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THE EFFECTS OF LEARNING STRATEGY INTERVENTION AND STUDY TIME MANAGEMENT INTERVENTION ON STUDENTS' SELF-REGULATED LEARNING, ACHIEVEMENT, AND COURSE COMPLETION IN A DISTANCE EDUCATION LEARNING ENVIRONMENT

By

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I dedicate this dissertation to my loving family: my dear husband, Boedhi and my precious children, Wisa and Dewa, and my parents. Their prayers, love and encouragement have made it possible for me to complete this dissertation.

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ABSTRACT

The purpose of this study was threefold, specifically: (1) to find out the effects of a learning strategy intervention on students' use of self-regulated learning (SRL), achievement, and course completion in a distance education setting, (2) to find out the effects of a study time management intervention on the students' use of SRL, achievement, and course completion, and (3) to find out whether students with higher levels of SRL's use also have higher levels of achievement and course completion.

This study employed a Randomized control-group pretest-posttest design with two independent variables (learning strategy intervention and study time management intervention). Each independent variable consisted of two levels (with and without interventions). Students were randomly assigned into four groups of research conditions: (1) provided with a Web-based Learning Strategy Intervention and a Web-based Study Time Management Intervention, (2) provided with the Web-based Learning Strategy Intervention only, (3) provided with the Web-based Study Time Management Intervention only, and (4) the Control Group. There were three dependent variables examined in this study, namely students' perceptions of their use of SRL, the students' achievement, and their course completion.

The students' use of SRL was measured by using five subscales (36 items) of the Indonesian version of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie (1991). The students' achievement was measured by using their score on a particular course that they were referring when filling out the questionnaire. The students' course completion was measured with their grade in that course. Students obtained a C or higher were considered as completers, students received a D or E were regarded as noncompleters.

There were two waves of data collection gathered at two consecutive semesters in 2011. The total number of valid respondents to the pretest was 321. They were mostly working adults aged less than 40 years old, not married or married with no children or with 1-2 children. Among them, only 94 students responded to the posttest and took the final examination.

Even though the intervention(s) did not significantly have any effects on the students' achievement and course completion, the findings partly supported two of the hypotheses. That is, metacognitive self-regulation when studying a particular course was weakly but significantly

correlated with the students' achievement, r (94) = .204, p = .048. Moreover, metacognitive self-regulation was significantly related to course completion, r (94) = .369, p < .001.

Although the findings showed no significant effects of the intervention(s) in improving the students' use of SRL, students who read the Learning Strategy Intervention significantly had a higher mean score in the use of metacognitive self-regulation when studying a certain course than the control group (p = .047; ES = 1.28). When the interventions were offered to students who took different courses, students who read the Study Time Management Intervention seemed to gain more improvement in their use of metacognitive self-regulation when studying compared to the other groups, although did not significantly exceed the control group. Some practical implications were offered. As well, limitations of the current study and suggestions for future research were discussed.

CHAPTER ONE
INTRODUCTION

Background of the Study

Distance education is considered as an alternative delivery method of teaching in higher education. One of the characteristics of distance education is that the student or learner is separated physically from the teacher during the learning process (Dabbagh & Bannan-Ritland, 2005; Littlejohn & Pegler, 2007; Moore & Kearsley, 1996; Rumble, 1989; Schlosser & Simonson, 2006; Wang, Peng, Huang, Hou, & Wang, 2008). This learning environment is different from conventional classroom instruction where students attend regular meetings with a teacher presents to supervise and monitor their learning process in class. Distance learners do not have an instructor to supervise and guide their learning in person on a regular basis. In this case, any interaction that may occur between the teacher and the learner is facilitated by using printed materials and electronic technologies (Moore & Kearsley, 1996) or by more sophisticated information and communication technologies (ICT), such as the Internet and the World Wide Web (WWW).

While advanced countries use sophisticated ICT extensively for distance learning, the traditional model of distance education in developing countries are still using print-based learning materials complemented with audio-video (Fozdar & Kumar, 2007; Fozdar, Kumar, & Kannan, 2006; Malik, Belawati, & Baggaley, 2005). Print materials are still considered as the most accessible medium for learners in developing countries (Malik, et al., 2005). In these countries, distance education students are likely to study printed-based course materials independently most of the time with limited interactions occurring between the instructor and the students.

However, in the recent years, the use of ICT in distance education institutions in developing countries such as those in Asian countries is increasing (Malik, et al., 2005), especially in the area of learning support services (Fozdar & Kumar, 2007; Jung, 2007). International agencies such as the World Bank, UNESCO, SEAMEO (South East Asian Ministers of Education Organization), and IDRC-PAN (International Development Research Centre-Pan Asia Networking) have initiated and supported various projects to enhance education

by introducing ICTs in Asia distance learning systems (Malik, et al., 2005). Such support from international agencies may influence the increase of internet usage in Asian distance education.

Yet, the number of internet users in some Asian countries is still very low compared to that in advanced countries, such as in North America. For example, even though the internet users in Asia alone comprised of around 42% in the world (InternetWorldStats, 2010c), some Asian countries still have low internet penetration, such as Indonesia (12%), India (7%), and the Philippines (30%) (InternetWorldStats, 2010b). Factors that hinder the use of ICTs in distance education in these countries include the high price of personal computers and lack of availability of ICT-infrastructure in addition to limited networking capacity (Fozdar & Kumar, 2007; InternetWorldStats, 2010b). The low rate of internet penetration in the Asian countries, such as in Indonesia, India, and the Phillipines, is likely caused by the poor telecommunications infrastructure (Bandalaria, 2007; Fozdar & Kumar, 2007; InternetWorldStats, 2010b).

Although the internet access in Asia is still limited, the possibility of the use of internet in Asia for distance education is enormous considering the huge number of people who use the internet in this region. Yet, the use of online instruction in developing countries is not as popular as that in the advanced countries. Instead of utilizing ICTs for online instructions, distance education institutions in developing countries may use ICTs to enhance their learning support services. For example, the mobile phone has been used by Indira Gandhi National Open University (IGNOU) in India (Fozdar & Kumar, 2007, Rajesh, 2003) and in the Philippines (Bandalaria, 2007) to promote student retention because it can be easily used to access a large number of students anywhere and anytime. Another example, Universitas Terbuka (UT), the open university in Indonesia, has been using a Learning Management System (LMS) to provide academic support (i.e., online tutorials, academic counseling) as well as administrative support (e.g., online book store) for several years now. UT which solely applies distance learning system for its teaching-learning process and implements an online learning support services (i.e., the LMS) to its students was used as the context for this dissertation study.

Providing timely learning support services is crucial for UT as students seem to face difficulties studying at a distance. Belawati (2005) reported that UT had a low rate of student performance. According to Belawati, the students' passing rate in the early years of its establishment was only approximately 23%. Therefore, in 2002 UT developed a Web-based support service called UT-Online, which include online tutorials, although students' access to the

Internet was still very limited. Online tutorial is a Web-based learning support service in which tutor provides students with reading materials or instructions and assignments in a specific course to facilitate students' learning. The online tutorial is considered to be an essential learning support for UT, especially with the growth of internet penetration in Indonesia, from about 1% in 2000 to 12% in 2010 (InternetWorldStats, 2010a).

While the number of students attending face-to-face tutorials is declining (Belawati, 2005), the increase of participation rate in online tutorials indicates that more students realize the benefits of online tutorials for their studying at UT. For example, while the number of online tutorial participants compared to the registered students was approximately 3% in 2002-2003 (Belawati, 2005), the number of participants reached around 23% in the first semester of 2011 (Prasetyo, personal communication, April 29, 2011). This may indicate that UT students are more becoming familiar with online learning in the recent years. However, due to the low internet penetration in Indonesia at present, online tutorials are offered on an optional basis but active participation and completion of online assignments in a specific course(s) can contribute to 30% of the total grade for the related course(s) (Universitas Terbuka, 2012a).

Taking into consideration that only 23% of the total number of students registered in the first semester of 2011 participated in online tutorials (Prasetyo, personal communication, April 29, 2011), online tutorials may be regarded as relatively new to many students. Online tutorials require students to switch their mindset from teacher-centered instruction, which is the common instruction used in previous schoolings into student-centered learning. In the teacher-centered classroom students are more dependent on their teacher in undertaking their learning activities, such as in deciding when to study certain topics and determining which parts of the topics are considered important and required to be mastered. In contrast, students in a distance education setting must depend on themselves most of the time in determining the important rules, concepts or topics when studying certain courses. In addition, they have to plan their own study schedule and decide when to study and how long they need to study the topics covered in the related courses in order to comprehend the related learning materials.

As well, to participate in online tutorials means that students need to access the university Web site in order to seek information regarding the schedule of the tutorials and what courses offer online tutorials and to access the weekly tutorials on a regular basis. They must regularly access their emails so that they can know when there is new information or a new posting(s) in

the discussion forum(s). Yet, many UT students may not realize that they need to take the initiative to access the online tutorials regularly or may not know how to join the online tutorials.

Moreover, because students are more familiar with the teacher-centered instruction in previous schoolings, they may not take advantage of the online tutorials to ask their peers or tutors for help regarding the readings or assignments they do not understand, either through the discussion forums or through emails. Thus, the online tutorials may not automatically provide the means for students to interact more with their tutors or peers. Furthermore, because not all students, especially those who live in an isolated area, can have access to the Internet in their home, many students may choose not to enroll in any tutorial sessions. Instead, they may have to depend on themselves to study individually most of the time.

Thus, both students who are studying the learning materials on their own and those who are new to online tutorials at this university need to learn how to self-regulate their learning. The limited opportunities for interactions between the instructors and students require students to study independently. They need to decide on their own on how to study the learning materials, how much time to spend on it, when to increase efforts in learning, and when to seek other information or help when necessary.

Distance education students may experience some communication or psychological gaps with the instructors as a result of the physical separation between them (Moore, 1997; Moore & Kearsley, 1996). According to Moore, beside structuring the program and creating a dialogue between the learners and the instructor, one way to bridge the communication gap is exercising the learner autonomy. Learner autonomy is the freedom of choice a learner has on how to use the learning materials to achieve her/his own learning goals under her/his own control (Moore, 1997). Thus, the distance learners themselves are also responsible to take the initiative to study and to control or self-regulate their own learning.

Self-regulated learning (SRL) refers to the degree to which students actively use their metacognitive skills and behavioral strategies and stay motivated in their learning process (Zimmerman, 1990; Zimmerman, 2001). Learners who self-regulate their learning use their metacognitive, motivational, and/or behavioral strategies to attain their academic goals (Zimmerman, 1989; Zimmerman, 1990). Previous research found that students with higher levels of SRL tended to achieve better academically (Nota, Soresi, & Zimmerman, 2004; Pintrich, Smith, Garcia, & McKeachie, 1993; Zimmerman & Martinez-Pons, 1986; Zimmerman &

Martinez-Pons, 1990). With the lack of interaction between learners and instructors in a distance education learning environment, the ability to self-regulate is considered more important in this setting than in a traditional learning environment (Kauffman, 2004; King, Harner, & Brown, 2000; Wang, et al., 2008).

Unfortunately, there is still limited research reported which focused on the use of SRL in a more classic distance education setting. For example, when I tried to search research articles in ERIC (ProQuest) by using keywords "distance education" and "self-regulated learning" or "self-regulation" and limited the search to dissertations, ERIC publications, and peer-reviewed journal articles, there were only 29 publications found. Among these publications, only one study specifically mentioned that the setting was an undergraduate classic distance education complimented with optional tutoring. The rest of the studies were reported to be conducted in a distance education environment without mentioning the mode of the delivery of the instruction or focused on blended, online learning or web-based learning settings.

Considering the importance of SRL and the limited number of research studies on SRL in a more traditional distance education setting, conducting research on SRL in this learning environment is crucial. Specifically, enhancing SRL of students at UT by providing an intervention on learning strategies was the intent of the study. This study was intended to examine whether the intervention can help enhance students' use of SRL and achievement. Providing information on how to study effectively may help learners enhance their self-regulated learning, achievement, and course completion in this setting.

On the other hand, because distance learners are mostly studying independently, there might be less guidance on the amount of daily work required to study the learning materials compared to what happen in a regular classroom directed teaching (McGivney, 2004). McGivney explained further that without attending regular classes on a fixed schedule, distance learners can easily fail to maintain regular study time. Instead, they might pay more attention to competing activity, such as doing work-related activities, attending a community activity, or paying attention to family responsibilities. As the majority of UT students is working adults, many students could face the same difficulties in adjusting their study time due to conflicting time in regards to attending their attention to their jobs, family, and social responsibilities. Therefore, helping UT students to plan learning goals and monitor their attainments is important to increase

their SRL, which in turn might enhance their persistence in studying at the university as well as improving their achievement.

In addition to the provision of intervention on learning strategies, one way that may enhance students' use of SRL is by providing an intervention that helps students plan their study time management. Time management refers to the learners scheduling, planning, and properly managing their study time (Pintrich, 2004; Schunk, 2005). According to Pintrich (2004), time management activities include preparing a study schedule and allocating time for different activities. In this study, study time management refers to academic time management, in which one is managing his or her time to study by setting learning goals, scheduling study time, and monitoring the attainment of the learning goals. Planning and managing study time can assist learners to accomplish their learning goals (Dabbagh & Kitsantas, 2005). Providing support in planning the time and effort to study and achieve the learning goals is expected to enhance students' SRL, which in turn may influence their achievement.

However, there are very limited research studies reported on the time management skill in a distance education setting. Regarding the importance of time management and the lack of research on time management in a distance education setting, such as UT, combining research on time management with the research on the SRL in this learning environment is essential to be conducted at UT. This study was intended to examine whether the study time management intervention in addition to the intervention on learning strategies can help enhance students' use of SRL, achievement, and course completion.

The Purpose of the Study

The purpose of this study was to examine the effects of learning strategy and study time management interventions on the students' use of SRL, achievement, and course completion in a distance education learning environment. Accordingly, there are three focuses of this study. First, this study was trying to find out the effects of a learning strategy intervention on the students' use of SRL, achievement, and course completion in a distance education setting. Specifically, the study provided a Web-based self-guide for students on how to plan their study smartly by learning the importance of using time effectively and the value of setting realistic, attainable, accurate, and specific learning goals. Second, this study was trying to find out the effects of a study time management intervention on the students' use of SRL, achievement, and course

completion. The study time management intervention was a Web-based tutorial complemented with an instrument for students to enter their weekly learning goals and study time and to enter their actual study time and accomplishment of the goals. Third, this study was trying to find out whether students with higher levels of SRL also have higher levels of achievement and course completion.

Research Questions

In order to serve the purpose of the study, there were three research questions that should be answered.

1. Did students who were provided with the learning strategy intervention differ in their levels of SRL, achievement, and course completion compared to students not provided with the intervention?
2. Did students who were provided with the study time management intervention differ in their levels of SRL, achievement, and course completion compared to students not provided with the study time management intervention?
3. Did students with higher levels of SRL also have higher levels of achievement and course completion?

The Significance of the Study

The results of the study were expected to shed light on the role of intervention on learning strategies in distance education, especially at UT in Indonesia. Intervention on the SRL was expected to help students in enhancing their learning strategy, especially in planning achievable learning goals. The ability to self-regulate their own learning, to attain their learning goals, was expected to enhance students' self-efficacy to be successful, which in turn would enhance their course completion and persistence in studying in a distance education setting.

In addition, it was expected that the results of the study may provide information to decide the feasibility and utility of a study time management instrument as an electronic performance support system (EPSS) for distance education students. With the availability of the study time management tool, students can take advantage of the tool and utilize the tool to help them manage their study time by efficiently planning, monitoring, and evaluating their study time. With this EPSS, students may learn to plan their learning more realistically so that they

can be more successful in their study. Thus, the results of the study would be beneficial in deciding whether such EPSS is worth providing as a support for students' success at UT.

After introducing the background, purpose, and significance of the study, in Chapter Two I discuss about the literature and research concerning: (1) the role of distance education, (2) factors influencing students' persistence in distance education, (3) factors influencing students' persistence at UT, (4) the concept of academic SRL, (5) the measures of SRL, (6) the relation of SRL to student achievement, (7) the importance of SRL in distance education, (8) the importance of SRL at UT, (9) intervention for enhancing SRL, (10) intervention on time management, (11) intervention(s) for UT, (12) the proposed theoretical framework, and (13) the research hypotheses.

CHAPTER TWO
LITERATURE REVIEW

The Role of Distance Education

The purpose of distance education is to provide instructions at times and places the students prefer (Moore & Kearsley, 1996). The delivery model of this educational system is designed to provide a wider access to education for the community (Farnes, 1997; Garrison, 1993; Malik, et al., 2005; Siaciwena & Lubinda, 2008). Nowadays, distance education has become more accessible with the advance of ICT (Robinson, 2008).

An example of a greater access to higher education is that distance education provides a possibility for First Generation Students—students whose parents did not have university degree—to advance their education (Priebe, Ross, & Low, 2008). Another example is in the case of UT in Indonesia, which is mandated to provide higher education for high school graduates and practicing teachers who cannot attend conventional universities for different reasons. In general, UT is intended to provide a wider access to higher education for individuals who cannot go to conventional universities for various reasons, including demographic, economic, geographic, or time factors (Belawati, 2000; Zuhairi & Budiman, 2009).

Because of the role to provide a wider access to higher education, a distance education institution may apply an open entry system for students' enrollment, that is, to admit any students with a high school diploma registering for a program (Ashby, 2004; Belawati, 2002; Simpson, 2006). In other words, there is no entrance test administered or any academic entry requirements considered (Ashby, 2004) in the process of student recruitment. This is the case for UT, which contributes greatly to the development of human capital in Indonesia. Since its establishment in 1984, the university has over 1.4 million students and more than 700,000 alumni, working in various professions (Belawati, 2000; Zuhairi & Budiman, 2009).

Considering the role of distance education institutions and their mission to provide wider access to higher education, it is important to know about the persistence of the students in the educational programs.

Factors Influencing Students' Persistence in Distance Education

Understanding about factors that influence students' persistence in distance education is necessary in order for the related institutions to provide learning support that can enhance students' retention in a program they enrolled. Many studies had been conducted to examine about students' persistence to determine the key factors that may affect learners to drop out of their courses in distance education (Fozdar & Kumar, 2007). Unfortunately, many recent research studies concerning this topic were mostly done in the context of online or Web-based instructions. Nonetheless, we might still be able to learn from the online learning setting about indicators of students' success that is applicable to a more classic distance education setting. This is because online learners, especially in an asynchronous learning environment, basically have the same characteristics with classic distance education in terms of the separation of place and time with instructors and peers. It should be noticed too that some classic distance education universities, such as UT, may already use some ICTs for learning support services even though not for full online instructions. Thus, students in such educational settings may experience the same persistence problems with those in online instructions.

A way of looking at factors influencing students' persistence is to examine the indicators affecting the students' decision to complete their study. Referring to Belawati (1998), students' persistence or students' retention refers to the state of the students' course completion and re-registration. Course completion is considered an important factor to students' persistence, because it may influence students' decisions to continue their study. When a student returns after completing a course(s), she is considered to be a persistent student. On the other hand, studying about students' persistence may also reveal factors that contribute to the students' completion of a course or program they register.

Among the factors that were often reported to contribute to students' drop out is the time restraints (Aragon & Johnson, 2008; Doherty, 2006; McGivney, 2004; Roblyer, 1999). Due to their limited time for studying, adult distance learners usually need more time as well as strong commitment to complete their program or study (Doherty, 2006; Fozdar et al., 2006, Roblyer, 1999). The phenomenon of students dealing with job-related activities and family responsibilities with academic work is actually very common in distance education. In fact, Doherty's study revealed that the main reason for students to take an online course(s) was because they could not attend regular classes for job-related reasons. He found that the majority of unsuccessful students

in this learning environment who responded to his survey worked long hours, such as 30 hours or more per week. Thus, it is not surprising that time management is an obstacle for students who are failing in a distance education setting.

Past research found that students who could not manage their time well were more likely to achieve less in a distance course or to withdraw from their study (Doherty, 2006; Fozdar et al., 2006, Roblyer, 1999). On the other hand, students who persisted in their study were reported to have managed their time and activities better, aside from having good study habits and always doing the weekly reading and assignments than did the students who drop out (Holder, 2007). In contrast, Doherty found that students who did not complete their courses reported time management and procrastination as the causes for withdrawing from a Web-based course. Thus, time and study management, which are topics under investigation in this study, seemed to be an important issue for unsuccessful students in this learning environment.

In order to understand students' persistence in distance education setting, we also need to recognize who the distance learners are. Distance learners can be categorized into two groups of students (Wilson, 1997). The first group consists of adult learners, who have been studying in a face-to-face instructional setting. Many of them might have left high school for several years. This probably makes them feel not very confident to succeed in their study, although they may have high motivation to advance their education. The other group of students is young adults who have just graduated from high school. These students are also used to a structured classroom instruction. They may have low levels of confidence in learning in a distance education setting (Wilson, 1997). Students' low confidence to learn successfully in this setting could influence their motivation or decision to complete their study.

Students' motivation was reported to be an important factor of students' persistence in distance education setting (Aragon & Johnson, 2008; Doherty, 2006; Holder, 2007; Roblyer, 1999). In classic distance learning environments, the lack of student motivation has been identified as a result of the absence of face-to-face interaction with teachers and peers (Dabbagh, & Bannan-Ritland, 2005). In contrast, self-efficacy—a motivational factor—was found to be one of the best predictors of student achievement in a blended learning environment (Lynch & Dembo, 2004). Self-efficacy was defined as learners' beliefs in their capabilities to be able to perform a specific task (Schunk, 1991). Academic achievement, in turn, will be likely to

influence students' persistence in any learning environment, including in a distance learning program.

Although both internal and external motivations was assumed to direct students' intention to continue studying (Pintrich, 2004), several studies reported more external factors contributing to students' motivation to complete their study in distance education. For example, emotional support from friends and family seemed to play a significant factor related to online learner persistence (Holder, 2007; McGivney, 2004). It was also found that support from instructors or tutors was necessary if students were to stay motivated to complete their study (McGivney, 2004).

In summary, both time management skills and motivation were reported to be important components that may affect students' completion in any distance learning course or program. Both variables are components of self-regulated learning that will be discussed further in the section of "The Proposed Theoretical Framework."

In the following section, I examined important factors that may influence students' persistence at UT.

Factors Influencing Students' Persistence at Universitas Terbuka (UT)

UT had been reported to have a very high nonpersistence rate (Belawati, 1998; Dunbar, 1991). Belawati (1998) argued that UT students may not be ready emotionally to carry out independent study, which was adopted from Western countries. The majority of UT students was also reported to score low or average in their readiness for self directed learning (Darmayanti, 2000).

Self-directed learning or self-managed learning is a learning process wherein the learners take the responsibility to identify what to learn, when to learn, and how to learn (Guglielmino, Long, & Hiemstra, 2004). The readiness of UT students for self-directed learning was measured using the Indonesian version of Guglielmino's Self Directed Learning Readiness Scale (SDLRS). The average score of the SDLRS indicated that students are likely to be successful in independent learning situations but they are not as comfortable being responsible for identifying their learning needs nor planning, implementing, and evaluating their learning. According to these authors, individuals whose scores of SDLRS are below average usually prefer to very structured learning instructions, such as lectures and the regular classroom setting. Considering

the low or average scores of the SDLRS obtained, UT students generally have the potential readiness to be self-directed learners, but perhaps many of them are not ready emotionally to study in a distance education setting.

Moreover, Indonesian students were regarded to be accustomed to a very structured teacher-centered instruction in schools (Dunbar, 1991). According to Dunbar, many of UT students at the time of his study might not feel ready for self-independent study demanded by the distance education system adopted by the university. As well, the reliance on printed-learning materials might not be suitable for Indonesian students who were used to a 'strong oral tradition' (Dunbar, 1991). When students are accustomed to being told what to study, it is difficult to decide what to study and how to understand the learning materials on their own.

In addition, students in a distance learning environment may experience a feeling of uncertainty while studying on their own, especially when trying to understand a difficult learning material. This feeling of uncertainty can lower students' self-confidence in mastering the materials which may influence their motivation to continue their study at UT. Therefore, UT needs to provide learning support services that can facilitate students in enhancing their motivation to regulate their own learning. In this case, providing intervention to enhance students' self-regulated learning can be very important in order to promote students' achievement and course completion, which may in turn improve students' persistence at UT.

The Concept of Academic Self-Regulated Learning (SRL)

Self-regulated learners are viewed as active participants of their own learning process toward attaining a goal (Zimmerman, 1990). According to Pintrich (1995), the learners themselves—not their teachers or parents—are the ones controlling their actions in learning. That is, learners are responsible to initiate and take control of their own learning. In this case, during all phases of learning, learners are able to direct their motivation, metacognitive, and behaviors to attain their academic goals (Schunk, 2008, Zimmerman, 1990).

Several experts (e.g., Pintrich, 2004; Schunk, 1990; Zimmerman 1989; 1990; 2002; 2008) have proposed a model of self-regulatory process. Bandura in 1986 introduced the term self-regulation to describe the process of human behavior in controlling oneself by engaging in self-observation, self-judgment, and self-response activities (Schunk, 2008). Based on the work of Bandura, Zimmerman and colleagues proposed that people are consciously directing their

cognition, motivation, and behaviors to attain a goal when learning (Schunk, 2008). This concept then is known as the academic self-regulation or self-regulated learning (SRL).

In this section, I present two of the models of SRL which I refer as the foundations of my study. These models are Zimmerman's model of SRL and Pintrich's model of SRL. Zimmerman (1998) and Pintrich (2004) shared similar perspectives concerning SRL. They argued that the self-regulatory processes of a learner are influenced not only by herself and her behavior, but also affected greatly by her environment or context (Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1986). For example, an individual ability to regulate her learning is not only influenced by her interest in the task to be accomplished, her confidence in her ability to perform the task, and by her action to set a specific time to accomplish the task, but is also affected by the support they get from the environment, such as a comfortable place to study and the help she gets from the instructor or peers.

Zimmerman's Model of SRL

Zimmerman described three stages of learning, namely (1) *forethought* phase (before learning), (2) *performance* or *volitional control* phase (during learning), and (3) *self-reflection* phase (after learning). He proposes that self regulatory processes occur within each of the learning phases, such as goal setting (forethought phase), self-monitoring (performance phase), and self-reaction (self-reflection phase).

According to Zimmerman (1998), the first phase (*forethought* phase) focuses on the students' actions and beliefs that affect their preparation for learning. This phase involves *task analysis* and *self-motivation* in the parts of the learners (Zimmerman, 2002; 2008). Task analysis includes *goal setting* and *strategic planning*. Goal setting includes activities to determine a learning goal and modify it if necessary (Schunk, 1990). Schunk emphasizes that self-regulated learners have an intentional goal to achieve when learning. Likewise, Zimmerman (2002) explains that students who determine their own learning goals achieve better than those who does not. Zimmerman also states that students who has proximal learning goals (e.g., memorizing a list of words to prepare for a spelling test) can increase their academic achievement (e.g., to pass a spelling test). In order to accomplish the learning goals, students determine appropriate strategic planning. Strategic planning is the strategy that will be used to accomplish the goals, such as determining the cognitive strategies to use to achieve the goals (e.g., make a word list to

practice spelling 10 words a day). Students can modify their learning goals during and after the learning process when their self-monitoring indicates that the learning goals are only partly achieved or not achieved. For example, a student can decide to reduce or increase the number of words a day to memorize to prepare for the spelling test.

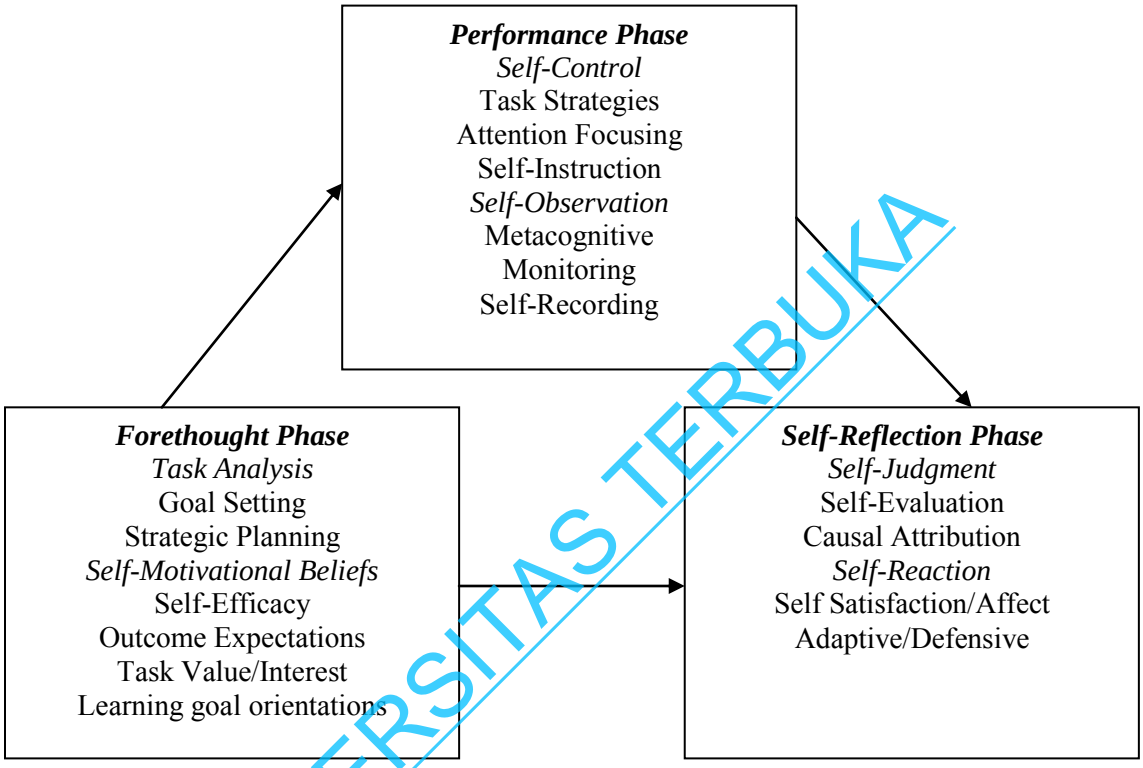

Figure .1. Self-regulatory phases and processes. From Zimmerman, B.J. (2008). Goal setting: A key proactive source of academic self-regulation. In D.H. Schunk, & B.J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and approaches*. New York & London: Lawrence Erlbaum Associates.

Self-motivation beliefs in the forethought phase involve *self-efficacy*, *outcome expectations, intrinsic interest/value*, and *learning goal orientation*. Self-efficacy is considered one of the key factors of an individual's motivational beliefs that affect self-regulated learning. Self-efficacy is assumed to influence how students choose activities, make efforts, and persist in accomplishing a specific task (Schunk, 2005). According to Schunk, an individual who has higher self-efficacy to accomplish a specific task successfully will be likely to give more efforts

to complete the task. As well, she may persist in her study despite any difficulties faced than someone with lower self-efficacy.

The second motivational belief, outcome expectations, relates to the consequences resulted from the learning process (Zimmerman, 2002), such as having a good grade or granted a bachelor degree. Zimmerman explained further that the third motivational belief, intrinsic value, refers to how students perceive the value of the task to be learned, such as how important the task skill for her to master. Furthermore, the last motivational belief, learning goal orientation, concerns with how a learner values the process of learning itself, such as how interesting a learner finds the subject matter of History. Learners' commitment to set and attain the learning goals is influenced by these four motivational beliefs. These four indicators can contribute to higher motivation in accomplishing an academic task.

The second phase, *performance* or *volitional control* phase, refers to the actions that take place during learning which will influence performance. This self-regulatory phase includes two subprocesses, *self-control* and *self-observation*. According to Zimmerman (2002), self-control revolves around the use of certain learning strategies that were selected prior to learning. For example, in order to focus one's attention better, a student could choose to rent a carrel in the library to study or to study early in the morning when the other family members are still asleep. Self-observation centers on the monitoring one's own activities during learning. Zimmerman gives an example that we can ask students to record their use of time so they become aware of how much time they devoted to studying. Students can also monitor their learning progress, for example, by recording how many times they fail to spell correctly in a spelling practice. He argues that by monitoring their study, students become aware of every small progress they achieved thus can enhance their motivation in their learning.

The third phase, *self-reflection* phase, refers to the actions that happen after the learning process. This phase includes *self-judgment* and *self-reaction*. In the self-judgment process, learners can self-evaluate their learning experience by comparing their performance with some standards. A student can compare her performance against a specific standard, such as prior performance or class performance or a standard of performance stated in the rubric provided by the teacher (Schunk, 1990). Schunk categorizes two types of standard: absolute and normative standards. An example of absolute standard is the number of pages to be read in one day. An example of normative standard is a performance of other students to compare with. The results

of the self-judgment will affect a learner's reaction to the learning experience. In this case, self-reaction refers to the action a student takes as a result of what she feels after evaluating her own performance.

The process of self-reaction involves a feeling of self-satisfaction regarding one's performance and the action she will take afterward. When a student feels disappointed about her learning experience, she may have a *defensive self-reaction*. For example, she may decide to stop studying for feeling incapable of mastering the learning materials or accomplishing a specific learning task or even worse she can decide not to complete the course.

On the other hand, the disappointed student may also have a positive attitude toward the results of the self-evaluation. When she thinks that the learning strategy she used to perform the learning task was ineffective, she can make the adjustment to increase the effectiveness of the learning strategy. For example, when highlighting a reading did not help her understand the reading material, she could try to summarize the material in order to better understand it. This positive attitude refers to the *adaptive self-reaction*.

The results of adaptive self-reflection activities can be used to revise the learning goals or influence the goal setting for the subsequent goals. The new learning goals will then influence the process of selecting a learning strategy to accomplish the goals in the performance phase. The strategic planning chosen and the self-monitoring conducted in the performance phase will in turn have an effect on the self-evaluation and self-reaction subprocesses in the self-reflection process. When these chains of processes occur and create a feedback loop from self-reflection phase to the forethought phase all over again, the self-regulatory process becomes a cyclical process (Zimmerman, 2002).

Zimmerman also describes that every phase of the SRL consists of three processes that occur at different times during the process of learning, which are (1) metacognitive process, (2) motivational process, and (3) behavioral process. According to Zimmerman, in relation to *metacognitive* processes, self-regulated learners can plan and set their own learning goals (forethought phase), monitor the accomplishment of the goals (performance phase), and evaluate their learning results (self-reflection phase). With regard to *motivational* processes, these learners seem to have high self-efficacy and high interest in the learning task (forethought phase). Regarding their *behavioral* processes, self-regulated learners organize their environments to optimize their learning, such as by deciding the study time and places where they are most likely

to study (forethought phase) and seeking help and information (performance phase). These three processes can happen simultaneously during or across phases. Zimmerman stated that learners can self-regulate their learning differently in each learning situation. This idea is in line with Pintrich's (2004) who argues that every individual can use different learning strategies for different learning tasks.

In general, according to Schunk and Zimmerman (1998), every individual learner uses several component skills to regulate one's learning: (1) setting specific proximal goals, (2) choosing strategies for attaining the goals, (3) monitoring her performance to determine her learning progress, (4) altering her environment to be more conducive with her learning goals, (5) managing her use of time efficiently, (6) evaluating her learning methods, (7) attributing causation to the results of learning, and (8) adjusting the learning strategies for future methods. The presence or absence of these key SRL processes will influence the level of learning gained by each individual.

Pintrich's Model of SRL

While Zimmerman categorized the SRL process into three learning phases, Pintrich divided the SRL process into four phases, which are (1) *forethought, planning, and activation* phase, (2) *monitoring* phase, (3) *control* phase, and (4) *reaction and reflection* phase. In this case, Pintrich seemed to categorize performance phase of Zimmermann's—the self-regulatory process that takes place during the learning phase—into two phases: monitoring phase (phase 2) and control phase (phase 3).

In phase 1, *forethought, planning, and activation* phase, self-regulated learners plan, set goals, and activate their perceptions and prior knowledge about the learning task and context as well as preparing themselves to do the task (Pintrich, 2004). During this phase learners try to manage their cognition, motivation, behavior, and context. For example, in this phase learners direct their *cognition* by setting *goals* in relation to specific learning tasks and activating their *prior knowledge* and *metacognitive knowledge* accordingly (Schunk, 2005). Goals serve as criteria to judge their learning progress. Meanwhile, activating their prior knowledge can help students understand the learning task better, such as by self-questioning about what they already know about the topic at hand. Also, applying appropriate metacognitive knowledge such as by

underlining, note taking, or summarizing the reading material will help the learners in acquiring the knowledge to be learned.

In this first phase learners regulate their *motivation* by judging their *goal orientations*, *self-efficacy*, *task difficulty*, *task value*, and their *interest* in accomplishing learning goals (Schunk, 2005). Goal orientation is related to the motivation the learners engage in learning, such as why they want to obtain the highest possible grade in a course. Self-efficacy centers on the individual's beliefs in her capability to perform a task well or not. The task difficulty focuses on a learner's judgment concerning how easy or difficult the task to be completed. Task value revolves about the individual's judgment on the relevance, importance, and usefulness of the task at hand. Interest refers to the degree students enjoy reading the topic or content area to be learned.

In addition, learners regulate their *behavior* by planning their *time and effort* for accomplishing the learning goals as well as planning a *self-observation* (Schunk, 2005). The planning of time and effort or time management includes creating study schedules and assigning a specific time for each activity being scheduled. Planning for self-observation consists of determining what method will be used to assess the learning progress, such as counting the number of pages to read in one day or keeping records of the accomplishment.

Regulating *context* comprises of directing the perceptions of the individuals about the learning task and its related context (Schunk, 2005). Including in the students' perceptions of the task and context are their perceptions about classroom characteristics that may enhance or deter learning, types of learning tasks to be completed, grading criteria, and classroom climate factors (e.g., support from teachers or peers). In a distance education setting, classroom characteristics may include learning support services offered, such as tutorials and the availability of various learning resources.

In phase 2, *monitoring* phase, self-regulated learners conduct various monitoring processes that represent their metacognitive awareness of different aspects affecting their learning (Pintrich, 2004). In this phase, learners monitor their *cognitive* understanding of the topic being learned, about what they already know and what they do not understand (Schunk, 2005). In terms of monitoring their *motivation*, learners judge their self-efficacy, values, causal attributions, interests, and anxieties. For example, regarding causal attribution, when an individual failed to achieve the learning goals, she might tell herself that she failed because she

did not put enough effort in accomplishing the goals. In terms of monitoring *behaviors*, individuals monitor their time and effort management so they can adjust them based on the assessment of their effects on the students' learning (Schunk, 2005). Realizing that a failure to accomplish a learning goal is caused by a lack of practice may lead learners to set a time to practice accordingly. Likewise, they may put more efforts when they think that the task is difficult. *Contextual* monitoring includes monitoring the setting of the learning tasks in order to evaluate whether the conditions of the context changed or not.

Phase 3, *control* phase, concerns with the learners' efforts to direct their self, learning task, and context or environment (Pintrich, 2004). During this phase, self-regulated learners control their cognition, motivation, behaviors, and context in relation to the results of monitoring activities in order to enhance learning (Schunk, 2005). In controlling their *cognition*, learners perform cognitive and metacognitive activities in the attempt to understand the course materials. Through the monitoring activities in phase 2 learners can know the progress they are making. Accordingly, in this third phase they may continue to use the same learning strategies (e.g., underlining and summarizing) or use other strategies (e.g., note taking and asking questions) to enhance their learning.

Learners can *control their motivation* by telling themselves that they have the ability to complete the tasks (e.g., "I can do this") in order to enhance their self-efficacy (Schunk, 2005). Learners can also reward themselves after performing a task well (e.g., watch a favorite movie after reading and summarizing 25 pages of assigned reading). They may also control their anxiety toward a test by trying not to always think about the test questions they cannot answer. In terms of *behavioral control*, self-regulated learners persist longer, make more effort, and seek help when needed (Schunk, 2005). Good self-regulated learners can seek appropriate help from a reliable source.

In terms of *controlling the context*, self-regulated learners use strategies that can make the environment more favorable to learning, such as reducing distractions or attempting to negotiate the task requirements. For example, students may ask a teacher to reduce the amount of a reading assignment if it seems abundant. Students can also control the context, for instance, by choosing peers to study together. They may also choose to leave a situation that made learning ineffective by moving to another place to study when too many people were talking in the study room.

Phase 4, *reaction and reflection* phase, represents the learners' reactions and reflections concerning the self, the task, or the context after the learning process (Pintrich, 2004). Learners' reactions and reflections include judging, attributing, and self-evaluating their performance (Schunk, 2005). After learning, learners assess their performance and based on the assessment learners regulate their motivation, behavior, and context. *Motivational* reactions include enhancing their motivation when learners think their motivation has decreased, for example by attributing their low performance to inadequate effort rather than to low ability. The learners' reaction may also involve emotion, such as feeling proud when succeeded or disappointed when failed. In terms of *behavioral* reaction and reflection, self-regulated learners judge their own behaviors, such as whether they had use their study time effectively or put forth adequate effort. Regarding the *contextual* reaction and reflection, learners evaluate the task demands and contextual factors. Good self-regulated learners are able to evaluate whether they succeed in accomplishing the task, whether the environment can support learning, and what needs to be changed to enhance learning (Schunk, 2005).

Table 1

SRL Models According to Zimmerman (2002) and Pintrich (2004)

Phases	Zimmerman (2002)		Pintrich (2004)	
	Subprocess	Key Classes	Areas	Key Regulation
1. Forethought (Zimmerman & Pintrich)	Task Analysis	Goal setting, strategic planning	Cognition	Setting goals, activating prior knowledge & metacognitive knowledge
	Self-Motivational Beliefs	Self-efficacy, outcome expectation, task value/ interest	Motivation	Judging goal orientations, self-efficacy, task difficulty, task value, interest
			Behavior	Planning time & effort, planning self-observation
			Context	Having perceptions of tasks and context
2. Performance (Zimmerman)	Self-control	Task strategies, attention focusing, self-instruction		
	Self-Observation	Metacognitive monitoring, self-recording		
Monitoring (Pintrich)			Cognition	Monitoring cognitive understanding

Table 1

SRL Models According to Zimmerman (2002) and Pintrich (2004), Continued

Phases	Zimmerman (2002)		Pintrich (2004)	
	Subprocess	Key Classes	Areas	Key Regulation
			Motivation	Judging self-efficacy, values, causal attributions, interests, and anxieties
			Behavior	Monitoring time and effort management
			Context	Monitoring task conditions
Control (Pintrich)			Cognition	Using cognitive and metacognitive activities
			Motivation	Self-instruction, self-awarding
			Behavior	Persisting, expending more effort, seeking help
			Context	Using strategies to make the context more conducive to learning
3. Self-Reflection (Zimmerman & Pintrich)	Self-Judgment	Self-evaluation, causal attribution	Cognition	Assessing performance
	Self-Reaction	Self-satisfaction/ affect, adaptive/ defensive	Motivation	Enhancing motivation
			Behavior	Judging self-behaviors
			Context	Evaluating task demands & contextual factors

In summary, Pintrich's model and Zimmerman's model of SRL are very similar. They believed that self-regulated learners are active participants in their own learning. They viewed self-regulated learners as individuals who are able to regulate their motivation, behaviors and metacognition to achieve a learning goal. Moreover, they agreed that self-regulatory processes occur in all phases of learning, start before the learning process, during, and after learning, which form a cyclical process resulting in effective learning. Table 1 shows the shared concepts of self-regulatory processes in learning between the two models. From this table we can see that Pintrich categorized the self-regulatory processes into more observable components of regulation within each phase of learning (i.e., cognition, motivation, behaviors, and context).

This dissertation concerned with the *forethought* phase (e.g., setting weekly learning goals and planning study time), *monitoring* phase (e.g., monitoring the accomplishment of the learning goals and actual study time), and *self-reflection* phase (e.g., assessing goal accomplishment and judging self-behaviors). We will talk about this in more details in the

section of "The Proposed Theoretical Framework." In the next section, we will talk about how to measure the SRL.

The Measures of SRL

There are a variety of measurements that can be used to measure students' use of SRL, such as self-report questionnaire (Pintrich, 2004; Pintrich & DeGroot, 1990), structured interview (Zimmerman & Martinez-Pons, 1986), or think aloud procedure (Azevedo & Cromley, 2004). This study utilized the Motivated Strategies for Learning Questionnaire (MSLQ)—a self-report questionnaire—developed by Pintrich and his colleagues in 1991. The MSLQ was widely employed to measure students' use of SRL in a specific course in a college setting (Pintrich, 2004; Pintrich, et al., 1991). Initially Pintrich and colleagues developed the MSLQ in 1991. This instrument was a self-report questionnaire consisting of 56 items intended for seventh and eighth graders. Then, Pintrich and colleagues developed a manual to use the MSLQ in a college setting. The manual includes a self-report instrument intended to measure two constructs which are considered important to academic performance: (1) motivational beliefs and (2) various of learning strategies. This latter MSLQ instrument consists of 81 items: 31 items reflecting *motivational beliefs scale* and 50 items reflecting *learning strategies scale*. Included in the two scales of the MSLQ are 15 subscales as seen in Table 2. Pintrich and his colleagues (1991) suggested that the 15 subscales can be used together or as individual subscales, depending on the needs of the researchers or instructors.

The motivational scale encompasses value and expectancy components, while the learning strategies scale consists of cognitive and metacognitive strategies subscales and student management components. The first scale—the motivational scale—encompasses six subscales and consists of 31 items meant to assess students' expectancy and value beliefs for a specific course. The second scale—the learning strategies—includes nine subscales, consisted of 31 items to measure the students' use of cognitive and metacognitive strategies and 19 items which focus on the students' management of different resources. All of the items are constructed using a seven-point Likert scale format. The response options range from '1 = not at all true of me' to '7 = very true of me.' The items are intended to measure the use of SRL of college students when studying a specific course.

Table 2

Scales and Subscales of the MSLQ (Pintrich, Smith, Garcia, McKeachie, 1993)

Scale	Component	No	Subscale	∑Items	Reliability*
Motivational	Value Component	1	Intrinsic Goal Orientations	4	.74
		2	Extrinsic Goal Orientations	4	.62
		3	Task Value	6	.90
	Expectancy Component	4	Control of Learning Beliefs**)	4	.68
		5	Self-Efficacy for Learning and Performance**)	8	.93
		6	Test Anxiety	5	.80
Learning Strategies	Cognitive and Metacognitive Strategies	7	Rehearsal	4	.69
		8	Elaboration	6	.76
		9	Organization	4	.64
		10	Critical Thinking	5	.80
		11	Metacognitive Self-Regulation**)	12	.79
	Resource Management Strategies	12	Time Study Environment**)	8	.76
		13	Effort Regulation**)	4	.69
		14	Help Seeking	3	.52
		15	Peer Learning	4	.76

Note: *) Computed based on $n = 380$; **) Subscales to be used in this study

The MSLQ has been widely used in college setting in various learning environments (classroom, blended, and distance learning settings), both as the complete scale or for particular subscale(s) (Burlison, Murphy, & Dwyer, 2009; Chen, 2002; Hofer & Yu, 2003; Holder, 2007; Lan, 1996; Lan, Bradley, & Parr, 1993; Lynch & Dembo, 2004; Puzziferro, 2008).

Despite the effectiveness of a self-report questionnaire in terms of the administration of the instrument, there are some limitations to be considered. For example, a self-report questionnaire is considered as less able to portray the actual cognitive strategies used by students as they learn (Pintrich, 2004). Nevertheless, many of research on learning strategies utilized self-report questionnaire to measure students' use of SRL when learning.

Due to its limited capacity in revealing the actual students' use of SRL when filling out the MSLQ, it is necessary to measure the actual performance of the students in order to understand the effects of their use of SRL strategies on students' learning. One way to measure students' learning is to measure their performance or achievement on a specific learning task, an assignment, a short test, the final examination, or on a combined score of assignments and the

final examination. This study used the final examination score in a specific course as a measure of student achievement.

The Relation of SRL to Student Achievement

Previous research studies reported different results on the relationships between the subscales of the SRL and student achievement or the effects of SRL on student achievement. The following are examples of findings on the relationships between the components of SRL with student achievement.

Self-regulation and self-efficacy were found to be significant predictors of classroom college student achievement, with self-regulation served as the best predictor (Pintrich & DeGrrot, 1990). However, Lynch and Dembo (2004) found that among self-regulatory variables, only self-efficacy could predict the achievement of undergraduate students in blended setting. Self-efficacy and time and study environment were also reported to contribute significantly to ACT in predicting course exam grades. The ACT, the American College Testing, was considered as one of the best predictors for predicting academic achievement of college students in the United State of America (Burlison, et al., 2009). The findings that self-efficacy was found to be a good predictor of student achievement agreed with Schunk's argument (1990) that students' motivation will improve when they believe that they have the ability to succeed. Accordingly, enhanced motivation will likely influence the efforts of the students and increased efforts may help them accomplish the learning task better.

Regarding the effects of SRL on student achievement, a component of self-regulation, goal setting, was found to be an important factor in affecting students' completion of homework of two distance education courses (King et al., 2000). The study, which involved 113 undergraduate students, utilized a non-published self-report questionnaire to measure the students' self-regulatory process. Students who completed homework had performed better on goal setting than those who did not. However, surprisingly, study skill factor was not found to have an effect on homework completion (King et al., 2000). Nonetheless, higher achieving students were reported to use more self-regulatory strategies than did lower achievers (Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1986).

In addition, self-monitoring, another component of self-regulation, was also reported to have positive effect on students' achievement. Zimmerman and Kitsantas (1997) conducted a

research involving 90 high school girls. They found that the girls who self-monitored their learning goals outperformed those who did not self-monitor their learning goals (Zimmerman & Kitsantas, 1997). Kauffman (2004) also found that undergraduate students enrolled in Web-based courses who were provided with self-monitoring prompts achieved better than those who were not given any prompts. The self-monitoring group in a Statistics class at the graduate level was also reported to achieve better than the instructor-monitoring group and the control group (Lan, 1996; Lan, et al., 1993). As well, effort regulation was found to have a positive effect on students who were studying computer concepts in a lecture-led course (Chen, 2002).

In general, past research indicated that SRL or some components of SRL (self-efficacy, time and study environment) had positive relationships with student achievement. As well, some components of the SRL (e.g., goal setting, self-monitoring, and effort regulation) were found to have positive effects on students' achievement in various studies. These studies were conducted in different learning environments, such as in classroom, blended or distance learning settings. Therefore, teaching students on the use of SRL may have a positive effect on student's learning, for example, by affecting their motivation beliefs (e.g., self-efficacy, goal orientation, and so forth), their study time management, or influencing their effort regulation more effectively.

Considering the importance of SRL in students' learning, I will discuss about the importance of SRL in distance education in the following section.

The Importance of SRL in Distance Education

One of the characteristics of distance learners is their ability to be an autonomous learner (Moore, 1997). According to Moore, learner autonomy refers to the freedom of choice the learners have in deciding what and how to study. Learner autonomy is a necessary characteristic of a distance learner because autonomous learners have the ability to plan what to learn, find the necessary resources to support their study, and self-evaluate their learning accomplishment (Andrade & Bunker, 2009). This means that fully autonomous learners have the ability to determine their study goals and how to achieve these goals. The characteristics of autonomous learners match with the characteristics of self-regulated learners, wherein learners are able to use their thoughts, emotions, and actions to direct their attention to attain their academic goals (Zimmerman, 2008). As SRL has been considered to be an important aspect of academic achievement in a classroom setting (Hofer, Yu, & Pintrich, 1998), it plays even more important

role in distance education setting (Kauffman, 2004; King, et al., 2000; Wang, et al., 2008) where students often have little or no support from their instructor or peers in accomplishing a learning task (Kauffman, 2004).

There are a number of reasons why SRL is important to academic success in a distance education course. One of the importance's of SRL for distance education students is the degree to which SRL affects achievement. Research suggests that students who are more capable of self-regulating their learning are likely to succeed academically (Azevedo, Guthrie, & Siebart, 2004; Zimmerman, 2002; Zimmerman & Martinez-Pons, 1990). As active students who can regulate their own learning in any situation will be likely to achieve better (Wilson, 1997), it is therefore expected that distance learners who self-regulate their learning will also succeed in their study.

Another reason is the possibility that the SRL ability could improve the chance of a student to complete a distance education course. Past research indicated that student attrition has been a big problem in distance education. The rate of student retention in distance education has always been low compared to that in conventional higher education institutions (Belawati, 1998; Fozdar, et al., 2006; Moody, 2004; Simpson, 2004). In fact, the attrition rate was found as the major obstacle in distance learning (Roblyer, 1999). One of the causes of student attrition might be a lack of confidence to succeed, which was a common problem in a distance education environment (Visser, Plomp, Amirault, & Kuiper, 2002). With regard to the lack of interaction between learners and instructors in this learning environment, students may lose their confidence in their ability to continue their study. Students with low confidence or self-efficacy might be more prone to drop out from studying in a distance education setting. Considering the high rate of nonpersistence in distance education, helping students to enhance their SRL ability may possibly help them achieve better academically. Furthermore, better achievement might encourage distance learners to be more persistent in their study.

The Importance of Students' SRL at UT

Enhancing SRL of students at UT is considered important for several reasons. First, UT is the only university in Indonesia that solely operates in a distance education mode. This delivery method of teaching contributes to a dramatic change in the students' role at UT, because the nature of distance education is totally different from the traditional teaching learning process in

Indonesia. The unfamiliar learning environment could hinder the success of distance education students at UT.

Second, as people in many South East Asian countries, most Indonesians are used to a very structured classroom environment, where they are considered as passive learners (Purdie, Hattie, & Douglas, 1996) and expected to listen to the teacher's instruction and respond to the teacher's questions (Ajisuksmo & Vermunt, 1999; Littlewood, 1999; Park, 2000), as well as take notes during lectures (Park, 2000) and do what the teachers asked them to do. Indonesian believes that a teacher is the authority in the classroom who should be listened to and obeyed. Teachers in this society are considered to be the most knowledgeable persons who are responsible for students' learning. These cultural habits influence students to be depended to the teacher's instruction and supervision in learning. Since teachers are viewed to know everything, students are not used to find more information from other sources, unless they are told to do so, which make them not accustomed to control their own learning. These characteristics are in contrast with those of self-regulated learners who take control of their own actions in learning (Pintrich, 1995). In the situation where the teacher directs and guides students' learning, students may not be encouraged to use or develop their self-regulatory skills (Boekaerts, 1997).

Moreover, as UT's students come from both urban and rural areas including from remote islands, many students need to study independent of the tutors for most of the time. It is a necessary quality to be an independent learner at UT because students have restricted time to regularly meet face-to-face with the instructors or tutors. Due to these circumstances, many of UT students must solely study the print based learning materials and never participate in any tutorial. On the other hand, among various modes of tutorial, online tutorial is regarded as an essential, appropriate learning support provided to improve the interaction between UT and its students. Online tutors thus act as the bridge between the students and the educational institutions in facilitating student learning. Nonetheless, not all courses have been complemented with online tutorials. For example, in the semesters of 2011.1 and 2011.2, only 62% and 49% courses-related tutorials were offered compared to the number of courses offered (the Examination Center, 2012d).

Therefore, online tutorial may still be regarded as relatively new to many students although this learning support was provided since 2002. For example, only 23.5% of the total number of students who were registered in the first semester of 2011 participated in online

tutorials (Prasetyo, personal communication, April 29, 2011). As the majority of UT students has limited interactions with their tutors, it is important for these students to have the abilities to self-regulate their learning. Many of these students perhaps still need to learn how to self-regulate their learning considering that students are supposed to determine their own study period. That is, they may need help in determining a study schedule as well as deciding when to study the learning materials and how much time to spend studying each course material.

Furthermore, as in any other open universities, most of UT's students are working adults with various professions. For example, among almost 600.000 students enrolled at UT in the first semester of 2009, almost half of the students (42%) are in the 30–44 age groups (Zuhairi & Budiman, 2009). This group of students falls into the first group of students mentioned by Wilson (1997), which are those who have left school for years and more familiar with the teacher-centered instruction. This means, many of UT students may not be accustomed to regulating their own learning.

UT students were also found to have an average score of self-directed readiness, measured by using Guglielmino's SDLRS (Andriani, 2003; Darmayanti, 2000; Puspitasari & Islam, 2003). This means that students may have the potency to be successful in their self-directed learning, but they are not fully ready to take responsibility for their own learning in terms of deciding what to learn, planning, performing, and evaluating their learning process (Guglielmino, et al., 2004). The SDLRS measured students' readiness or general potency for self-directed learning (i.e., deciding what to learn, planning, performing, and evaluating their learning process), but it did not actually measure their perceived ability to regulate their learning in a specific course. Thus, one who has the potential to learn self-directedly does not mean to automatically use her potency to self-regulate her learning unless she is motivated to do so. This means that students who scored higher on the SDLRS may not use SRL more when studying a particular course if they do not have the willingness to do so.

UT students were also found to have poor study habits (Juleha, 2002; Nugraheni & Pangaribuan, 2006). For example, among 273 respondents of a study on study habits, the majority of the students (62%) reported not to study regularly (Juleha, 2006). Approximately one third of the students usually studied around 1-2 hours (38%) every day, which is barely enough for independent study and this will likely result in low achievement. The university required students to study at least 3-6 hours each week for a 3 hour credit so that they need to study

regularly every day if they take 12-15 hour credits (4-5 courses). Hence, UT needs to provide students with support that can help them regulate their learning. Providing support for enhancing students' SRL might probably enhance their self-efficacy, which may increase their motivation to achieve better.

In addition, many studies on the SRL concluded that SRL seems to have a positive relationship with academic achievement in the western community. Studying about students' use of SRL in Asian countries, specifically, in Indonesia might yield different results. Because SRL is very logically important to students' learning, it would be interesting to find out whether the concept of SRL applies to UT.

The Intervention for Enhancing SRL

Despite the acknowledgment of the importance of SRL in an academic setting, many students in this era of advanced technology do not have the skills to regulate their academic learning very well (Hofer & Yu, 2003; Kauffman, 2004; Zimmerman, 2002). Since not all adults can self-regulate their learning, it is necessary to provide intervention in learning strategies to help students become aware of various learning strategies (Andrade & Bunker, 2009).

Research indicated that self-regulatory processes can be taught in order to help enhance students' motivation and achievement (Pintrich, 1995; Zimmerman & Schunk, 1998). Students engaging in metacognitive activities (e.g., self-assessment, self-monitoring) seemed to have their learning enhanced (Hofer, et al., 1998; Lin, 2001). Because students may not engage in metacognitive or self-regulation activities spontaneously or voluntarily, instructors therefore should encourage students to employ self-regulation activities in order to enhance their learning.

Learning strategy intervention or training can be provided to distance learners as a learning support in the initial stage of their study. However, changing the existing students' study skills could be very difficult since they have already acquired and used certain study skills for many years. That is, older students may be more resistant to change (Hattie, Biggs, & Purdie, 1996). Likewise, although students have the knowledge about these strategies, this does not mean that they will automatically utilize the strategies (Hofer, et al., 1998; Lin, 2001). Hence, it is necessary to learn about effective ways to teach learning strategies and the impact of these strategies interventions or training on students' learning.

According to Hofer et al. (1998), the design of an intervention to teach learning strategies should consider (1) the scope of the program, (2) the content of the program, and (3) the timeframe of the program. They argued that using multi strategy programs might be better at teaching learning strategies in a college setting rather than focusing only on one or two basic strategies, such as how to use mnemonic in studying or how to underline in reading. Multi strategy programs include cognitive, metacognitive, and motivational strategies. All of these strategies combined are expected to be more effective in teaching students both the "skills" and the "will" to use the strategies properly. In addition, these authors argued that a semester-long course might be better in helping students develop their SRL skills than a shorter term program.

Hattie and colleagues (1996) conducted a meta-analysis of 51 research studies on learning skills interventions. The interventions included in the review encompassed an innovation that (a) was not what the teacher(s) intended to do in teaching the course, (b) required an experimenter to design and evaluate the intervention, (c) involved an experimental design that covered the evaluation of the effects of the intervention, and (d) emphasized on independent variables that were intended to enhance students' performance. Included in the analysis were interventions covering cognitive, metacognitive, and affective skills. Cognitive interventions included programs that aimed to develop and enhance specific skills, such as underlining, note taking, and summarizing. Metacognitive interventions focused on self-management of learning, including planning, implementing, and monitoring one's learning efforts. Affective interventions covered noncognitive aspects of learning, such as motivation and self-concept. The purpose of the meta-analysis study was to identify interventions' characteristics that were likely to lead to students' success.

Based on the meta analysis conducted by Hattie, et al., interventions were more successful (more than 50% effective) when teaching affective measures than performance measures (33% effective). It was also found that study skills training seemed to be more valuable to reduce anxiety than to enhance learning. The study skill interventions that were reported seemed to have better impact on the affect of the university students and adults than on their performance outcomes. Thus, training on motivational aspect is important because students need the "will" as well as the "skills" if they are to continue to use the learning skill strategies after training.

However, not all trainings failed to have an effect on students' achievement. Training on learning and motivational strategies did result in increased Grade Point Average (GPA) of college students (Tuckman, 2003) and have positive effects on learning results of distance learners (Wang, et al., 2008). Training on the SRL was also found to be facilitating undergraduate students' learning in a hypermedia environment (Azevedo & Cromley, 2004). Based on the average GPA of students in the training group, the findings in Tuckman's study indicated that the students were able to transfer their newly learned learning strategies to other courses. Wang et al. suggested that students should be provided with appropriate training about learning strategy to make them aware of different strategies that can be used to enhance learning. The results of the study conducted by Azevedo and Cromley also indicated that students who received the SRL training achieved a better understanding of a complex science topic than did students in the control group.

In summary, research concerning interventions on learning strategies seemed to indicate that trainings or interventions on learning strategies that included cognitive, metacognitive, and motivational strategies might be able to help enhance student learning. Moreover, if the students were expected to use the learning skills, interventions should not only be intended to enhance their learning skills but also to cover motivational aspects.

The Intervention on Time Management

Research indicated that high achievers students seemed to have a better time management skills. Studies in the college settings indicated that time management skills seem to have positive relationships with students' learning (Britton & Tesser, 1991). Higher achieving students were reported to be more likely to manage the scheduling, planning, and execution of their study time (Holder, 2007; Puzziferro, 2008). Successful students, who were likely to persist, tended to score higher in time and study management (Holder, 2007). Moreover, it was found that efficient use of time tends to lead to better performance (Lynch & Dembo, 2004). Lynch and Dembo argued that self-regulated learners are able to manage their time due to their ability to estimate the time needed to accomplish their learning tasks. Self-regulated learners know how to manage their time because they pay attention to the deadlines and know how much time they need to complete an assignment (McGivney, 2004). On the other hand, students with less skills in time management were reported to be more likely to achieve less or even withdraw from their study

(Roblyer, 1999). Thus, helping students to manage their time is expected to positively influence their efforts to complete the course.

However, research reports with regard to the provision of online time management tools in an academic setting, which is one of the topics examined in this study, were very limited. Among the few studies, Terry (2002) examined the effects of a web-based time management practices on SRL and academic self-efficacy. Participants of her study were 64 online learners enrolling in an educational psychology course. Participants were assigned into four groups, which were all provided with a web-based time management tool for two weeks. Four groups of students were provided with different kinds of feedback in terms of the frequency (daily or weekly) and the richness of the feedback (lean or rich feedback). All groups should determine their own goals regarding how they would plan to spend their time every day and enter their activity plans into the time management tool. Likewise, the students were also asked to monitor how they actually spent their time and enter the duration of the time spent into the tool in order to receive appropriate feedback. She found a significant relationship between the time management behaviors and the SRL of the college students. However the provision of feedback, both for the types of feedback and for the schedules of feedback, yielded no significant results on time management behavior and self-efficacy (terry, 2002). The study was not designed to measure students' achievement.

Lynch & Kogan (2004) studied four online workshops which were conducted to help college students improve their (1) time management, (2) textbook reading, (3) memory and concentration, and (4) overall academic performance. The workshop on time management was the most frequently accessed among the four workshops offered, indicating that the students might find the workshop helpful in identifying strategies that they can integrate into their regular study schedules (Lynch & Kogan, 2004). Nonetheless, these authors made no attempt to study the benefits of applying this tool on students' learning.

Both of the above studies on time management were utilizing Web-based or online interventions, therefore, it is expected that the findings could be applied in a distance education setting. However, both studies did not examine the effects of the intervention on students' learning although the time management intervention may be used to enhance students' SRL and time management skills. Thus, for this dissertation I have adapted the function of the Terry's time management tool without providing different feedback for each group, since feedback did not

result in significant results in her study. I modified the online medium that Lynch and Kogan used to provide an online time management tutorial to students. In order to facilitate students in developing regular study habits, students in my study were provided with an online guideline on study time management. After studying the guideline, students are expected to plan their study time by determining weekly learning goals of a certain course and monitor their actual study time.

The Intervention(s) for UT

Based on the literature review, factors regarded as important to student success in distance education were time management skills and motivational support. Since many of UT students are working adults, they may have the same time management problems in dividing their time for job related activities, studying and for other responsibilities. Regarding the history of low achievement combined with the poor study habits of many of UT students, the university is required to provide timely learning support to its students. Thus, UT needs to provide interventions or institutional support that can facilitate its students in improving their study habits and time management skills. This way, the institution can educate students about the importance of studying regularly in order to improve their academic achievement. Furthermore, as working adults who had left school for many years, the intervention might help in enhancing their self-efficacy as well.

More importantly, UT has been criticized as demanding too much of its students' independent learning, with very little institutional support to continue their study. In correspondence with this issue, Darmayanti (2005) found that learning strategy intervention can enhance students' readiness for self-directed learning at UT. The learning strategy intervention was found to significantly contribute to the increase in the self-directed learning of the students (Darmayanti, 2005). This finding indicated that many UT students may need to be guided in their study, or at least provided with information or training about learning strategies that may enhance their academic achievement which will in turn increase the chance for course completion. Thus, there is also a possibility to increase students' persistence at UT by enhancing the students' use of SRL.

It is then necessary for UT to provide interventions that not only afford the students with the knowledge about how to manage their study time but also offer information on effective

learning strategies. If the intervention is successful in enhancing students' use of learning strategies, it may also be able to improve students' self-efficacy of passing a course. In this way, the interventions might indirectly help encourage students to continue to pursue their higher education.

The Intervention on Learning Strategy

The first intention of this study is to provide an intervention that can help enhance students' use of SRL, which in turn, may improve their achievement. Considering the low rate of students' performance at UT, the information on SRL processes that need to be included in the intervention are those related to the metacognitive self-regulation (e.g., planning what to study and monitoring how well one's reading or completing the coursework).

Instead of developing a new intervention material, I made an attempt to review the existing interventions that relate to the intent of the study, which was to enhance students' use of SRL. One of the interventions reported to enhance UT students' needs to learn was the CERDAS (SMART, in English) Learning Strategy developed by Darmayanti (2005). I was especially interested to review this intervention since it had been implemented to UT's students. Moreover, it was found that students who received the learning strategy intervention gained higher self-directed readiness scores after one semester (Darmayanti, 2005). Likewise, a follow up study indicated that the intervention contributed to the increase of students' self-directed learning, especially on the component of learning needs (Darmayanti, 2008).

In Darmayanti's study (2005), the CERDAS learning strategy was developed and implemented to examine the effects of the learning strategy intervention in combination with modeling intervention on students' self-directed learning and achievement at UT. The intervention on the learning strategy was intended to teach students about how to plan their study smartly, by learning the importance of using time effectively as well as the importance of setting realistic, attainable, accurate, and specific learning goals. Thus, after examining the content covered in the self-guide, I decided that the intervention could be used to help improve UT students' use of SRL. However, some of the content of the CERDAS learning strategy intervention should be revised, to serve the purpose of this current study. The content of the intervention material and what revisions had been done to meet the purpose of my study were discussed in Chapter III (see subheading Materials).

In addition, UT should consider various ways to provide any interventions for students. Darmayanti (2005) mailed her interventions to students in a form of a booklet. Although a booklet is convenient to be read and carried around, mailing an intervention to students might not be the best delivery method in terms of providing timely support to a large audience. According to Fozdar and Kumar (2007), the postal systems in developing countries still have problems with regard to the delay and reliability of the system in delivering information. These problems can hinder the delivery of intervention aimed at students. Thus, providing printed intervention or training to be mailed to a wide audience in all regions could be very inefficient. For example, the university should reprint the booklet every semester for every new enrollment in every regional center who might be interested to buy the self-guide.

On the other hand, with the availability and accessibility of ICT in Indonesia at present, UT should be able to offer more timely learning support services to all students in different regions. In this case, providing intervention materials that can be accessed by interested students from the university Web site could be more practical. Offering learning support services via the university's website would be reasonable considering that many UT students may have easy access to the internet. The Web-based support service provision seems more logical when we take into account the increasing number of internet users in Indonesia. According to InternetWorldStats (2010a), the number of internet users in Indonesia represented 12% in the population (30 million out of 242 million), and still increasing. This trend may also indicate that the number of UT students who can access the Internet will be likely to increase in a few years to come.

The Intervention on Study Time Management

In consideration with the irregular study habits of UT students, it is also important to teach the students about time and study management (e.g., scheduling study time, planning how long to study, and managing the implementation of the schedule). Thus, aside from providing information that is expected to enhance students' use of SRL, it is also important to provide a study time management intervention as a supplement to the learning strategies intervention. As importantly, students should be provided with the opportunities to practice the SRL processes if the students are to internalize the SRL processes into their study habits (Schunk, 2008). In this case, it is important to provide an intervention that students can use to practice monitoring their

learning goal accomplishment and use of study time. By monitoring their actual study time, it is expected that students will learn how much time they spent studying. Accordingly, students can adjust their study habits and may then be motivated to study on a regular basis.

It is also thought to better provide the study time management intervention in the form of a Web-based tutorial. This tutorial must provide students with the opportunity to practice setting up learning goals and planning study time that they have learned from the self-guide of learning strategy. Providing interventions in a web-based format will allow the participants to make use of the systems during their own time and their own pace, as well as allow the researcher to monitor whether the students utilize this tool or not.

If this study is successful, the intervention(s) can be adapted by the university to implement so that interested students can have easy access to the electronic learning support services.

The Proposed Theoretical Framework

All students studying at the undergraduate level must have sufficient academic ability and enough motivation, either internal or external, to be able to earn a degree. However, not every student has high self-efficacy to accomplish her academic goal. Perhaps many of the students also have not acquired the skills to manage the time needed to juggle between studying and making other important responsibilities to be successful in a distance education learning environment. It is thus necessary for the university to provide support services to educate the students about the importance of using effective learning strategy and applying study time management in their study in order to improve their academic achievement.

Accordingly, the first intention of the study is to provide an intervention on learning strategies about the importance of using time effectively and the importance of having realistic, attainable, accurate, and specific learning goals when studying a specific course. It is expected that the intervention can help the students in thinking about setting their own learning goals which may help them attain the goals. The second intention is to provide an intervention regarding the importance of setting a weekly schedule to study and monitor the accomplishment of the learning goals, which is complemented with a tool where they can document their weekly learning goals as well as monitor the attainment of the goals. In this case, it is important that the learners plan what topic to study in each week and when and how long the study will take place.

Planning study time in advance may lead to efficient use of time. Efficient use of time, in the end, will likely lead to better performance (Lynch & Dembo, 2004) because planning and managing study time can help learners attain their learning goals (Dabbagh & Kitsantas, 2005). In addition, by accomplishing weekly learning goals, students may be helped in ensuring that they study the course materials in regular basis.

In specific, this study emphasizes the importance of understanding effective learning strategies (i.e., introduced by the learning strategies intervention) and managing study time (i.e., introduced by the time management intervention). In addition to learning about the effectiveness of the learning strategies and time management interventions, it is also important to learn about whether students with higher levels of SRL achieve better in their academic performance. Thus, the third purpose of this study is to learn about how students with different levels of SRL differ in their academic achievement and course completion.

This study relies on the model of SRL proposed by Zimmerman (2002; 2008) but uses the areas of regulation proposed by Pintrich (2004) to explain the self-regulatory processes to be examined. The SRL model includes three phases: forethought (before learning), performance (during learning), and self-reflection (after learning). Specific strategies that occur within each of the three phases included (1) goal setting and planning study time (before learning), (2) self-monitoring of goal attainment and study time (during learning), and (3) self-evaluation (after learning).

Before Learning

Intentionally or unintentionally, adults learn with certain goals in mind, at least with a distal learning goal(s) such as getting a good grade, earning a degree, or having professional development. As well, adults have already acquired certain learning strategies and learning habits that they have been using for years (Wilson, 1997), which may be effective or ineffective to be used for studying at a distance. Thus, in order to understand the students' use of SRL before studying, their SRL was measured before the experiment was administered, especially concerning their (1) control of learning beliefs and self-efficacy and (2) metacognitive strategies and resource management. Then, they were provided with the intervention on learning strategy and/or intervention in study time management.

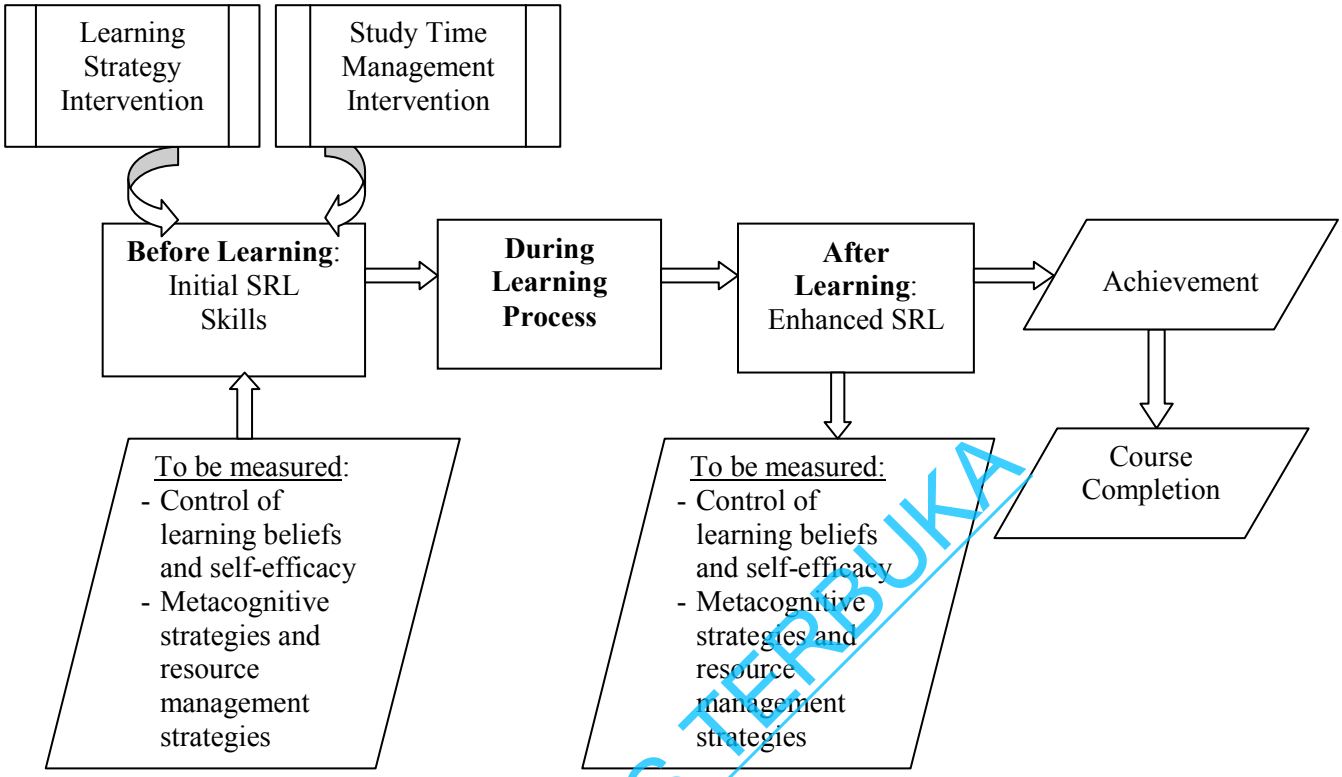

Figure 2. The proposed research model

From the learning strategy intervention, students learn that in order to effectively achieve the distal goal(s), they need to have short-term goals, called proximal goals (e.g., finish reading and summarizing chapter1 in Week1). A goal is something that a person is consciously trying to achieve (Schunk, 1990). The act of setting goals—in this case is proximal goals—is undertaken during the forethought phase (Pintrich, 2004; Zimmerman, 2002; 2008) or before learning takes place. Goal setting, according to Schunk, includes activities to establish a learning goal and modify it if necessary as the learning process progresses.

After reading the learning strategy intervention, students will know the importance of having proximal learning goals and determining learning goals which are specific, measurable, attainable, and realistic. When students determine their own proximal learning goals (e.g., summarizing chapter1 in Week1) it is expected that they will put more effort to accomplish the goals. Thus setting proximal goals may increase the opportunity in achieving them successfully

(Zimmerman, 2002), because students are assumed to have the internal motivation to achieve the goals. The proximal goals serve as the standard to be achieved during learning.

Likewise, after reading the time management intervention, students will know the importance of determining weekly learning goals. Students in this study, then, were encouraged to set weekly learning goals and the duration of time they plan to achieve the weekly goals for a specific course (i.e., Introduction to Social Statistics). It was assumed that setting attainable weekly learning goals may help students address procrastination and time management (Andrade & Bunker, 2009). They were encouraged to use absolute standard (Schunk, 1990) by determining the number of pages they are going to study in a specific week(s). Basically, students in two of the four research conditions were expected to record how many pages they study each week and how much time they spend studying. They were also asked to identify the topics they were studying.

During Learning

During the learning process phase, students were studying the course materials and some of them were supposed to practice the knowledge about how to monitor whether they were successful in accomplishing their own learning goals (e.g., studying chapter #2, 35 pages). During this process, self-regulated learners were expected to self-observe their performance by recording their behaviors or activities to achieve their learning goal. The desired behaviors were the actions toward achieving the goals determined during the forethought process. Self-observation included recording one's own desired behaviors, in terms of time and duration of each learning period (Schunk, 1990). By knowing their weekly progress, it was expected that students would perform better consequently. According to Bandura (1991), self-observation could only enhance one's performance when she obtained clear evidence of her learning progress as a result of the self-recording activities.

The intervention also included encouragement for students to set a time to study regularly. For example, it was mentioned that every individual will likely to feel satisfied when one can accomplish her own goals successfully. They were encouraged to study regularly, put more efforts to study, and have higher self-efficacy to complete their study, so that they will be likely to have a bigger chance to be successful in their study and complete their study. They were also told that they can modify their learning goals during and after the learning process when

their self-observation indicates that they had not achieved their own learning goals in a specific week(s) or achieved the learning goals too easily. It is hoped that when a student realized that she can achieve a certain realistic learning goal; she will be likely to set a sequential goal or enthusiastically perform the sequential goals and put some efforts to achieve the goal. Bandura emphasized that self-monitoring should at least record the time and the duration of the occurrence of the desired behaviors on a regular basis.

Thus, it was expected that a number of participants in this study would not only acquire the habit of studying regularly every week but were also able to evaluate their weekly learning goals and improve their ability in setting more achievable learning goals.

After Learning

During this phase of learning, some students practiced how to evaluate the accomplishment of their weekly study plan for studying a particular course. In this case, they gave some reasons as to why they were successful or not successful in attaining their study plan. Self-observation is followed by self-judgment where students evaluate their performance against certain criteria, such as personal learning goals and course objectives (Andrade & Bunker, 2009). Many students with poor study habit can learn much from the self-observation process about how much study time they waste on non-academic activities (Schunk, 1990). Accordingly, it is expected that students can self-evaluate themselves and change their behavior in order to try to attain the pre-determined learning goals. In this current study, students who received the study time management intervention were asked to evaluate their actual learning (i.e., the number of pages studied and topics studied) and the actual study time (i.e., how long) by comparing to their own weekly learning goals determined in the previous week.

Self-judgment is usually followed by self-reaction, which involves a feeling of satisfaction regarding one's performance (Schunk, 1990). Students' motivation will improve when they believe they have the ability to succeed and increasing effort will help them accomplish the learning task successfully. With increased self-efficacy, students might put more efforts to continue pursuing their learning goals. On the other hand, when a student feels disappointed with her own performance, she could either study harder to achieve better next time or study less for feeling incapable of accomplishing a specific learning task. When she thinks that her learning goal on specific week is too ambitious or too difficult to achieve, she could

modify the learning goal (e.g., when reading one chapters of 50 pages in one hour is not achieved, she can add another hour to study the following week to complete the learning goal). In this study, students were expected to give the reasons if they fail to attain the learning goals and explain what they will do to avoid the same problem.

After the learning process, students' levels of their use of SRL in the two scales were measured again in addition to obtaining the measures of student achievement and course completion. If the interventions are successful in enhancing students' use of SRL at UT, it is expected that it can have an impact on improving the students' study habits, at least with regard to enhancing the regularity of their study time. When students maintain the habits of studying regularly, it is likely that they can achieve their learning goals better. Achieving their learning goals is expected to enhance their confidence to perform better in the course. Moreover, better performance is likely to enhance their chance to complete their study at the university.

Research Hypotheses

Based on the purposes of the study and the literature review concerning the related research variables (i.e., SRL, academic achievement, and course completion), there are five hypotheses to be assessed in this study which correspond to the three aforementioned research questions.

1. Did students who were provided with the interventions differ in their levels of SRL, achievement, and course completion compared to students not provided with the training materials? There are three hypotheses to be tested for the first research question, as follows:

   (1) Students who were provided with the interventions gained higher SRL than those who were not provided with the interventions.

   Students who received training in the use of SRL strategies were found to have significantly increased the use of SRL when learning with hypermedia which contributed to the shift of their mental models (Avezedo & Cromley, 2004). Intervention on study skills also seemed to have positive effects on students on the development of motivation and learning strategy skills (Hofer & Yu, 2003). As well, past research indicated that time management interventions help students improve their learning strategies (Lynch & Kogan, 2004; Terry, 2002).

(2) Students who were provided with the interventions achieved better in the final examination.

Training on learning and motivational strategies resulted in an increased GPA in college students (Tuckman, 2003). Past research also suggests that students who were more capable of self-regulating their learning were likely to succeed academically (Azevedo & Cromley, 2004; Azevedo et al., 2004; Chen, 2002; King, et al., 2000; Pintrich & DeGroot, 1990; Pintrich, et al., 1993; Zimmerman, 1990; Zimmerman, 2002; Zimmerman & Kitsantas, 1997; Zimmerman & Martinez-Pons, 1990).

In addition, students who received higher grades in online courses were reported to be more likely to control the scheduling, planning, and managing their study time (Puzziferro, 2008). Students who were able to manage their time tended to perform better in their courses (Pintrich, et al., 1993). Time management was also reported to contribute to the students' cumulative GPA of the college students (Britton & Tesser, 1991).

(3) Students who were provided with the interventions had a higher rate of course completion.

Previous research reported that successful students, who were more likely to persist in their study, appeared to score higher in time and study management (Holder, 2007).

2. Did students with higher levels of SRL also have higher levels of achievement? For this research question, the hypothesis is as follows:

(4) Students with high levels of SRL achieved better in the final examination.

Past research indicated that students with higher levels of self-regulated learning tended to achieve better academically (Azevedo, et al., 2004; Lynch & Dembo, 2004; Pintrich & DeGroot, 1990; Zimmerman, 2002; Zimmerman & Martinez-Pons, 1986). Self-efficacy was reported as the best predictor of students' achievement among other SRL variables (Lynch & Dembo, 2004) and successful students who have higher scores in their study seemed to also have higher score in self-efficacy (Holder, 2007).

3. Did students with higher levels of SRL also have a higher rate of course completion? For this research question, the hypothesis is as follows:

   (5) Students with high levels of SRL have a higher completion rate.

   Students who were reported as likely to register for future distance courses tended to have higher scores on study skills and goal setting (King, et al., 2000). Holder (2007) also found that students who persisted in their study seemed to have higher scores in emotional support and self-efficacy, as well as in time and study management of the SRL. Higher motivational beliefs and the ability to manage time were assumed to have an influence on students to persist in their study. As Schunk (1990) argued, students' motivation will improve when they believe they have the ability to succeed. Accordingly, enhanced motivation will likely influence their study effort and increasing effort will help them accomplish the learning task successfully. Past research also found that students who could not manage their time well were more likely to discontinue their study (Doherty, 2006; Fozdar, et al., 2006; Roblyer, 1999).

CHAPTER THREE
METHOD

The purpose of this study was threefold, specifically: (1) to find out the effects of a learning strategy intervention on students' use of SRL, achievement, and course completion in a distance education setting, (2) to find out the effects of a time management intervention on the students' use of SRL, achievement, and course completion, and (3) to find out whether students with higher levels of SRL also have higher levels of achievement and course completion.

To serve the purposes of this study, an experimental study involving randomly assigned students who were registered in three colleges at UT was conducted. The study was carried out in the first and second semester of 2011 or known as the 2011.1 and 2011.2 semesters. The semester at UT officially started a week after the registration period ended, which was on the second week of March for the 2011.1 and on the third week of September for the 2011.2. This research was conducted around two weeks prior to the 8-week period of the tutorial sessions offered at UT. At UT, tutorials (face-to-face and online tutorials) for the Non Teacher Education Programs were offered on an optional basis in eight sessions to support student learning. The tutorial sessions begin a week after the end of the registration period and end a week before the final examination period. These students thus officially had 10 weeks to study the learning materials from the end of the registration period to the final examination period. However, they are encouraged to register and study the course materials on their own before the tutorial sessions begin.

The target participants of this study were students who have a "valid" email address in the university's student record system (SRS). Considering that they have a supposedly valid email address in the SRS, these students were assumed to have an access to the Internet and were expected to sign up to enroll in the online learning strategy tutorial designed for this study.

Research Design

This study can be considered as an exploratory study with the purpose of identifying effects, relationships and methods that could be investigated more thoroughly in future study. In a study such as the present one, there are many potential of sources of error due to the limited previous information about methodologies that can be carefully controlled in this environment.

Despite the exploratory nature of this study in this education setting, this study employed a randomized control-group pretest-posttest design (Dimitrov & Rumrill, 2003) as described in Table 3 with two independent variables (learning strategy intervention and study time management intervention). Each independent variable consisted of two levels (with and without interventions).

Table 3

Representation of Research Design

Groups	Random	Pretest	Intervention	Posttest
Experiment 1 (Group 1)	R	O1	X1+X2	O2+O3+O4
Experiment 2 (Group 2)	R	O1	X1	O2+O3+O4
Experiment 3 (Group 3)	R	O1	X2	O2+O3+O4
Control (Group 4)	R	O1	-	O2+O3+O4

Note: R = Random Assignment; O1 = Learning Strategy Questionnaire for Pretest;
O2 = Learning Strategy Questionnaire for Posttest; O3 = Final Examination Score on a particular course
O4 = Course Grade on a particular course; X1 = Intervention on Learning Strategy
X2 = Intervention on Study Time Management

Students who were willing to take part in the study and responded to an online learning strategy questionnaire were pre-randomly assigned into four groups of research conditions. The first group of students (Group 1) was provided with a Web-based Learning Strategy Intervention and a Web-based Study Time Management Intervention. The second group of students (Group 2) was provided with the Web-based Learning Strategy Intervention only. The third group of students (Group 3) was provided with the Web-based Study Time Management Intervention only. The last group of students (Group 4) as the Control Group did not receive any treatment. In this study, the online tutorial specifically designed for the research groups of 1, 2, and 3 were called the Learning Strategy Tutorial 1, the Learning Strategy Tutorial 2, and the Learning Strategy Tutorial 3.

Research Variables

Independent Variables

There were two independent variables in this study. The first independent variable was the provision of a Web-based Learning Strategy Intervention with two levels: with and without the provision of the intervention. This learning strategy intervention was specifically designed to

inform students about the importance of using time effectively and the importance of setting realistic, attainable, accurate, and specific learning goals.

The second independent variable was the provision of Study Time Management Intervention, with two levels: with and without the provision of the intervention. This intervention refers to a Web-based tutorial on study time management. This intervention was complemented with a tool or an instrument purposely designed to be used by students to record their weekly learning goals and study time and to document the attainment of the learning goals and their actual study time.

Dependent Variables

There were three dependent variables examined in this study. The first dependent variable was students' perceptions of their use of SRL when studying a particular course. This variable was named as students' use of SRL in this study. SRL in this context refers to the extent to which a student directs her motivation and uses her metacognitive and behavioral strategies to attain her learning goals (Zimmerman, 1990). With respect to the definition of SRL, this study included the metacognitive, motivational, and behavioral strategies of SRL. Examples of metacognitive strategies to be measured are goal setting and goal attainment monitoring when studying. Examples of motivational strategies are perceptions of self-efficacy and control of learning beliefs. Examples of behavioral strategies are time and effort planning and monitoring of time use and effort to study. The second dependent variable was student achievement (i.e., student scores on the final examination of a certain course). The third variable was course completion (i.e., a passing or a non passing status on that specific course).

Measures

The students' use of SRL was measured by using five subscales of the MSLQ (Pintrich, et al., 1991). The original questionnaire consisted of two scales (motivational scale and learning strategies scale) covering 15 subscales (81 items). For the purpose of the study, only five subscales of the MSLQ consisting of 36 items were used (see Table 4).

The *Motivational Scale* of the MSLQ included subscales of *Control of Learning Beliefs* and *Self-Efficacy*. This motivational scale was to measure how a student thinks about her probability of success in a course and her self-confidence in mastering the course content

(Pintrich, et al., 1991). According to Pintrich et al., a high score means that an individual believes that she will do well in a specific course and feels confident that she will be able to comprehend the course material.

Table 4

The scales of the MSLQ used in this study

Scale	Subscale	# Item	∑ Item
Motivational Beliefs	Control of learning beliefs	1, 4, 7, 10,	4
	Self-efficacy	2, 3, 5, 6, 8. 9, 11, 12	8
Learning Strategies	Metacognitive self-regulation	13, 15, 17, 19, 22, 23, 24, 25, 27, 32, 34, 35	12
	Time and study environment	14, 18, 21, 28, 29, 30, 33, 36	8
	Effort regulation	16, 20, 26, 31	4

The *Learning Strategies Scale* of the MSLQ that was employed in this study included subscales of *Metacognitive Self-Regulation*, *Time and Study Environment*, and *Effort Regulation*. *Metacognitive Self-Regulation* included items regarding planning, goal setting, and monitoring the accomplishment of the goals when studying. This scale was to measure how often a student thought of what she was reading or studying as she did her coursework (Pintrich, et al., 1991). A high score means that a student attempted to make a plan for studying and checked on whether she understood the course material. *Time and Study Environment* included items regarding scheduling, planning, managing one's study time, and arranging a place to study. This scale was to measure of how well a student managed her time and schedule and arrange a place to study (Pintrich, et al., 1991). A high score means that she had a method for managing her schedule and tried to study in a place that is conducive to finish her coursework. *Effort Regulation* covered items regarding managing one's commitment when facing difficulties in learning. This scale was to measure a student's willingness to work hard on her coursework, even when she encountered difficult reading or learning tasks (Pintrich, et al., 1991). A high score means that she tried hard and put a great deal of effort in her studying.

The 7-scale questionnaire used in this dissertation consisted of 36 items. Each item composed a statement with a seven-point Likert scale format with response options ranging from 1 (not at all true of me) to 7 (very true of me). The score of a subscale was calculated by averaging the scores of the items that constitute that subscale up (Pintrich, et al., 1991). For

example, Self-Efficacy subscale has eight items. An individual score for self-efficacy would be computed by summing the scores of the eight items and taking the average. The rating for the negatively worded items must be reversed before an individual score was calculated (Pintrich, et al., 1991). For example, if an individual scored a 2 on a negative item, the score should be reversed to a 6 before the score for the related subscale was calculated. Thus, the scores for the subscales in the MSLQ were calculated based on the positively worded versions of the items. In general, a higher score such as a 4, 5, 6, or 7 was categorized better than a lower score like a 1, 2, or 3 (Pintrich, et al., 1991). Moreover, according to Pintrich and friends, a student was considered to be doing well when she obtained above 3 scores in each subscale.

The questionnaire used in this study was the Indonesian translation of the subscales of the MSLQ with some adaptation for distance education setting. For example, the words 'in a class like this' in item #1 in the original MSLQ was replaced with the words 'in a course like this.' The questionnaire was administered to all of the research groups as an e-survey. It was administered before (pretest) and after the experiment (posttest) in order to measure the differences in the students' use of SRL in the experimental and control groups before and after the implementation of the interventions. The MSLQ in this current study was called the Learning Strategy Questionnaire (Bahasa Indonesia: Kuesioner Strategi Belajar) in order to be easily remembered by the study participants. Thus, from now on the MSLQ used in this study would be referred as the Learning Strategy Questionnaire in this paper.

In the context of this study, student achievement was measured by using the students' score on the final examination for a particular course at the end of the semester. Student achievement was measured after the scores on the final examination were obtained from the SRS. Student course completion was measured after the grades, obtained from the SRS, had been announced. Student course completion status was categorized by using the students' final grade of the course. Students who did not exceed the passing grade (received a D or an E) or who did not take the examination were considered as noncompleters. In this case, students who received grades of A, B, or C were considered as completers.

In addition, students' demographic information was also gathered. The demographic questionnaire was administered together with the Learning Strategy Questionnaire to all groups of students before the interventions were administered to the treatment groups. Student demographic information collected was the name, student number, email address, gender, age,

marital status, number of children in care, educational background, job, regional center, year of first registration, program of study, and the number of credits taken at the time this study was conducted.

Based on the responses to the first questionnaire of the combined data (n = 321, consisted of the respondents of the first wave = 91 and the respondents of the second wave = 230), the internal consistency of the total items of the Learning Strategy Questionnaire suggests that the instrument was of a good quality (alpha = .92). The reliability coefficients of the subscales of the questionnaire were: Control of Learning Beliefs (alpha = .65), Self-Efficacy (alpha = .89), Metacognitive Self-Regulation (alpha = .82), Time and Study Environment (alpha = .66) and Effort Regulation (alpha = .49). The low reliability coefficients of some of the subscales of the SRL measured by this instrument indicate that some of the items might not be suitable to measure the SRL of Indonesian college students or were considered ambiguous or confusing by the students.

Participants

The targeted population of the study was undergraduate students who were enrolled in the Non Teacher Education Programs at UT in 2011. This study involved students registered in all Regional Centers—UT representative offices located in 37 regions in Indonesia—who had a valid email address recorded in the SRS. It was assumed that these students were likely to have an easy access to the Internet either in their homes, offices, or in the Internet Kiosks available in their neighborhoods. In accordance, they would be likely to have the opportunity to join the online tutorial offered in this study. All students in the targeted audience who had an email address were invited to participate in this study.

By using GPower 3.1, it was calculated that in order to have four experimental groups, this study required approximately 20 students (expected Effect Size = .40, Power = .80, ANOVA, 4 groups) for each of the research conditions. Thus, the total number of the four groups of students was targeted to be approximately 80 students.

Due to the small number of active participants of this study in the term of 2011.1, a second data collection was conducted. Therefore, there were two waves of data collections that gathered two different types of participants as the following.

The First Wave of Participants

The first type of participants was those who participated in this study in the 2011.1 term. These participants were students enrolled in the Introduction to Social Statistics course. The course was chosen because it was a statistics course that was usually considered difficult for many students. It was a required course in eight programs of study in the Faculty of Social and Political Sciences (FISIP) and in two programs of study in the Faculty of Mathematics and Natural Sciences (FMIPA). It was expected that the intervention(s) would have a positive effect on the students' use of SRL, which in turn might enhance their achievement and course completion.

The prospective participants in each group were randomly selected from a pool of targeted students who were registered in the Introduction to Social Statistics course in 2011.1. The recruitment of the students was conducted by means of email. Students whose email address (yahoo, gmail, ymail, hotmail, and work-related email address) was registered in the SRS were considered as the target population. Because UT does not provide an institutional generated email address for registered students, the students themselves create their email address with any open source email provider to be used in communicating with UT. Aside from the invitation email, a notification about this study conduct was also posted on UT's official Web site. Further explanation is presented in the section of Procedure in this chapter.

Around 4,000 students were registered for Introduction to Social Statistics in 2011.1, but only 604 (15%) were recorded to have an email address in the SRS (The Examination Center, 2011a). Out of the 604 students, only about two thirds of the invitation email could be delivered. The undelivered email could be due to invalid email addresses of the students. There was no attempt made to monitor which students read the invitation email.

The number of students who responded to the questionnaire was 185 (response rate = 31%), but only 127 respondents completed the questionnaire (valid response was 69%). However, only 98 students could be regarded as valid respondents (i.e., enrolled in the Introduction to Social Statistic course in 2011.1 in the FISIP and FMIPA). Among them, 67 (91%) signed up to join in the online tutorial designed to provide the intervention(s) for Group 1, 2 or 3. In this case, the number of students between groups was not equal since the group assignment was done before the invitation email was sent to them (see Procedure in this Chapter). As for Group 4, students who responded to the e-survey were automatically considered

as the group members. With the addition of respondents in Group 4, the total number of respondents in the first wave of data collection was 91 students.

Table 5 displays the distribution of students within each research condition in the first wave of participants of the study. This table included students responded to the first Learning Strategy Questionnaire (pretest) who signed up to join the online tutorial for Group 1, 2, and 3 as well as respondents in Group 4. Students in Group 1, 2, and 3 who accessed the Learning Strategy tutorials comprised of 91% of the total respondents in the three groups.

Table 5

The Number of Respondents in Each Research Condition

Group	∑ Respondents	%	∑Respondents Accessed the Tutorial	%
1	24	24.5%	21	87.5%
2	23	23.5%	22	95.6%
3	27	27.5%	24	88. 9%
4	24	24.5%	-	-
Total	98	100%	67	90.5%

The Second Wave of Participants

The second wave of participants involved in the semester of 2011.2. The second data collection was gathered since not all of the students in the treatment groups in the first wave read the intervention material and not all of the students both in the treatment and in the control groups took the final examination. This second data collection was intended to invite more study participants. Thus, the targeted students were extended not only for those enrolled in the Introduction to Social Statistics course. Students invited were those registered in three colleges outside the Teacher Education Program. The three colleges were the Faculty of Social and Political Sciences (FISIP), the Faculty of Mathematics and Sciences (FMIPA), and Faculty of Economics (FEKON). In this case, the prospective participants may have registered in entirely different courses.

The samples were selected from those whose first year of registration was in 2009.2 to 2011.2. These students were considered as relatively new students at UT, who were assumed to be still adjusting to the distance learning system. It is to be noted that at UT, students do not have to register in every semester. For example, they can register in 2010.1 and return in 2010.2 or

2011.1 so that they might still learn how to adjust to study at UT for several semesters after enrollments. As a rule of thumb, students must register for courses at least every three semesters to be regarded as active students.

Based on the student registration data in the three colleges in the semester of 2011.2, approximately 12% of the 87,182 registered students (The Registration Division, 2011a) were categorized to have a supposedly valid email address. These students were considered as the prospective participants for the online Learning Strategy Tutorials and for the control group in the second data collection. As in the first wave of targeted participants, students who were assumed to have a valid email address were then randomly assigned to one of the four research groups at this stage.

In this second data collection, there were 334 students who responded completely to the e-survey. Respondents who were not the intended audience (i.e., registered before 2009.2 or registered in different colleges) were excluded from further analysis. The total number of respondents who completed the Learning Strategy Questionnaire before the provision of the intervention(s) (pretest) and matched the target population was 284. The very low response rate (4%) may indicate that most of the prospective respondents were not interested to take part in this study or they simply did not read their emails in time. This very low response rate was one of the limitations of this study for the participants of the study may have different characteristics with the majority of the students at UT. A very low return rate of survey (3%) also occurred in a recent survey that was officially conducted by UT regarding non returning students (Universitas Terbuka, 2012b). However, the low return rate on the non returning students may be related to the nature of the students, who possibly no longer had the intention to communicate with UT after decided to withdraw (Daryono, personal communication, November 9, 2011).

Table 6 shows the distribution of the valid respondents within the four research conditions. The number of students within each group reflected the number of students responded to the e-survey. The unequal number of students within each group was inevitable because the group assignment was done before the invitation email was sent to the prospective participants (see Procedure in this Chapter). They were assigned to one of the four research conditions regardless of their demographic characteristics.

Table 6

The Number of Respondents Accessed the Learning Strategy Tutorials

Group	∑ Respondents	%	∑Respondents Accessed the Tutorial	%
1	68	23.9%	53	77.9%
2	65	22.9%	47	72.3%
3	71	25%	56	78.9%
4	80	28.2%	-	-
Total	284	100%	156	77%

However, not all respondents who were pre-assigned to be in Group 1, 2, or 3 signed up to access the related online Learning Strategy Tutorial. The percentage of respondents who accessed the related online Learning Strategy Tutorial for Group 1, 2, and 3 were 78%, 72%, and 79% respectively (see Table 6). The proportion of students accessed the learning strategy tutorials in the three groups all together were 77% of the respondents in these groups. Then, only the students who accessed the online Learning Strategy Tutorials would be considered as the group members to be included in further analysis. As for Group 4, students who responded to the e-survey were automatically considered as the group members and would all be included in the data analysis. The number of students who accessed the online tutorials in addition to the respondents who belonged to the control group was 236. Due to the difficulty in validating the students' registration status, only 230 students were included in further analysis.

Students' intention to participate in online learning support seemed not to be very encouraging at UT. Although online tutorial for any courses might contribute to 30% of the course grade, students did not seem to take advantage of the support system. For example, in the semester of 2011.2, the three colleges offered online tutorials for 361 courses with 93,958 students registered in the courses. However, only 20% of the registered students joined in the online tutorials (The Examination Center, 2011b).

The Profile of the Respondents

Table 7 shows the profile of valid respondents in the first and second wave of the data collection. There were similarities between the profile of respondents in the first and second data collections. For example, the respondents in both waves of data collection were mostly working

adults who were 40 years old or younger, not married or married with no children or with 1-2 children.

Table 7

The Profile of the Respondents

Students' Characteristic	2011.1 (*n* = 91)		2011.2 (*n* = 230)		Combined (*n* = 321)	
	∑	%	∑	%	∑	%
Gender						
• Male	56	61.5	126	54.8	182	56.7
• Female	35	38.5	104	45.2	139	43.3
Age						
• < = 24 years	31	34.1	66	28.7	97	30.2
• 25-40 years	56	61.5	149	64.8	205	63.9
• > 40 years	4	4.4	15	6.5	19	5.9
Marital Status						
• Not married	49	53.8	116	50.4	165	51.4
• Widowed	2	2.2	5	2.2	7	2.2
• Married	40	44.0	109	47.4	149	46.4
Children						
• No children	56	61.5	129	56.1	185	57.6
• 1-2 children	27	29.7	82	35.7	109	34.0
• = > 3 children	8	8.8	19	8.3	27	8.4
Education						
• High school	70	76.9	148	64.3	218	67.9
• Diploma	18	19.8	65	28.3	83	25.9
• Sarjana (4-year degree)	2	2.2	11	4.8	13	4.0
• Pascasarjana (postgraduate)	1	1.1	4	1.7	5	1.6
• Other	-	-	2	0.9	2	0.6
Occupation						
• Gov. employees	19	20.9	48	20.9	67	20.9
• Private employees	55	60.4	118	51.3	173	53.9
• Entrepreneur	8	8.8	35	15.2	42	13.1
• Other	9	9.9	29	12.6	39	12.1
College						
• FISIP	88	96.7	116	50.4	204	63.6
• FMIPA	3	3.3	21	9.1	24	7.5
• FEKON	-	-	93	40.4	93	29.0

Table 7

The Profile of the Respondents, Continued

Students' Characteristic	2011.1 (n = 91)		2011.2 (n = 230)		Combined (n = 321)	
	∑	%	∑	%	∑	%
First Registration						
• < 20092	12	13.2	-	-	12	3.7
• 20092	9	9.9	25	10.9	34	10.6
• 20101	15	16.5	43	18.7	59	18.4
• 20102	35	38.5	77	33.5	111	34.6
• 20111	20	22.0	79	34.3	99	30.8
• 20112	-	-	6	2.6	6	1.9
Credit Hours						
• < 12 credit hours	6	6.6	9	3.9	15	4.7
• 12-24 credit hours	61	67.0	154	67.0	215	67.0
• > 24 credit hours	24	26.4	67	29.1	91	28.3
Regional Center						
• Capital City	30	33.0	67	29.1	97	30.2
• Island of Java	27	29.7	86	37.4	113	35.2
• Outside Java	34	37.4	77	33.5	111	34.6
GPA						
• NA	21	23.1	14	6.1	35	10.9
• < 2.0	19	20.9	61	26.5	80	24.9
• 2.0 – 3.0	44	48.4	113	49.1	157	48.9
• > 3.0	7	7.7	42	18.3	49	15.3

The majority of the respondents were high school graduates who were tended to work in private sectors. They mostly can be considered as adult students, aged between 25-40 years old. Despite being working adults, the students were taking between 12-24 credit hours (i.e., 4-8 courses) and many even took more than 24 credit hours in one semester.

According to Boston, Ice, and Gibson (2011), the majority of traditional college students aged between 18 and 24 years old. But now more mature students are entering higher education, especially in a distance education setting. In the UK, students who are older than 21 years are considered mature students, in the USA and Canada adult students are those older than 22 years, and in Australia those over 25 years are called 'mature-age' students (Trueman & Hartley, 1996). Thus, the participants of this study mostly can be categorized as the adult students of distance education. The percentage of the adult students in this study (70%) was higher than that of UT students in the three colleges in 2011.2, which was 59% (the Registration Division, 2011b). This may indicate that older students were more willing to take part in this study.

In addition, based on data from the Registration Division (2011b), the proportion of gender in this study (57% male, 43% female) was slightly higher than the proportion of gender in the population (50% male, 50% female). This may indicate that males were more interested in taking part in this study or there were more males with a valid email address in the SRS than female students. Also, while students who resided in Jakarta were only 6% of the students in the three colleges (the Registration Division, 2011b), 30% of the participants came from this Capital City. While 55% of the same population of students resided outside the Java Island in 2011.2, 30% of the participants came from Regional Centers outside Java. This was actually not a bad proportion, considering regions outside the Island of Java may not have the best infrastructure for Internet connection compared to the regions in Jakarta or Java in general.

Despite the similarities that exist between the participants in the two waves of data, there were quite notable differences in the characteristics of both types of participants. The first and most important difference was the fact that students in the first data collection were all taking the Introduction to Social Statistics course. Thus, they were all thinking about the same course when responding to the Learning Strategy Questionnaire, while those in the second data collection might have a different course in mind when filling out the questionnaire. Second, the percentages of male and female students in the second wave of data were more equally distributed than those in the first data collection. As well, the number of respondents registered in the FISIP and FEKON was almost comparable in the second data collection.

It should be kept in mind that the GPA used here was the GPA from the previous semester(s) attained by the students that was retrieved from the SRS. Thus, the notation of "NA" in the GPA could mean that the data were not available yet because the students were registered for the first time in that semester or for some other unexplained reasons. In this case, by excluding the data with "NA" status we can assume that around 20 to 27% of the participants performed very poorly in their study. The number of students in both waves of data with GPA between 2.0 and 2.5 was 82 (36%). If we counted all the participants whose GPA were below 2.5, the number of underachievers became considerably high.

Students in the first and second wave of data only differed in the college membership, first year registration, and the courses referred when responding to the Learning Strategy Questionnaire in this study. Students in the first wave consisted of 97% students of FISIP and 3% of FMIPA, while in the second wave 50% were FISIP students, 40% were those of FEKON

and the rest were from FMIPA. While students in the second wave registered at UT since 2009.2 to 2011.2, a number of students (13%) in the first wave registered before the semester of 2009.1.

Materials

The intervention materials were developed in the pre-experiment phase that was aimed to prepare the intervention materials and try out the materials. The phase of preparing the intervention materials consisted of selecting materials and writing the materials. The trying out of the intervention materials was intended to find out whether the intervention materials were easy to read and regarded as useful by students. The results of the trying out phase were expected to be able to depict the students' responses to the intervention materials for the benefit of the experiment to be conducted.

The Learning Strategy Intervention Material

After determining the purpose of the study, the next step was to review applicable training materials that could enhance students' learning strategy. One of the intervention materials on learning strategy that was most relevant to the setting of the study was developed by Darmayanti (2005). This learning strategy intervention was implemented at UT as one of two interventions administered in Darmayanti's dissertation titled "The effectiveness of self-regulated learning skill and modeling interventions in enhancing self-directed learning ability and achievement of distance education students." She implemented the intervention as a self-guided booklet mailed to students before the semester began. She expected that students would have flexible time to study the materials before they could apply the knowledge for studying for the upcoming semester.

The content of Darmayanti's learning strategy intervention focused on the importance of having effective learning strategies to achieve better academically. In general, this material covered knowledge about strategies that students can learn to regulate their learning. In this case, the material encompasses information on how to (1) use learning strategies smartly (in Indonesian language is **C**erdik), (2) use study time effectively (Indonesian: **E**fektif), (3) plan study time realistically (Indonesian: **R**ealistik), (4) set learning goals that are attainable (Indonesian: **D**apat dicapai), (5) plan learning goals that are accurate or measurable (Indonesian: **A**kurat), and (6) plan learning goals that are specific (Indonesian: **S**pesifik). The initials of the

six strategies are CERDAS (Darmayanti, 2005), which means SMART in English. CERDAS as a meaningful acronym for the intervention is considered important in order for students to easily remember what it means. CERDAS learning strategy is actually a modification of the SMART learning strategy (Andersen, 1995), which refers to the ability to determine a specific, measurable, attainable, realistic, and timely learning goal. Setting a learning goal is indeed an important aspect of self-management or self-regulation in learning (Dembo & Seli, 2008). According to Dembo and Seli, it is important for learners to set SMART (specific, measurable, action-oriented, realistic, and timely) goals in order to make sure that they can attain the goals.

In general, the CERDAS learning strategy intervention was selected to be applied in this current study for several reasons, as follows:

1. The intervention emphasized on the importance of setting learning goals as part of the effective learning strategies to achieve better academically.
2. The intervention had a positive impact on student self-directed learning at UT, especially on the component of students' learning needs (Darmayanti, 2008).
3. The intervention theme (i.e., CERDAS or SMART) was attractive and easy to remember, which might be able to enhance student retention on the substance of the intervention.
4. The theme CERDAS or SMART was expected to motivate students in studying the materials and practicing the newly acquired knowledge so that they might become smarter learners if they practice the learning strategies when studying a course.
5. The material was written in Bahasa Indonesia, which is the language used by the targeted participants in this current study.

In relation to this dissertation, the CERDAS learning strategy material then was adapted to serve the purposes of the study. In general, the language of the intervention material was refined without changing the layout of the material. New materials regarding the amount of time students should study a course in a week (e.g., 9 hours of studying per week for three-hour credits) were added in addition to some revisions. Specific revisions were made with regard to the sections on how to avoid wasting time when studying and how to plan attainable learning goals. Revisions were also made on some of the examples presented in the various parts of the material. As well, the current intervention was modified as a Web-based self-guide, while in

Darmayanti's study the intervention was designed as a booklet. Moreover, the intervention material was developed using SCORM—Sharable Content Object Reference Model—which created a log so that the researcher could know when and for how long the students read the intervention materials.

The printed version of the intervention material was tried out to a group of students (n = 10) to find out about whether the material was easy to read and useful for them. They were given a week or two to finish reading the materials and asked to provide some feedback on the readability and the usefulness of the materials. This try out was carried out one month before the actual study was conducted, which was in February 2011.

Nine of the ten students found that the learning strategy intervention was easy to read. They found the intervention material was either useful (n = 7) or very useful (n = 3) for them. All of them were interested to apply the learning strategies when studying. Concerning the readability of the intervention material, some students gave positive comments:

> "This material is easy to understand because it uses simple language."
> "This material is quite easy to understand and can motivate me."

On the other hand, some students commented that some parts of the material need elaboration. Examples of these comments are as follows:

> "The explanation of the study schedule per month/week needs to be elaborated."
> "Fairly easy to understand but there are some repetitions on page 11."

With regard to their perceptions to the usefulness of the intervention materials, students found this material useful for them.

> "This material is very useful for me because it guides me how to manage my study time."
>
> "This material is very useful, easy to read and understand. It needs an extra willingness to apply the learning strategies regularly, because we have conflicting time with job related activities."
> "The material could be applied by UT students; it is simple yet very detailed."

Students' comments were reviewed and used to revise the Learning Strategy Intervention material.

The Study Time Management Intervention Material

The second intervention, the Study Time Management Intervention, was developed by the researcher. The intervention was intended to provide students with information regarding the importance of managing their time to achieve better in school, especially when students have conflicting responsibilities, like working full time and caring for the family while studying in the university. The intervention content was proposed to guide students in building a regular study habit by planning and trying to achieve weekly learning goals.

This intervention was meant to complement the learning strategy intervention, in which this self-guide provided practices for the students to make a study plan for a course and break down the semester plan into the weekly study plans. Accordingly, the intervention material covered information on how to set weekly learning goals and how to monitor the learning goals. Thus, it was expected that students could learn about their actual use of study time and how they would reflect on it.

This intervention material also provided an example of a study plan and monitoring sheet in the form of an Excel file. By following the example, students might be able to plan their study schedule for the courses they took, plan their learning goals for every week, and to monitor whether they accomplish each of the learning goals or not. By doing so, they can figure out which course materials they had not studied yet and how much time they had left to catch up their study.

This intervention was also developed as a SCORM Web-based tutorial so that the researcher could monitor whether students actually read the intervention material or not. At the end of the tutorial, a window was provided for students to record their weekly learning goals. A question was added to learn about their confidence in attaining the learning goals. A different window would be presented in the following week for students to record the accomplishment of the learning goals and their actual study time. Some questions were also asked concerning students' reflection on the learning goal accomplishment. With the provision of this user friendly Web-based time management support, students can perhaps be helped in planning their learning goals and study time and in monitoring the attainment of the study plan.

The printed version of the intervention material was tried out to a group of students (n = 9) to find out about whether the material was easy to read and beneficial for them. All of the students thought that the intervention material was either very useful or useful. They all were interested to apply the newly acquired knowledge about study time management for studying at UT. All students also thought that the entry sheets for recording the weekly learning goals and actual study time seemed to be easy to fill out.

Here are some suggestions and comments obtained from the students, which were then used to revise the intervention material.

> "Please add motivation to enhance learning motivation and study time management."
>
> "The most difficulty in managing study time is not in understanding the guidance, but in implementing it. The recurring problem is how to implement the plan for studying as scheduled."

Besides involving students to try out the printed version of the intervention materials, the tryout process also involved several students (n = 5) who were interested in testing the online versions of the learning strategy and the study time management interventions. They come from different parts of the country, even different islands (Java, Sumatra, and Sulawesi). This online tryout was important in order for the researcher to learn about the usability of the Web-based tutorial. According to these students, the online tutorial was able to be accessed easily and seemed to be easily applied.

In addition to trying out the usability of the online tutorial, it was especially necessary to know how students thought about the practicability of entering their weekly learning goals and their actual study time in the Web-based tutorial. According to these five students, it was easy to fill out the tool for typing in the weekly learning goals and entering the actual study time. It was also thought that it was practical to do such activities.

Some of the suggestions or the comments obtained from the students that were used to improve the online tutorial were as follows:

> "The instruction to fill out the weekly learning goals should be constructed more clearly."

"The entry used to enter the number of pages of the learning goals cannot be filled out with 2 digits."

"Using time to read module when on the road is difficult to apply."

In short, both of the intervention materials were considered as interesting and useful by the students participating in the tryout. The language used to write the interventions was considered simple enough and the materials were easily understood. In addition, students thought that the online tutorials could be easily accessed. The tool provided in the Study Time Management Tutorial for students to record their weekly learning goals and enter their actual study time was also thought to be applicable for students to use. Therefore, it was expected that the online version of the Learning Strategy Intervention and the Study Time Management Intervention would be feasible to be used for the actual experimental study.

In addition, students who were provided with the Study Time Management Intervention in combination with the Learning Strategy Intervention were expected to have an advantage over those who only received one of the interventions. It was expected that those having the combination of the two interventions would not only have the knowledge of how to use their time effectively and how to plan learning goals, but would also have the experiences of actually planning their weekly learning goals and evaluating their accomplishment toward the goals. Therefore, it was assumed that these students would probably have the chance to achieve better in their study at UT.

Procedure

This section describes the overall procedure that must be undertaken by (1) the researcher during the preparation and completion of the data collection and (2) the students as participants of the study during the experiment.

Basically all students were expected to respond to an electronic version of the Learning Strategy Questionnaire (e-survey). The e-survey was linked to the invitation email sent by the researcher informing about this study and inviting students to participate in the study. In addition to reading the related intervention material(s), students in two of the experimental groups (i.e., Group 1 and 3) were suggested to set learning goals and to self-monitor the accomplishment of the goals every week for four weeks. Students in Group 2 would need to read the intervention before studying their course material and were suggested to create a study schedule for their

benefits. Students in Group 4 would conduct their study as they usually have done. At the end of the last tutorial session, all students would be expected to respond to the same e-survey, excluded the demographic questionnaire.

The whole study, starting from the data collection preparation to the process of administering the second learning strategy questionnaire occurred within 13 weeks in each of the two semesters. It started a week before the registration period closed and ended after the examination period. Students' participation started in Week 2 when they responded to the first Learning Strategy Questionnaire (pretest) and ended in Week 13 when they responded to the second Learning Strategy Questionnaire (posttest) after the final examination period. The week by week of the research activities were as follows.

Week1

Research activities in Week 1 were basically preparation activities which preceded the data collection itself. During the first week, the researcher requested and received student data from the SRS. For the two waves of data collection, there were two types of targeted students. First, in the 2011.1 term, the targeted students were those registered in the Introduction to Social Statistics course. This course was a required course in eight programs of study in FISIP and in two programs of study in FMIPA. Second, in the 2011.2 term, the targeted students were students who registered in the FEKON, FISIP, and FMIPA. Students who were assumed to have a valid email address were regarded as the prospective participants for this study.

These students were randomly assigned to the four research conditions (Group 1, 2, 3, or 4), regardless of their characteristics, such as college, year of first registration period, and Regional Center. First, the list of the students was sorted in an ascending order by the student ID utilizing Microsoft Excel version 2007. (Note: At UT, student ID was pre-printed on the Registration Form. So, two students who have consecutive numbers of student ID may come from different programs of study or even from different regions or islands). Then, each student on the list was assigned a number of 1, 2, 3, or 4 in a sequential order. Students who were assigned the number 1 would belong to Group 1; Students with number 2 would be Group 2 members, and so forth. This act of assigning students to each group was done before students were invited to participate in this study.

This first week was very crucial for the effectiveness of this research study. Any delay of activities in this stage would delay the execution of the experiment, which could limit the time for the experiment to take place.

Week2

Starting this week, an invitation email complemented with a link to the Learning Strategy Questionnaire (pretest) was sent to all prospective participants in different time for each group. The e-survey linked to the invitation email was activated before the official tutorial sessions were conducted in 2011.1 (first wave) and in 2011.2 (second wave). In this second week, an email was sent to invite the targeted students in Group 1 to take part in the study and respond to the e-survey that was linked to the email. The email described (1) the purpose and significance of the study, (2) the importance of having students' involvement in this study, and (3) the invitation for them to participate in this study. In this email, students were also informed about what they were expected to do in the study and how long they should participate in the study. They were also informed that a $20-30 fund would be eligible for 20 randomly selected students who were participating actively in this study.

During this week, some students began to respond to the e-survey. When filling out the e-survey, students in the term of 2011.1 were asked to think about how they use learning strategy when studying the Introduction to Social Statistics. Students in 2011.2 were asked to think about a particular course they were registered in 2011.2 that they might find difficult to learn. After they submitted their responses, students were sent a thank you email. This email was also to inform them that they were assigned to a tutorial online offering material on CERDAS learning strategy and/or on study time management and were invited to participate in the tutorial.

Week3

In this week, a second email was sent to students in Group 1who had not responded to the questionnaire. As well, an invitation email was sent out to prospective participants in Group 2 and Group 3.

Students in Group 1 might start to access and read the intervention material(s). As explained previously, students in Group 1 were provided with the Learning Strategy Intervention and Study Time Management Intervention. The Learning Strategy Intervention underlined the

importance of having effective learning strategies, including how to plan a realistic study time and how to determine attainable, accurate, and specific learning goals.

The Study Time Management Intervention, which was posted after the Learning Strategy Intervention, emphasized the importance of setting a weekly learning goal (e.g., what topic(s) to learn, the number of pages, and how long they plan to study the topic(s)) and monitoring the accomplishment of the learning goal. At the end of the materials, a window was provided for students to record their weekly learning goal (i.e., type in their weekly learning goals and the duration of the study time). Students in this group were suggested to use the tool to plan their own study every week for at least four weeks in a row so that they could get the gist of doing so. When students do these activities on a regular basis, it was expected that they would be more motivated to achieve their weekly learning goals so that they would study more routinely. As well, they were informed that they would have a better chance to achieve better in the course if they make the time to study regularly.

Like students in Group 1, students in Group 2 and Group 3 might also be starting to read the related intervention provided for them after responding to the e-survey.

At the end of this week, the official course-related online tutorial sessions at UT were started. Most students would start studying the course materials during these 8-period sessions.

Week4

Members of Group 1 might still read the second intervention, which was the Study Time Management Intervention. Meanwhile, students in Group 2 were expected to study the Learning Strategy Intervention and recommended to create a study schedule that may allow them to study the course materials regularly every week. For this purpose, an example of a study schedule was also provided. However, students in this group were not required to submit the study schedule. Additionally, as students in Group 1, members of Group 2 were also encouraged to use various learning strategies (e.g., outlining, underlining, summarizing, and completing practices and assignments) in studying the course materials to better understand the materials.

At the same time, students in Group 3 were also expected to start reading the Web-based Study Time Management Intervention. Meanwhile, students in Group 4 were sent an invitation email which was complemented a link to the e-survey. These Group 4 students had no intervention implemented to them. They were to study the course materials as they usually did.

Week5

After reading the Study Time Management Intervention material, students in Group 1 and Group 3 were suggested to set a weekly learning goal. In determining the learning goals, students were requested to think about the same course that they were referring when filling out the Learning Strategy Questionnaire. For example, if a student was thinking about the Introduction to Social Statistic course when they filled out the Learning Strategy Questionnaire, then they should be practicing to set learning goals for this particular course as well.

In order to help them determine the learning goal, students were provided with a set of questions concerning their weekly study plan, which was the plan of study they were going to do in the following week. This activity was supposed to be done every week. Examples of the questions were:

"What is the title of the course you plan to study next week?"
"What topic(s) or Learning Activity(s) you want to study next week?"
"How many pages of the module you will study next week?"
"How long (in minutes, e.g., 45 minutes) you plan to study the topic(s) or Learning Activity(s) next week?"
"Are you sure you will be able to attain your learning goals next week?"

Then, they were suggested to monitor the attainment of the learning goal. As well, students in Group 1 were also encouraged to use a variety of learning strategies (e.g., outlining, underlining, summarizing, and completing practices and assignments) in studying the course material in order to better understand the learning material. Students were also encouraged that they would have a better chance to achieve more successfully in the course if they make the time to study regularly.

Week6

In Week 6, students in Group 1 and 3 who had not submitted the first learning goals received a message to remind them about the importance of completing the exercise of planning their first learning goal. During this week they were also suggested to respond to a few self-evaluation questions to record the accomplishment of their own learning goal in the previous week. This activity was expected to remind them about the importance of monitoring the

fulfillment of their own weekly plan to study, such as to study a certain topic or for a certain length of time. Examples of the questions would be:

"Did you study the material for the course that you chose last week?"
"What Learning Activity(s) did you study last week?"
"How many pages of the module you studied last week?"
"How many days did you spend studying the course?"
"If more than one day, how long (in minutes, e.g., 60 minutes) on average did you spend studying this course each day last week?"
"Did you accomplish your learning goals last week?"
"If not, why do you think you did not achieve your learning goals last week?"
"What will you do to avoid the same problem(s) next week?"

By answering the provided questions, students could realize their own progress in attaining their weekly learning goals or plans. Afterward, as in the previous week, the students were suggested to set up their study plan for the following week. However, students were not required to submit their learning goal and the results of their self-evaluation of the learning goal implementation.

Students in Group 2 were sent a message asking whether they studied this course or not the previous week. An example of the questions was: "Have you studied as planned last week?" They were also encouraged to continue studying for the following week. However, they did not need to submit any study plan.

Week 7 to 10

Students in Group 1 and 3 were suggested to continue determining weekly learning goals as well as evaluating the accomplishment of the learning goals.

Week 11 to 12

Students conduct their study as usual. Those in Group 1 and 3 were suggested to keep monitoring the implementation of their study plan. The e-survey (posttest) was attached at the end of the Learning Strategy Tutorial in Group 1, 2, and 3. However, no students attempted to respond to the e-survey before the final examination took place. The final examination for all courses was administered during the Sundays of week 11 and 12.

Week13

Since it was not effective to administer the second e-survey before the final examination, it was decided to send an email to students in all groups with the linked e-survey after the examination period ended. Attached in the email were all intervention materials to be used freely for the next semester. Students who had not responded yet were sent a reminding email the following week. All study participants were sent a thank you email for their participation in the study.

Since the grades would be announced around eight weeks after the final examination period, obtaining data on the examination scores and grades was not counted when determining the length of this study.

Data Analysis

As mentioned at the end of Chapter Two, there are five hypotheses to be assessed in this study in order to address the purposes of the study. A series of Analysis of Variance (ANOVA), Cross Tabulations, and Pearson's Product Moment correlations were used to analyze the data obtained in this research study. All of the statistical analyses conducted to assess the results of this study were completed using SPSS Version 17.0, with an alpha of .05. More specifically, the statistical data analyses carried out for testing each hypothesis were as follows:

1. In order to assess Hypothesis 1, "Students who were provided with the interventions gained higher SRL than those who were not provided with the interventions," a series of a one-way ANOVA were conducted. The first one-way ANOVA was performed to learn about any mean differences on the subscales of SRL that might occur between groups on the pretest. The second one-way ANOVA was carried out to find out about any mean differences on the subscales of SRL between groups on the posttest. Finally, a one-way ANOVA was run to figure out any differences between groups on the gained scores of the subscales of SRL.

   When the test of homogeneity of variances did not result in a significant value in any of the subscales of SRL, the regular *F* ANOVA table was used to analyze whether there were any mean differences in the subscales of SRL. When the *F* ANOVA table indicated a significant value on a subscale of SRL, a Tukey HSD post hoc analysis on that subscale was run to find out which pair of groups had a significant mean difference.

On the other hand, when the test of homogeneity of variances yielded a significant value on a subscale of SRL, indicating the existence of unequal variances between groups, an *F* Welch analysis was run to replace the regular *F* ANOVA analysis. Furthermore, when the Welch analysis indicated a significant value of a subscale of SRL, a Games-Howell post hoc analysis was carried out for the significant variable.

2. In order to assess Hypothesis 2, "Students who were provided with the interventions achieved better in the final examination," a one-way ANOVA was performed to find out whether there were mean differences in the student achievement between groups.
3. In order to assess Hypothesis 3, "Students who were provided with the interventions had a higher rate of course completion," a Cross Tabulation analysis was performed for the course completion data were categorical data (0 = non completer, 1 = completer). For this hypothesis testing, a Cramer's V analysis was used to find out whether any significant differences in course completion occurred between the research groups. If the Cramer's V yielded a significant value, a Kruskal-Wallis non parametric analysis was performed to find out which group had a significant difference.
4. In order to assess Hypothesis 4, "Students with high levels of SRL achieved better in the final examination," a Pearson Product Moment correlation was performed to find out whether any of the subscales of SRL had significant relationship with the students' achievement. According to Cohen (1988), a correlation coefficient of .10 is considered of having a low effect size; that of .30 is regarded to have a medium effect size, and that of .50 is categorized as having a high effect size. This categorization of interpreting the magnitude of correlation coefficients was adopted to interpret the results of this study.
5. In order to assess Hypothesis 5, "Students with high levels of SRL have a higher completion rate," a Pearson Product Moment correlation was performed to find out whether any of the subscales of SRL had significant relationship with the course completion. The same Cohen's categories to determine the strength of the relationships between the subscales of SRL and the dependent variable used in testing Hypothesis 4 was also applied here.

CHAPTER FOUR
RESULTS

This dissertation was conducted with three purposes, specifically: (1) to find out the effects of a learning strategy intervention on the students' use of SRL, achievement, and course completion in a distance education setting, (2) to find out the effects of a study time management intervention on the students' use of SRL, achievement, and course completion, and (3) to find out whether students with higher levels of SRL also have higher levels of achievement and course completion.

As mentioned in Chapter Four, there are five hypotheses to be assessed in this study in order to address the purposes of the study. A series of Analysis of Variance (ANOVA), Cross Tabulations, and Pearson's Product Moment correlations were used to analyze the data obtained in this research study. All of the statistical analyses conducted to assess the results of this study were completed using SPSS Version 17.0, with an alpha of .05.

The research findings are presented in accordance with each hypothesis in this chapter.

Effects on the Students' Use of SRL

The students' use of SRL was assessed in relation to testing Hypothesis 1, that is "Students who were provided with the intervention gained higher SRL than those who were not provided with the intervention." In this case, the students' use of SRL before and after the implementation of a learning strategy intervention and a study time management intervention were examined. The mean score differences in the subscales of the SRL obtained by the students after the administration of the interventions was referred as the gain of the students' use of SRL in this study.

Thus, the gain of the students' use of SRL was examined in order to test the first hypothesis in this study. In doing so, a series of means comparison analyses were carried out to assess whether the interventions had significant effects on the students' use of SRL. First, a one-way ANOVA was carried out to find out whether there were differences in the use of SRL between students in the treatment groups (Group 1, 2, 3) and the control group (Group 4) before the experiment began. Second, a one-way ANOVA was performed to observe whether there

were differences in the use of SRL between students in the treatment groups and in the control group after the experiment was administered. Finally, a one-way ANOVA was conducted to analyze the differences on the SRL gained scores between groups after the experiment were implemented.

In order to test this hypothesis, only the data of participants who completed the Learning Strategy Questionnaires administered before and after the experiment were included in the analysis. An additional requirement that applied to students in the treatment groups was that the students in each group should have completed reading the intervention material(s) provided to them via the related Learning Strategy tutorial. Table 8 shows the number of respondents who accessed the online tutorial in Group 1, 2, and 3 and the respondents in Group 4 in the first and second waves of data collection. This table indicates the number of respondents who actually completed reading the intervention(s), those who only read parts of the intervention material(s), and those who did not access the intervention material.

Table 8

The Number of Students Read the Intervention Material(s)

Group	∑ Students (1)	∑ Students Read the Whole Material (2)	∑ Students Read Parts of the Material (3)	∑ Students did not Access the Material (4)
First Wave of Data Collection				
1	21	9 (42.9%)	8 (38.1%)	4 (19%)
2	22	9 (40.9%)	5 (22.7%)	8 (36.4%)
3	24	13 (54.2%)	3 (12.5%)	8 (33.3%)
4	24	-	-	24 (100%)
Total	91	31 (34.1%)	16 (17.6%)	44 (48.4%)
Second Wave of Data Collection				
1	52	19 (36.5%)	18 (34.6%)	15 (28.8%)
2	45	13 (28.9%)	0	34 (75.6%)
3	54	24 (44.4%)	9 (16.7%)	22 (40.7%)
4	79	-	-	79 (100%)
Total	230	56 (24.3%)	27 (11.7%)	150 (65.2%)

Note:
Group1: Students provided with the Learning Strategy and Study Time Management Interventions; Group2: Students provided with the Learning Strategy Intervention; Group3: Students provided with the Study Time Management Intervention; Group4: Students in the control group (not provided with any intervention material)

Based on the SCORM log (a software used to record the activity of each participant who visited the Learning Strategy tutorial), we can learn about the number of students who finished reading the intervention material and those who did not. The number of students (∑ Students) reported in Table 8 covers (1) the number of participants in the treatment groups who responded to the Learning Strategy Questionnaire before the experiment (pretest) and accessed the related online tutorial and (2) students in the control group who responded to the pretest. The number of students in the treatment groups who did not make any attempt to read the intervention material was quite high in both semesters, 19% and 29% in Group 1; 36% and 76% in Group 2; and 33% and 41% in Group 3 (see Table 8).

Table 9

The Number of Respondents to the Second Questionnaire

Group	∑ Students	∑ Active Participants	∑ Students Responded to the Second Questionnaire	∑ Students Read the Intervention & Completed the Second Questionnaire
First Wave				
1	21	9 (42.9%)	14 (66.7%)	8 (38.1%)
2	22	9 (40.9%)	13 (59.1%)	6 (27.3%)
3	24	13 (54.2%)	17 (70.8%)	11 (45.8%)
4	24		15 (62.5%)	15 (62.5%)
Total	91	31 (34.1%)	59 (64.8%)	40 (44.0%)
Second Wave				
1	52	19 (36.5%)	24 (46.2%)	12 (23.1%)
2	45	13 (28.9%)	25 (55.6%)	9 (20.0%)
3	54	24 (44.4%)	20 (37.0%)	12 (22.2%)
4	79		35 (44.3%)	35 (44.3%)
Total	230	56 (24.3%)	104 (45.2%)	68 (29.6%)

Students in the treatment groups who completed reading the intervention material(s) would be referred as the "active participants" in this dissertation. The percentages of active participants in the treatment groups in the first and second waves of the data collection were 43% and 37% in Group 1; 41% and 29% in Group 2; 54% and 44% in Group 3 respectively (see Table 9). To compare with, active participants of the course-related online tutorials at UT are students who obtained scores at least 50 for the related tutorial assignments. According to the Examination Centre (2011b), in the semester of 2011.1, the active participants of the online tutorials (n = 7,451 for 406 courses) in the three related colleges comprised of 49% of the online

tutorial participants or about 8% of the number of students registered in these courses. In 2011.2, the percentage of active participants was 51% (n = 9,833 for 361 courses) of the online tutorial participants, which was 10% of the number of students registered in the related courses.

Among the active participants in the treatment groups and the respondents in the control group, only 44% (first wave) and 30% (second wave) of the participants responded to the second questionnaire (see Table 9). Thus, only these participants were included in further analysis for testing Hypothesis 1. To sum up, the number of participants who met the criteria to be included in testing Hypothesis 1 was 40 students from the first wave of data and 68 students from the second wave. Thus, the total number of the participants combined to be included in the testing of the first hypothesis was 108.

The First Wave of Data

The mean score of each subscale of the SRL obtained by each group were all above 3.0. According to Pintrich et al. (1991), this means that the participants in this study were generally using a good learning strategy when studying for a particular course.

As aforementioned, the number of participants who met the requirements for the data analysis was 40. These students were participants who (1) completed the pretest and posttest and (2) read the intervention material(s) for the treatment groups.

The mean scores on the SRL (see Table 10) indicated that based on their responses on the Learning Strategy Questionnaire administered before the experiment (pretest) students in all groups generally had higher scores on the scale of Motivational Beliefs (i.e., Control of Learning Beliefs and Self-Efficacy) than on the Learning Strategies scale (i.e., Metacognitive Self-Regulation, Time and Study Environment, and Effort Regulation). For example, the mean score for Control of Learning Beliefs for Group 2 on the pretest (M = 6.29, SD = 0.53) was higher than that for Metacognitive Self-Regulation (M = 5.68, SD = 0.91) on the pretest. Moreover, based on the mean scores on every subscale of the SRL, students in Group 2 and 3 appeared to have the highest mean scores in all subscales of the SRL.

Table 10

The Students' SRL Mean Scores before and after the Experiment (the First Wave)

Group		CLB		SE		MSR		TSE		ER	
		Before	After	Before	After	Before	After	Before	After	Before	After
1	n	8	8	8	8	8	8	8	8	8	8
	M	5.47	5.69	5.56	5.45	4.68	4.82	4.28	4.23	4.53	4.38
	SD	0.77	0.58	0.71	0.50	0.97	0.56	1.15	0.62	1.07	0.71
2	N	6	6	6	6	6	6	6	6	6	6
	M	6.29	6.17	6.18	5.48	5.68	5.83	5.03	4.73	5.26	5.09
	SD	0.53	0.86	0.65	1.30	0.91	0.87	1.12	1.00	1.26	1.62
3	N	11	11	11	11	11	11	11	11	11	11
	M	6.00	6.03	5.70	5.54	5.40	5.26	4.59	4.43	5.12	4.69
	SD	0.90	0.78	0.80	0.98	0.80	0.82	0.88	1.34	1.00	1.08
4	N	15	15	15	15	15	15	15	15	15	15
	M	5.89	5.67	5.41	5.16	5.20	4.86	4.27	3.94	4.49	4.51
	SD	0.73	0.62	0.81	0.65	0.62	0.71	0.85	0.99	0.93	1.08
Total	N	40	40	40	40	40	40	40	40	40	40
	M	5.90	5.85	5.64	5.37	5.22	5.11	4.47	4.25	4.79	4.62
	SD	0.78	0.70	0.78	0.83	0.83	0.79	0.97	1.05	1.04	1.09

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. The minimal score a student would get on the subscales of CLB, SE, MSR, TSE, and ER was 1.0 and the maximal score was 7.0.

The test of homogeneity of variances did not reveal any significant differences in the variances between groups on every subscale of SRL both on the pre and posttest ($p > .05$). The nonsignificant results of this test indicated that the research groups have equal variances in all subscales of the SRL both on the pre and posttest.

A one-way ANOVA showed that there was no significant difference between groups before the experiment, $p > .05$ (see Table 11). This indicates that the groups had similar levels of SRL at the beginning of the study. On the other hand, the ANOVA resulted from the analysis of the students' responses on the posttest indicated a significant mean difference in the area of Metacognitive Self-Regulation after the experiment, F (3, 36) = 3.03, p = .042 (see Table 11).

A Tukey HSD post-hoc analysis revealed that a significant difference in the score of Metacognitive Self-Regulation existed between Group 2 and 4 (Mean Difference = 0.97, p = .047) on the posttest. Based on Table 10, Group 2 (M = 5.83, SD = 0.87) who received intervention material on Learning Strategies seemed to achieve a higher mean score on this subscale on the posttest than Group 4 (M = 4.86, SD = 0.71). The effect size of this mean difference between Group 2 and Group 4 was 1.28. Also, the mean score of

Group 2 on this subscale was larger than that of Group 1 on the posttest (Mean Difference = 1.00, p = .075). The effect size of this mean difference was 1.42.

Table 11

ANOVA Table of the Students' Use of SRL before and after the Experiment (the First Wave)

		Sum of Squares	*df*	Mean Square	*F*	Sig.
CLB1	Between Groups	2.530	3	0.843	1.436	.248
	Within Groups	21.145	36	0.587		
	Total	23.675	39			
SE1	Between Groups	2.675	3	0.892	1.515	.227
	Within Groups	21.180	36	0.588		
	Total	23.855	39			
MSR1	Between Groups	3.994	3	1.331	2.124	.114
	Within Groups	22.564	36	0.627		
	Total	26.559	39			
TSE1	Between Groups	2.942	3	0.981	1.051	.382
	Within Groups	33.559	36	0.933		
	Total	36.540	39			
ER1	Between Groups	4.416	3	1.472	1.390	.262
	Within Groups	38.130	36	1.059		
	Total	42.546	39			
CLB2	Between Groups	1.645	3	0.548	1.129	.350
	Within Groups	17.488	36	0.486		
	Total	19.132	39			
SE2	Between Groups	1.124	3	0.375	0.523	.669
	Within Groups	25.791	36	0.716		
	Total	26.915	39			
MSR2	Between Groups	4.957	3	1.652	3.026	.042
	Within Groups	19.655	36	0.546		
	Total	24.612	39			
TSE2	Between Groups	3.158	3	1.053	0.960	.422
	Within Groups	39.497	36	1.097		
	Total	42.655	39			
ER2	Between Groups	2.063	3	0.688	0.555	.648
	Within Groups	44.636	36	1.240		
	Total	46.698	39			

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. 1 = before the experiment or in the beginning of the study (pretest), 2 = after the experiment or at the end of the study (posttest).

The gained scores of the SRL between the groups were presented in Table 12. From this table we can see that the negative sign of the gained scores indicated that the students' use of

SRL on the posttest decreased in general, except for a few areas of SRL in some groups. For example, Group 1 seemed to have a small increase in the use of SRL in the area of Control of Learning Beliefs (Mean Difference = 0.22), and in the area of Metacognitive Self-Regulation (Mean Difference = 0.15). Group 2 showed an increase in the use of SRL in the area of Metacognitive Self-Regulation (Mean Difference = 0.14). Group 3 obtained a very small positive gained score in the area of the Control of Learning Beliefs. Group 4 had a very slight increase in the use of SRL in the area of Effort Regulation (Mean Difference = 0.02).

Table 12

The Gained Scores of SRL after the Experiment (the First Wave)

Group		CLB	SE	MSR	TSE	ER
1	N	8	8	8	8	8
	M	0.22	-0.11	0.15	-0.05	-0.16
	SD	0.60	0.81	0.75	0.75	0.95
2	N	6	6	6	6	6
	M	-0.13	-0.72	0.14	-0.29	-0.17
	SD	0.65	1.09	0.69	1.10	1.02
3	N	11	11	11	11	11
	M	0.03	-0.16	-0.13	-0.16	-0.43
	SD	0.81	0.85	0.32	0.75	0.65
4	N	15	15	15	15	15
	M	-0.22	-0.26	-0.35	-0.32	0.02
	SD	0.98	0.82	0.55	0.66	0.76
Total	N	40	40	40	40	40
	M	-0.05	-0.27	-0.12	-0.22	-0.17
	SD	0.82	0.86	0.59	0.76	0.80

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation.

The *F* ANOVA table indicated that there were no significant differences in the gained scores between Groups 1, 2, 3, and 4 on the Control of Learning Beliefs, F (3, 36) = 0.53, p = .666; Self-Efficacy, F (3, 36) = 0.68, p = .569; Metacognitive Self-Regulation, F (3, 36) = 1.80, p = .164; Time and Study Environment; F (3, 36) = 0.25, p = .858; and Effort Regulation, F (3, 36) = 0.63, p = .601). Therefore, the test results did not support Hypothesis 1. This means that the Learning Strategy Intervention and or the Study Time Intervention used in this study appeared to have no significant influence on the gained score of the students' use of SRL after the experiment for the students in the first wave of data collection. However, it should be noted that the students who read the Learning Strategy Material indicated a greater use of

Metacognitive Self-Regulation when studying the Introduction to Social Statistics than those who did not read any material (*ES* = 1.28) and those who read both the Learning Strategy and the Study Time Management materials (*ES* = 1.42).

The Second Wave of Data

The number of students in the second wave of data who responded to the Learning Strategy Questionnaire both before and after the experiment was 104. However, when only the active participants in Group 1, 2, and 3 were included in the analysis in addition to Group 4, the number of participants decreased to 68.

Table 13

The Students' SRL Mean Scores before and after the Experiment (the Second Wave)

Group		CLB		SE		MSR		TSE		ER	
		Before	After	Before	After	Before	After	Before	After	Before	After
1	n	12	12	12	12	12	12	12	12	12	12
	M	6.35	6.31	5.94	5.60	4.97	4.91	4.59	4.27	4.81	4.54
	SD	0.50	0.69	0.88	0.91	0.92	0.75	0.89	0.84	1.02	1.06
2	n	9	9	9	9	9	9	9	9	9	9
	M	5.84	5.81	5.52	5.28	5.08	4.74	4.69	4.21	4.75	4.44
	SD	0.55	0.26	1.04	0.81	0.55	0.52	0.96	0.58	1.10	0.85
3	n	12	12	12	12	12	12	12	12	12	12
	M	5.52	5.42	4.93	5.22	4.76	5.24	4.46	4.61	4.54	4.79
	SD	1.36	0.67	1.49	1.06	0.95	0.64	0.87	0.53	0.81	1.03
4	n	35	35	35	35	35	35	35	35	35	35
	M	5.86	5.90	5.64	5.48	5.06	5.22	4.36	4.46	4.52	4.61
	SD	0.83	0.70	0.74	0.83	0.58	0.68	0.70	0.84	0.94	0.98
Total	n	68	68	68	68	68	69	69	69	69	69
	M	5.88	5.88	5.55	5.43	5.01	5.11	4.46	4.42	4.61	4.61
	SD	0.89	0.69	1.00	0.88	0.71	0.68	0.79	0.76	0.94	0.97

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. The minimal score a student would get on the subscales of CLB, SE, MSR, TSE, and ER was 1.0 and the maximal score was 7.0.

Like in the first wave of data collection, participants in the second wave of data collection also showed higher mean scores on the scale of Motivational Beliefs (Control of Learning Beliefs and Self-Efficacy) than on the scale of Learning Strategies (Metacognitive Strategies, Time and Study Environment, and Effort Regulation). Group 1 appeared to achieve the highest

mean scores of Motivational Beliefs than any other groups before and after the experiment, followed by Group 4. In contrast, Group 3 generally had the lowest mean scores of SRL among the four groups (see Table 13).

Table 14

ANOVA Table of the Students' Use of SRL before and after the Experiment (the Second Wave)

		Sum of Squares	*df*	Mean Square	*F*	Sig.
CLB1	Between Groups	4.279	3	1.426	1.855	.146
	Within Groups	42.219	64	0.769		
	Total	53.498	67			
SE1	Between Groups	6.746	3	2.249	2.402	.076
	Within Groups	59.913	64	0.936		
	Total	66.858	67			
MSR1	Between Groups	.919	3	0.306	0.593	.622
	Within Groups	33.077	64	0.517		
	Total	33.996	67			
TSE1	Between Groups	.994	3	0.331	0.516	.673
	Within Groups	41.095	64	0.642		
	Total	42.089	67			
ER1	Between Groups	.998	3	0.333	0.365	.778
	Within Groups	58.291	64	0.911		
	Total	59.290	67			
CLB2	Between Groups	4.876	3	1.625	3.800	.014
	Within Groups	27.376	64	0.428		
	Total	32.252	67			
SE2	Between Groups	1.163	3	.388	0.431	.688
	Within Groups	50.310	64	0.786		
	Total	51.473	67			
MSR2	Between Groups	2.330	3	0.777	1.927	.170
	Within Groups	28.745	64	0.449		
	Total	31.075	67			
TSE2	Between Groups	1.193	3	0.398	0.836	.571
	Within Groups	37.788	64	0.590		
	Total	38.981	67			
ER2	Between Groups	.699	3	0.233	0.246	.869
	Within Groups	62.473	64	0.976		
	Total	63.173	67			

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. 1 = before the experiment or in the beginning of the study, 2 = after the experiment or at the end of the study.

The test of homogeneity of variances for the SRL mean scores on the pre and posttest indicated that all subscales of the SRL have equal variances between groups ($p > .05$). The nonsignificant results of the pretest indicates that the groups had similar perceptions of their use of SRL at the beginning of the study (see Table 14). However, the F ANOVA table (Table 14) showed a significant difference on the score of Control of Learning Beliefs, F (3, 64) = 3.80, p = .014 on the posttest (see Table 14). A post hoc analysis using the Tukey HSD test indicated that Group 1 had a significantly higher mean score on this subscale of SRL than Group 3 (Mean Difference = 0. 89, p = .007) on the posttest, with an effect size of 1.32.

From Table 15 we can see that the gained scores of SRL after the experiment were negative almost in every subscale of SRL in all groups, except in group 3 and 4. Noticeable gained scores can be observed in Group 3 where positive gains of SRL scores happened in all subscales, except in the subscale of Control of Learning Beliefs. Positive gained scores of SRL also occurred in Group 4, with the exception of Self-Efficacy, which had a negative gained score.

Table 15
The Gained Scores of SRL after the Experiment (the Second Wave)

Group		CLB	SE	MSR	TSE	ER
1	n	12	12	12	12	12
	M	-0.04	-0.33	-0.06	-0.32	-0.27
	SD	0.65	0.75	0.40	0.92	0.74
2	n	9	9	9	9	9
	M	-0.03	-0.24	-0.34	-0.47	-0.31
	SD	0.38	0.86	0.59	0.91	1.15
3	n	12	12	12	12	12
	M	-0.10	0.29	0.49	0.16	0.25
	SD	1.29	0.71	0.76	1.00	.61
4	n	35	35	35	35	35
	M	0.04	-0.16	0.16	.10	0.09
	SD	0.71	0.80	0.58	0.68	0.82
Total	n	69	69	69	69	69
	M	-0.01	-0.12	0.11	-0.04	0.00
	SD	0.78	0.79	0.63	0.83	0.83

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation.

The test of homogeneity of variances resulted in a significant value on the subscale of Control of Learning Beliefs, F (3, 65) = 2.84, p = .045, indicating that there was at least one

group that had an unequal variance than the other groups. Due to the unequal variances on the Control of Learning Beliefs, an *F* Welch analysis was selected to replace the regular *F* ANOVA test in order to produce more robust tests of equality of means.

The Welch analysis of the SRL gained scores suggested that the only significant mean difference was found on the subscale of Metacognitive Self-Regulation, $F(3, 22.54) = 3.099$, $p = .047$, whereas a one-way ANOVA revealed a more statistically significant mean difference, $F(3, 64) = 3.70$, $p = .016$. Since unequal variances were suspected in the groups, a Games-Howell post hoc analysis was selected to find out which of the research groups had a different mean on the subscale of Metacognitive Self-Regulation. The results of the test revealed that an almost statistically significant gained score occurred between Group 2 and 3 ($p = .053$), with Group 3 achieved a higher score (Mean Difference = 0.82). The effect size of this mean difference was 1.18.

The Study Time Intervention implemented in this study seemed to have a positive effect on the students' use of Metacognitive Self-Regulation than students who read the Learning Strategy Intervention. Nonetheless, the results did not support Hypothesis 1 in the sense that the intervention material did not bring any significant effect on the treatment group in the gains of the SRL when compared to the group that did not receive any intervention.

The Combined Data

When the data from the first and second waves were combined, the sample size became 108 ($n_1 = 40$ and $n_2 = 68$). Table 16 showed that all of the research groups in this study seemed to have higher mean scores on the scale of Motivational Beliefs than on the scale of Learning Strategies. Among the four groups, Group 1 had the highest scores on the scale of Motivational Beliefs on the pre and posttest in general. On the other hand, Group 3 seemed to have the lowest mean sores on the scale of Motivational Beliefs compared to the other groups, especially on the pretest.

Table 16

The Students' SRL Mean Scores Before and After the Experiment (the Combined Data)

Group		CLB		SE		MSR		TSE		ER	
		Before	After	Before	After	Before	After	Before	After	Before	After
1	N	20	20	20	20	20	20	20	20	20	20
	M	6.00	6.06	5.79	5.54	4.85	4.87	4.47	4.26	4.70	4.48
	SD	0.75	0.71	0.82	0.76	0.93	0.67	0.99	0.75	1.02	0.92
2	N	15	15	15	15	15	15	15	15	15	15
	M	6.02	5.95	5.79	5.36	5.32	5.18	4.82	4.41	4.95	4.70
	SD	0.57	0.58	0.94	0.99	0.75	0.85	1.00	0.79	1.15	1.21
3	N	23	23	23	23	23	23	23	23	23	23
	M	5.75	5.71	5.30	5.37	5.06	5.25	4.52	4.53	4.82	4.74
	SD	1.16	0.78	1.25	1.01	0.92	0.71	0.86	0.98	0.93	1.03
4	N	50	50	50	50	50	50	50	50	50	50
	M	5.87	5.83	5.57	5.38	5.11	5.11	4.34	4.30	4.51	4.58
	SD	0.80	0.68	0.76	0.79	0.59	0.70	0.74	0.91	0.93	1.00
Total	N	108	108	108	108	108	108	108	108	108	108
	M	5.89	5.87	5.58	5.41	5.08	5.11	4.47	4.36	4.67	4.61
	SD	0.85	0.69	0.92	0.86	0.76	0.72	0.86	0.88	0.98	1.01

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. The minimal score a student would get on the subscales of CLB, SE, MSR, TSE, and ER was 1.0 and the maximal score was 7.0.

The test of homogeneity of variances indicated that there were no significant differences in variances between groups in all subscales of SRL both on the pre and posttest ($p > .05$). As well, the produced ANOVA table did not provide any evidence of mean differences between groups in any of the SRL subscales both on the pre and posttest (see Table 17).

From Table 18 we can see that the scores of the students' use of SRL generally decreased after the experiment, except in some subscales for certain groups. For example, Group 1 achieved a trivial positive gained score on the Control of Learning Beliefs ($M = 0.06$); Group 3 achieved small positive gained scores in the aspects of Self-Efficacy ($M = 0.07$), Metacognitive Self-Regulation ($M = 0.19$), and Effort Regulation ($M = 0.07$). Group 4 as the control group attained minor positive gained scores in the area of Metacognitive Self-Regulation ($M = 0.01$) and Effort Regulation ($M = 0.07$). The only group in this study who did not achieve any positive gained score in all subscales of SRL after the experiment was Group 2.

Table 17

ANOVA Table of the Students' Use of SRL before and after the Experiment (the Combined Data)

		Sum of Squares	*df*	Mean Square	*F*	Sig.
CLB1	Between Groups	0.959	3	0.320	0.436	.728
	Within Groups	76.219	104	0.733		
	Total	77.178	107			
SE1	Between Groups	3.342	3	1.114	1.326	.270
	Within Groups	87.351	104	0.840		
	Total	90.693	107			
MSR1	Between Groups	1.932	3	0.644	1.118	.345
	Within Groups	59.926	104	0.576		
	Total	61.858	107			
TSE1	Between Groups	2.845	3	0.948	1.301	.278
	Within Groups	75.787	104	0.729		
	Total	78.632	107			
ER1	Between Groups	2.90285	3	0.995	1.038	.379
	Within Groups	99.652	104	0.958		
	Total	102.637	107			
CLB2	Between Groups	1.498	3	0.499	1.041	.378
	Within Groups	49.905	104	0.480		
	Total	51.403	107			
SE2	Between Groups	.463	3	0.154	0.206	.892
	Within Groups	78.001	104	0.750		
	Total	78.464	107			
MSR2	Between Groups	1.640	3	0.547	1.052	.373
	Within Groups	54.047	104	0.520		
	Total	55.687	107			
TSE2	Between Groups	1.040	3	0.347	0.443	.722
	Within Groups	81.329	104	0.782		
	Total	82.369	107			
ER2	Between Groups	.943	3	0.314	0.300	.825
	Within Groups	108.930	104	1.047		
	Total	109.873	107			

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation. 1 = before the experiment or in the beginning of the study, 2 = after the experiment or at the end of the study.

The test of homogeneity of variances showed no indications of unequal variances between the groups ($p > .05$) on the gained scores of SRL. Moreover, the ANOVA table revealed that no significant differences in SRL gained scores were found between the groups on the Control of Learning Beliefs, F (3, 104) = 0.10, p = .961; Self-Efficacy, F (3, 104) = 1.29, p = .281; Metacognitive Self-Regulation, F (3, 104) = 0.93, p = .430; Time and Study Environment, F (3, 104) = 1.06, p = .368; and Effort Regulation, F (3, 104) = 0.96, p = .417. Thus, the test did

not support Hypothesis 1 when the data from the first and second data collection were combined. The provision of the Learning Strategy Intervention and Study Time Management Intervention did not seem to bring an effect on the students' use of SRL.

Table 18

The Gained Scores of SRL after the Experiment (the Combined Data)

Group		CLB	SE	MSR	TSE	ER
1	N	20	20	20	20	20
	M	0.06	-0.25	0.02	-0.21	-0.23
	SD	0.63	0.76	0.56	0.84	0.81
2	N	15	15	15	15	15
	M	-0.07	-0.44	-0.15	-0.40	-0.27
	SD	0.49	0.96	0.65	0.96	1.06
3	N	23	23	23	23	23
	M	-0.04	0.07	0.19	0.00	0.07
	SD	1.06	0.79	0.66	0.89	0.71
4	N	50	50	50	50	50
	M	-0.04	-0.19	0.01	-0.03	0.07
	SD	0.80	0.80	0.61	0.69	0.79
Total	N	108	108	108	108	108
	M	-0.02	-0.18	0.03	-0.11	-0.06
	SD	0.79	0.82	0.62	0.80	0.82

Note: CLB = Control of learning beliefs, SE = Self-efficacy, MSR = Metacognitive self-regulation, TSE = Time and study environment, ER = Effort regulation.

Despite the nonsignificant results of the testing for Hypothesis 1, some students gave positive comments regarding the intervention materials. Some of their comments on the Learning Strategy Intervention were as follows:

> "CERDAS learning strategy is very good to guide students on how to study successfully at UT, especially for me who just begins studying at UT."
>
> "This learning strategy material is helpful. Unfortunately I just learned it now when I am in the 3rd semester at UT; I was confused and have been struggling to find the best learning strategy my own way since semester 1. I suggest that this learning strategy material be posted on UT's Website so that it is open to all UT students."
>
> "…. With this support service I feel very much helped to evaluate what I have carried out this far in order to improve my learning strategy that matches with my ability…. I hope this guidance can be disseminated to all regional centers, not

only provided as an online tutorial, because not all regions can have access to the internet …."

"Very helpful in applying self-discipline and improve ourselves in what we lack in studying."

"The CERDAS learning strategy motivates me to study harder and manage my study time more efficiently."

"Basically, this material is useful for students but we need self-discipline to be able to apply these strategies."

"I will make a study plan and a more detailed study schedule. I hope with these guidelines I will be more motivated to study and not stay all nighters. With the study plan hopefully I can be motivated again whenever I feel down."

"I will try to apply these strategies. However I work up to 10 hours which, makes me so tired to study after work. These strategies are very good as long as we can implement them in our busy days."

Regarding the Study Time Management Intervention, a few students commented on the intervention material, as such:

"It is very good at guiding me to stick to my study schedule."

"Although I feel rushed, this method helps me keep on track."

"The study time management guidance is useful to help regulate weekly study time. It helps plan learning goals we want to achieve each week."

"The study time management guideline is very useful. It helps us conduct independent study regularly and measurably."

"This guidance is very useful. Previously I never planned my study time so it was difficult to complete studying all the courses I took. With this guidance I hope I can be helped to study with more regulation."

"It is not that useful since we have to exercise a high degree of self-discipline to be able to apply this study time guidance. We are full time workers, so that following the tight study schedule will be very difficult."

Students provided with the study time management intervention (Group 1 and 3) were suggested to carry out weekly tasks, which were (1) to plan learning goals every week of the

semester and (2) evaluate the completion of the learning goals. When asked about their opinions on whether it is necessary for students to plan and evaluate their learning goals every week, some of their perceptions were as follows.

> "It's necessary to be done so we can find out and evaluate our ability and mastery of a topic of study."
>
> "It's necessary to be done; it helps to control which pages and modules I have and have not studied."
>
> "Yes, this way we can realize whether we have achieved our learning goals so that we can do better next week."
>
> "It is important to fill out the entry sheet every week in order to improve our self-discipline and self-regulation."

When asked their opinions about the benefit of the weekly entry sheets for them, the respondents gave positive comments, such as:

> "With the provision of the entry sheet, my study activities become more guided and focused. I expect to achieve my learning goals every week so that there is always some progress accomplished every week."
>
> "The entry sheet is needed to plan study time and monitor the attainment of the study plan."
>
> "It helps me to focus on modules to be studied every week because previously I only made a list of the modules and the learning activities need to be studied and put a checked mark whenever I have completed them."
>
> "Filling out that entry sheet helps us to learn whether or not we achieved our learning goals."

Effects on the Students' Achievement

The levels of the students' achievement between groups were analyzed in accordance with Hypothesis 2, that is "Students who were provided with the intervention achieved better in the final examination." In order to test this hypothesis, the data included in the analysis were the active participants in Group 1, 2, and 3 together with all students in Group 4 who took the final examination for a particular course.

For the first wave of data collection, the final examination scores to be analyzed were those of the Introduction to Social Statistics. For the second wave of data collection, the final examination scores used for the analysis were students' scores on a particular course that they chose when they filled out the Learning Strategy Questionnaire, which was one that they thought to be difficult to learn. Accordingly, the scores of the final examination of the combined data were basically the scores of the courses that were obtained by the students in the first and second waves of the data collection.

The First Wave of Data

All participants in the first wave of data were those registered in the Introduction to Social Statistics course in the semester of 2011.1. Unfortunately, not all students in the first wave of data collection who completed reading the intervention material in Group 1, 2, and 3 took the final examination for that course. A student explained voluntarily that she often could not take the final examinations because she had an assignment from her office that she could not reject at the dates of the examination. Students who did not take the final examination for the Introduction to Social Statistics in 2011.1 were not included in the analysis. The total sample for this analysis comprised of 51 students.

Table 19

The Descriptive Statistics of the Students' Final Examination Scores (the First Wave)

Group	*n*	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	9	40.3189	15.67788	5.22596	28.2678	52.3700	20.00	71.43
2	8	45.3575	12.16544	4.30113	35.1869	55.5281	25.71	62.86
3	13	46.1546	10.15845	2.81745	40.0159	52.2933	31.43	60.00
4	21	41.0886	8.40198	1.83346	37.2640	44.9131	22.86	54.29
Total	51	42.9137	10.92467	1.52976	39.8411	45.9863	20.00	71.43

In order to test this hypothesis, a one-way ANOVA analysis was carried out to learn whether students provided with the intervention(s) achieved better in the final examination. The results of the means comparison analysis showed that Group 3 had the highest mean of the examination score (M = 46.15, SD = 10.16) among the four groups, while Group 1 scored the

lowest (M = 40.32, SD = 15.68). It might be worth noticing that Group 1 consisted of students with the widest range of achievement on the final examination in this study (see Table 19). Group 3, on the other hand, comprised of students with more homogenous achievement in the final examination.

The test of homogeneity of variances showed no significant differences between group variances, F (3, 47) = 1.55, p = .214. A further analysis of a one-way ANOVA resulted in no significant mean difference in the final examination scores between the groups, F (3, 47) = 0.87, p = .462. Therefore, the test results did not support Hypothesis 2 for the first wave of data in this study. This means that the provision of the intervention material(s) did not seem to bring any effect on the student achievement for the Introduction to Social Statistics course.

The Second Wave of Data

The number of participants who fitted the analysis criteria was 109 students. Similar to what happened in the first wave of data collection, many students did not take the final examination for the course they chose when filling out the Learning Strategy Questionnaire. A student responded to the reminder email explaining that he did not submit the second questionnaire for he did not take the final examination due to his being assigned to attend a workshop by his office at the time of the examination.

Table 20

The Descriptive Statistics of the Students' Final Examination Scores (the Second Wave)

Group	*n*	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	15	44.4880	13.16971	3.40041	37.1949	51.7811	23.33	64.44
2	10	52.5820	12.53784	3.96481	43.6130	61.5510	37.14	73.00
3	19	57.0647	18.12069	4.15717	48.3308	65.7986	25.71	92.00
4	65	48.8195	16.49668	2.04616	44.7319	52.9072	12.50	90.00
Total	109	50.0059	16.31055	1.56227	46.9092	53.1026	12.50	92.00

A one-way ANOVA analysis was carried out to learn whether students provided with the intervention(s) achieved better in the final examination. The results of the means comparison analysis showed that Group 3 had the highest mean of the examination score (M = 57.06, SD =

18.12) among the four groups, while Group 1 scored the lowest (M = 44.49, SD = 13.17). The group whose members had the widest range of achievement on the final examination was Group 4 (see Table 20).

The test of homogeneity of variances indicated no significant result between the groups' variances, F (3, 105) = 1.04, p = .378. The ANOVA table also did not reveal any significant difference in the examination scores between groups, F (3, 105) = 2.01, p = .117. Thus, the results of this analysis did not support Hypothesis 2. Students who read the intervention material on Learning Strategies and/or Study Time Management did not show higher levels of achievement on the final examination on a particular course.

The Combined Data

As mentioned previously, included in the analysis were all students in Group 4 as well as active participants in Group 1, 2, and 3 who took the final examination on a particular course. For students in the first wave, the final examination score was that of the Introduction to Social Statistics course. For students in the second wave, the final examination score was that on a particular course that they chose when responded to the Learning Strategy Questionnaire.

Table 21

The Descriptive Statistics of the Students' Final Examination Scores (the Combined Data)

Group	*n*	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	24	42.9246	13.97563	2.85276	37.0232	48.8260	20.00	71.43
2	18	49.3711	12.56216	2.96093	43.1241	55.6181	25.71	73.00
3	32	52.6325	16.13208	2.85178	46.8163	58.4487	25.71	92.00
4	86	46.8774	15.05257	1.62316	43.6502	50.1047	12.50	90.00
Total	160	47.7161	15.03375	1.18852	45.3687	50.0634	12.50	92.00

When the data from the first and second of data collection were combined, the total number of participants became 160 (n_1 = 51, n_2 = 109). Based on Table 21, students in Group 3 had the highest mean score on the final examination (M = 52.63, SD = 16.13). Group 1 had the lowest mean score (M = 42.92, SD = 13.98). As in the second wave of data, Group 4 had the widest range of achievement since these groups of data was a combined data.

The results of the test of homogeneity of variances did not show any significant difference in the variances between groups, F (3, 156) = 0.31 p = .820. The ANOVA table indicated a significant mean difference in the final examination between groups at a significance level of .10, F (3, 156) = 2.16, p = .095. The Tukey HSD post hoc analysis with a significance level of .10 revealed a significant mean difference between Group 1 and Group 3 (Mean Difference = 9.71, p = .078), with Group 3 achieved a higher mean score than Group 1 on the final examination. The effect size of this mean difference was .64.

Despite this significant difference between Group 3 and 1, the results of the ANOVA test did not support Hypothesis 2 for the combined data of the first and second data collections due to the insignificant difference between the treatment and the control groups. The intervention materials on Learning Strategies and Study Time Management did not seem to have any significant effect on the student achievement on a particular course that they thought to be difficult.

Effects on the Students' Course Completion

The levels of the students' course completion between groups were analyzed in accordance with Hypothesis 3, that is "Students who were provided with the intervention had a higher rate of course completion."

For the purpose of testing this hypothesis, students who received an A, B, or C were considered as completers, whereas students who obtained a D or E were regarded as non completers. (Note: A course grade is computed based on 70-100% of the final examination score and up to 30% of the tutorial assignment score. Students may attend either the online or face-to-face tutorial for any course on an optional basis. Online tutorial assignments contribute to 30% of the course grade, while face-to-face tutorials can make up to 50% of the course grade (Universitas Terbuka, 2012). The assignment score will not be accounted for the course grade if it is lower than the final examination score. If students did not attend any tutorial for a course, their course grades will be calculated only based on their final examination score). Thus, students who had the same final examination scores on the same course could have a different course grade if they scored differently on the tutorial assignments in the related course.

Students included in this analysis were the active participants of the treatment groups as well as the respondents of the control group who took the final examination for a particular

course. For the first wave of data collection, the course grade to be analyzed were those of the Introduction to Social Statistics, which is considered to be a challenging course for many students. For example, the percentages of course completers in the semester of 2009.1 to 2010.2 were only 32%, 23%, 30%, and 32% (The Examination Centre, 2011c). For the second wave of data collection, the course grade used for the analysis were students' grades in a particular course that they chose when they filled out the Learning Strategy Questionnaire (i.e., a course that they thought would be difficult to learn).

The course completion status as the dependent variable for testing Hypothesis 3 was a nominal data consisting of 0 for noncompleter and 1 for completer. Hence, a cross tabulation analysis was chosen to assess whether students who were provided with the intervention material(s) had a higher rate of course completion.

The First Wave of Data

For the first wave of data, the number of the participants matching the analysis criteria was 51. A cross tabulation between the groups and the course completion status showed the number of noncompleters and completers within each group.

From Table 22 we can see that Group 1 had the highest percentage of non completers (67%). This means that more students in Group 1 did not achieve a passing grade and was given the status of non completers than those who passed the course. On the other hand, most students in Group 2 and 3 completed the Introduction to Social Statistic course successfully. As well, Group 4 had more students who completed the course successfully than those who failed.

Although Group 1 seemed to have a much lower rate of the course completion status than the other groups, the Cramer's V did not yield any significant differences in the course completion status between groups ($p = .167$). In this case, the results of the data analysis did not support Hypothesis 3. The Learning Strategy and/or the Study Time Management Interventions used in this study did not seem to have any impact on the student course completion rate.

Table 22

The Number of Completers and Noncompleters (the First Wave)

			Status		Total
			Noncompleter	Completer	
Group	1	Count	6	3	9
		Expected Count	3.5	5.5	9.0
		% within group	66.7%	33.3%	100.0%
	2	Count	2	6	8
		Expected Count	3.1	4.9	8.0
		% within group	25.0%	75.0%	100.0%
	3	Count	3	10	13
		Expected Count	5.1	7.9	13.0
		% within group	23.1%	76.9%	100.0%
	4	Count	9	12	21
		Expected Count	8.2	12.8	21.0
		% within group	42.9%	57.1%	100.0%
Total		Count	20	31	51
		Expected Count	20.0	31.0	51.0
		% within group	39.2%	60.8%	100.0%

The Second Wave of Data

For the second wave of data, the number of participants who met the analysis criteria was 109. Group 1 had the highest percentage of noncompleters compared to the other groups (see Table 23). However, unlike in the first wave of data, the percentages of the completers in all groups were larger than those of the noncompleters.

No significant difference in the number of completers between groups was found (p = .707). Thus, this result did not support Hypothesis 3 for the second wave of data. In this case, the intervention material(s) did not appear to bring a significant effect on the student course completion rate on a particular course that they thought to be challenging.

Table 23

The Number of Completers and Noncompleters (the Second Wave)

			Status		Total
			Noncompleter	Completer	
Group	1	Count	6	9	15
		Expected Count	4.3	10.7	15.0
		% within Group	40.0%	60.0%	100.0%
	2	Count	2	8	10
		Expected Count	2.8	7.2	10.0
		% within Group	20.0%	80.0%	100.0%
	3	Count	5	14	19
		Expected Count	5.4	13.6	18.0
		% within Group	26.3%	73.7%	100.0%
	4	Count	18	47	65
		Expected Count	18.5	46.5	65.0
		% within Group	27.7%	72.3%	100.0%
Total		Count	31	78	109
		Expected Count	31.0	77.0	108.0
		% within Group	28.4%	71.6%	100.0%

The Combined Data

When the first and second wave of data were combined, Group 2 had a higher number of completers (78%) than that in Group 1 (60%), Group 3 (75%), and Group 4 (69%). However, no significant differences were found in the proportion of course completers between groups (p = .164). Thus, the results did not support Hypothesis 3. In this case, the intervention material on Learning Strategies and/or on Study Time Management used in this study did not seem to have any impact on the course completion rate of the students in a particular course.

Table 24

The Number of Completers and Noncompleters (the Combined Data)

			Status		Total
			Noncompleter	Completer	
Group	1	Count	12	12	24
		Expected Count	7.7	16.4	24.0
		% within Group	50.0%	50.0%	100.0%
	2	Count	4	14	18
		Expected Count	5.7	12.3	18.0
		% within Group	22.2%	77.8%	100.0%
	3	Count	8	24	32
		Expected Count	10.2	21.8	32.0
		% within Group	25.0%	75.0%	100.0%
	4	Count	27	59	86
		Expected Count	27.4	58.6	86.0
		% within Group	31.4%	68.6%	100.0%
Total		Count	51	109	160
		Expected Count	51.0	109.0	160.0
		% within Group	31.9%	68.1%	100.0%

The Students' Use of SRL and Their Achievement

The relationships between the students' use of SRL and their achievement in a particular course were examined in relation to Hypothesis 4, that is "Students with higher levels of SRL achieved better in the final examination."

The participants who were included in the analysis were active participants of the treatment groups and respondents in the control group who took the final examination on a particular course. For the first wave of data collection, the final examination scores to be analyzed were those of the Introduction to Social Statistics. For the second wave of data collection, the final examination scores used for the analysis were students' scores on a difficult course that they chose when they filled out the Learning Strategy Questionnaire.

The First Wave of Data

A Pearson's Product Moment correlation was used to examine the relationship between students' use of SRL and the students' scores on the final examination. In this case, the students' perceptions of their use of SRL before and after the experiment were assessed in order to know whether any differences in the magnitude and significance of the relationships between the two variables existed.

Before the Experiment. The total sample size for analyzing the data obtained before the experiment was 51. In this case, the students' responses to the pretest were correlated with the final examination scores. The purpose of the analysis was to depict how the students' perceptions of their use of SRL when studying a certain course before the experiment were related to their achievement on that course.

The correlation matrix (Table 25) indicated that the students' use of SRL in the area of Metacognitive Self-Regulation was significantly correlated with the Final Examination, r (51) = 0.354, p = .011. The positive correlation signified that students who scored higher on the pretest on their perceptions about their use of Metacognitive Self-Regulation when studying a particular course appeared to also achieve better on the final examination of that particular course. Thus, the results of the analysis partly supported Hypothesis 4.

Table 25

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Achievement on the Final Examination (the First Wave, n = 51)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.593**	.542**	.374**	.469**	.248
2. Self-Efficacy		-	.601**	.514**	.625**	.165
3. Metacognitive Self-Regulation			-	.757**	.751**	.354*
4. Time and Study Environment				-	.621**	.086
5. Effort Regulation					-	.202
6. Achievement						-

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

The subscales of the Motivational Beliefs scale were significantly correlated with the subscales of Learning Strategies scale. Self-Efficacy of the Motivational Beliefs scale was mostly related to Effort Regulation (r = .63) of the Learning Strategies scale. Among the Learning Strategies scale Metacognitive Self-Regulation was mostly associated with Time and Study Environment (r = .76) and Effort Regulation (r = .75).

After the Experiment. In order to demonstrate the perceptions of the students about their use of SRL after the experiment, this analysis only used their responses in the second questionnaire. The total number of respondents that met the analysis criteria was 39.

Table 26 showed that no significant relationship was found between the subscales of the SRL and the final examination scores after the experiment ($p > .05$). The correlations of Control of Learning Beliefs, Metacognitive Self-Regulation, and Effort Regulation with the student achievement decreased after the experiment. In short, the results of the analysis using the students' responses after the experiment did not support Hypothesis 4. There was no significant evidence that students who scored higher on their perceptions on the use of SRL after the experiment also showed a better achievement on the final examination.

Table 26

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Achievement on the Final Examination (the First Wave, n = 39)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.701**	.539**	.309	.464**	.150
2. Self-Efficacy		-	.548**	.489**	.631**	.165
3. Metacognitive Self-Regulation			-	.680**	.780**	.257
4. Time and Study Environment				-	.453**	.151
5. Effort Regulation					-	.165
6. Achievement						-

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

One of the Motivational Beliefs scale, Control of Learning Beliefs, was not significantly related to Time and Study Environment at the end of the study. On the other hand, all of the other subscales were still significantly correlated with each other. Metacognitive Self-Regulation had a fairly strong relationship, to a lesser degree compared to that before the experiment, with Time and Study Environment ($r = .68$) and a stronger correlation with Effort Regulation ($r = .78$). However, the correlation between Time and Study Environment and Effort Regulation decreased considerably (from $r = .62$ before the experiment to $r = .45$ after the experiment).

The Second Wave of Data

As in the first wave of data, students' responses to the Learning Strategy Questionnaire both on the pre and posttest were analyzed to understand the patterns of relationships that may occur between the students' use of SRL when studying a course and their achievement on the final examination.

Before the Experiment. For the correlation analysis using the students' responses to the pretest, the number of participants that matched the analysis criteria was 109. This analysis resulted in no significant correlations between the students' use of SRL before the experiment with their achievement on the final examination (Table 27). Moreover, the correlation coefficients were very low. For example, the correlation between Self-Efficacy and the student achievement, which was the largest correlation resulted in this analysis, was r (109) = .16, p = .108. The smallest correlation in magnitude was found in Metacognitive Self-Regulation, r (109) = .05, p = .591.

Among the subscales of SRL, the highest correlations existed between Metacognitive Self-Regulation and Effort Regulation (r = .71), followed by Time and Study Environment and Effort Regulation (r = .61). Control of Learning Beliefs as a subscale of Motivational Beliefs was only significantly associated with Metacognitive Self-Regulation (r = .44) as a subscale of Learning Strategies. On the other hand, Self-Efficacy as another subscale of Motivational Beliefs was significantly associated with all of the subscales of Learning Strategies.

Table 27

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Achievement on the Final Examination (the Second Wave, n = 109)

	1	2	3	4	5	6
1. Control of Learning Beliefs		.440**	.435**	.176	.187	.115
2. Self-Efficacy		-	.568**	.414**	.501**	.155
3. Metacognitive Self-Regulation			-	.579**	.609**	.052
4. Time and Study Environment				-	.707**	.072
5. Effort Regulation					-	.108
6. Achievement						-

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

After the Experiment. The number of participants that met the analysis criteria for assessing the relationships of the students' use of SRL after the experiment and their achievement was 55. Based on the correlation matrix presented in Table 28, there were no significant correlations found between the students' use of SRL in all subscales and the student achievement on the final examination (p > .05).

The correlation of the subscales of the SRL decreased, except for Metacognitive Self-Regulation and Time and Study Environment which increased in magnitude although still not

significant. For example, Metacognitive Self-Regulation increased from r (109) = .05, p = .591 to r (55) = .18, p = .184. The correlation of Self-Efficacy and Effort Regulation, however, did not only decrease in magnitude, but also became negatively correlated with the student achievement on the final examination. With no significant correlations obtained from the analysis, this means that the correlation analysis using the students' responses after the experiment did not support Hypothesis 4.

Table 28

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Achievement on the Final Examination (the Second Wave, n = 55)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.387**	.234	-.001	.237	.001
2. Self-Efficacy		-	.654**	.540**	.602**	-.048
3. Metacognitive Self-Regulation			-	.500**	.670**	.182
4. Time and Study Environment				-	.576**	.062
5. Effort Regulation					-	-.036
6. Achievement						-

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

Control of Learning Beliefs did not correlate significantly with all subscales of the Learning Strategies scale, while Self-Efficacy correlated with all of the subscales of SRL. Among the subscales of SRL, the highest correlations occurred between Self-Efficacy with Metacognitive Self-regulation (r = .65) and between Metacognitive Self-Regulation with Effort Regulation (r = .67).

The Combined Data

For the combined data, the total sample needed for the analysis using the students' responses to the first questionnaire was 160 (n_1 = 51, n_2 = 109). In accordance, the number of respondents for the analysis using the students' responses to the second questionnaire was 94 (n_1 = 39, n_2 = 55).

Before the Experiment. The analysis using the combined data of the students' responses to the first questionnaire showed no significant correlation between any of the subscales of the SRL before the experiment and the student achievement on the final examination (see Table 29).

The highest level of correlation existed between Control of Learning Beliefs and student achievement, r (160) = .15, p = .065. The lowest degree of correlation occurred between Time and Study Environment with student achievement, r (160) = .06, p = .464. Therefore, the analysis of the students' use of the SRL before the experiment did not support Hypothesis 4.

Table 29

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Achievement on the Final Examination (the Combined Data, n = 160)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.470**	.455**	.233**	.259**	.147
2. Self-Efficacy		-	.571**	.435**	.530**	.139
3. Metacognitive Self-Regulation			-	.642**	.661**	.089
4. Time and Study Environment				-	.678**	.058
5. Effort Regulation					-	.096
6. Achievement						-

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

All of the subscales of Motivational Beliefs was significantly related to the subscales of Learning Strategies. Among the subscales of SRL, the highest degree of correlations existed between Time and Study Environment and Effort Regulation (r = . 68) and between Metacognitive Self-Regulation and Effort Regulation (r = .66).

After the Experiment. The analysis using the students' responses to the second questionnaire (posttest) yielded a significant correlation between Metacognitive Self-Regulation and the student achievement on the final examination of a specific course, r (94) = .20, p = .048 (see Table 30). Another correlation which increased in magnitude was that of Time and Study Environment and student achievement, from r (160) = .06, p = .464 before the experiment to r (94) = .13, p = .199, although the correlation remained not significant. However, all the other correlations decreased in magnitude (e.g., Control of Learning Beliefs, from r (160) = .15, p = .065 before the experiment to r (94) = .06, p = .574). Based on the results of the correlation analysis, we could say that the analysis using the students' responses after the experiment partly supported Hypothesis 4.

Control of Learning Beliefs was related to all subscales of the SRL, except with Time and Study Environment, while Self-Efficacy correlated more strongly with all the subscales of the Learning Strategies scale. The highest correlation between the subscales of SRL was found between Metacognitive Self-Regulation and Effort Regulation ($r = .72$).

Table 30

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Achievement on the Final Examination (the Combined Data, n = 94)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.508**	.370**	.151	.368**	.059
2. Self-Efficacy		-	.606**	.506**	.611**	.031
3. Metacognitive Self-Regulation			-	.618**	.721**	**.204***
4. Time and Study Environment				-	.514**	.134
5. Effort Regulation					-	.056
6. Achievement						-

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

The Students' Use of SRL and Their Course Completion

The relationships between the students' use of SRL and their achievement in a particular course were examined in relation to Hypothesis 4, that is "Students with higher levels of SRL had a higher completion rate."

In order to be included in the analysis, students should be active participants of the treatment groups or respondents of the control group who took the final examination in a particular course. For the first wave of data collection, the course completion status to be analyzed was those of the Introduction to Social Statistics. For the second wave of data collection, the course completion status used for the analysis was that on a particular course that the students chose when they filled out the Learning Strategy Questionnaire. Thus, basically the course completion status for the second wave of data was determined based on the grades obtained by the students in the related courses.

The First Wave of Data

A Pearson's correlation was used to assess the relationship between students' use of SRL and the students' course completion status. In this case, the students' perceptions of their use of SRL before and after the experiment were assessed in order to know whether any differences in the magnitude and significance of the relationships between the two variables existed. The students' responses to the pretest were used to assess the relationships between the students' perceptions of their use of the SRL before the experiment with the student course completion status. In accordance, the students' responses to the posttest were used to assess the relationships between the students' perceptions of their use of the SRL after the experiment with the course completion status.

Before the Experiment. The number of participants included in the analysis using the students' responses to the pretest was 51. The resulted correlation matrix indicated that Metacognitive Self-Regulation was significantly correlated with the course completion status, r (51) = .31, p = .028 (see Table 31). Another significant correlation also existed between Effort Regulation and the course completion status, r (51) = .34, p = .014. Hence, this analysis partly supported Hypothesis 5. That is, students who scored higher on their use of the Metacognitive Self-Regulation and Effort Regulation when studying a challenging course, such as the Introduction to Statistic course, seemed to complete the course more successfully.

Table 31

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Course Completion Status (the First Wave, n = 51)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.593**	.542**	.374**	.469**	.184
2. Self-Efficacy		-	.601**	.514**	.625**	.152
3. Metacognitive Self-Regulation			-	.757**	.751**	.309*
4. Time and Study Environment				-	.621**	.043
5. Effort Regulation					-	.341*
6. Course Completion						-

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

All of the subscales of Motivational Beliefs correlated significantly with the subscales of Learning Strategies. In this case, Self-Efficacy was mostly related to Effort Regulation (r = .63).

Among the Learning Strategies Scale, Metacognitive Self-Regulation had the strongest correlations with Time and Study Environment (r = .76) and Effort Regulation (r = .75).

After the Experiment. The number of participants included in the analysis was 39. The results of the correlation analysis using the students' responses on the second questionnaire showed that significant relationships were found between Metacognitive Self-Regulation and the course completion status. The correlation coefficient between Metacognitive Self-Regulation and the course completion increased considerably from r (51) = .31, p = .028 before the experiment to r (39) = .46, p = .004. As well, Effort Regulation and the course completion status were significantly correlated. The relationship between Effort Regulation and course completion increased, from r (51) = .31, p = .014 before the experiment to r (39) = .35, p = .028. In addition, the correlations of Control of Learning Beliefs, Self-Efficacy and Time and Study Environment with the course completion increased in magnitude after the experiment, although still not significant. Therefore, the results of the analysis partly supported Hypothesis 5.

Table 32

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Course Completion Status (the First Wave, n = 39)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.701**	.539**	.309	.464**	.272
2. Self-Efficacy		1	.548**	.489**	.631**	.286
3. Metacognitive Self-Regulation		-	-	.680**	.780**	.455**
4. Time and Study Environment				-	.453**	.132
5. Effort Regulation					-	.352*
6. Course Completion						-

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

Control of Learning Beliefs correlated significantly with all subscales of SRL, except with Time and Study Environment. Metacognitive Self-Regulation was associated mostly with Effort Regulation (r = .78) and with Time and Study Environment (r = .68).

The Second Wave of Data

As aforementioned, the course completion status used for this analysis was determined based on the grades obtained by the students on the course that they chose when responding to the Learning Strategy Questionnaire.

Before the Experiment. The number of participants that was included in the analysis was 109. The analysis using the students' responses to the pretest resulted in all low, no significant correlations between the subscales of the SRL with the course completion status. The highest degree of the correlation occurred between Self-Efficacy and the course completion, r (109) = .14, p = .140. The lowest magnitude of the correlation existed between Control of Learning Beliefs and the course completion, r (109) = .05, p = .586 (see Table 33). In this case, the results of the analysis using the students' data of the second wave did not support Hypothesis 5.

Table 33

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Course Completion Status (the Second Wave, n = 109)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.440**	.435**	.176	.187	.053
2. Self-Efficacy		-	.568**	.414**	.501**	.142
3. Metacognitive Self-Regulation			-	.579**	.609**	.108
4. Time and Study Environment				-	.707**	.076
5. Effort Regulation					-	.114
6. Course Completion						-

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

Unlike in the first wave, the subscale of Control Beliefs in this second wave was only related to Metacognitive Self-Regulation of the scale of Learning Strategies. The strongest relationship occurred between Time and Study Environment with Effort Regulation (r = .71), followed by that of Metacognitive Self-Regulation with Effort Regulation (r = .61).

After the Experiment. For this second wave of data, the number of participants comprised of 55 students. After the experiment, the Metacognitive Self-Regulation appeared to be significantly correlated with the course completion, r (55) = .29, p = 031. Nevertheless, all the other correlations decreased in magnitude. In addition, a negative correlation was found between Time and Study Management and the course completion, r (55) = -.03, p = .840. Likewise, Effort

Regulation was found to be negatively correlated with the course completion status, r (55) = -.07, p = .633. Thus, the results of this analysis partly supported Hypothesis 5.

At the end of the study, Control of Learning Beliefs was not related to any subscales of the Learning Strategies scale, while Self-Efficacy had moderate relationships with all subscales of the Learning Strategies scale, especially with Metacognitive Self-Regulation (r = .65). Among the scale of Learning Strategies, Metacognitive Self-Regulation had the strongest association with Effort Regulation (r = .67).

Table 34

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Course Completion Status (the Second Wave, n = 55)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.387**	.234	-.001	.237	.047
2. Self-Efficacy		-	.654**	.540**	.602**	.057
3. Metacognitive Self-Regulation			-	.560**	.670**	.291*
4. Time and Study Environment				-	.576**	-.028
5. Effort Regulation					-	-.066
6. Course Completion						-

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

The Combined Data

In addition, the course completion status for the combined data was simply the combination of the course completion status of both waves of data collection.

Before the Experiment. The number of participants was the entire respondents who matched the analysis criteria in the first and the second waves of data, which was 160 (n_1 = 51, n_2 = 109). The correlation matrix (see Table 35) resulted from the analysis using the students' responses to the pretest showed that Metacognitive Self-Regulation was significantly but weakly correlated with the course completion status, r (160) = .18, p =.027 (See Table 35). Effort Regulation was also found to be significantly but weakly correlated with the students' course completion, r (160) = .19, p =.017. The other subscales of the SRL had lower and nonsignificant correlations with the students' course completion (e.g., r = .11, p = .157 for Control of Learning Beliefs). Therefore, the analysis using the combined data of the students' responses to the pretest partly but hardly supported Hypothesis 5.

All of the subscales of Motivational Beliefs correlated moderately with all subscales of the Learning Strategies. The strongest relationship was found between Self-Efficacy and Metacognitive Self-regulation (r = .57). On the other hand, among the subscales of Learning Strategies, the most strongly relation occurred between Time and Study Environment with Effort Regulation (r = .68) and between Metacognitive Self-regulation with Effort Regulation (r = .66).

Table 35

The Pearson's Correlations between the Students' Use of SRL before the Experiment and Their Course Completion Status (the Combined Data, n = 160)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.470**	.455**	.233**	.259**	.112
2. Self-Efficacy		-	.571**	.435**	.530**	.132
3. Metacognitive Self-Regulation			-	.642**	.661**	.175*
4. Time and Study Environment				-	.678**	.077
5. Effort Regulation					-	.188*
6. Course Completion						-

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

After the Experiment. Based on the students' responses to the posttest, the produced correlation matrix (Table 36) indicated that Metacognitive Self-Regulation was the only subscale of the SRL which was significantly correlated with the course completion status, r (94) = .37, p < .001. The magnitude of the correlation between these two variables was much higher than that before the experiment (r (94) = .18, p = .027).

All the other subscales' correlations with the course completion also increased in magnitude although not significant, except for Effort Regulation which decreased, from r (160) = .19, p = .017 before the experiment to r (94) = .14, p = .165. Thus, the analysis using the combined data of the students' responses to the posttest only partly supported Hypothesis 5.

Among the subscales of SRL, the only nonsignificant relationship was found between Control of Learning Beliefs and Time and Study Environment. The strongest relationship existed between Metacognitive Self-Regulation and Effort Regulation (r = .72).

Table 36

The Pearson's Correlations between the Students' Use of SRL after the Experiment and Their Course Completion Status (the Combined Data, n = 94)

	1	2	3	4	5	6
1. Control of Learning Beliefs	-	.508**	.370**	.151	.338**	.153
2. Self-Efficacy		-	.606**	.506**	.611**	.157
3. Metacognitive Self-Regulation			-	.618**	.721**	.369**
4. Time and Study Environment				-	.514**	.082
5. Effort Regulation					-	.144
6. Course Completion						-

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

CHAPTER FIVE
DISCUSSION

As stated previously, this dissertation was conducted with three purposes, specifically: (1) to find out the effects of a learning strategy intervention on the students' use of SRL, achievement, and course completion in a distance education setting, (2) to find out the effects of a study time management intervention on the students' use of SRL, achievement, and course completion, and (3) to find out whether students with higher levels of SRL also have higher levels of achievement and course completion. In accordance, five hypotheses were assessed in relation to these study purposes. This chapter discusses the findings of this study with regard to each hypothesis.

Effects on the Students' Use of SRL

The effects of the intervention on the students' use of SRL was assessed in relation to testing Hypothesis 1, that is "Students who were provided with the intervention gained an increase in the use of SRL compared to those who were not provided with the intervention."

In the first wave of data, there were no significant mean differences in any subscales of SRL found between the treatment and the control groups at the beginning of the study or on the pretest. Therefore it can be concluded that the treatment and control groups had similar levels of the use of SRL before the experiment. The participants in all groups generally had higher scores on the scale of Motivational Beliefs (i.e., Control of Learning Beliefs and Self-Efficacy) than on the Learning Strategies scale (i.e., Metacognitive Self-Regulation, Time and Study Environment, and Effort Regulation) for the first wave of data. These results indicated that the study participants had enough confidence in their capabilities to master the course content. The results were encouraging as students who have enough confidence in their capabilities are expected to work hard on the course (Schunk, 1990). Literature illustrated that students' motivation was an important factor of students' achievement and persistence in distance education and blended settings (Aragon & Johnson, 2008; Doherty, 2006; Holder, 2007; Roblyer, 1999).

Despite having a high level of motivational beliefs, the results of the test using the first wave of data for testing Hypothesis 1 did not support the hypothesis. This means that the Learning Strategy Intervention and or the Study Time Intervention used in this study appeared to

have no significant effect to increase the students' use of SRL after the experiment for the students in the first wave of data collection. These results contradict previous research which found that training in learning strategies could enhance the students' use of SRL (Azevedo & Cromley, 2004; Hofer & Yu, 2003; Jung, 2008). Training on time management was also reported to improve the time management skills of the participants (Jung, 2008; Lynch & Kogan, 2004; Terry, 2002). However, some studies also reported nonsignificant findings as a result of training or intervention on SRL (Hu, 2007; Kimber, 2009). Based on the meta analysis of 51 studies on learning skills interventions, Hattie et al. (1996) also found that the interventions that taught about performance measures were less effective than those teaching about affective measures.

One explanation for the nonsignificant results could be the small sample size, which was the primary limitation of this study. When the sample size is too small, it is difficult to detect a significant result (Coladarci, Cobb, Minium, & Clarke, 2001). In fact, the small number of active participants who submitted the questionnaire on the posttest was the main reason for conducting the second data collection. In addition, the smaller number of participants in the treatment groups compared to that of the control group could also have something to do with the nonsignificant findings. As well, the students' responses to the self-report survey may change after the examination due to their performance on the test.

In spite of the nonsignificant findings of the gained scores of SRL, it should be noted that the students who read the Learning Strategy Material indicated a greater use of Metacognitive Self-Regulation when studying the Introduction to Social Statistics than those who did not read any intervention material and those who read both the Learning Strategy and the Study Time Management materials. The mean difference in the scores of Metacognitive Self-Regulation on the posttest that existed between the students who read the Learning Strategy Intervention and those in the control group had a large effect size (*ES* = 1.28). This means that the group that read the Learning Strategy Intervention outperformed the control group by 1.28 of a standard deviation in Metacognitive Self-Regulation after the experiment. This result indicated that even though the sample size of the treatment group was not large enough to bring more convincing effect, the Learning Strategy Intervention indicated the potency of a large practical effect on the students' use of Metacognitive Self-Regulation. The large effect size signified that had the sample size of the treatment groups been larger, the findings of the test of Hypothesis 1 for the first wave of data might have had a better effect.

Moreover, students who read the Learning Strategy Intervention alone seemed to have a better use of Metacognitive Self-Regulation than those who read this intervention together with the Study Time Management Intervention (Mean Difference = 1.00, p = .075, ES = 1.42). This indicated that students who only read the Learning Strategy Intervention outperformed the group who read both interventions by 1.42 of a standard deviation on Metacognitive Self-regulation. The effect size was quite large, indicating that a larger sample size in both groups would lead to a better effect. This finding might have something to do with the limited time the students have so that students who received both intervention materials experienced more cognitive overload that may decrease their use of Metacognitive Self-regulation.

Despite the nonsignificant findings found in the gained scores of SRL in the first wave of data, the control group in this wave had the largest decrease on the gained score on the subscale of Metacognitive Self-Regulation compared to the other groups. To be precise, students who read the Learning Strategy Intervention (Group 1 and 2) did obtain an increase in the use of Metacognitive Self-Regulation while the groups who did not receive this intervention obtained a decreased score on this subscale (see Table 10). The subscale of Metacognitive Self-Regulation measures the effort of students in monitoring their comprehension of the course materials being studied. Thus, when students scored low in this subscale, it means that the students still did not have the capabilities or willingness to check whether they have mastered their learning goals or not. It seemed that when all students were asked to think about a particular course determined for them (i.e., the Introduction to Social Statistics in this case), the students were more able to relate to the learning strategies that they used when studying for that course at the time they responded to the Learning Strategy Questionnaire. Also, when studying the intervention materials, they may feel more motivated to apply the newly acquired knowledge when studying that specific course.

On the other hand, students who read the Study Time Management did not gain an increase in the mean score on any subscale of SRL, not even in the subscale of Time and Study Environment. This indicates that the students still did not consider themselves exercising the time management skills to work on this course, such as setting aside a regular study schedule for this course, spending enough time on completing the coursework, or setting a specific place to work on the course. However, among the treatment groups, students who did not read the Study Time Management intervention (group 2 and 4) experienced a larger decrease in the mean scores

of Time and Study Environment than the groups who read the intervention material (Group 1 and 3, see Table 10). Group 4 as the control group experienced the largest decrease of score in this subscale of Time and Study Environment.

Past research reported that students who had difficulty in managing their time were reported to be more likely to be low achievers or quit their study (Doherty, 2006; Fozdar, et al., 2006; Roblyer, 1999). According to these authors, those who can preserve their commitment and manage their limited time will be more likely to complete their study in distance education. Some students may not feel ready to face the challenges of improving time management, because it means to have less time for other activities, such as earning money or spending time with family and friends (Hirsch, 2001). Thus, the finding that the participants of this study did not perceive themselves as exercising a good time and study management and did not gain an increase on the subscale of Time and Study Environment after the experiment should be of concern for the management of UT.

In the second wave of data, there were also no significant mean differences found between the treatment and the control groups at the beginning of the study. Therefore we can assume that the treatment and control groups had similar levels of the use of SRL before the experiment. As well, similar to the first wave of data, the participants in all groups in the second wave generally had higher scores on the scale of Motivational Beliefs (i.e., Control of Learning Beliefs and Self-Efficacy) than on the Learning Strategies scale (i.e., Metacognitive Self-Regulation, Time and Study Environment, and Effort Regulation). As in the first wave of data, the results of the test using the second wave of data also did not support the Hypothesis 1. This means that the interventions did not have a positive impact to increase the use of the SRL for the students in the treatment groups when studying a challenging course. However, noticeable gained scores can be observed in the group who only read the Study Time Management Intervention (Group 3). This group obtained positive gains of SRL scores almost in all subscales of SRL, except in the subscale of Control of Learning Beliefs.

The students who read the Study Time Management Intervention (Group 3) seemed to gain more benefit on the Metacognitive Self-Regulation aspect than students who read the Learning Strategy Intervention only (Group 2) and those who read both intervention materials (Group 1). Despite the almost significant mean difference (p = .053) on the gained score of Metacognitive Self-Regulation between Group 3 and Group 2, the effect size was quite large (*ES*

= 1.18). This means that students who only read the Time Management Intervention outscored those who only read the Learning Strategy Intervention on Metacognitive Self-regulation by 1.18 of a standard deviation. Thus, in spite of the small sample sizes in these treatment groups, the effect of the Study Time Management Intervention indicated a practical effect on the students' use of Metacognitive Self-Regulation. This might relate to the material of the Study Time management Intervention that covers the knowledge of how to plan a study schedule, set weekly learning goals, and monitor the achievement of the goals. These activities match with the activities of the time management skills defined by (Pintrich, 2004; Schunk, 2005) where learners are taught how to plan, schedule, plan, and manage their study time. The purpose of teaching these skills is to help students acquire a regular learning habit and finish studying a course in time. By doing so, students can be helped in accomplishing their learning goals (Dabbagh & Kitsantas, 2005).

The activities included in the study time management skills made it possible for students to conduct the Metacognitive Self-Regulation activities which concern with planning, monitoring, and regulating the cognition while studying a course (Pintrich et al., 1993). The time management skills focuses on the strategies used to manage study time in order to accomplish a set of learning goals in a certain time period. For example, if a student plan to study a chapter on Quantitative Data Analysis on week 7, he should make sure to monitor whether he actually studied and accomplished his learning goal to study that chapter. On the other hand, the Metacognitive Self-Regulation activities focus on the strategies used to manage the cognition in the attempt to master the learning goals. For instance, in practicing the Metacognitive Self-Regulation activities students can make questions or complete the self-assessment in order to check their comprehension of the topic being studied. They should make sure to not only conduct the action of studying (e.g., finish reading 10 pages on Quantitative Data Statistics) but also to check that they understand the topic being studied (e.g., by summarizing or completing some practice items on that topic).

The evidence that students who only read the Study Time Management Intervention outscored those who read both interventions on Metacognitive Self-Regulation indicated that having two interventions to learn in one semester might be too much to handle for these students. Moreover, students in Group 2 (only read the Learning Strategy Intervention) seemed to obtain the lowest mean score on Time and Study Environment among the four groups. When we look at

the age differences between groups that may influence their use of SRL, no group differences were found. However, notable age differences in the groups were observed. That is, 33% of students in Group 2 were young adults (less than 25 years old), while the other groups consisted of more adult students (aged 25 years old or older).

It should be noted that students in the second wave were not instructed to think of a particular course determined for them when responding to the Learning Strategy Questionnaire or when reading the intervention material. Instead, they were asked to think of a course they registered that they thought would be difficult to learn. As a result, some students might be thinking of a different course when responding to the first and second Learning Strategy Questionnaire. In this case, they might think some of the courses they took had comparable difficulty levels. It is possible that when they were not instructed to think of a pre-determined course, they thought they could change to any course with similar difficulty level, which might influence their focus in applying the newly acquired knowledge to a particular course. When the students were asked about the different courses they were referring at the timr they submitted the second questionnaire, only a few students responded. One of them responded that both courses had similar difficulty levels to him. When this happened, the students were removed from the analysis. This decision decreased the number of participants to be included in further analysis.

Since there was no significant difference in the students' characteristics between the first and second waves of data except for the college and first year registration, the data from both waves were combined to obtain a larger sample size. However, the test using the combined data did not support Hypothesis 1. Despite the increased sample size, the provision of the Learning Strategy Intervention and Study Time Management Intervention did not seem to bring a significant result on the students' use of SRL.

Considering that most students rated their use of the SRL lower after the final examination took place we can assume that the students probably did not feel as confident or not use the best strategies when studying this course as they previously thought when they responded to the pretest. Students in the treatment groups might read the intervention materials, but they probably did not have the time to actually apply the new knowledge considering they were working adults (Nash, 2005). This is a possibility for many participants took too many courses despite being working students. One of the students responded to the reminding email that she could not set a regular study time yet since her job took too much of her time.

On the other hand, some students mentioned that the Learning Strategy Intervention was able to motivate them to pursue their learning goals. Nevertheless, understanding about the learning strategies will only benefit to their study if they have the willingness to make the time to apply the knowledge when studying. According to Littlejohn and Pegler (2007), informing distance learners about the availability of the support service is not easy, but it is more difficult to convince the students to take advantage of the services for their benefits. Simpson (2004) reported that the students' retention for taking advantage of the support service provided for them in the United Kingdom Open University (UKOU) was quite low. For example, only 30% of the registered students continue to attend tutorial in any course after the first tutorial session was conducted.

According to Zimmerman (2001), students cannot self-regulate their learning unless they are aware of its benefits and make the time and effort to do so. If the students do not regard that the extra effort and time will result in significant outcomes on their study, they will not self-regulate. For example, if the students value their job-related accomplishment higher than doing the school-related tasks, they will prioritize their time on their job more. A student in this dissertation study stated that he worked for 10 hours a day that he hardly had the time to study regularly. Thus, in order for the students to stay using the Metacognitive Self-Regulation when studying, they should be reminded to use this skill at a number of times during the tutorial period. We cannot expect students who did not monitor their comprehension of the course material being studied to achieve the learning outcomes to be mastered after studying the course.

Moreover, as indicated by Pintrich, 1995, students need time and opportunities to develop their learning strategies. Even though students have acquired the knowledge of learning strategies to be used when studying, they may not use the skills voluntarily (Hofer, et al., 1998; Lin, 2001). These strategies need to be internalized and practiced regularly to become a habit. With regard to these matters, the participants in the study may need more than one semester to be able to apply their newly acquired knowledge about the learning strategies and study time interventions.

In the future, the intervention could be provided at the semester break so that students have the time to study the materials before the semester began and may apply the knowledge in the following semester. Accordingly, students do not have to divide their limited study time with learning the intervention and trying to apply the knowledge at the same time in order to reduce

cognitive overload. Consequently, in future research, it might be better to assess whether the training resulted in the expected outcomes in the subsequent semester(s). The intervention materials could also be provided in PDF files so that students can download the files or printed them out. This would allow students to read the materials at their convenient time and place.

Effects on the Students' Achievement

The levels of the students' achievement between groups were analyzed in accordance with Hypothesis 2, that is "Students who were provided with the intervention achieved better in the final examination."

The test results did not support Hypothesis 2 for the first wave of data in this study. This means that the provision of the intervention material(s) did not seem to bring any effect on the student achievement for the Introduction to Social Statistics course. It was no surprise since there were no differences found between groups on the GPA and on the number of credits taken, which are two factors that could influence the student achievement in a given semester. The findings of the testing of Hypothesis 1 also provided no evidence of significant differences on the SRL subscales between groups.

This result is different from past research which found that training on learning and motivational strategies resulted in an increased GPA or overall performance of college students (Tuckman, 2003). Past research also reported that students who succeed academically showed a higher degree of SRL (Azevedo, et al., 2004; Lynch & Dembo, 2004; Zimmerman, 2002; Zimmerman & Martinez-Pons, 1986). Likewise, studies in the college settings indicated that time management skills (e.g., making plan, scheduling) seem to have a positive impact on the students' GPA (Britton & Tesser, 1991).

However, the result of this dissertation was aligned with Kimber's study (2009) which reported that a training on self-regulated learning did not seem to improve the math achievement of the students majoring in elementary education. Darmayanti (2005) also found no significant difference in the GPA of students at UT after receiving the intervention on learning strategies. As well, training on time management skills did not reveal a significant effect on content comprehension and the students' problem solving strategy in a blended distance learning course Jung (2008).

Considering that the majority of the participants in this study were adult students, it is possible that they preferred to use the learning strategies they have been using for many years rather than to try new ones. According to Hattie, et al. (1996), older students may be more unwilling to change the learning strategies they were at ease with for a long time. This finding was in line with Hofer, et al. (1998) and Lin (2001) who stated that students may not voluntarily use the more appropriate learning strategies although they already learned about these strategies.

Additionally, the low achievement of all groups in the first wave of data should be of concern for the faculty and administrators at UT. The mean scores of the final examination on the Introduction to Social Statistics in all groups were below 50%. This could indicate that the examination was too difficult for the students. This could mean that (1) the examination was incongruent with the course material or learning activities, (2) the learning material was poorly presented both in print or in the tutorials, (3) the students did not spend enough time to study the course material, or (4) the students did not use the proper learning strategies when studying this course. While there are other reasons for low achievement (e.g., low ability, lack of interest, poor prior knowledge, and high test anxiety), at least these four conditions can be dealt with by the university by improving the course material, the tutorial, and the examination material and or by integrating the teaching of learning strategies and time management skills in the course. Tutors can play important roles in integrating these skills into the course, such as by motivating students to set a certain amount of time to study every week or encouraging students to stay motivated when they feel fall behind.

Likewise, the results of the analysis using the second wave of data did not support Hypothesis 2. Students who read the intervention material on Learning Strategies and/or Study Time Management did not show higher levels of achievement on the final examination on a particular course. The mean scores of the final examination for this wave of data were better than those in the first wave of data. However, we cannot say that the examination in this 2011.2 semester was easier than that of the 2011.1 or the students in the second wave were of higher achievers. This is because of the various courses the students in the second wave chose for this study. Unlike in the first wave of data, the students in the second wave were not requested to work on the Introduction to Social Statistics to apply the knowledge acquired from the intervention. Instead, they were asked to choose a course that they thought to be challenging to learn.

As well, the results of the one-way ANOVA test did not support Hypothesis 2 for the combined data of the first and second data collections. The intervention materials on Learning Strategies and Study Time Management did not seem to have any significant effect on the student achievement on a particular course that they thought to be difficult. However, by using a significance level of .10, the analysis using the combined data resulted in a significant mean difference between Group 1 and Group 3 with Group 3 achieved better. The effect size (*ES* = .64) was considered moderate based on the Cohen's convention (1988). This means that the group who only read the Time Management Intervention achieved better than those who read both of the interventions by .64 of a standard deviation. This indicates that with a larger sample size, the Study Time Management Intervention could result in a more positive effect on students who receive this intervention alone compared to those who receive this intervention in combination with the Learning Strategy Intervention.

When examining the nonsignificant findings, we should consider the number of credits the students took and the limited time they had for studying all the course materials and for completing the assignments. It is also possible that many active participants in this study did complete reading the intervention(s), but they may not make the time to apply their new knowledge for the course they have chosen (Nash, 2005). A number of students in this study did explain that following a fixed study schedule was difficult for them because they worked long hours. Students might not have the time to plan weekly learning goals and monitor their accomplishment due to the many courses they took despite their busy life as working students. It should also be kept in mind that the participants of both waves in this study had a wide range of GPA. Due to the wide range of the students' past achievement, it is possible that their performance on the final examination could also be related to factors other than the impact of the intervention (Wiswell, 2005), which were not investigated in this study.

Effects on the Students' Course Completion

The levels of the students' course completion between groups were analyzed in accordance with Hypothesis 3, that is "Students who were provided with the intervention had a higher rate of course completion." The results of the data analysis using both waves of data separately and using the combined data did not support Hypothesis 3. The Learning Strategy

and/or the Study Time Management Interventions used in this study did not seem to have any impact on the student course completion rate.

Student completion is associated with the letter grade the students achieved for a particular course. A student is considered a completer if he or she received a "C" or higher on that particular course. At UT, a student's completion status on a course is not always aligned with his achievement in the final examination. This means that even when his score on the final examination is below the cutting score for a passing grade (e.g., to pass a course the total score for that course should be at least 45-50), he still can pass the course as long as he can obtain a much higher composite score on the assignments submitted through the tutoring system. In this case, active participation in the related tutorial can be regarded as an extra effort the student is willing to expend in order to achieve better in a course. Effort Regulation is one of the SRL areas that can only be performed when the students are highly motivated to complete the course successfully. Thus, in theory, students who voluntarily participated in a tutorial would strive to achieve better.

However, based on past information, not all course-related tutorial participants at UT actively participated in the discussion and submitted all assignments on time. In other words, it is the active participants of the course-related tutorials who are more likely to achieve better. With their limited time students may choose to dedicate more time to be active in the course-related tutorials rather than to try new strategies to learn or follow a fixed study schedule on their own. For example, a student in this study stated that she felt incompetent due to her inability to attain her own learning goals after self-monitored the accomplishment of her own learning goals for two weeks. This feeling of disappointment may lead to a defensive self-reaction (Zimmerman, 2002; 2008), that may lead her to stop determining her learning goals and monitoring their attainment altogether for feeling incapable of accomplishing her own goals. It is possible that some other students may have felt overwhelmed by the time needed to plan weekly learning goals and monitor the goals attainment. As stated by Kitsantas, Winsler, and Huei (2008), metacognitive learning strategies and time management are strongly associated with motivational and affective beliefs. Thus, students who don't believe that they can accomplish what they planned to study as scheduled would probably not feel motivated to spend much time implementing the newly learned learning strategies and time management skills in that course.

The Students' Use of SRL and Their Achievement

The relationships between the students' use of SRL and their achievement in a particular course were examined in relation to Hypothesis 4, that is "Students with higher levels of SRL achieved better in the final examination."

The findings on the first wave of data show that the students' perceptions of their use of metacognitive self-regulation at the beginning of the study were related to their achievement, r (51) = .35, p = .011. This means that students who scored higher on their perceptions of their use of Metacognitive Self-Regulation when studying the Introduction to Social Statistics course on the pretest, seemed to also achieve better on that particular course. According to Cohen (1988), this magnitude of correlation was considered to have a moderate effect size. In this case, Metacognitive Self-Regulation contributed around 12% to the students' achievement. Thus, it is fairly possible that students who have the ability to use Metacognitive Self-Regulation when studying will demonstrate a better achievement.

However, the students' perception of their use of Metacognitive Self-Regulation measured at the end of the semester was not significantly associated with their achievement on the final examination. It is possible that at the beginning of the study students felt over confident about how they would use Metacognitive Self-Regulation when studying the Introduction to Social Statistics. After actually studying the course material, completing the assignment and taking the examination, they might realize that they did not exercise metacognitive self-regulation as well as they previously thought when they were studying that particular course. All SRL areas—Control of Learning Beliefs, Self-Efficacy, Metacognitive Self-Regulation, Time and Study Environment, and Effort Regulation—did not show significant correlations with student achievement after the experiment.

The nonsignificant relationships between the areas of SRL after the experiment with the student achievement of this current study contradict previous studies reporting that students with higher levels of SRL tended to achieve better academically (Holder, 2007; Puzziferro, 2008). Nonetheless, there were research studies that resulted in no statistical relationships between learning strategies and time management and academic success (Kitsantas, et al., 2008; Nash, 2005). Nash argued that the learning activities in his study may not be sufficiently structured to sustain motivation for academic success. Students also rated less effort and lower self-efficacy on more difficult courses (Lynch, 2008). Lynch suggested that students may prefer to decrease

their effort when studying a difficult course rather than expend more effort to meet the challenge. Likewise, with limited time to study, the participants in this dissertation study may prefer to spend time on less challenging courses in the hope to increase the possibility of attaining a higher GPA. The decreased mean scores of the subscales of SRL at the end of the study indicate that the students' might feel less confident in studying this course during the learning process than what they had predicted at the time of the pretest.

Among the subscales of SRL, Metacognitive Self-Regulation measured before the experiment was mostly correlated with Time and Study Environment and Effort Regulation. Thus, at the beginning of the study the students may anticipate that the better they managed their study time and the more they put their efforts to study, they would be likely to regulate their cognition better. However, while the correlation between Metacognitive Self-Regulation with effort regulation became stronger, the correlation between Metacognitive Self-Regulation and Time and Study Environment decreased a little. The correlation between Time and Study Environment and Effort Regulation even more decreased considerably (from r (51) = .62 before the experiment to r (39) = .45 after the experiment). This may indicate that although the students tried to study as much as they could, they actually realized that they did not spend as much time studying.

In the second wave of data, there was no significant relationship between any of the SRL subscales before and after the experiment with student achievement. Moreover, although not significant, the relation of self-efficacy and effort regulation became negative with student achievement at the end of the study. This may indicate that students overrated their self-perceptions of their self-efficacy and effort regulation before the experiment. This is one of the limitations of using a self-report instrument. Students may want to look good so that they rated their use of SRL fairly high when they filled out the questionnaire. The internal consistency analysis suggested that some items could be deleted in order to improve the reliability of the instrument used in this study (e.g., Item number 4, 13, 21, 33). In this case, item 4, 13, and 33 attributed to the students' lack of effort as the source of low performance. For example, item 4 states: "If I don't understand this course material, it is because I didn't try hard enough." Item 33 states: "I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do." The indices of the internal consistency of the Learning Strategy Questionnaire suggest that some items may have cultural bias or measure learning strategies that are not usually

utilized by students in Indonesia. Future research using the Learning Strategy Questionnaire should consider excluding the items that are ambiguous or indicate cultural bias.

Another possibility is that students in the second wave might be thinking about different courses when they responded to the second learning strategy questionnaire (posttest) than the one they chose at the beginning of the study. This could happen when they felt that some of the courses they were taking that semester were on the same difficulty level. However, according to Pintrich et al. (1993), SRL is a context-specific. Thus, even though two courses may have the same difficulty level, there could be different learning strategies that are more appropriate to use to study them. For example, 13% students in the second wave chose English-related courses, such as Writing, Translation, or Structure when responding to the Learning Strategy Questionnaire. Although students think that Writing and Structure were on the same difficulty level—especially for students who learn English as a foreign language—the learning strategy to study English grammar and how to write in English could be very different. For instance, to learn English grammar we have to learn about tenses and many grammar rules (e.g., Subject-Verb agreement, parallelism) by heart and do a lot of practice with them. On the other hand, to be able to write in English we must understand the grammar and learn about composition and a variety of writing styles before practicing to write in English. Each of these areas of prerequisite knowledge may require different learning strategies to master.

For future study, it could be better to collect the students' responses about their use of SRL while they are still studying a specific course. This way, students can relate their learning strategies to that particular course while they are studying the course, not remembering what they did during learning. This means that the researcher should ask the permission of the instructor of that specific course to link the online questionnaire on the online tutorial for that course, as it was done in the first wave for the Introduction to Social Statistics course.

For the combined data, Metacognitive Self-Regulation was weakly ($r = .20$, $p = .048$) but significantly related to the students' achievement. This means that Metacognitive Self-Regulation was accounted for only around 4% of the student achievement. According to Cohen (1988), a correlation coefficient of this magnitude was considered to have a low effect size. In this case, such a weak correlation could not confirm with certainty whether students with good Metacognitive Self-Regulation also show better achievement (Coutinho, 2007). Since the students' use of SRL in this study was measured using a self-report instrument, it is possible that

their perceived Metacognitive Self-Regulation at a certain time may not represent their actual Metacognitive Self-Regulation. Thus, we cannot say that the findings on the combined data partly support the hypothesis. That is to say, students who scored higher on their use of Metacognitive Self-Regulation as one area of the students' SRL when studying a challenging course may or may not have higher achievement on that particular course.

Despite the inconsistency in magnitude and significance of the relationship between Metacognitive Self-Regulation and student achievement, Metacognitive Self-Regulation consistently and strongly correlated significantly with Time and Study Environment and Effort Regulation. Self-Efficacy also consistently, significantly associated with Metacognitive Self-Regulation. This possibly will suggest that we can motivate students to improve their self-efficacy in mastering the course materials. With improved self-efficacy and better time management and higher effort regulation, it is possible to increase their use of Metacognitive Self-Regulation in studying a specific course. As suggested by Pajares (2002), students who have higher self-efficacy will be expected to use more metacognitive strategies when studying a particular course.

The Students' Use of SRL and Their Course Completion

The relationships between the students' use of SRL and their achievement in a particular course were examined in relation to Hypothesis 5, that is "Students with higher levels of SRL had a higher completion rate."

For the first wave of data, the findings partly supported this hypothesis, in which Metacognitive Self-Regulation, r (51) = .31, p = .028 and Effort Regulation, r (51) = .34, p = .014 were moderately and significantly related to the students' course completion. In this case, Metacognitive Self-Regulation was accounted about 10% of the course completion, while Effort Regulation contributed around 12% to the course completion. According to Cohen (1988), a correlation of .30 in magnitude was considered to have a moderate effect size. Therefore, students in this study who scored higher in their use of the Metacognitive Self-Regulation and Effort Regulation when studying a challenging course (i.e., the Introduction to Social Statistics course) at the beginning of the study have a modest possibility to also complete the course more successfully. With a bigger sample size, the magnitude of the correlations between these two variables with course completion could be more influential.

The relationship between Metacognitive Self-Regulation and the course completion was stronger after the experiment, r (39) = .455, p = .004. That is, Metacognitive Self-Regulation contributed around 21% to the course completion. Based on the Cohen's convention (1988), the effect size for this magnitude of correlation was relatively large. This means that with a larger sample size, students who have a better use of Metacognitive Self-Regulation when studying the Introduction to Social Statistics course practically can also complete the course more successfully. These results were in line with the findings of previous studies reporting that students engaging in metacognitive activities seemed to have their learning enhanced (Hofer, et al., 1988; Lin, 2001).

On the other hand, the degree of the relationship between Effort Regulation and course completion basically did not change after the experiment, from r (51) = .34, p = .014 to r (39) = .35, p = .028. In this case, after the experiment Effort Regulation contributed around 12% to the course completion. The magnitude of the correlation coefficient indicated a moderate effect size (Cohen, 1988). This means that with a larger sample size, students who have a higher score on their effort regulation when studying the Introduction to Social Statistic would be moderately possible to complete that course more successfully. In fact, effort regulation was reported to have a positive effect on students' learning (Chen, 2002).

Although these students' use of Metacognitive Self-Regulation and Effort Regulation did not relate to their achievement on the final examination, their perceptions of these areas of SRL were significantly associated with their course completion. Probably, the students realized that it had better if they put extra effort in obtaining additional credit points by studying the additional materials provided through the tutoring systems, participating in the discussions, and completing the tutorial assignments rather than only studying the course content for the examination. Through participating actively in the course-related tutorial also means that they exercised their learning strategies by expending extra effort and time for participating in the discussions or doing assignments rather than simply focusing on preparing for the final examination. Since there are deadlines to be met in order to submit the assignments and take part in the online discussions, the students were also "forced" to study on a more fixed schedule.

It is interesting that this study did not find significant findings on the intervention effects while Metacognitive Self-Regulation and Effort Regulation were significantly related to the course completion. This may be due to the facts that students in the control group scored their

effort regulation higher on the posttest than students in the treatment group (see Table 10). Actually, the control group in the first wave of data was the only group who gained positive score in effort regulation than the other groups (Table 12). Since the invitation to participate in this study was sent through email, the students who voluntarily took part in this study might be more "Internet literate" or at least more motivated to take advantage of the Internet than those who did not respond to the invitation email. A student explained voluntarily that she had to travel for two hours to gain access to the closest Internet Kiosk to be able to participate in the online tutorial(s). Hence, as students in the treatment groups, students in the control group might also have the will to expend extra effort and time to participate in the course-related tutorial. This willingness to give extra effort and time will likely enable the students to gain knowledge enrichment on the topics related to the course, which resulted in better chance to succeed.

For the second wave of data, no area of the SRL was significantly related to course completion before the experiment. Although the characteristics of the students from both waves of data only statistically differed on the college affiliation and first year of registration, their perceptions of their use of SRL at the beginning of the study might be different. This may have something to do with the different courses the students referring while scoring their use of SRL to be used in studying that course. Students in the first wave can have a clear idea of what course to think and how difficult it would be for a statistics course is not considered easy by many students. On the other hand, students in the second wave may not feel certain of what course to choose and how difficult the course would be. When they were not sure about the level of difficulty of a course, their self-efficacy in mastering the course might not be high. As a result, they may not anticipate correctly what metacognitive strategies they would use when studying the course. While Introduction to Social Statistics was a course that is considered difficult based on the completion rate in the past semesters, the course chosen by students in the second wave may not be considered difficult by the majority of students based on its completion rate.

In contrast, Metacognitive Self-Regulation appeared to be moderately related ($r = .29$, $p = .031$) to the course completion after the experiment. Thus, Metacognitive Self-Regulation was accounted for around 8% of the course completion. This magnitude of correlation can be considered to have a moderate effect size (Cohen, 1988). Thus, students in the second wave of data who scored higher in the use of Metacognitive Self-Regulation after the experiment may have a chance to complete the course more successfully.

For the combined data, at the beginning of the study Metacognitive Self-Regulation, r (160) = .18, p = .027 and Effort Regulation, r (160) = .19, p = .017 were weakly related to the course completion. After the experiment, the relationship between Metacognitive Self-Regulation and course completion increased considerably (r (94) =. 37, p < .001), which indicates a moderate effect size (Cohen, 1988). In this case, with a larger sample size we can say that the students who perceived that they had a better use of Metacognitive Self-Regulation when studying a challenging course could possibly complete the course more successfully.

Considering that Metacognitive Self-regulation was consistently correlated to course completion in this study, it may indicate that teaching this learning strategies to UT's students perhaps could help enhance their course completion. However, students need to believe and realize that the intervention materials on learning strategies and study time management may help them regulate their learning better. In this case, more attention should be paid to increasing students' awareness of the importance of using this skill when studying. When they realize the benefits of using metacognitive self-regulation when studying, they may possibly apply the knowledge or transfer the knowledge to other courses in the subsequent semesters.

CHAPTER SIX
CONCLUSIONS

This chapter consists of four concluding thoughts, namely (1) implications of the study, (2) limitations of the study, (3) suggestions for future study, and (4) significance of the study.

Implications of the Study

The findings of this study show that the use of SRL, specifically metacognitive self-regulation, when studying a course that was thought to be challenging in a distance education setting was related to the students' achievement on the final examination. Furthermore, metacognitive self-regulation was more consistently related to the students' course completion. Although the findings did not indicate significant effects of the interventions on the gain of students' use of SRL, achievement, and their course completion, the relationships between metacognitive self-regulation with course completion increased considerably after the interventions were implemented. The medium effect size that explains the relationship between metacognitive self-regulation with course completion indicates that helping students to use this SRL area while studying at UT may enhance their academic success.

The findings on the post test indicate that the intervention on learning strategy can be used to increase the students' awareness about the importance of using metacognitive self-regulation when studying. Teaching the learning strategies can be integrated into course-related tutorials since learning strategies are context specific (Pintrich, et al., 1991). In this case, tutors or instructors may also teach cognitive strategies (such as note taking and summarizing), which were not included in this study, that are more appropriate for the course they are teaching to their students.

The Study Time Management Intervention seemed to have a positive effect on increasing the use of metacognitive self-regulation when applied to different courses. Thus, teaching study time management skills can also be integrated into the course-related tutorial to help students make a study plan, set weekly learning goals, monitor the achievement of the goals, and make self-reflection about their weekly learning accomplishment. Some students realized the benefits of having a weekly learning goals and monitoring the accomplishment of the goals. By using the Study Time Management Intervention as a guidance students can be helped in building a more

regular learning habit. As habit change is a progressive process that builds upon a series of positive experiences (Hirsch, 2001), when students realize that applying the study time management skills can help them study more regularly, they may want to continue to use the skills. When the learning habits have been established, students can focus more on strategies to regulate their cognition when learning. This way, the students' quality in learning can also be enhanced.

This study was conducted as an online tutorial with the purpose of recording the students' activity in the CERDAS Learning Strategy. The SCORM-based medium was purposely selected for conducting the study. This way, students who actually read the whole material, only read part of the material, or did not make any attempt in reading the material can be identified. That is why the intervention materials were not provided in the form of a PDF file or a Doc file even though these forms can increase the possibility of the interventions to be read by the students at their convenient time. Therefore, for future usage this online method of providing the intervention may not be practical to serve all students in need of this support since not many students have internet access in their homes. Instead, the materials can be presented as an interactive power point presentation or other computer-based instruction, which can be printed out if needed.

Although not reported in this dissertation, all respondents were provided with feedback based on their responses to the Learning Strategy Questionnaire. By having this feedback, students may understand what the scores of each subscale of the instrument mean in regard to the learning strategies they use when studying a particular course. They may be helped by understanding how to improve their learning strategies on a specific subscale. For example, they can motivate themselves that they will master the course if they use various cognitive strategies (making notes, making a summary, doing practices, answering self-assessments, etc.) or increase their learning effort by attending tutorials and seek help from tutors or friends.

The Learning Strategy Questionnaire as a subset of the MSLQ or the MSLQ as a whole can be provided during "the learning process," not at the time "before the learning process" in the course-related tutorial(s) in order to assess the students' use of SRL when studying that specific course. A program can be developed to generate a mean score of each subscale after the student submit the questionnaire and thus provide automated feedback for the students based on the generated scored. The provision of feedback can enhance students' motivation and use of self-regulation skills in studying the specific course.

The university could consider providing the interventions to new or first year students for new students might be more attentive to or more in need of the support services. Returning students might already establish their own learning strategies and already possessed time management skills. Teaching these interventions to new students might be more reasonable in enhancing the students' learning. Returning students, on the other hand, might need more training on cognitive strategies or specific learning strategies that are more course-related.

Limitations of the Study

There are a number of limitations that need to be considered with regard to this study. First, the final sample size for this study was rather small (n = 94). This small sample size should be considered when generalizing the findings to the population or to another population. The voluntary nature of the participation in this study might be more attractive to students who want to put more effort or who want to try new things to do better in their study in the first place. Students who had been waiting for some guidance on learning how to learn from the university might also be more willing to take part in the study.

Second, this study suffers from a high rate of attrition. The high rate of attrition of the participants should be of concern. Since the interventions were provided as a self-guide, students who need more guidance or scaffolding in making study plan or setting their weekly learning goals might not be interested in continuing their participation. As well, the enthusiasm of the participants in the treatment group seemed to decline as the course-related tutorials progressed. This attrition may have something to do with the many courses the students enrolled while they were also working long hours. These students might not have the time to apply the knowledge gained from the intervention material(s) when they are studying. Some students explained that it was difficult enough just to find some time to finish reading and understand the course materials. When they think that they could not make the time to apply the intervention, they may decide to withdraw from the study. From 321 students who validly completed the first questionnaire (pretest) only 104 of them completed the second questionnaire (posttest) and thus can be included in the analysis of the effects of the intervention(s) on the students' use of SRL. When the analysis only included the active participants in the treatment groups and those in the control group who took the final examination for the course that they chose at the beginning of the study, the sample size decreased to 94. On the other hand, some of the students who did not even read

the intervention materials responded to the second questionnaire. This points out that students probably did not mind to participate in a survey. However, with their limited time, to participate more actively or engage in weekly tasks in this study that have no direct contribution to their grade seemed in the least of their interest.

Third, the unequal number of participants within each research condition where the control group outnumbered the students in the treatment groups may also influence the nonsignificant findings. The number of students in the control group in the second wave was even greater than the number of all of the students in the treatment groups combined. The very unequal sample sizes between groups that can affect the homogeneity of variances had been dealt with the use of Welch analysis instead of using a regular one-way ANOVA. However, had the treatment groups contained a larger number of students we would be more confident with the results of the analysis. On the other hand, the low attrition rate of students in the control group indicates that students may be willing to participate in an additional academic activity when it won't take too much of their time. This may be due to their limited time as working students for many of the students took relatively a lot of courses (4-8 courses or more) in one semester.

Fourth, the return rate of the first questionnaire was very low (around 4%). One reason for the low return rate might be that the target audience did not receive the invitation email in time. Thirty percent of the emails were undelivered and a good number of emails were delayed. It was not monitored how many emails remained unread by the students. Some students responded to the questionnaire when the study was almost done. This indicates that communicating via email with students was not the best way although it was the fastest and the cheapest way from the point of view of the institution. Students may have several email account and did not access each of the addresses on a regular basis. It is probably much more efficient if the university provided an email account for the students so they do not forget which email to use when communicating with the university. This low return rate has a negative impact on the number of students that constituted the treatment groups since the group membership was determined before the participants were recruited. The low return rate to the pretest initially did not hurt the proportion of respondents in each research condition. However, the number of respondents in the treatment groups who read the whole intervention material was not very high, especially for students in the second wave. Several students gave feedback about the intervention material without even read the material. If more equal students within each treatment group were

willing to be active participants in this study, the method of randomly assigning the group membership before administering the pretest would be satisfactory.

Finally, the intervention materials may not be powerful enough to yield more significant effects on the students' use of SRL and on their achievement or course completion. Although we can be certain that the participants in the treatment groups included in the analysis were those who actually completed reading the intervention material(s), we did not know whether the students apply the knowledge when studying the course material. Thus, the students may understand the importance of using the skills when studying but they may not have the will or the time to apply them. The intervention material(s), especially that of the study time management could be provided in a more practical way in order to increase the usability of the intervention in helping students creating a study plan, planning study schedule, setting weekly learning goals, and monitoring their actual study. The university might be able to provide a technical assistance on creating the more appropriate form or medium to serve this purpose.

Suggestions for Future Study

The findings indicate that the hypotheses proposed in this study were partially supported and there were some limitations existed. As the findings show some indications of positive results on the students' use of SRL and their relations to achievement and course completion, addressing these limitations may improve the research design so that future studies can have more convincing results.

First, future studies should attempt to find a way to improve the sample size. As the primary purpose of providing the interventions is to enhance students' learning it is only natural to find the best medium for the intervention provision. Thus, instead of attempting to replicate this study with a larger sample size, the treatment could be delivered differently. While offering the intervention on voluntary basis seemed difficult to get students' attention, it can be offered by cooperating with instructors using the intact groups of tutorials. In this case, the interventions can be offered to the intact groups attending face-to-face tutorials as well as those participating in online tutorials. Students in different groups can be provided with different interventions. Another intact group could be assigned as the control group. Even though we should maintain the voluntary nature of students' participation in this study, integrating the intervention into a

course-related tutorial may motivate the students to apply the knowledge when studying that course.

Second, future studies should try to maintain the students' retention in participating in the study. In this case, the researcher could work together with the instructor to integrate the intervention materials into the tutoring systems. For example, a class chosen to learn about the study time management skills can be taught about how to determine the weekly learning goals for that course and how to use the practice sheets for planning and monitoring their learning goals throughout the semester. Instead of letting the students go through the planning and monitoring their study on their own, tutors can ask them to submit the weekly learning goals to the instructor. In order for the students to apply the skills, the instructor and the researcher could design the assignments together so that the completion of the assignments could provide evidence of whether or not the students have achieved their learning goals. The students themselves should submit their monitoring sheet and their self-reflection with regard to the accomplishment of the learning goals. This way, the researcher can confirm whether the students seriously monitor the accomplishment of their learning goals or not. By integrating these activities into the course-related learning process the students probably will not feel the additional activities as a burden, but can see them as an additional effort to enhance their learning.

These two attempts could also work to address the issue of unequal sample sizes and low return rate. While unequal sample sizes between groups may still be unavoidable, the gap between the number of participants might be much more reasonable. As well, the students will be likely to remain active in this study as long as they stay active in the course. There is always a possibility, however, that some students will be unwilling to submit the monitoring sheet unless they feel it is worthwhile to do so.

Future studies should also improve the instrument used in the current study. There is a possibility that the Learning Strategy Questionnaire which is a subset of the MSLQ that was translated into Bahasa Indonesia could be improved. The internal consistency analysis indicated that the instrument could be improved by deleting or revising some items that were either ambiguous or had some cultural bias because some of the learning strategies may not usually be used by Indonesian students when studying. Future research should try to analyze these weak

items and decide whether they were poorly translated or were not suitable for the Indonesian context.

In the current study the instrument was administered one week before the implementation of the experiment and before the course-related tutorial began the sessions. That way students may have overrated their confidence in mastering a particular course or in their use of SRL when studying the course. Furthermore, students filled out the second questionnaire after the final examination took place. Their performance on the final examination may influence their perceptions about their use of SRL when studying the course. Future studies should administer the questionnaire immediately before the experiment is implemented, not one week ahead of time. This is to give time to the students to know about the course before thinking about what the learning strategies they are going to use in studying the course. Also, the researcher should make sure that the participants submit the second questionnaire before the tutorial sessions end. Thus, students can refer to the motivational beliefs and learning strategies that they actually use when studying the course. Responding to the questionnaire before the examination will prevent the possibility that their performance on the examination cloud their perceptions on the SRL they used when studying.

Significance of the Study

As aforementioned, the study was conducted in the attempts to help students enhance their self-regulated learning, which in turn may improve their course completion and persistence in studying in a distance education setting. The purpose of teaching these skills is to help students determine and accomplish their learning goals as well as acquire a regular learning habit. By doing so, the students can be helped in enhancing their chance in completing their study successfully at UT. The results of the study indicate a possibility that the learning strategy intervention and the study time management intervention can be used to enhance student awareness of the importance of planning, scheduling, and monitoring the accomplishment of their learning goals in studying a course. Providing these interventions concurs with Hirsch (2001) who suggested that colleges have the obligation to not only provide effective teaching but also the necessary learning resources, such as guidance, library, and other support services. As UT students were reported to have poor learning habit and not used to study independently in the

past, these interventions may help the new students have a better learning habit and become more self-regulated learners.

In addition, it was expected that the results of the study may provide information to decide whether the intervention material on the study time management can be used as an electronic performance support system (EPSS) for UT students. The results of the study, especially the feedback from students concerning the usability of the practice sheets used to plan weekly learning goals and evaluate the accomplishment of the goals indicate that students valued their benefits in helping them keep track of their study progress. However, the small percentage of the current students who owned a valid email address indicate that Web-based EPSS may not be the best support services for the students. Instead, UT can provide another form of an electronic support system which is less dependent on the Internet. For example, by converting the intervention material into a power point presentation or a PDF file, it would make easier for the students to download the materials and use them offline. As well, the practice sheets can be converted into a more practical form, such as an Excel Worksheet or a Word Document so that students can copy the files in their computer in order to put them into use without having to be connected to the Internet. They can even print the sheets out or make a copy in their notebook, which makes them easy to be carried around or posted on the wall. Thus, even though the study time management intervention may not be presented as a true EPSS, the modified electronic support system may be more practical for the current students at UT.

APPENDIX A

FSU BEHAVIORAL CONSENT FORM

FSU Behavioral Consent Form

The effects of learning strategy and time management interventions on students' self-regulated learning and achievement

You are invited to be in a research study on enhancing students' self-regulated learning. You were selected as a possible participant because you are enrolling in the Introduction to Social Statistics course at the Open University of Indonesia. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Kristanti Ambar Puspitasari, Department of Educational Psychology and Learning Systems, Florida State University.

Background Information:
The purpose of this study is: to examine the effects of learning strategy and time management interventions on how students use learning strategies when studying and on their achievement in a distance education learning environment.

Procedures:
If you agree to be in this study, we would ask you to do the following things:
- Complete three online questionnaires
- Possibly interact with a web-based self-guide on learning strategies and a web-based tutorial on time management, which are designed to facilitate you in planning regular study time for a distance education course
- May also be asked to plan your weekly study time and monitor your actual study time for seven weeks.

Risks and benefits of being in the Study:
You will not be at any risk in participating in this study. Your participation will not change your grade or status in the course.

The benefits to participation are: the intervention materials will help you plan your study time for one semester. By completing the self-guide and tutorial, you might develop a regular study habit which may help you have a better chance to be successful in your study.

Compensation:
You will receive payment: you will receive a voucher of $5.00-10.00 that can be applied toward the purchase of school materials if you complete your participation in this study. Early withdrawal from participating in this study will not be awarded with the voucher.

Confidentiality:
The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

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

Contacts and Questions:
The researcher conducting this study is Kristanti Ambar Puspitasari. You may ask any question you have now. If you have a question later, you are encouraged to contact her at FMIPA, Universitas Terbuka, 081*********, **********@gmail.com or contact her supervising professor, Dr. John Keller at *******@fsu.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the FSU Institutional Review Board (IRB) by email at humansubjects@magnet.fsu.edu.

If you are interested to participate in this study, please click the "agree' button below.

Statement of Consent:
I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Agree Disagree

APPENDIX B

USE OF HUMAN SUBJECTS IN RESEARCH - APPROVAL MEMORANDUM

Human Subjects [humansubjects@magnet.fsu.edu]
Sent: Wednesday, November 09, 2011 10:50 AM
To: ******@fsu.edu
Cc: *******@fsu.edu

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

RE-APPROVAL MEMORANDUM
Date: 11/9/2011
To: Kristanti Puspitasari
Address: *** ******* ** **, Tallahassee, FL 32310
Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS
From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research
The effects of learning strategy and time management interventions on students' self-regulated learning and achievement in a distance education learning environment

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 11/7/2012, you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc: John Keller, Advisor
HSC No. 2011.7214

APPENDIX C

INSTRUCTIONS & SAMPLE ITEMS FROM THE LEARNING STRATEGIES QUESTIONNAIRE

(Kuesioner Strategi Belajar)*

The following statements ask about your learning strategies for **Introduction to Social Statistics** course. There are no right or wrong answers.

Choose between numbers 1 to 7 for every statement that describes about how you study for this course as accurately as possible. Please choose the number that best describes you for every statement.

7 = if you feel you very strongly agree with a statement (it is very true of you)
5-6 = if you feel that a statement is somewhat true of you
4 = if you do not have a strong agreement with a statement
2-3 = if you feel a statement is almost not true of you
1 = if you think a statement is not all true of you

No.	MSLQ No.**)	Item (Original)	Item (Bahasa Indonesia)
1.	2.	If I study in appropriate ways, then I will be able to learn the material in this course.	Bila saya belajar dengan cara yang tepat, maka saya akan mampu memahami materi pelajaran ini.
2.	5.	I believe I will receive an excellent grade in this class.	Saya percaya saya akan mendapat nilai yang sangat baik dalam mata kuliah ini.
3.	6.	I'm certain I can understand the most difficult material presented in the readings for this course.	Saya yakin saya dapat memahami materi pelajaran yang paling sukar yang disajikan dalam modul untuk mata kuliah ini.
4.	9.	It is my own fault if I don't learn the material in this course.	Salah saya sendiri bila saya tidak mempelajari materi mata kuliah ini.
5.	12.	I'm confident I can understand the basic concepts taught in this course.	Saya yakin bahwa saya dapat memahami konsep-konsep dasar yang diajarkan dalam mata kuliah ini.
6.	15.	I'm confident I can understand the most complex material presented by the instructor in this course.	Saya yakin saya dapat memahami materi pelajaran yang paling kompleks yang disajikan dalam mata kuliah ini.
7.	18.	If I try hard enough, then I will understand the course material.	Bila saya berusaha cukup keras, maka saya akan memahami materi mata kuliah ini.
8.	20.	I'm confident I can do an excellent job on the assignments and tests in this course.	Saya yakin saya dapat mengerjakan tugas dan tes dalam mata kuliah ini dengan sangat baik.

LEARNING STRATEGIES QUESTIONNAIRE, *CONTINUED*

Choose between numbers 1 to 7 for every statement that describes about how you study for this course as accurately as possible. Please choose the number that best describes you for every statement.

7 = if you feel you very strongly agree with a statement (it is very true of you)
5-6 = if you feel that a statement is somewhat true of you
4 = if you do not have a strong agreement with a statement
2-3 = if you feel a statement is almost not true of you
1 = if you think a statement is not all true of you

No.	MSLQ No.**)	Item (English)	Item (Bahasa Indonesia)
9.	21.	I expect to do well in this class.	Saya memperkirakan akan berhasil dalam mata kuliah ini.
10.	25.	If I don't understand the course material, it is because I didn't try hard enough.	Bila saya tidak mengerti materi mata kuliah ini, hal itu disebabkan karena saya tidak berusaha dengan cukup keras.
21.	52.	I find it hard to stick to a study schedule.	Saya mengalami kesulitan untuk tetap berpegang pada satu jadwal belajar.
22.	54.	Before I study new course material thoroughly, I often skim to see how it is organized.	Sebelum saya mempelajari materi baru sampai tuntas, saya seringkali membacanya secara sepintas untuk mengetahui bagaimanasistematika materi tersebut.
23.	55.	I ask myself questions to make sure I understand the material I have been studying in this class.	Saya bertanya pada diri sendiri untuk memastikan apakah saya memahami materi pelajaran yang sedang saya pelajari dalam mata kuliah ini.
24.	56.	I try to change the way I study in order to fit the course requirements and instructor's teaching style.	Saya mencoba mengubah cara belajar saya untuk menyesuaikan dengan persyaratan mata kuliah dan gaya mengajar dosen/tutor.
25.	57.	I often find that I have been reading for class but don't know what it was all about.	Saya sering kali merasa bahwa saya telah membaca materi mata kuliah tetapi saya tidak memahami apa isinya.

*Note:**) The Learning Strategies Questionnaire is actually a subset of the MSLQ. The term Learning Strategies Questionnaire is the English translation of Kuesioner Strategi Belajar, which is used for the sake to be easily remembered by the participants of this study. **) The MSLQ is the Motivated Strategies for Learning Questionnaire developed by Pintrich, Smith, Garcia, & McKeachie (1991). It consisted of 15 subscales that make up of 81 items. For the purpose of this study, only 5 subscales (Control of Learning Beliefs, Self-Efficacy, Metacognitive Self-Regulation, Time and Study Environment, and Effort Regulation) consisting of a total 36 items were used. Fifteen items are reproduced here for illustration.

APPENDIX D

CAPTIONS OF ONLINE TUTORIAL FOR INTERVENTION 1

APPENDIX E

CAPTIONS OF ONLINE TUTORIAL FOR INTERVENTION 2

APPENDIX F

EXAMPLE OF LEARNING GOALS

Target Belajar Mingguan
Nama: Kristanti Ambar Puspitasari
Mata Kuliah: Pengantar Statistik Sosial/ISIP4215
Masa Registrasi: 2011.2
Periode Belajar: 9 minggu

Minggu	Target Belajar (Diisi dengan Judul Kegaiatan Belajar dalam Modul)	Jumlah Halaman	Lama Belajar (dalam menit)
1	Pengertian dan Pemanfaatan Statistika	16	45
	Jenis-jenis Statistika	8	45
	Pengukuran, Perbandingan Data, Validitas, dan Reliablitas	22	60
2	Penyajian Data Kualitatif	16	60
	Penyajian Data Kuantitatif	19	60
3	Ukuran Pemusatan	20	90
	Ukuran Penyebaran	18	90
4	Teori Probabilita	17	90
	Distribusi Peluang	18	90
5	Penarikan Sampel Probabilita	19	90
	Penarikan Sampel Non Probabilita	10	90
6	Estimasi Parameter	16	90
	Uji Statistik Hipotesis	23	90
7	Uji Satu Sampel Menggunakan Tes Non-Parametrik Berskala Ordinal	11	120
	Uji Satu Sampel Menggunakan Tes Non-Parametrik Berskala Nominal	12	120
8	Uji Dua sampel Menggunakan Tes Parametrik	13	120
	Uji Dua Sampel Menggunakan Tes Non-Parametrik	15	120
9	Uji Hipotesis Non-Parametrik Lebih dari Dua Sampel (K Sampel)	20	120
	Uji Hipotesis Dua Rata-rata Populasi untuk Sampel Besar	7	120

APPENDIX G

EXAMPLE OF STUDY MONITORING SHEET

Lembar Monitoring Pelaksanaan Belajar
Nama: Kristanti Ambar Puspitasari
Masa Registrasi: 2011.2

Minggu 1							
	Target Belajar		**Waktu Belajar**	**Tercapai?**		**Penyebab Tidak Terlaksana**	**Solusi/ Rencana Selanjutnya**
Mata Kuliah	**Judul Kegiatan Belajar dalam Modul**	**Jumlah Halaman**		**Ya**	**Tidak**		
- ISIP4215 Pengantar Statistik Sosial	Pengertian dan Pemanfaatan Statistika	16	45	v			
	Jenis-jenis Statistika	8	45	v			
	Pengukuran, Perbandingan Data, Validitas, dan Reliablitas	22	60	v			
- ISIP4216 Metode Penelitian	Konsep Dasar Ilmu Pengetahuan	15					
	Etika Dalam Penelitian Sosial	15					
- SOSI4302 Teori Krimino-logi	Pengertian Kriminoloogi dan Objek Studi Kriminologi	34					
	Keterkaitan Kriminologi dengan Bidang Studi Lain	18					
- SOSI4307 Masalah-Masalah Sosial	Masalah Sosial dan Sifat-sifatnya	21					
	Sifat dan Kesalahpahaman Masalah Sosial	29					
dst							

REFERENCES

Ajisuksmo, C. R. P., & Vermunt, J. D. (1999). Learning styles and self-regulation of learning at university: An Indonesian study. *Asia Pacific Journal of Education,* 19(2): 45-59.

Andersen, R. (1995). *Getting ahead: Career skills that work for everyone*. New York: McGraw-Hill, Inc.

Andrade, M. S., & Bunker, E. (2009). A model for self-regulated distance language learning. *Distance Education, 30*(1), 47-61. doi: 10.1080/01587910902845956

Andriani, D. (2003). Kemandirian mahasiswa dan lulusan perguruan tinggi tatap muka dan jarak jauh (*Self-directed learning of face-to-face and distance education universities' alumni*). Jakarta: Universitas Terbuka.

Aragon, S., & Johnson, E. (2008). Factors influencing completion and noncompletion of community college online courses. *American Journal of Distance Education, 22*(3), 146-158. doi: 10.1080/08923640802239962

Ashby, A. (2004). Monitoring student retention in the Open University: Definition, measurement, interpretation and action. *Open Learning, 19*(1), 65-77. doi: 10.1080/0268051042000177854

Azevedo, R., & Cromley, J. G. (2004). Does training on self-regulated learning facilitate students' learning with hypermedia? *Journal of Educational Psychology, 96*(3), 523-535. doi: 10.1037/0022-0663.96.3.523

Azevedo, R., Guthrie, J. T., & Seibert, D. (2004). The role of self-regulated learning in fostering students' conceptual understanding of complex systems with hypermedia. *Journal of Educational Computing Research 30*(1 & 2), 87-111.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes 50*(2), 248-287.

Baggaley, J. (2007). Distance education technologies: An Asian perspective. *Distance Education,28*(2),125-131.

Bandalaria, M. (March 2007). Impact of ICTs on open and distance learning in a developing country setting: The Philippine experience. *International Review of Research in Open and Distance Learning, 8*(1), 1-15.

Belawati, T. (1998). Increasing student persistence in Indonesian post-secondary distance education. *Distance Education, 19*(1), 81-108.

Belawati, T. (2000). Enhancing learning in distance education through the World Wide Web. *Jurnal Pendidikan Terbuka dan Jarak Jauh, 1*(1).

Belawati, T. (Ed.). (2002). *Perkembangan pemikiran tentang pendidikan terbuka dan jarak jauh (The development of conception on open and distance learning)*. Jakarta: Pusat Penerbitan Universitas Terbuka.

Belawati, T. (2005). The impact of online tutorials on course completion rate and student achievement. *Learning, Media, and Technology, 30*(1), 15-25.

Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. *Learning and Instruction, 7*(2), 161-186.

Boston, W.E., Ice, P., & Gibson, A. M. (Spring 2011). Comprehensive assessment of student retention in online learning environments. *Online Journal of Distance Learning Administration*, *14*(1*)*.

Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*(3), 805-810.

Burlison, J., Murphy, C., & Dwyer, W. (2009). Evaluation of the motivated strategies for learning questionnaire for predicting academic performance in college students of varying scholastic aptitude. *College Student Journal, 43*(4), 1313-1323.

Chen, C. S. (2002). Self-regulated learning strategies and achievement in an Introduction to Information Systems course. *Information Technology, Learning, and Performance Journal*, *20*(1), 11-23.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillside, NJ: Lawrence Earlbaum, Ass.

Coladarci, T., Cobb, C. D., Minium, E. W., & Clarke, R. C. (2001). *Fundamentals of statistical reasoning in education*. Denver, MA: John Wiley & Sons, Inc.

Coutinho, S.A. (2007). The relationship between goals, metacognition, and academic success. *Educate~ 7*(1), 39-47. Retrieved from http://www.educatejournal.org/

Dabbagh, N., & Bannan-Ritland, B. (2005). *Online learning: Concepts, strategies, and application*. Upper Saddle River, New Jersey: Pearson Education, Inc.

Dabbagh, N., & Kitsantas, A. (2005). Using Web-based pedagogical tools as scaffolds for self-regulated learning. *Instructional Science, 33*(5-6), 513-540. doi: 10.1007/s11251-005-1278-3

Darmayanti, T. (2000). Self-Directed Learning Readiness Scale: Adaptasi instrumen penelitian belajar mandiri (*Self-Directed Learning Readiness Scale: The adaptation of self-directed research instrument). Jurnal Pendidikan Terbuka dan Jarak Jauh, 2*(2).

Darmayanti, T. (2005). *Efektivitas intervensi keterampilan self-regulated learning dan keteladanan dalam meningkatkan kemampuan belajar mandiri dan prestasi belajar mahasiswa pendidikan jarak jauh (The effectiveness of self-regulated learning skill and modeling interventions in enhancing self-directed learning ability and achievement of distance education students).* Doctoral Dissertation, Universitas Indonesia, Jakarta. Retrieved from http://pustaka.ut.ac.id/puslata/pdf/81201.pdf

Darmayanti, T. (2008). Efektivitas intervensi keterampilan self-regulated learning dan keteladanan dalam meningkatkan kemampuan belajar mandiri dan prestasi belajar mahasiswa pendidikan jarak jauh (The effectiveness of self-regulated learning skills and modeling in enhancing distance students' self-directed learning and achievement) *Jurnal Pendidikan Terbuka dan Jarak Jauh, 9*(2), 68-82.

Daryono. (2011, November 9). [Email to Kristanti Ambar Puspitasari], Universitas Terbuka, Jakarta.

Dembo, M.H., & Seli, H. (2008). *Motivation and learning strategies for college success: A self-management approach (3rd ed.)*. New York; Lawrence Erlbaum Associates.

Dimitrov, D. M., & Rumrill, Jr, P.D. (2003). Pretest-posttest designs and measurement of change. *Work, 20*, 159-165.

Doherty, W. (2006). An analysis of multiple factors affecting retention in Web-based community college courses. *The Internet and Higher Education, 9*(4), 245-255. doi: 10.1016/j.iheduc.2006.08.004

Dunbar, R. (1991). Adapting distance education for Indoensians: Problems with oral heteronomy and a strong oral tradition. *Distance Education, 13*(2), 163-174.

The Examination Center. (2011a). *List of students taking ISIP4215 in 20111*. Unpublished Data, March 3, 2011. Jakarta: Universitas Terbuka.

The Examination Center. (2011b). *Recapitulation of tutorial participants by faculty in non basic education program in 2009.2 to 2011.2*. Unpublished Data, December 6, 2011. Jakarta: Universitas Terbuka.

The Examination Center. (2011c). *Recapitulation of students' completion rate in non basic education program in 2009.1 to 2010.2*. Unpublished Data, February 17, 2011. Jakarta: Universitas Terbuka.

The Examination Center. (2012d). *List of courses in non basic education program in 2011.1 and 2011.2*. Unpublished Data, March 26, 2011. Jakarta: Universitas Terbuka.

Farnes, N. (1997). New structures to reform higher education in Central and Eastern Europe: The role of distance education. *European Journal of Education, 32*(4), 379-395.

Fozdar, B. I., & Kumar, L. S. (2007). Mobile learning and student retention. *International Review of Research in Open and Distance Learning, 8*(2), 1-18.

Fozdar, B. I., Kumar, L. S., & Kannan, S. (2006). A survey of a study on the reasons responsible for student dropout from the Bachelor of Science Programme at Indira Gandhi National Open University. *International Review of Research in Open and Distance Learning, 7*(3), 1-15.

Garrison, D. R. (1993). Quality and access in distance education: Theoretical consideration. In D. Keegan (Ed), *Theoretical principles of distance education*. London; New York: Routledge.

Guglielmino, L. M., Long, H.B., & Hiemstra, R. (2004). Self-direction in learning in the United States. *International Journal of Self-Directed Learning 1*(1): 1-17.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: A meta analysis. *Review of Educational Research, 66*(2), 99-136.

Hemphill, J. H. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist, 58*(1), 78-80.

Hirsch, G. (2001). Helping college students succeed: A model for effective intervention. Philadelphia: Brunner-Routledge.

Hofer, B. K., & Yu, S. L. (2003). Teaching self-regulated learning through a "learning to learn" course. *Teaching of Psychology, 30*(1), 30-33.

Hofer, B. K., Yu, S. L., & Pintrich, P. R. (1998). Teaching college students to be self-regulated learners. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulated learning: From teaching to self-reflective practice*. New York; London: The Guilford Press.

Holder, B. (2007). An investigation of hope, academics, environment, and motivation as predictors of persistence in higher education online programs. *The Internet and Higher Education, 10*(4), 245-260. doi: 10.1016/j.iheduc.2007.08.002

Hu, H. (2007). Effects of self-regulated learning strategy training on learnerrs' achievement, motivation and strategy use in a web-enhanced instructional environment. Unpublished Doctoral Dissertation, the Florida State University.

InternetWorldStats. (2010a). Asia Internet Stats. URL: http://www.internetworldstats.com/asia/id.htm. Retrieved on April 25, 2011

InternetWorldStats. (2010b). Internet Usage in Asia. URL: http://www.internetworldstats.com/stats3.htm. Retrieved on April 26, 2011.

InternetWorldStats. (2010c). Internet Usage Statistics. URL: http://www.internetworldstats.com/stats.htm. Retrieved on April 25, 2011.

Juleha, S. (2002). Memahami gaya dan strategi belajar mahasiswa (*Understanding students' learning style and strategy*). *Jurnal Pendidikan Terbuka dan Jarak Jauh, 3*(2).

Jung, I. (2007). Changing faces of open and distance learning in Asia. *International Review of Research in Open and Distance Learning 8*(1): 1-6.

Jung, M. (2008). The effect of integrating time management skills into a blended distance learning course. Unpublished Dissertation. Faculty of the Rossier School of Education University of Southern California

Kauffman, D. F. (2004). Self-regulated learning in web-based environments: Instructional tools designed to facilitate cognitive strategy use, metacognitive processing, and motivational beliefs. *Journal of Educational Computing Research, 30*(1 & 2), 139-161.

Kimber, C. T. (2009). The effect of training in self-regulated learning on math anxiety and achievement among preservice elementary teachers in a freshman course in mathematics concepts. Unpublished Doctoral Dissertation, The Temple University Graduate Board. Retrieved from ProQuest (UMI No. 3359748).

King, F. B., Harner, M., & Brown, S. W. (2000). Self-regulatory behavior influences in distance learning. *International Journal of Instructional Media, 27*(2), 147-156.

Kitsantas, A., Winsler, A., & Huie, F. (2008). Self-regulation and ability predictors of academic success during college: A predictive validity study. *Journal of Advanced Academica, 20*(1), 42-68.

Lan, W. Y. (1996). The effects of self-monitoring on students's course performance, use of learning strategies, attitude, self-judgment, and knowledge representation. *Journal of Experimenta Education, 64*(2), 101-115.

Lan, W. Y., Bradley, L., & Parr, G. (1993). The effects of self-monitoring process on college students' learning in Introductory Statistics course. *The Journal of Experimental Education, 62*(1), 26-40.

Lin, X. (2001). Designing metacognition activities. *Educational Training Research & Development, 49*(2), 23-40.

Littlejohn, A., & Pegler, C. (2007). Preparing for blended e-learning. London & New York: Routledge.

Littlewood, W. (1999). Defining and developing autonomy in East Asian context. *Applied Linguistics, 20*(1), 71-94.

Lynch, D. J. (2008). Confronting challenges: Motivational beliefs and learning strategies in difficult college courses. *College Student Journal, 42*(2), 416-421.

Lynch, R., & Dembo, M. H. (2004). The relationship between self-regulation and online learning in a blended learning context. *International Review of Research in Open and Distance Learning, 5*(2), 1-16.

Lynch, S. K., & Kogan, L. R. (2004). Designing online workshops: Using an experiential learning model. *Journal of College Counseling 7*, 170-176.

Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlations with academic performance and stress. *Journal of Educational Psychology, 82*(4), 760-768

Malik, N. A., Belawati, T., & Baggaley, J. P. (2005). *Framework of collaborative research and development on distance learningt echnology for Asia*. Paper presented at the The 19th AAOU Annual Conference, Jakarta.

McGivney, V. (2004). Understanding persistence in adult learning. *Open Learning, 19*(1), 33-46. doi: 10.1080/0268051042000177836

Moody, J. (2004). Distance education: Why are the attrition rates so high? *The Quarterly Review of Distance Education, 5*(3), 205-210.

Moore, M. G. (1997). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical Principles of Distance Education* (pp. 22-38). London: Routledge.

Moore, M. G., & Kearsley, G. (1996). *Distance education: A system view.* Belmont, California: Wadsworth Publishing Company.

Nash, R. D. (Winter 2005). Course completion rates among distance learners: Identifying possible methods to improve retention. *Online Journal of Distance Learning Administration, 8(4).*

Nota, L., Soresi, S., & Zimmerman, B. J. (2004). Self-regulation and academic achievement and resilience: A longitudinal study. *International Journal of Educational Research, 41*(3), 198-215.

Nugraheni, E., & Pangaribuan, N. (2006). Gaya belajar dan strategi belajar mahasiswa jarak jauh: Kasus di Universitas Terbuka (*Learning style and strategy of distance education students: A case of Universitas Terbuka*). *Jurnal Pendidikan Terbuka dan Jarak Jauh, 7*(1), 68-82.

Pajares, F. (2002).. Gender and perceived self-efficacy in self-regulated laming. *Theory into Practice 41*(2): 117-125.

Park, C. C. (2000). Learning style preferences of Southeast Asian Students. *Urban Education, 35*(3), 245-268. doi: 10.1177/0042085900353002

Pintrich, P. R. (1995). Understanding self-regulated learning. *New Directions for Teaching and Learning, 63*, 3-12.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review, 16*(4), 385-407.

Pintrich, P. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*(1), 33-40.

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

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement, 53*(3), 801-813. doi: 10.1177/0013164493053003024

Prasetyo, D. (2011, April 29). [Email to Kristanti Ambar Puspitasari], Universitas Terbuka, Jakarta.

Priebe, L. C., Ross, T. L., & Low, K. W. (2008). Exploring the role of distance education in fostering equitable university access for first generation students: A phenomenological survey. *International Review of Research in Open and Distance Learning, 9*(1), 1-12.

Purdie, N., Hattie, J., & Douglas, G. (1996). Students conceptions of learning and their use of self-regulated learning strategies: A cross-cultural comparison. *Journal of Educational Psychology, 88*(1), 87-100.

Puspitasari, K. A., & Islam, S. (2003). Kesiapan belajar mandiri mahasiswa dan calon potensial mahasiswa pada pendidikan jarak jauh di Indonesia (*Self-directed learning readiness of students and potential students in distance eduaction in Indonesia*). *Jurnal Pendidikan Terbuka dan Jarak Jauh, 4*(1), 16-31.

Puzziferro, M. (2008). Online technologies self-efficacy and self-regulated learning as predictors of final grade and satisfaction in college-level online courses. *American Journal of Distance Education, 22*(2), 72-89. doi: 10.1080/08923640802039024

Rajesh, M. (April 2003). A Study of the problems associated with ICT adaptability in developing countries in the context of distance education. *Turkish Online Journal of Distance Education-TOJDE 4*(2).

The Registration Division. (2011a). *Registration data of non basic education students 20111*. Unpublished Data, August 8, 2011. Jakarta: Universitas Terbuka.

The Registration Division. (2011b). *Recapitulation of active non basic education students by gender, age, and location of regional centers*. Unpublished Data, December 12, 2012. Jakarta: Universitas Terbuka.

Robinson, B. (2008). Using distance education and ICT to improve access, equity and the quality in rural teachers' professional development in western China. *International Review of Research in Open and Distance Learning, 9*(1), 1-17.

Roblyer, M. D. (1999). Is choice important in distance learning: A study of student motives for taking Internet-based courses at the high school and community college levels. *Journal of Research in Computing Education, 32*(1), 157-171.

Rumble, G. (1989). On defining distance education. *The American Journal of Distance Education, 3*(2), 8-21.

Schlosser, L. A., & Simonson, M. (2006). *Distance education: Definition and glossary of terms (2nd ed.)*. Greenwich, Connecticut, Information Age Publishing.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25*(1), 71-86.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist 26*(3 & 4): 207-231.

Schunk, D. H. (2005). Self-regulated learning: The educational legacy of Paul R. Pintrich. *Educational Psychologist, 40*(2), 85-94. doi: 10.1207/s15326985ep4002_3

Schunk, D. H. (2008). Metacognition, self-regulation, and self-regulated learning: Research recommendations. *Educational Psychology Review, 20*(4), 463-467. doi: 10.1007/s10648-008-9086-3

Schunk, D. H., & Zimmerman, B. J. (Eds.). (1998). *Self-regulated learning: From teaching to self-reflective practice*. New York; London: The Guilford Press.

Siaciwena, R., & Lubinda, F. (2008). The role of open and distance learning in the implementation of the right to education in Zambia. *International Review of Research in Open and Distance Learning, 9*(1), 1-12.

Simpson, O. (2004). The impact of retention of interventions to support distance learning students. *Open Learning, 19*(1), 79-95.

Simpson, O. (2006). Predicting student success in open and distance learning. *Open Learning, 21*(2), 125-138. doi: 10.1080/02680510600713110

Terry, K. P. S. (2002). *The effects of online time management practices on self-regulated learning and academic self-efficacy.* Doctoral Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Trueman, M. & Hartley, J. (1996). A comparison between time-management skills and academic performance of mature and traditional-entry university students. Higher Education, 32, 199-215.

Tuckman, B. W. (2003). The Effect of Learning and Motivation Strategies Training on College Studentsi Achievement. *Journal of College Student Development, 44*(3), 430-437. doi: 10.1353/csd.2003.0034

Universitas Terbuka. (2012a). *Katalog Non Pendas 2012*. Retrieved from *http://www.ut.ac.id/mahasiswa-dan-alumni/katalog-ut-2012/299-katalog-ut-non-pendas-2012.html*

Universitas Terbuka. (2012b). *Non Persistent students at Universitas Terbuka*. Unpublished document. January 5, 2012.

Visser, L., Plomp, T., Amirault, R. J., & Kuiper, W. (2002). Motivating students at a distance: The case of an international audience. *Educational Technology, Research & Development, 50*(2), 94-100.

Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of distance learners: research on relationships of learning motivation, learning strategy, self-efficacy, attribution and learning results. *Open Learning: The Journal of Open and Distance Learning, 23*(1), 17-28. doi: 10.1080/02680510701815277

Wilson, J. (1997). Self-regulated learners and distance education theory. *Occational Papers in Educational Technology, June* Retrieved from *http://www.usask.ca/education/coursework/802papers/wilson/wilson.html*

Wiswell, L. M.. (2005). Achievement and retention of first-semester nursing students: The effects of a study skills course. Unpublished Doctoral Dissertation, Faculty of The Rossier School of Education University of Southern California. Retrieved from ProQuest (UMI No. 3219856).

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology 81*(3): 329-339.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17. doi: 10.1207/s15326985ep2501_2

Zimmerman, B. J. (1998). Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional model. In D. H. Schunk and B. J. Zimmerman, *Self-regulated learning: From teaching to self-reflective practice*. New York; London, The Guilford Press**:** 1-19.

Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd. ed., pp. 322). New York; London: Routledge. (Reprinted from: 2009).

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64-70.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal, 45*(1), 166-183. doi: 10.3102/0002831207312909

Zimmerman, B. J., & Kitsantas, A. (1997). Developmental phases in self-regulation: Shifting from process goals to outcome goals. *Journal of Educational Psychology, 89*(1), 29-36.

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

Zimmerman, B. J., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use *Journal of Educational Psychology 82*(1), 51-59.

Zimmerman, B. J., & Schunk, D. H. (1998). *Self-regulated learning and academic achievement: Theory, research, and practice*. New York: Springer.

Zuhairi, A., & Budiman, R. (2009). *Universitas Terbuka: 25 years of making higher education open for all Indonesians*. Jakarta: Universitas Terbuka.

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Books
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Book Chapters
Puspitasari, K.A. (2007). *Perkembangan layanan bantuan belajar bagi mahasiswa Universitas Terbuka* (*The development of student support at Universitas Terbuka*). In Setijadi, The Development of Internal Management of Universitas Terbuka. Jakarta: Universitas Terbuka Press.

Puspitasari, K.A. (2007). *Student assessment in distance education*. In T. Belawati; J. Baggaley, & G. Dhanarajan (Eds.)., PANdora Distance Education Guidebook. Accessed in *www.pandora-asia.org*.

Puspitasari, K.A. (2004). *Evaluasi hasil belajar mahasiswa di Universitas Terbuka* (*Student assessment in Universitas Terbuka*). In Assandhimitra (Ed.), Pendidikan Tinggi Jarak Jauh (Distance Learning in Higher Education). Jakarta: Universitas Terbuka Press.

Journal Article

Puspitasari, K.A. & Islam, S. (2003). Kesiapan belajar mandiri mahasiswa & calon potensial mahasiswa pada pendidikan jarak jauh di Indonesia (The self-directed learning readiness of students and prospective students at Distance Education Institutes in Indonesia). *Jurnal Pendidikan Terbuka dan Jarak Jauh*, *4*(1).

Conference

Lee, W. J., Puspitasari, K. A., & Kim, H. Y. (2010). The effects of guided inquiry questions on students' critical thinking skills and satisfaction in online argumentation. AECT, Oct 2010, Anaheim, California.