45, model 4). The ANOVA table

shown in model 4 of Table 46 revealed that the model was not significant across $F_{(1, 6)}$

$= 1.04$, $p > .05$. From the regression coefficients shown in Table 47, none of the predictor

variables were found to be significant. Thus, there was no indication that any of the

motivational variables were likely to predict academic performance.

Analysis of Research Question #5 for Professor A

Research question five was: Can students' use of learning strategies predict

participation and/or academic performance in distance learning? A multiple

regression analysis was used to determine if the learning strategies variables of SR and

ER can predict participation in distance learning. The backward method was used during

this analysis. Using SPSS, the researcher entered the SR and ER variables into the model and then systematically removed one variable at a time leaving only the most useful predictor variables. Table 48 presents the model summary from the regression analysis. Table 49 presents the ANOVA table from the regression analysis for the learning strategies variables and performance. Table 50 presents the regression coefficients table from the regression analysis.

Table 48

Summary Statistics of the Model for the Learning Strategies Variables and Participation[a]

for Professor A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.57[b]	.32	.05	5.83
2	.46[c]	.21	.08	5.73

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SR, ER
[c]Predictors: (Constant), ER

Table 49

ANOVA for the Learning Strategies Variables and Participation[a] for Professor A

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79.91	2	39.95	1.18	.38[b]
	Residual	169.97	5	33.99		
	Total	249.88	7			
2	Regression	53.24	1	53.24	1.62	.25[c]
	Residual	196.64	6	32.77		
	Total	249.88	7			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SR, ER
[c]Predictors: (Constant), ER

Table 50

Regression Coefficients for the Learning Strategies Variables and Participation[a] for

Professor A

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	54.48	4.65		11.72	.00
SR	2.06	2.32	.55	.89	.42
ER	-3.07	2.11	-.91	-1.45	.21
2 (Constant)	57.08	3.54		16.11	.00
ER	-1.56	1.22	-.46	-1.27	.50

[a]Dependent Variable: Participation

The model summary statistics found in Table 48 revealed that model 2 accounts for 8% of the amount of variance. Table 49 indicated that the model 2 was not significant across $F (1, 6) = 1.62$, $p > .05$. Also, Table 50 provided no real indication that any of the learning strategies variables were able to predict participation.

The following tables provide the results of the regression analysis used to determine whether the learning strategies of SR or ER could predict academic performance in distance learning. Table 51 shows the model summary statistics. Table 52 shows the ANOVA table and Table 53 shows the regression coefficients table.

Table 51

Summary Statistics of the Model for the Learning Strategies Variables and Academic

Performance[a] for Professor A

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.28[b]	.07	-.31	6.46
2	.25[c]	.06	-.09	5.91

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

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Table 52

ANOVA for the Learning Strategies Variables and Academic Performance[a] for Professor

A

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	14.73	2	7.37	.18	.84[b]
Residual	208.77	5	41.75		
Total	223.50	7			
2 Regression	14.22	1	14.22	.41	.55[c]
Residual	209.28	6	34.88		
Total	223.50	7			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

Table 53

Regression Coefficients for the Learning Strategies Variables and Academic

Performance[a] for Professor A

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	388.51	5.15		75.39	.00
SR	1.12	2.58	.32	.43	.68
ER	-.26	2.34	-.08	-.11	.92
2 (Constant)	388.58	4.67		83.23	.00
SR	.89	1.39	.25	.64	.55

[a]Dependent Variable: Academic Performance

This analysis provided no significant results and indicated that none of the

learning strategies variables were able to predict performance.

Data Analysis for Professor B

Descriptive Statistics for Student Participation and Academic Performance for Professor B

Professor B taught an instructional design course during July 2012. Six out of the 29 participants were enrolled in this course. Table 54 provides the descriptive statistics for the variables in this group. The students logged into the course management system an average of 75.83 times throughout their five-week course while spending an average of 23 hours and 42 minutes logged in during the course. The average score column contains the average score for the scales of the indicated variables. Table 54 also shows the average number of posts (21.5) and the average number of points (academic performance) per student (768.17) for this group.

Table 54

Descriptive Statistics of the Motivation Variables, Learning Strategies Variables, Participation, and Academic Performance for Professor B

Variable	Average Score	SD	N
IGO	5.63	1.17	24
EGO	5.83	1.52	24
TV	5.83	1.23	36
SE	6.25	6.83	48
SR	4.75	1.42	72
ER	4.17	2.22	24
Participation	21.5	6.83	6
Academic Performance	768.17	57.52	6

Analysis of Research Question #1 for Professor B

Research question one was: Is there a relationship between students' motivation and their participation and academic performance in distance learning?

Student motivation was measured by IGO, EGO, TV and SE. Participation was measured

by the number of messages posted to the discussion board. Academic performance was

measured by the total number of points from activities. A Pearson Product Moment

Correlation was performed to determine if relationships exist between student motivation

and participation. Table 55 shows the Pearson Correlation for student motivation and

participation.

Table 55

Pearson Correlation for the Motivation Variables and Participation for Professor B

	IGO	EGO	TV	SE	Participation
IGO	1				
EGO	.01	1			
TV	.01	.11	1		
SE	.05	.31	-.17	1	
Participation	-.75	-.85[*]	.39	.02	1

[*]Correlation is significant at the 0.05 level (2-tailed)

The results of the Pearson Product Moment Correlation shown in Table 55

revealed a very strong, negative significant association between EGO and participation (r

= -.85). There was also a strong, negative association between IGO and participation (r =

-.75) and a low association between TV and participation.

Table 56 provides the results of the correlation analysis performed to determine if

relationships exist between the motivational variables and academic performance.

Table 56

Pearson Correlation for the Motivation Variables and Academic Performance for

Professor B

	IGO	EGO	TV	SE	Academic Performance
IGO	1				
EGO	.01	1			
TV	.01	.11	1		
SE	.05	.31	-.17	1	
Academic Performance	-.60	-.32	.66	-.15	1

The results from the Pearson Product Moment Correlation shown in Table 56

revealed a strong, negative association between IGO and academic performance (r = -.60)

suggesting an inverse relationship between IGO and academic performance. Also, there

was a strong association between TV and academic performance (r = .66) suggests

academic performance is more likely to increase as students place more value on class

assignments.

Analysis of Research Question #2 for Professor B

Research question two was: Is there a relationship between students' use of

learning strategies and their participation and academic performance in distance

learning? Learning strategies were measured by SR and ER. Participation was measured

by the number of messages posted to the discussion board. Academic performance was

measured by the total number of points from activities. A correlation analysis (see Table

57) was used to determine whether relationships exist among the learning strategies of

SR and ER and students' participation in distance learning.

Table 57

Pearson Correlation for the Learning Strategies Variables and Participation for

Professor B

	SR	ER	Participation
SR	1		
ER	-.01	1	
Participation	-.33	-.54	1

The results of the Pearson Product Moment Correlation revealed a moderate,

negative association between ER and participation ($r = -.54$) which suggests there is an

inverse association between these variables. The correlation also indicated there was a

low, negative association between SR and participation ($r = -.33$) suggesting as

participation increases then students' SR is more likely to decrease.

Table 58 shows the correlation analysis used to determine whether relationships

exist among the learning strategies of SR and ER and students' academic performance in

distance learning

Table 58

Pearson Correlation for the Learning Strategies Variables and Academic Performance

for Professor B

	SR	ER	Academic Performance
SR	1		
ER	-.01	1	
Academic Performance	.27	-.40	1

The results of the Pearson Product Moment Correlation reveal a moderate, negative association between ER and academic performance ($r = -.40$).

Analysis of Research Question #3 for Professor B

Research question three was: Is there a relationship between students' participation and their academic performance in distance learning? A Pearson Product Moment Correlation analysis was performed to determine if a relationship exists between participation and academic performance in distance learning. Participation was measured by the number of messages posted to the discussion board. Academic performance was measured by the total number of points from activities. Table 59 shows the results of the Pearson Correlation between participation and academic performance.

Table 59

Pearson Correlation between Participation and Academic Performance for Professor B

	Participation	Academic Performance
Participation	1	
Academic Performance	.49	1

The results from the Pearson Product Moment Correlation shown in Table 59 revealed a moderate positive association between participation and academic performance ($r = .49$) which suggests students who participate in online discussions are more likely to perform better academically.

Analysis of Research Question #4 for Professor B

   Research question four was: Can student motivation predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the motivational variables of SE, IGO, EGO, and TV can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, the researcher entered the SE, IGO, EGO, and TV variables into the model and then one variable at a time leaving only the most useful predictor variables Table 60 shows the model summary statistics. Table 61 displays the ANOVA table and Table 62 shows the regression coefficients table.

Table 60

Summary Statistics of the Model for the Motivation Variables and Participation[a] for

Professor B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.00[b]	.99	.97	1.20
2	.99[c]	.97	.97	1.23
3	.99[d]	.97	.97	1.28

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), EGO, IGO

Table 61

ANOVA for the Motivation Variables and Participation[a] for Professor B

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	232.06	4	58.02	40.28	.12[b]
	Residual	1.44	1	1.44		
	Total	233.50	5			
2	Regression	230.47	3	76.82	50.69	.02[c]
	Residual	3.03	2	1.52		
	Total	233.50	5			
3	Regression	228.56	2	114.28	69.38	.00[d]
	Residual	4.94	3	1.65		
	Total	233.50	5			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), EGO, IGO

Table 62

Regression Coefficients for the Motivation Variables and Participation[a] for Professor B

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	77.73	7.94		9.79	.07
IGO	-3.30	.60	-.67	-5.51	.11
EGO	-4.99	.69	-.65	-7.21	.09
TV	-.66	.44	-.16	-1.50	.37
SE	-.75	.72	-.11	-1.05	.48
2 (Constant)	71.69	5.62		12.76	.01
IGO	-2.91	.48	-.59	-6.02	.03
EGO	-5.27	.66	-.69	-8.03	.02
TV	-.45	.40	-.11	-1.12	.38
3 (Constant)	67.12	4.04		16.62	.00
IGO	-2.65	.44	-.53	-6.01	.01
EGO	-5.18	.68	-.68	-7.63	.01

[a]Dependent Variable: Participation

The results from the model summary (Table 60) revealed that model 3 accounted

for 97% of the amount of variance in participation. The results from model 3 shown in

Table 61 provided a significant model F $(2, 5) = 69.38$, p < 0.05. In model 3 of Table 62, IGO and EGO were found to be significant in predicting participation.

The following tables provide the results of the regression analysis that was used to determine if the motivational variable could predict students' academic performance in distance learning. Table 63 shows the model summary statistics. Table 64 displays the ANOVA table and Table 65 shows the regression coefficients table.

Table 63

Summary Statistics of the Model for the Motivation Variables and Academic Performance[a] for Professor B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.76[b]	.58	-1.09	83.14
2	.76[c]	.58	-.05	58.80
3	.72[d]	.52	.21	51.24
4	.60[e]	.37	.21	51.26

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, IGO
[d]Predictors: (Constant), SE, IGO
[e]Predictors: (Constant), IGO

Table 64

ANOVA for the Motivation Variables and Academic Performance[a] for Professor B

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9634.41	4	2408.60	.35	.83[b]
	Residual	6912.43	1	6912.43		
	Total	16549.83	5			
2	Regression	9631.50	3	3210.50	.93	.56[c]
	Residual	6915.33	2	3457.66		
	Total	16546.83	5			
3	Regression	8671.31	2	4335.56	1.65	.33[d]
	Residual	7875.53	3	2625.18		
	Total	16546.83	5			
4	Regression	6037.92	1	6037.92	2.30	.20[e]
	Residual	10508.91	4	2627.23		
	Total	16546.83	5			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, IGO
[d]Predictors: (Constant), SE, IGO
[e]Predictors: (Constant), IGO

Table 65

Regression Coefficients for the Motivation Variables and Academic Performance[a] for

Professor B

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	930.46	550.03		1.69	.34
IGO	-22.27	41.51	-.53	-.54	.69
EGO	-.98	47.95	-.02	-.02	.99
TV	11.35	30.41	.32	.37	.77
SE	-16.84	49.63	-.29	-.34	.79
2 (Constant)	928.92	385.39		2.41	.14
IGO	-22.60	27.00	-.54	-.84	.49
TV	11.31	21.45	.32	.53	.65
SE	-17.23	32.43	-.29	-.53	.65
3 (Constant)	1089.67	205.24		5.31	.01
IGO	-31.82	17.89	-.76	-1.78	.17
SE	-25.11	25.07	-.43	-1.00	.39
4 (Constant)	906.83	93.83		9.67	.00
IGO	-25.21	16.63	-.60	-1.52	.20

[a]Dependent Variable: Academic Performance

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The results from the regression analysis indicated that model 4 accounted for 21%

of the amount of variance in academic performance (Table 63). The ANOVA table

shown in model 4 of Table 64 revealed that the model was not significant across $F_{(1, 5)}$

$= 2.30$, $p > .05$. From the regression coefficients shown in Table 65, none of the predictor

variables were found to be significant. Thus, there was no indication that any of the

motivational variables were likely to predict academic performance.

Analysis of Research Question #5 for Professor B

Research question five was: Can students' use of learning strategies predict

participation and academic performance in distance learning? A multiple regression

analysis was used to determine if the learning strategies variables of SR and ER can

predict participation in distance learning. The backward method was used during this

analysis. Using SPSS, the researcher entered the SR and ER variables into the model and

then removed one variable at a time leaving only the most useful predictor variable.

Table 66 shows the model summary statistics. Table 67 the ANOVA table and Table 68

shows the regression coefficients table.

Table 66

Summary Statistics of the Model for the Learning Strategies Variables and Participation[a]

for Professor B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.63[b]	.40	-.00	6.84
2	.54[c]	.29	.11	6.44

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 67

ANOVA for the Learning Strategies Variables and Participation[a] for Professor B

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	92.98	2	46.49	.99	.47[b]
Residual	140.52	3	46.84		
Total	233.50	5			
2 Regression	67.69	1	67.69	1.63	.27[c]
Residual	165.81	4	41.45		
Total	233.50	5			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 68

Regression Coefficients for the Learning Strategies Variables and Participation[a] for

Professor B

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	33.89	9.30		3.65	.04
SR	-1.63	2.22	-.33	-.74	.52
ER	-3.56	2.96	-.54	-1.20	.32
2 (Constant)	29.81	7.02		4.25	.01
ER	-3.56	2.79	-.54	-1.28	.27

[a]Dependent Variable: Participation

The model summary statistics found in Table 66 revealed that model 2 accounted for 11% of the amount of variance in participation. Model 2 in Table 67 also indicated that the model was not significant across $F (1, 4) = 1.63$, $p > .05$. Based on the data in Table 68, one can conclude that there was no real indication that any of the learning strategies variables were able to predict participation.

The following tables provide the results of the regression analysis used to determine whether the learning strategies of SR or ER could predict academic performance in distance learning. Table 69 shows the model summary statistics. Table 70 displays the ANOVA table and Table 71 shows the regression coefficients table.

Table 69

Summary Statistics of the Model for the Learning Strategies Variables and Academic Performance[a] for Professor B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.48[b]	.23	-.28	65.13
2	.40[c]	.16	-.06	59.09

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 70

ANOVA for the Learning Strategies Variables and Academic Performance[a] for Professor B

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3820.52	2	1910.26	.45	.67[b]
	Residual	12726.32	3	4242.11		
	Total	16546.83	5			
2	Regression	2581.33	1	2581.33	.74	.44[c]
	Residual	13965.50	4	3491.38		
	Total	16546.83	5			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

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Table 71

Regression Coefficients for the Learning Strategies Variables and Academic

Performance[a] for Professor B

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	790.95	88.48		8.94	.00
SR	11.42	21.13	.27	.54	.63
ER	-22.00	28.20	-.40	-.78	.49
2 (Constant)	819.50	64.39		12.73	.00
SR	-22.00	25.59	.40	-.86	.44

[a]Dependent Variable: Academic Performance

This analysis provided no significant results and found that no significant learning

strategies variables were able to predict academic performance.

Data Analysis of Professor C

Descriptive Statistics for Student Participation and Academic Performance for Professor C

Professor C taught a teaching information and communication technology course

offered during July 2012. Eight out of the 29 participants enrolled in this course.

Participants logged onto the course management system for an average of 53.5 times and

spent an average of 17 hours and 25 minutes logged in during the five-week term. Table

72 shows the descriptive statistics for the variables that were analyzed for Professor C.

The average score column contains the average score for the scales of the indicated

variables. Table 72 also shows the average number of posts (6.05) and the average

number of points (academic performance) per student (1300.75) for this group.

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Table 72

Descriptive Statistics of the Motivation Variables, Learning Strategies Variables,

Participation, and Academic Performance for Professor C

Variable	Average Score	SD	N
IGO	5.44	.84	32
EGO	5.91	.96	32
TV	6.02	.91	48
SE	6.03	.78	64
SR	4.36	1.62	96
ER	3.94	2.05	32
Participation	6.03	3.06	8
Academic Performance	1300.75	93.17	8

Analysis of Research Question #1 for Professor C

Research question one was: Is there a relationship between students'

motivation and their participation and academic performance in distance learning?

Student motivation was measured by IGO, EGO, TV, and SE. Participation was

measured by the number of messages posted to the discussion board. Academic

performance was measured by the total number of points from activities. A Pearson

Product Moment Correlation was performed to determine if relationships exist between

student motivation and participation. Table 73 shows the Pearson Correlation for student

motivation and participation.

Table 73

Pearson Correlation for the Motivation Variables and Participation for Professor C

	IGO	EGO	TV	SE	Participation
IGO	1				
EGO	.21	1			
TV	.39[*]	.09	1		
SE	.10	-.04	.23	1	
Participation	-.20	.12	.56	.15	1

[*]Correlation is significant at the 0.05 level (2-tailed)

The results of the Pearson Product Moment Correlation shown in Table 73 revealed moderate association between TV and participation (r = .56). There was also a low significant association between IGO and task value.

Table 74 provides the results of the correlation analysis performed to analyze if relationships exist between the motivational variables and academic performance.

Table 74

Pearson Correlation for the Motivation Variables and Academic Performance for Professor C

	IGO	EGO	TV	SE	Academic Performance
IGO	1				
EGO	.21	1			
TV	.39[*]	.09	1		
SE	.10	-.04	.23	1	
Academic Performance	.28	-.26	.38	-.09	1

[*] Correlation is significant at the 0.05 level (2-tailed)

The results from the Pearson Product Moment Correlation shown in Table 74 revealed a low significant association between IGO and TV (r = .39).

Analysis of Research Question #2 for Professor C

Research question two was: Is there a relationship between students' use of

learning strategies and their participation and academic performance in distance

learning? Learning strategies were measured by SR and ER. Participation was measured

by the number of messages posted to the discussion board. Academic performance was

measured by the total number of points from activities in the course. A correlation

analysis (see Table 75) was used to determine whether relationships exist among the

learning strategies of SR and ER and students' participation in distance learning.

Table 75

Pearson Correlation for the Learning Strategies Variables and Participation for

Professor C

	SR	ER	Participation
SR	1		
ER	.39[*]	1	
Participation	.09	-.46	1

[*]Correlation is significant at the 0.05 level (2-tailed)

The results of the Pearson Product Moment Correlation revealed a moderate,

negative association between ER and participation (r = -.46). There was also a low

significant association between SR and effort regulation (r = .39).

Table 76 shows the correlation analysis used to determine whether relationships

exist among the learning strategies of SR and ER and students' academic performance in

distance learning

Table 76

Pearson Correlation for the Learning Strategies Variables and Academic Performance

for Professor C

	SR	ER	Academic Performance
SR	1		
ER	.39[*]	1	
Academic Performance	-.21	-.29	1

[*]Correlation is significant at the 0.05 level (2-tailed)

The results of the Pearson Product Moment Correlation revealed there was a low significant association among SR and ER (r = .39).

Analysis of Research Question #3 for Professor C

Research question three was: Is there a relationship between students' participation and their academic performance in distance learning? A Pearson Product Moment Correlation analysis was performed to determine if a relationship exists between participation and academic performance in distance learning. Table 77 shows the results of the Pearson Correlation between participation and academic performance.

Table 77

Pearson Correlation between Participation and Academic Performance for Professor C

	Participation	Academic Performance
Participation	1	
Academic Performance	.71[*]	1

[*]Correlation is significant at the 0.05 level (2-tailed)

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The results from the Pearson Product Moment Correlation shown in Table 77

revealed a strong significant association between participation and academic performance

(r = .71).

Analysis of Research Question #4 for Professor C

Research question four was: Can student motivation predict participation

and academic performance in distance learning? A multiple regression analysis was

used to determine if the motivational variables of SE, IGO, EGO, and TV can predict

participation in distance learning. The backward method was used during this analysis.

Using SPSS, the researcher entered the SE, IGO, EGO, and TV variables into the model

and then systematically removed one variable at a time leaving only the most useful

predictor variables. Table 78 shows the model summary statistics. Table 79 displays the

ANOVA table and Table 80 shows the regression coefficients table.

Table 78

Summary Statistics of the Model for the Motivation Variables and Participation[a] for

Professor C

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.82[b]	.67	.22	2.70
2	.81[c]	.66	.40	2.37
3	.70[d]	.49	.29	2.58
4	.56[e]	.32	.20	2.73

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), TV, IGO
[e]Predictor: (Constant), TV

Table 79

ANOVA for the Motivation Variables and Participation[a] for Professor C

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.68	4	10.92	1.50	.39[b]
	Residual	21.82	3	7.27		
	Total	65.50	7			
2	Regression	42.94	3	14.31	2.54	.20[c]
	Residual	22.56	4	5.64		
	Total	65.50	7			
3	Regression	32.17	2	16.08	2.41	.19[d]
	Residual	33.33	5	6.67		
	Total	65.50	7			
4	Regression	20.64	1	20.64	2.76	.15[e]
	Residual	44.86	6	7.48		
	Total	65.50	7			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), TV, IGO
[e]Predictor: (Constant), TV

Table 80

Regression Coefficients for the Motivation Variables and Participation[a] for Professor C

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	16.22	20.93		.78	.50
IGO	-3.55	2.00	-.86	-1.77	.17
EGO	-2.19	1.88	-.54	-1.16	.33
TV	4.44	1.88	1.03	2.36	.10
SE	-.80	2.51	-.12	-.32	.77
2 (Constant)	11.80	13.76		.86	.44
IGO	-3.39	1.71	-.83	-1.99	.12
EGO	-2.27	1.64	.56	-1.38	.24
TV	4.29	1.61	.99	2.67	.06
3 (Constant)	-2.67	9.72		-.27	.80
IGO	-1.83	1.39	-.45	-1.32	.25
TV	3.08	1.47	.71	2.10	.09
4 (Constant)	-8.43	9.19		-.92	.39
TV	2.43	1.46	.56	1.66	.15

[a]Dependent Variable: Participation

The results from the model summary (Table 78) revealed that model 4 accounted for 20% of the amount of variance in participation. The results from the backward method shown in Table 79 provided a non-significant model at $F (1, 6) = 2.76$, $p > 0.05$. The regression coefficients model in Table 80 found no motivational variables to be significant in predicting participation.

The following tables provide the results of the regression analysis that was used to determine if the motivational variables could predict students' academic performance in distance learning. Table 81 shows the model summary statistics. Table 82 displays the ANOVA table and Table 83 shows the regression coefficients table.

Table 81

Summary Statistics of the Model for the Motivation Variables and Academic Performance[a] for Professor C

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.55[b]	.30	-.63	118.83
2	.55[c]	.30	-.23	103.28
3	.53[d]	.29	-.00	93.22
4	.38[e]	.14	-.00	93.19

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), TV, EGO
[e]Predictor: (Constant), TV

Table 82

ANOVA for the Motivation Variables and Academic Performance[a] for Professor C

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18397.87	4	4599.47	.33	.85[b]
	Residual	42362.31	3	14120.77		
	Total	60760.18	7			
2	Regression	18090.30	3	6030.10	.57	.67[c]
	Residual	42669.88	4	10667.47		
	Total	60760.18	7			
3	Regression	17314.09	2	8657.05	1.00	.43[d]
	Residual	43446.08	5	8689.22		
	Total	60760.18	7			
4	Regression	8651.28	1	8651.28	1.00	.36[e]
	Residual	52108.90	6	8684.82		
	Total	60760.18	7			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), TV, EGO, IGO
[d]Predictors: (Constant), TV, TGO
[e]Predictor: (Constant), TV

Table 83

Regression Coefficients for the Motivation Variables and Academic Performance[a] for

Professor C

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1400.60	921.91		1.52	.23
IGO	-23.29	88.27	-.19	-.26	.81
EGO	-59.31	82.93	-.48	-.72	.53
TV	77.31	82.93	.59	.93	.42
SE	-16.32	110.61	-.08	-.15	.89
2 (Constant)	1310.54	598.48		2.19	.09
IGO	-20.04	74.29	-.16	-.27	.80
EGO	-61.01	71.38	-.50	-.86	.44
TV	74.31	69.88	.56	1.06	.35
3 (Constant)	1193.54	373.65		3.19	.02
EGO	-48.29	48.37	-.39	-1.00	.36
TV	63.52	51.71	.48	1.23	.27
4 (Constant)	990.02	313.07		3.16	.02
TV	49.72	49.81	.38	1.00	.36

[a]Dependent Variable: Academic Performance

The results from the regression analysis indicated that model 4 accounted for 0% of the amount of variance in academic performance (Table 81). The ANOVA table shown in model 4 of Table 82 revealed that the model was not significant across $F(1, 6) = 1.00$, $p > .05$. From the regression coefficients shown in Table 83, none of the predictor variables were found to be significant. Thus, there was no indication that any of the motivational variables were likely to predict academic performance.

Analysis of Research Question #5 for Professor C

Research question five was: Can students' use of learning strategies predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the learning strategies variables of SR and ER can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, the researcher entered the SR and ER variables into the model and then systematically removed one variable at a time leaving only the most useful predictor variable. Table 84 shows the model summary statistics. Table 85 displays the ANOVA table and Table 86 shows the regression coefficients table.

Table 84

Summary Statistics of the Model for the Learning Strategies Variables and Participation[a] for Professor C

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.59[b]	.34	.08	2.93
2	.46[c]	.21	.08	2.93

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictos: (Constant), ER

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Table 85

ANOVA for the Learning Strategies Variables and Participation[a] for Professor C

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.56	2	11.28	1.31	.35[b]
	Residual	42.99	5	8.59		
	Total	65.50	7			
2	Regression	13.96	1	13.96	1.63	.25[c]
	Residual	51.54	6	8.59		
	Total	65.50	7			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 86

Regression Coefficients for the Learning Strategies Variables and Participation[a] for

Professor C

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	7.85	2.43		3.23	.02
SR	.69	.69	.42	1.00	.36
ER	-1.22	.76	-.67	-1.60	.17
2 (Constant)	9.08	2.10		4.33	.01
ER	-.85	.66	-.46	-1.28	.25

[a]Dependent Variable: Participation

The model summary statistics from in Table 84 revealed that model 2 accounted for 8% of the amount of variance in participation. Model 2 in Table 85 also indicated that the model was not significant across $F(1, 6) = 1.63$, $p > .05$. Also, Table 86 provided no real indication that any of the learning strategies variables were able to predict participation.

The following tables provide the results of the regression analysis used to determine whether the learning strategies of SR or ER could predict academic performance in distance learning. Table 87 shows the model summary statistics. Table 88 displays the ANOVA table and Table 89 shows the regression coefficients table.

Table 87

Summary Statistics of the Model for the Learning Strategies Variables and Academic Performance[a] for Professor C

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.30[b]	.09	-.28	105.23
2	.29[c]	.08	-.07	96.36

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 88

ANOVA for the Learning Strategies Variables and Academic Performance[a] for Professor C

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5390.65	2	2695.33	.24	.79[b]
	Residual	55269.52	5	11073.91		
	Total	60760.18	7			
2	Regression	5051.05	1	5051.05	.54	.49[c]
	Residual	55709.12	6	9284.85		
	Total	60760.18	7			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), ER

Table 89

Regression Coefficients for the Learning Strategies Variables and Academic

Performance[a] for Professor C

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1352.73	87.30		15.50	.00
SR	-4.36	24.91	-.09	-.18	.87
ER	-13.75	27.35	-.25	-.50	.64
2 (Constant)	1345.01	69.00		19.50	.00
ER	-16.09	21.82	-.29	-.74	.49

[a]Dependent Variable: Academic Performance

This analysis provided no significant results and none of the learning strategies

variables was able to predict academic performance.

Analysis for Professor D

Descriptive Statistics for Student Participation and Academic Performance for Professor D

Professor D taught a history and philosophy of vocational/technical education and

a diversity in work and education course during July 2012. The potential for total point

were the same for these courses. The remaining seven participants were enrolled in these

courses. Participants logged onto the course management system an average of 97.71

times and spent an average of 36 hours and 33 minutes logged in during the five-week

term. Table 90 shows the descriptive statistics for the variables that were analyzed for

this group. Table 90 also shows the average number of posts (74.43) and the average

number of points (academic performance) per student (88.00) for this group.

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Table 90

Descriptive Statistics of the Motivation Variables, Learning Strategies Variables,

Participation, and Academic Performance for Professor D

Variable	Average Score	SD	N
(IGO)	5.18	1.57	28
(EGO)	5.43	2.15	28
(TV)	5.52	1.40	42
(SE)	6.23	.97	42
(SR)	4.42	1.94	84
(ER)	4.32	2.28	28
Participation	74.43	15.69	7
Academic Performance	88.00	4.32	7

Analysis of Research Question #1 for Professor D

Research question one was: Is there a relationship between students'

motivation and their participation and academic performance in distance learning?

Student motivation was measured by IGO, EGO, TV, and SE. Participation was

measured by the number of messages posted to the discussion board. Academic

performance was measured by the total number of points from activities in the course. A

Pearson Product Moment Correlation was performed to determine if relationships exist

between student motivation and participation. Table 91 shows the Pearson Correlation for

student motivation and participation.

Table 91

Pearson Correlation for the Motivation Variables and Participation for Professor D

	IGO	EGO	TV	SE	Participation
IGO	1				
EGO	.22	1			
TV	.29	.28	1		
SE	-.22	-.04	-.32[*]	1	
Participation	-.03	-.47	-.52	.42	1

[*]Correlation is significant at the 0.05 level (2-tailed).

The results of the Pearson Product Moment Correlation shown in Table 91 revealed a low, negative significant association between TV and SE (r = -.32). Also, a moderate negative association among TV and participation (r = -.52). A moderate negative association was present between EGO and participation (r = -.47). In addition, a moderate positive association existed between SE and participation (r = .42). This indicates that students who place a higher value on their course tasks were more likely to feel comfortable taking part in the courses' online discussions.

Table 92 provides the results of the correlation analysis performed to analyze if relationships exist between the motivational variables and academic performance.

Table 92

Pearson Correlation for the Motivation Variables and Academic Performance for Professor D

	IGO	EGO	TV	SE	Performance
IGO	1				
EGO	.22	1			
TV	.29	.28	1		
SE	-.22	-.04	-.32[*]	1	
Performance	-.43	-.41	.21	.51	1

*Correlation is significant at the 0.05 level (2-tailed).

The results from the Pearson Product Moment Correlation shown in Table 92

revealed a low, negative significant association between TV and SE (r = -.32). There was

also a moderate association between SE and academic performance (r = .51).

Analysis of Research Question #2 for Professor D

Research question two was: Is there a relationship between students' use of

learning strategies and their participation and academic performance in distance

learning? Learning strategies were measured by SR and ER. Participation was measured

by the number of messages posted to the discussion board. Academic performance was

measured by the total number of points from activities in the course. A correlation

analysis (see Table 93) was used to determine whether relationships exist between the

learning strategies of SR and ER and students' participation in distance learning.

Table 93

Pearson Correlation for the Learning Strategies Variables and Participation for

Professor D

	SR	ER	Participation
SR	1		
ER	-.10	1	
Participation	-.37	-.30	1

The results of the Pearson Product Moment Correlation revealed no significant

associations among the variables.

Table 94 shows the correlation analysis used to determine whether relationships

exist between the learning strategies of SR and ER and students' academic performance

in distance learning.

Table 94

Pearson Correlation for the Learning Strategies Variables and Academic Performance

for Professor D

	SR	ER	Academic Performance
SR	1		
ER	-.10	1	
Academic Performance	-.21	-.04	1

The results of the Pearson Product Moment Correlation shown above in Table 94 revealed no significant associations among the variables.

Analysis of Research Question #3 for Professor D

Research question three was: Is there a relationship between students' participation and their academic performance in distance learning? Participation was measured by the number of messages posted to the discussion board. Academic performance was measured by the total number of points from activities. A Pearson Product Moment Correlation analysis was performed to determine if a relationship exists between participation and academic performance in distance learning. Table 95 shows the results of the Pearson Correlation between participation and academic performance.

Table 95

Pearson Correlation between Participation and Academic Performance for Professor D

	Participation	Academic Performance
Participation	1	
Academic Performance	.52	1

The results from the Pearson Product Moment Correlation shown in Table 95 revealed a moderate association between participation and academic performance (r = .52).

Analysis of Research Question #4 for Professor D

Research question four was: Can student motivation predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the motivational variables of SE, IGO, EGO, and TV can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, researcher entered the SE, IGO, EGO, and TV variables into the model and then systematically removed one variable at a time leaving only the most useful predictor variables. The following tables provide the results of the multiple regression analysis. Table 96 shows the model summary statistics. Table 97 displays the ANOVA table and Table 98 shows the regression coefficients table.

Table 96

Summary Statistics of the Model for the Motivation Variables and Participation[a] for

Professor D

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.86[b]	.73	.19	14.10
2	.79[c]	.62	.23	13.74
3	.69[d]	.48	.22	13.88
4	.47[e]	.22	.06	15.20

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, EGO
[d]Predictors: (Constant), SE, EGO
[e]Predictor: (Constant), EGO

Table 97

ANOVA for the Motivation Variables and Participation[a] for Professor D

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1080.13	4	270.03	1.36	.47[b]
	Residual	397.59	2	198.79		
	Total	1477.71	6			
2	Regression	911.57	3	303.86	1.61	.35[c]
	Residual	566.14	3	188.71		
	Total	1477.71	6			
3	Regression	707.20	2	353.60	1.84	.27[d]
	Residual	770.52	4	192.63		
	Total	1477.71	6			
4	Regression	322.74	1	322.74	1.40	.29[e]
	Residual	1154.97	5	230.995		
	Total	1477.71	6			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, EGO
[d]Predictors: (Constant), SE, EGO
[e]Predictors: (Constant), EGO

Table 98

Regression Coefficients for the Motivation Variables and Participation[a] for Professor D

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	66.18	73.69		.90	.46
IGO	6.37	6.91	.43	.92	.45
EGO	-8.14	6.40	-.49	-1.27	.33
TV	-5.43	5.36	-.39	-1.01	.42
SE	9.85	6.20	.76	1.59	.25
2 (Constant)	116.59	48.06		2.43	.09
EGO	-7.63	6.21	-.46	-1.23	.31
TV	-5.43	5.22	-.39	-1.04	.38
SE	6.29	4.71	.49	1.33	.28
3 (Constant)	93.61	43.12		2.17	.10
EGO	-9.30	6.06	-.56	-1.53	.20
SE	6.71	4.75	.52	1.41	.23
4 (Constant)	122.90	41.40		2.97	.03
EGO	-7.71	6.52	-.47	-1.18	.29

[a]Dependent Variable: Participation

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The results from the regression analysis revealed non-significant models. Thus, there was no indication that any of the motivational variables were likely to predict participation.

The following tables provide the results of the regression analysis that was used to determine if the motivational variable could predict students' academic performance in distance learning. Table 99 shows the model summary statistics. Table 100 displays the ANOVA table and Table 101 shows the regression coefficients table.

Table 99

Summary Statistics of the Model for the Motivation Variables and Academic

Performance[a] for Professor D

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.82[b]	.66	-.01	4.34
2	.81[c]	.65	-.31	3.60
3	.72[d]	.52	.28	3.68
4	.51[e]	.26	.11	4.08

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, EGO
[d]Predictors: (Constant), SE, EGO
[e]Predictor: (Constant), SE

Table 100

ANOVA for the Motivation Variables and Academic Performance[a] for Professor D

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.42	4	18.61	.99	.56[b]
	Residual	37.58	5	18.79		
	Total	112.00	6			
2	Regression	73.22	3	24.41	1.89	.31[c]
	Residual	38.78	6	12.93		
	Total	112.00	6			
3	Regression	57.87	2	28.94	2.14	.23[d]
	Residual	54.13	4	13.53		
	Total	112.00	6			
4	Regression	28.90	1	28.90	1.74	.24[e]
	Residual	83.10	5	16.62		
	Total	112.00	6			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), SE, TV, EGO, IGO
[c]Predictors: (Constant), SE, TV, EGO
[d]Predictors: (Constant), SE, EGO
[e]Predictors: (Constant), SE

Table 101

Regression Coefficients for the Motivation Variables and Academic Performance[a] for

Professor D

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	88.16	22.65		3.89	.06
IGO	-.54	2.13	-.13	-.25	.82
EGO	-2.77	1.97	-.61	-1.41	.30
TV	1.49	1.65	.38	.90	.46
SE	1.96	1.91	.55	1.03	.41
2 (Constant)	83.90	12.58		6.67	.01
EGO	-2.81	1.63	-.62	-1.73	.18
TV	1.49	1.37	.38	1.09	.36
SE	2.26	1.23	.64	1.83	.16
3 (Constant)	90.20	11.43		7.89	.00
EGO	-2.35	1.61	-.52	-1.46	.22
SE	2.15	1.26	.61	1.71	.16
4 (Constant)	77.42	8.17		9.48	.00
SE	1.81	1.37	.51	1.32	.24

a. Dependent Variable: Performance

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The results from the regression analysis revealed non-significant models. Thus, there was no indication that any of the motivational variables are likely to predict academic performance.

Analysis of Research Question #5 for Professor D

Research question five was: Can students' use of learning strategies predict participation and academic performance in distance learning? A multiple regression analysis was used to determine if the learning strategies variables of SR and ER can predict participation in distance learning. The backward method was used during this analysis. Using SPSS, the researcher entered the SR and ER variables into the model and then systematically removed one variable at a time leaving only the most useful predictor variables. Table 102 shows the model summary statistics. Table 103 displays the ANOVA table and Table 104 shows the regression coefficients table.

Table 102

Summary Statistics of the Model for the Learning Strategies Variables and Participation[a]

for Professor D

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.39[b]	.15	-.28	17.73
2	.37[c]	.14	-.03	15.95

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

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Table 103

ANOVA for the Learning Strategies Variables and Participation[a] for Professor D

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	220.88	2	110.44	.35	.372[b]
Residual	1256.83	4	314.21		
Total	1477.71	6			
2 Regression	206.15	1	206.15	.81	.41[c]
Residual	1271.57	5	254.31		
Total	1477.71	6			

[a]Dependent Variable: Participation
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

Table 104

Regression Coefficients for the Learning Strategies Variables and Participation[a] for

Professor D

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	89.94	14.76		5.76	.00
SR	-2.54	4.77	-.30	-.53	.62
ER	-1.03	4.77	-.12	-.22	.84
2 (Constant)	83.41	11.66		7.16	.00
SR	-3.14	3.49	-.37	-.90	.41

[a]Dependent Variable: Participation

The model summary statistics from Table 102 revealed that model 2 accounted for 3% of the amount of variance in participation. Model 2 in Table 103 also indicated that the model was not significant across $F (1, 5) = .81$, $p > .05$. Also, Table 104 provided no real indication that any of the learning strategies variables were able to predict participation.

The following tables provide the results of the regression analysis used to determine whether the learning strategies of SR or ER could predict academic performance in distance learning. Table 105 shows the model summary statistics. Table 106 shows the ANOVA table and Table 107 shows the regression coefficients table.

Table 105

Summary Statistics of the Model for the Learning Strategies Variables and Academic Performance[a] for Professor D

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.23[b]	.05	-.42	5.15
2	.21[c]	.04	-.15	4.63

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictors: (Constant), SR

Table 106

ANOVA for the Learning Strategies Variables and Academic Performance[a] for Professor D

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.85	2	2.93	.11	.90[b]
	Residual	106.15	4	26.54		
	Total	112.00	6			
2	Regression	4.80	1	4.80	.22	.66[c]
	Residual	107.21	5	21.44		
	Total	112.00	6			

[a]Dependent Variable: Academic Performance
[b]Predictors: (Constant), ER, SR
[c]Predictor: (Constant), SR

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Table 107

Regression Coefficients for the Learning Strategies Variables and Academic

Performance[a] for Professor D

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	88.96	4.29		20.75	.00
SR	-.64	1.39	-.28	-.46	.69
ER	-.28	1.39	.12	.20	.85
2 (Constant)	89.37	3.38		26.41	.00
SR	-.48	1.01	-.21	-.47	.66

[a]Dependent Variable: Academic Performance

This analysis provided no significant results and found that no significant learning strategies variables were able to predict academic performance.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter offers a synopsis of the study of the impact of student motivation on participation and performance in distance learning. This chapter is comprised of the following five main sections: (a) a summary of the procedures utilized and the major findings, (b) a discussion of the major findings, (c) implications of the importance of helping students to remain motivated in distance learning courses, (d) recommendations for future research, and (e) concluding remarks.

Summary of the Study

This study explored the impact of motivation on students' participation and academic performance in distance learning courses. This section summarizes the research methodology used to analyze the research questions and closes with a description of the major findings.

Procedures

This study was comprised of 29 students enrolled in one of five courses offered exclusively online through a Blackboard course management system. The courses were offered either during the first 5-week summer term during June 2012 or the second 5-week term during July 2012.

Two sources were used to collect data. First, the MSLQ measured the motivational components of IGO, EGO, TV, and SE for learning and performance. The MSLQ was also used to measure the learning strategies of mega-cognitive SR and ER. Second, a Blackboard course management system was used to collect data regarding the student's participation and academic performance in the course. The first method was to examine students' participation by counting posts made to the online discussion board. Next, to assess academic performance, the researcher used the total number of points earned by each participant in the class.

Major Findings

This study yielded the following major findings from the research questions based on the results of the MSLQ and the information gathered from students' posting behavior and points from activities.

Research question one examined if there was a relationship between students' motivation and their participation and academic performance in distance learning. An analysis of this question as one large group found a very low significant association between IGO and SE. However, dividing the participants in groups based on professor yielded some additional results. A moderate significant association was found to have existed between IGO and SE while a strong, negative significant association existed between SE and participation for Professor A. Results from Professor A also revealed a strong association between TV and participation while low associations were found to exist between TV and academic performance and IGO and academic performance. The group taught by Professor B revealed a very strong, negative significant association between EGO and participation. A strong negative association was found between IGO

and participation. Additionally, results for Professor C revealed a strong, negative association between IGO and academic performance and a strong, positive association between TV and academic performance. For Professor C, low significant associations existed between IGO and TV while a moderate association existed between TV and participation. Also, low associations were found to exist between TV and academic performance and IGO and academic performance, while a low, negative association was found to exist between EGO and academic performance. Lastly, analysis from the group taught by Professor D revealed low, negative significant associations between TV and SE. Furthermore, a moderate association was found to exist between SE and participation while moderate, negatives associations existed between EGO and participation and TV and participation.

Research question two examined if there was a relationship between students' use of learning strategies and their participation and academic performance in distance learning. No significant relationships were found to have existed between students' use of learning strategies and their participation and academic performance. However, results from the analysis of Professor A revealed a moderate, negative association between ER and participation and between ER and academic performance. The analysis of the group taught by Professor C revealed a low significant association between SR and ER and a moderate, negative association was found to exist between ER and participation.

Research question three examined if there was a relationship between participation and academic performance in distance learning. When analyzing all participants, a very strong, negative significant association was found to have existed among participation and academic performance. Also, Professor C was the only group to

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yield other significant results. That analysis also revealed a strong significant association between participation and academic performance. But, results from the analysis of the groups taught by Professor's B and D revealed moderate associations between participation and academic performance.

Research question four examined if the motivational variables of SE, IGO, EGO, and TV could predict participation and academic performance in distance learning. Analysis of all participants found that none of the motivational variables were able to predict participation or academic performance. The results of the analysis from the group taught by Professor A found that although SE was significant in predicting participation, none of the motivational variables were found significant in predicting academic performance. Also, the results from Professor B's analysis found IGO and EGO significant in predicting participation while none of the motivation variables were found to be significant in predicting academic performance.

Research question five examined if the learning strategies variables of SR and ER could predict participation and academic performance in distance learning. Analysis of all participants found that none of the learning strategies variables were able to predict participation or academic performance. Additionally, analysis of the data based on professor revealed no meaningful results. None of the learning strategies variables analyzed for those groups were found to be significant in predicting participation or academic performance.

Conclusions

The purpose of this study was to examine the impact of students' motivation and their use of learning strategies on the following areas: (a) students' participation in the

course through messages posted on the discussion board and (b) students' academic performance in the course based on their total points from activities in the course.

This study contributes to existing literature that identified student motivation as a contributing factor in students' participation and academic performance in distance learning courses. The following sections use the context of previous and current research to describe the major findings of the study.

Student Motivation, Participation, Academic Performance

Research has indicated that the influence self-efficacy has on behavior is particularly important in distance learning (Puzziferro, 2008). The results from the Pearson Product Moment Correlation for Professor A yielded a strong significant negative association between SE and participation which seems to suggest that students with a high sense of SE may feel as though they do not need to participate as much as students with low SE. This research supports findings from Puzziferro's 2008 study. Students with higher SE beliefs often feel more confident participating in discussions than students with lower motivational beliefs. In a 1991 study, Schunk noted that efficacious individuals are more likely to work harder and continue working when forced with obstacles.

According to Schunk et al. (2008) "student's with a goal and a sense of self-efficacy for attaining it are apt to engage in activities they believe will lead to attainment" (p. 142). The correlation analysis from the group taught by Professor B revealed a very strong significant association between EGO and participation which seems to imply that students who are highly goal oriented are also more likely to participate. This association also suggests that students are more likely to set participation goals to avoid failure. A

study by Pintrich & Schunk (2001) concluded that students are more apt to learn to avoid failure or for the sake of their grade. The findings of this study support the findings of Schunk et al. (2008) and also Pintrich and Schunk (2001).

Results from the regression analysis found SE (group taught by Professor A), IGO (taught by Professor B), and EGO (taught by Professor B) as significant predictors of participation. Self-efficacy can determine behavior (Wang, Peng, Huang, Hou, & Wang, 2008). Over time, as students have positive experiences with discussion boards, their self-efficacy is more likely to increase. Results from this study are consistent with results from other research which showed that students' self-efficacy beliefs usually increase if they have a successful online experience (Clayton et al., 2010). An explanation for the lack of significant results regarding motivation variables predicting academic performance could be due to the once again to the small population size.

This research study did not find any significant associations between student motivation and academic performance nor did it find that any of the motivational variables were significant in predicting academic performance in any of the groups. However, a strong, positive association was found to exist between TV and academic performance for Professor C which implies that as students' begin to place more value on their coursework, it is likely that their academic performance will increase as well. One reason could be that students may feel like coursework may be beneficial to them at some point in their lives. Additional results from Professor C revealed a strong, negative association between IGO and academic performance. An explanation for this might be that students felt comfortable with the way they were performing and did not have to worry about looking bad in front of other students. Low associations (Professor's A and

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C) were found to have existed between TV and academic performance and IGO and academic performance.

Previous research found evidence of self-efficacy beliefs impacting academic performance (Chemers et al., 2001; Robbins et al., 2004). Additionally, research on the motivational construct of task value found that task value beliefs can positively predict academic performance (Artrino, 2008; Artrino & Stephens, 2006). Because no significant results were found, the findings of this study do not support those findings; however, the small population used in the study might be insufficient to identify the associations. Perhaps a larger population would have yielded different results.

Learning Strategies, Participation, and Academic Performance

This research study did not find any significant associations between students' use of learning strategies and participation or academic performance nor did it find that any of the learning strategies variables were significant in predicting academic performance in any of the groups. Yet, there was a moderate, negative association between ER and participation (Professor A) and also between ER and academic performance (Professor's A and C) which suggested that inverse relationships among these variables existed.

In spite the lack of significant results in this study, research on learning strategies noted the importance in distance learning. A number of scholars have implied that "online learners require motivation and self-regulation to stay engaged…and regulate their effort" (Dabbahg & Kitsantas, 2004; Hartley & Bendixen, 2001; Schunk & Zimmerman, 1998). One study suggested metacognitive self-regulation was a better predictor of academic performance (Pintrich & De Groot, 1990). Another study also found effort regulation to be significantly associated with scores (performance; Lynch,

2010). Although the current study did not identify significant results regarding the impact of learning strategies on participation and academic performance and also the lack of prediction data regarding participation and academic performance, again could be the result of the small population.

Participation and Academic Performance

Overall, the results from the Pearson Product Moment Correlation found a very strong negative, significant association between participation and academic performance for all participants. This negative association suggests an inverse relationship between participation and academic performance. Students with higher academic performance tended to post fewer comments to the discussion board. One explanation for this was that the quality of student involvement may have been weak. The results could also suggest that students may have preferred to wait until the professor provided them with the answer instead of reflecting and forming answers of their own. These results contradict results from previous studies which indicated new discussion posts were positively related to performance (Davies & Graff, 2005; Palmer et al., 2007).

The Pearson Product Moment Correlation performed for Professor C revealed a strong positive significant association between participation and academic performance which suggested students who earned higher class points also participated more in online discussions. An explanation for these results might be that students contributed quality information through their posts and were able to translate that information to their course activities. Davies and Graff's (2005) study had results consistent with the assumption that hard work will lead to better grades. Their study found that increased "blackboard" activity lead to higher achievement. The results from Professor C was consistent with the

previous research which suggested that as participation increase, academic performance is also more likely to increase, concluding that participation is likely to impact academic performance.

The results from the study indicated that overall, the participants exhibited high levels of both motivation and their use of learning strategies. However, the participants scored higher on the motivation scales than the learning strategies scales which might suggest that students may not have felt as comfortable using the learning strategies. Therefore, instructors may want to develop different approaches to help students become aware of techniques that can be used to regulate their learning.

Recommendations

This study presented research on the impact students' motivation and their use of learning strategies on participation and academic performance in distance learning. In retrospect, the researcher would have taken a different approach on some details.

There was a possibility that the small population size could have influenced the results of the study. Therefore, the researcher would attempt to obtain a larger population if this study were to be repeated. At the same time, the researcher would also make an attempt to use more distance learning courses from a variety of different departments within the university instead of just using one specific department. Also, the researcher would try to put forth more effort when contacting participants regarding participation in the study instead of just sending out a recruitment letter to possible participants. The researcher could hold a meeting and provide more in-depth descriptions of the study while providing potential participants an opportunity to address any concerns they may have had.

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The researcher would also explore more relationships between participation and academic performance. Participation would be measured differently if the study were to be repeated. Table 5 provided other variables that were used by various researchers to measure participation. Perhaps using other variables would yield different results. Similarly, other variables could also be used to measure academic performance. Table 6 also provided additional variables that have been used to measure academic performance.

Future Research

This study used participants who represented students from a large research university in the southeastern United States. As the popularity of distance learning courses steadily increases, it will become even more important for instructors to understand the significance of the nature of student motivation and interaction. While this study presented research on the impact students' motivation and their use of learning strategies on participation and academic performance in distance learning, it is only a starting place for future research. The following are recommendations for future research.

This study was completed with a small population of students who were enrolled in five-week summer term courses and should be replicated during a regular fall or spring semester term. The results from analyzing this group as a whole did not reveal many significant associations; but a number of significant associations were found to exist once the participants were divided into groups based on professor. This study should be replicated at other institutions under different settings and with a much larger population. Also, this study only focused on five courses that were taught through the same department, future studies should look at adding a variety of distance learning courses from different departments in order to provide a more representative population.

Although this research divided participants into groups based on instructor, it did not seek to compare the results between the groups. Future research should explore group differences to determine if motivational changes might occur. Additionally, this research only focused on examining the learning strategies of self-regulation and effort regulation which provided no significant results in predicting participation or academic performance; however, future research should examine whether other learning strategies may have an impact on participation and academic performance in distance learning. At the same time, other motivational concepts should be explored to determine what impact if any they may have on students' participation and academic performance in distance learning.

In addition, this study did not examine whether demographics may have had an impact on motivation, participation, or academic performance. Future research should seek to examine age, gender, and experience with distance learning courses as possible influences on motivation, academic performance, and participation in distance learning. Future studies may also seek to compare the differences in motivation between two groups: (1) freshmen and sophomores and (2) juniors and seniors. Results from this study provided some negative associations between participation and academic performance. Future research may want to focus on the use of different variables to measure both participation and academic performance to explore additional relationships that may exist.

Conclusion

The purpose of this study was to use the motivational constructs of self-efficacy, intrinsic goal orientation, extrinsic goal orientation, and task value along with the

learning strategies of self-regulation and effort regulation to examine the impact they may have on students' participation and academic performance in distance learning.

Results from analyses indicated that students' motivation and their use of learning strategies were associated with both participation and academic performance. These outcomes confirm the importance of motivation as a contributing factor in students' overall success in distance learning courses. Likewise, findings revealed associations between participation and academic performance, indicating that participation does impact academic performance. Furthermore, it implies that including participation in the distance learning course design is important. With that in mind, the current study was able to expand upon many areas previously researched to help identify factors affecting participation and academic performance in distance education.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

May 9, 2012
Candice Pittman
        Instructional Systems & Workforce Development

RE: IRB Study #12-139: The Effect of Student Motivation on Participation and
Performance in Distance Learning

Dear Ms. Pittman:

This email serves as official documentation that the above referenced project was
reviewed and approved via administrative review on 5/9/2012 in accordance with 45 CFR
46.101(b)(2). Continuing review is not necessary for this project. However, any
modification to the project must be reviewed and approved by the IRB prior to
implementation. Any failure to adhere to the approved protocol could result in suspension
or termination of your project. The IRB reserves the right, at anytime during the project
period, to observe you and the additional researchers on this project.

**Please note that the MSU IRB is in the process of seeking accreditation for our
human subjects protection program. As a result of these efforts, you wil! l likely
notice many changes in the IRB's policies and procedures in the coming months.
These changes will be posted online at
http://www.orc.msstate.edu/human/aahrpp.php. The first of these changes is the
implementation of an approval stamp for consent forms. The approval stamp will
assist in ensuring the IRB approved version of the consent form is used in the actual
conduct of research. Your stamped consent form will be attached in a separate
email.**

Please refer to your IRB number (#12-139) when contacting our office regarding this
application.

Thank you for your cooperation and good luck to you in conducting this research project.
If you have questions or concerns, please contact me at nmorse@research.msstate.edu or
call 662-325-3994. In addition, we would greatly appreciate your feedback on the IRB
approval process. Please take a few minutes to complete our survey at
http://www.surveymonkey.com/s/YZC7QQD.

Sincerely,

Nicole Morse
Assistant Compliance Administrator

cc: Kui Xie (Advisor)

APPENDIX B

RECRUITMENT LETTER

Student Recruitment Form

Dear Student,

Distance learning has become one of the most discussed topics in education. Many students often have different opinions and perception about distance learning. Some students may feel distance learning is great while others have difficulty being involved in online classes. In this research project, we want to examine how student motivation effects participation and performance in distance learning courses. The information you provide will be used to help make distance learning more beneficial for instructors and for students like yourself.

If you agree to participate in this study, you will be given an online questionnaire that will take approximately 15-20 minutes of your time. Participation in this study is voluntary, you may refuse to participate or withdraw from the study at any time. If you participate in the study, you can refuse to answer any questions you do not want answer. The information you provide will be kept private (i.e., no names will ever be reported).

If you should have any questions about this project, please feel free to contact Candice Pittman at (662) 435-2029 or by email at cnp38@msstate.edu. For more information about human participation in research, please feel free to contact the MSU Regulatory Compliance Office at (662) 325-3294.

To participate in this study, you must be 18 years of age or older. If you agree to participate in this study, please type your full name in the box provided below. Thank you so much for your help! You will be given a copy of the form for your records upon request.
* Required

Please type your full name below. *

APPENDIX C

LETTER OF CONSENT

Letter of Consent

Introduction
I am a Ph.d candidate at Mississippi State University and would like to include you in a research study. The purpose of this study is to determine whether student motivation in terms of self-efficacy, self-regulated learning strategies and goal orientation can predict performance and participation in distance learning.

Participation
Complete an online questionnaire once during the course regarding your feelings and participation in online activities. The questionnaire should only take approximately 15-20 minutes of your time to complete. In addition, the contents of the discussion board posts will also be analyzed including number of posts and post responses for each participant. Additionally, total points from assignments and/or final grades will be used to measure performance in the class. Deciding not to participate in this study will not negatively affect your grade in the class.

Risks and Benefits
The researcher foresees no anticipated risk or discomfort to those who are willing to participate in this study. You will not receive any monetary benefits for your participation. Your participation in this study will greatly assist the researcher in helping to develop research that aims to improve the quality of instruction in distance education programs throughout the country.

Confidentiality
The results of this study may be published; however, your name or identity will not be revealed in any manner. The online questionnaire will not be viewed individually, but instead with the class as a whole. Therefore, no student should fear the consequences of having his or her responses monitored or released.

Contact
Any questions or concerns you have regarding this study or your participation in it, before and/or after this consent, may be answered by:
Candice Pittman
Office: nSPARC
Phone: (662) 435-2029
E-mail: cnp38@msstate.edu

Agreement
I have read this informed consent agreement form and am above 18 years of age. I understand that I may withdraw my consent and discontinue participation at anytime without penalty or loss of benefits to which I may otherwise be entitled. In typing my full name into the text box below, I am not waiving any legal claims, rights, or remedies. A copy of this consent form will be offered to me upon my request.
Required

* Required

Please type your name into the textbox below. *

Choose your answer below. *

- ● I agree

- ● I disagree

APPENDIX D

MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE (MSLQ)

Motivated Strategies for Learning Questionnare (MSLQ)

The following questions ask about your motivation for and attitudes regarding this class. Use the scale below to answer the questions. If you think the statement is very true of you, check 7; if a statement is not at all true of you, check 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

Question A * Gender

- Male

- Female

- Prefer not to answer

Question B * What year did you graduate from high school? If you prefer not to answer, please type: N/A in the box below.

Question C * What is your class level?

- Freshman

- Sophomore

- Junior

- Senior

- Graduate

- Prefer not to answer

Question D * Ethnic Background

- African-American/Black

- Asian-American

- Caucasian

- Hispanic or Spanish-Speaking

- Other

- Prefer not to answer

Question E * How many hours per week do you work for pay? If you prefer not to answer, please type: N/A in the box below. [ ]

Question F * How many online courses have you taken? If you prefer not to answer, please type: N/A in the box below. [ ]

Question G * How many classes are you taking this term? If you prefer not to answer, please type: N/A in the box below. [ ]

Question H * How many hours a week do you study for this course? If you prefer not to answer, please type: N/A in the box below. [ ]

Question I * What are the reasons you chose to take this course?

☐ fulfills distribution requirement

☐ content seems interesting

☐ is required of all students at college

☐ is an easy elective

☐ will help improve my academic skills

☐ will be helpful to me in other courses

☐ is required for major (program)

☐ was recommended by a friend

☐ was recommended by an advisor

☐ will improve career prospects

☐ fit into my schedule

Question 1 * In a class like this, I prefer course material that really challenges me so I can learn new things.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 2 * If I study in appropriate ways, then I will be able to learn the material in this course.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 3 * When I take a test I think about how poorly I am doing compared with other students.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 4 * I think I will be able to use what I learn in this course in other courses.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 5 * I believe I will receive an excellent grade in this class.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 6 * I'm certain I can understand the most difficult material presented in the readings for this course.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 7 * Getting a good grade in this class is the most satisfying thing for me right now.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 8 * When I take a test I think about items on other parts of the test that I can't answer.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 9 * It is my own fault if I don't learn the material in this course.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 10 * It is important for me to learn the course material in this class.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 11 * The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 12 * I'm confident I can learn the basic concepts taught in this course.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 13 * If I can, I want to get better grades in this class than most of the other students.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 14 * When I take tests I think of the consequences of failing.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 15 * I'm confident I can understand the most complex material presented by the instructor in this course.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 16 * In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 17 * I am very interested in the content area of this course.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 18 * If I try hard enough, then I will understand the course material.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 19 * I have an uneasy, upset feeling when I take an exam.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 20 * I'm confident I can do an excellent job on the assignments and tests in this course.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 21 * I expect to do well in this class.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 22 * The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 23 * I think the course material in this class is useful for me to learn.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 24 * When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 25 * If I don't understand the course material, it is because I didn't try hard enough.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 26 * I like the subject matter of this course.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 27 * Understanding the subject matter of this course is very important to me.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 28 * I feel my heart beating fast when I take an exam.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 29 * I'm certain I can master the skills being taught in this class.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 30 * I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 31 * Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.

                      1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 32 * When I study the readings for this course, I outline the material to help me organize my thoughts.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 33 * During class time I often miss important points because I'm thinkiing of other things.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 34 * When studying for this course, I often try to explain the material to a classmate or friend.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 35 * I usually study in a place where I can concentrate on my course work.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 36 * When reading for this course, I make up questions to help focus my reading.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 37 * I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 38 * I often find myself questioning things I hear or read in this course to decide if I find them convincing.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 39 * When I study for this class, I practice saying the material to myself over and over.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 40 * Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 41 * When I become confused about something I'm reading for this class, I go back and try to figure it out.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 42 * When I study for this course, I go through the readings and my class notes and try to find the most important ideas.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 43 * I make good use of my study time for this course.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 44 * If course readings are difficult to understand, I change the way I read the material.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 45 * I try to work with other students from this class to complete the course assignments.

                1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 46 * When studying for this course, I read my class notes and the course readings over and over again.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 47 * When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 48 * I work hard to do well in this class even if I don't like what we are doing.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 49 * I make simple charts, diagrams, or tables to help me organize course material.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 50 * When studying for this course, I often set aside time to discuss course material with a group of students from the class.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 51 * I treat the course material as a starting point and try to develop me own ideas about it.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 52 * I find it hard to stick to a study schedule.

	1	2	3	4	5	6	7	
Not at all true of me	●	●	●	●	●	●	●	Very true of me

Question 53 * When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 54 * Before I study new course material thoroughly, I often skim it to see how it is organized.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 55 * I ask myself questions to make sure I understand the material I have been studying in this class.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 56 * I try to change the way I study in order to fit the course requirements and the instructor's teaching style.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 57 * I often find that I have been reading for this class but don't know what it was all about.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 58 * I ask the instructor to clarify concepts I don't understand well.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 59 * I memorize key words to remind me of important concepts in this class.

                              1   2   3   4   5   6   7

Not at all true of me   ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 60 * When course work is difficult, I either give up or only study the easy parts.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 61 * I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this course.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 62 * I try to relate ideas in this subject to those in other courses whenever possible.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 63 * When I study for this course, I go over my class notes and make an outline of important concepts.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 64 * When reading for this class, I try to relate the material to what I already know.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 65 * I have a regular place set aside for studying.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 66 * I try to play around with ideas of my own related to what I am learning in this course.

            1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 67 * When I study for this course, I write brief summaries of the main ideas from the readings and my class notes.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 68 * When I can't understand the material in this course, I ask another student in this class for help.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 69 * I try to understand the material in this class by making connections between the readings and the concepts from the lectures.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 70 * I make sure that I keep up with the weekly readings and assignments for this course.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 71 * Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 72 * I make lists of important items for this course and memorize the lists.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 73 * I participate in the online discussions regularly.

                1   2   3   4   5   6   7

Not at all true of me ● ● ● ● ● ● ● Very true of me

Question 74 * Even when course materials are dull and uninteresting, I manage to keep working until I finish.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 75 * I try to identify students in this class whom I can ask for help if necessary.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 76 * When studying for this course I try to determine which concepts I don't understand well.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 77 * I often find that I don't spend very much time on this course because of other activities.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 78 * When I study for this class, I set goals for myself in order to direct my activities in each study period.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 79 * If I get confused taking notes for class, I make sure I sort it out afterwards.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 80 * I rarely find time to review my notes or readings before an exam.

                   1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

Question 81 * I try to apply ideas from course readings in other class activities such as chat, discussion board, or group projects.

          1   2   3   4   5   6   7

Not at all true of me ●   ●   ●   ●   ●   ●   ●   Very true of me

APPENDIX E

LETTER OF APPROVAL TO USE MSLQ

Dear Candice,

Since the MSLQ exists in the public domain, so you are welcome to use it for your study as long as you cite the MSLQ authors among your references. If you have further questions about the use of the MSLQ you can e-mail the authors at mslq@umich.edu.

Good luck, Janie

--On Thursday, April 5, 2012 9:47 AM -0500 Candice Nicole Pittman <CPittman@nsparc.msstate.edu> wrote:

>
> Hello,
>
> I am attempting to locate the publishers of the Motivated Strategies for
> Learning Questionnaire (MSLQ). I would like to use this questionnaire in
> a research study. I am inquiring about how to obtain permission to use
> this questionnaire in my study.
>
> Thank you,
>
> Candice Pittman
>
>
> Candice Pittman
> Graduate Research Assistant
> nSPARC
> Mississippi State University
> P.O. Box 6027
> Mississippi State, MS 39762-6027
> Voice: (662) 325-0450
> Fax: (662) 325-1310
> E-Mail: cpittman@nsparc.msstate.edu
>
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****
*

APPENDIX F

PERMISSION TO USE COMMUNITY OF INQUIRY MODEL

Candice,

I have been granting permission to use the CoI diagram without difficulty.
I assume that there was shared copyright and some sort of time limit?
You have my permission to use this if you wish to proceed without going to the journal publisher.

R

D. Randy Garrison, Professor
Education Tower, Room 602G
University of Calgary
2500 University Drive NW
Calgary, Alberta, Canada T2N 1N4
Work: (403) 220-6764
Email: garrison@ucalgary.ca
http://communitiesofinquiry.com/

From: Terry Anderson [mailto:terrya@athabascau.ca]
Sent: Friday, November 09, 2012 1:10 PM
To: Candice Nicole Pittman
Cc: D. Randy Garrison
Subject: Re: Permission to use figures

Hi Candice

I am thrilled you are using our stuff, but unfortunately, both references are from publications done before I was rabidly open access, so the rights are owned by the publishers. The familiar COI venn diagrams has been used by myself and others all over the place with attribution only required, but legally I don't think I can grant that permission to you- though likely it is easily available from the publishers.

I'm ccing Randy, in case he has suggestions.

Good luck

Terry

 Terry Anderson, Ph.D.
Professor

Centre for Distance Education

Athabasca University
1200 10011 109 St.
Edmonton, AB Canada
T5J 3S8   Ph 780 497 3421
                        Fax 780 497 3416

Google Scholar profile: http://tinyurl.com/terrydanderson

On 2012-11-09, at 12:53 PM, Candice Nicole Pittman <CPittman@nsparc.msstate.edu>
wrote:

Dr. Anderson,

I am currently completing my dissertation and I would like to use the "modes of
interaction in distance learning" figure found in your 1998 article along with Dr. Randy
Garrison entitled *Learning in a networked world: New roles and responsibilities*. I am
asking for your permission to use, reprint, and/or adapt for both print and electronic use.
Additionally, I would like to know if you could me with information for obtaining
permission to use "the community of inquiry model" from the 1999 article entitled
Assessing Social Presence in Asynchronous Text-based Computer Conferencing by
Rourke, Anderson, Garrison, and Archer?

Thank You,

Candice Pittman

APPENDIX G

PERMISSION TO USE PHASES AND SUB-PHASES OF SELF-REGULATION

MODEL

Hi Candice:

You have my permission to use the Figure from the article in your dissertation. You must of course acknowledge its literary source.

Sincerely,

Barry J. Zimmerman

From: Candice Nicole Pittman [mailto:CPittman@nsparc.msstate.edu]
Sent: Friday, November 09, 2012 2:26 PM
To: Zimmerman, Barry
Subject: Permission to use figure

Dr. Zimmerman,

I am currently completing my dissertation and I would like to use the "phases and sub-processes of self-regulation" figure found in your 2002 article entitled *Becoming a Self-Regulated Learner: An Overview*. I am asking for your permission to use, reprint, and/or adapt for both print and electronic use.

Thank You,

Candice Pittman

APPENDIX H

PERMISSION TO USE THE NEGATIVE FEEDBACK LOOP SYSTEM DYNAMICS

MODEL

205

Routledge
Taylor & Francis Group

Title: Verifying key theoretical concepts in a dynamic model of distance education

Author: Farhad Saba, Rick L. Shearer

Publication: American Journal of Distance Education

Publisher: Taylor & Francis

Date: Jan 1, 1994

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BACK   CLOSE WINDOW

APPENDIX I

PERMISSION TO USE THE LEVELS OF SELF-EFFICACY AND OUTCOME

EXPECTATIONS MODEL