A MIXED METHODS INTERVENTION STUDY ON THE RELATIONSHIP BETWEEN SELF-REGULATORY TRAINING AND UNIVERSITY STUDENTS' STRATEGY USE AND ACADEMIC ACHIEVEMENT

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Approval of the Graduate School of Social Sciences

_____

Prof. Dr. Meliha Altunışık

Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Doctor of Philosophy.

_____

Doç. Dr. Nurten Birlik

Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science / Arts / Doctor of Philosophy.

_____

Prof. Dr. Ayşegül Daloğlu

Supervisor

Examining Committee Members

Prof. Dr. Ayşegül Daloğlu (METU, FLE) _____

Prof. Dr. Dale Schunk (UNCG, TEHE) _____

Assist. Prof. Dr. Hale Işık Güler (METU, FLE) _____

Assist. Prof. Dr. Nurdan Gürbüz (METU, FLE) _____

Assist. Prof. Dr. Yeşim Çapa Aydın (METU, EDS) _____

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name : Seniye Vural

Signature :

ABSTRACT

A MIXED METHODS INTERVENTION STUDY ON
THE RELATIONSHIP BETWEEN SELF-REGULATORY TRAINING
AND UNIVERSITY STUDENTS' STRATEGY USE AND
ACADEMIC ACHIEVEMENT

Vural, Seniye

PhD, English Language Teaching

Supervisor: Prof. Dr. Ayşegul Daloglu

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This mixed methods intervention study aims to investigate the self-regulated learning strategies (SRL) that university students reportedly used before and after the SRL intervention and the relationship between the intervention and students' SRL awareness, reported use of SRL strategies, and their academic achievement. The study was conducted at the department of English Language and Literature of a state university in Turkey.

A questionnaire was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) and administered before and after the intervention. Participants were offered self-regulatory training during which they were expected to assume the control of their learning process. Throughout the training, students identified their academic deficiencies, set goals to overcome them, and planned and implemented SRL strategies to attain their goals. They also completed weekly homework and took weekly quizzes to gauge the effectiveness of their strategies on their academic improvement towards their goals. In addition, they kept weekly journals in which they reflected on the process of their self-regulation. At the end of the training, they were administered the

questionnaire again to examine any changes in their awareness or strategy use throughout the training.

The results indicate that students reported using mostly resource management, especially environmental management, strategies and metacognitive strategies. An important finding was that means and frequencies of the strategies increased during the training, and t-test results showed statistically significant differences between the means. Finally, students' quiz scores increased, although not consistently, and the results revealed statistically significant differences between quizzes 1-6, 2-6, 3-6, 4-6, and 5-6.

Key words: Self-regulation, Self-regulated learning, Self-regulated learning strategies, Self-regulatory training, Academic achievement

ÖZ

ÖZ-DÜZENLEME EĞİTİMİ İLE ÜNİVERSİTE ÖĞRENCİLERİNİN STRATEJİ KULLANIMI VE AKADEMİK BAŞARISI ARASINDAKİ İLİŞKİ ÜZERİNE KARMA MÜDAHALE ÇALIŞMASI

Vural, Seniye
Doktora, İngiliz Dili Öğretimi
Tez Yöneticisi: Prof. Dr. Ayşegül Daloğlu

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Bu karma metot müdahale çalışması, öz-düzenleme eğitiminden önce ve sonra öğrencilerin kullandığı öz-düzenlemeye dayalı öğrenme (ÖDDÖ) stratejilerini belirlemeyi ve verilen eğitim ile öğrencilerin ÖDDÖ stratejik farkındalığı, ÖDDÖ strateji kullanımı ve akademik başarıları arasındaki ilişkiyi araştırmayı amaçlamaktadır. Çalışma, Türkiye'de bir devlet üniversitesinin İngiliz Dili ve Edebiyatı Bölümü'nde yürütülmüştür.

Çalışmada Öğrenmede Motive Edici Stratejiler Ölçeği (MSLQ) adapte edilerek müdahaleden önce ve sonra uygulanmıştır. Katılımcılara öğrenme süreçlerinin kontrolünün kendilerine verildiği bir öz-düzenleme eğitimi verilmiştir. Eğitim boyunca öğrenciler akademik eksikliklerini belirlemiş, bu eksikliklerin üstesinden gelmek için kendilerine hedefler belirlemiş ve bu hedeflere ulaşmak için öz-düzenleyici stratejiler planlamış ve uygulamışlardır. Öğrenciler bu hedeflere doğru ilerlerken kullandıkları stratejilerin akademik gelişmelerine etkisini ölçmek için haftalık ödevler yapmış ve küçük sınavlara (quiz) girmişlerdir. Bunlara ek olarak, öz-düzenleme süreçleri ile ilgili deneyimlerini yansıttıkları haftalık günlükler tutmuşlardır. Eğitimin sonunda

ÖDDÖ farkındalıkları ve strateji kullanımlarındaki değişikliklerin belirlenmesi için anketi yeniden cevaplamışlardır.

Sonuçlara göre, öğrenciler en çok kaynak yönetimi, özellikle çalışma çevresi yönetimi stratejileri ve üst bilişsel stratejiler kullandıklarını belirtmişlerdir. Eğitimin önemli bir katkısı, eğitim sırasında stratejilerin ortalamaları ve sıklıklarının artması ve t test sonuçlarının ortalamalar arasında istatistiksel olarak anlamlı farklar göstermesidir. Son olarak, öğrencilerin quiz notları, sistematik bir şekilde olmasa da artmış ve 1. ile 6., 2. ile 6., 3. ile 6., 4. ile 6., ve 5. ile 6. quizler arasında istatistiksel olarak anlamlı fark lar olduğunu ortaya çıkmıştır.

Anahtar Kelimeler: Öz-düzenleme, Öz-düzenleyici öğrenme, Öz-düzenleyici öğrenme stratejileri, Öz-düzenleme eğitimi, Akademik başarı

Canım aileme…

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SRL	: Self-regulated Learning
MSLQ	: Motivated Strategies for Learning Questionnaire
ELL	: English Language and Literature

CHAPTER 1

INTRODUCTION

1. 1. Overview of the Chapter

This chapter presents the statement of the problem, the purpose, background, and significance of the study, research questions addressed, and definitions of key terminology. Students' regulation of their academic behaviors is considered as a very important construct affecting their academic achievement, and training in self-regulated learning (SRL) has proven to be successful. Therefore, the rationale behind conducting this study was to explore the relationship between the SRL training and students' awareness and use of SRL strategies and their academic achievement.

1. 2. Background of the Study

Human beings are fascinated with understanding and regulating themselves, which is a characteristic that distinguishes humans most as species, according to many philosophers, theologians, and psychologists (Zimmerman & Schunk, 2001). Hence, the human ability to self-regulate and self-control has been a recurring theme in Western and Eastern philosophy for millenia, and the interest of social psychology in self-regulation began to blossom in the late 1990s (Forgas, Baumeister, & Tice, 2009). In fact, self-regulation has been identified by Psychology as one of the two main variables that contribute to human success (i.e., the other variable is intelligence) (Forgas et al., 2009). Therefore, considered by Bandura (1986, p. 354) as "a uniquely human capability", by Zimmerman (2000, p. 13) as "our most important quality as humans", by Boekaerts, Pintrich, and Zeidner (2000, p. 4) as "an important topic that is highly relevant to the science of the mind and human behavior", self-regulation has been the focus of research in a variety of disciplines,

such as psychology, medicine, and sports training, as proved by the variety of chapters in Boekaerts et al's (2000) work.

Being the focus of research across a variety of domains, self-regulation has also received considerable attention within the academic realm over the past three decades (Pintrich, 2003; Zimmerman & Schunk, 2001). From an educational perspective, equipping students with self-regulatory skills is a crucial aim due to the fact that enhancing learning not only requires improving content knowledge, but it also includes developing study skills, social skills, and desired motivational orientations to educate independent lifelong learners (Kadioglu, Uzuntiryaki, & Capa-Aydin, 2011). In line with this aim, many theorists in educational psychology narrowed the scope of students' self-regulatory capacity by focusing on the academic side of education, which led to the construct of SRL to become a frequent area of educational research (Boekaerts & Corno, 2005). There is a growing body of evidence attesting to the importance of the SRL process (Zimmerman, 1986), which is regarded as "relatively new and increasingly important area" (Boekaerts et al., 2000, p. 1).

The interest in self-regulation in educational psychology could be tied to a number of factors. The first factor is the important shift the field went through from behaviorism to cognitivism (Chen, 2002) and thus from focusing on the product to the self-regulatory process itself (Zeidner, Boekaerts, & Pintrich, 2000). This shift led to an increasing responsibility on learners for their own learning (Chen, 2002) and the study of self-regulation became a "natural and organic part of the landscape of psychology and education" (Zeidner et al., 2000, p. 749). Because it has been considered by educational psychologists as the key to successful learning in school and beyond, it has been the focus of research in the field of education (Boekaerts, 1999; Dignath, Buettner, & Langfeldt, 2008; Schunk, 2005a; Zimmerman, 2002), leading to a "virtual explosion of work in this area" (Zeidner et al., 2000, p. 750).

Second, recent years have witnessed a considerable change in terms of the understanding of human ability: rather than a fixed attribute, it has started to be considered a generative capability in which cognitive, social, motivational, and

behavioral skills are organized and used effectively to serve different aims (Bandura, 1993). Similarly, the goal of SRL is a shift from students' learning ability and environment as fixed entities to self-initiated processes and responses with an aim to improve their ability and environment for better learning (Zimmerman, 1990, 2001). This new understanding of ability might be interpreted as leading to a change in students' conceptions of the whole learning process, highlighting that they can actually achieve their goals by controlling their own learning process. There is also abundant research evidence showing that students' skills and abilities do not fully explain their achievement (Zimmerman, 2001), suggesting that other factors, such as motivation and self-regulation, are highly influential. Therefore, the shift in the understanding of ability affected research on learning and teaching, leading to a focus on the learner as an active participant in the learning process (Dignath et al., 2008).

Third, due to rapid developments in technology, which resulted in the exponential growth in knowledge, students face new demands on their learning abilities, and SRL emerged as a crucial construct in education to keep up with these demands (Bandura, 1993; Dignath et al.,2008; Perels, Dignath, & Schmitz, 2009; Zimmerman, Bonner, & Kovach, 1996). Closely tied to this factor are contemporary demands for lifelong learning, which is a goal that educators hope to promote in students (Schunk, 2005a; Perels et al., 2009; Zimmerman et al., 1996). In a society that requires lifelong learning, the ability to regulate one's own learning is getting more and more important to be successful in both academic and non-academic contexts (Zimmerman, 2008). As Perels et al. (2009) maintain, lifelong learners should be active, qualified, and prepared for these demands; they should be able to acquire new knowledge and adapt existing knowledge to new requirements. Society also requires students to be able to learn in a self-regulated way during and after school and throughout their professional life (Dignath & Büttner, 2008). In brief, as "a necessary prerequisite for lifelong learning", SRL is claimed to be crucial to overcome many problems by shifting the responsibility of the learning process from teachers to students (Klug, Ogrin, Keller, Ihringer, & Schmitz, 2011, p. 51). In summary, recent changes in the understanding of learning, which involves students

who are actively involved in their learning process, led to the need for new approaches to increase the efficiency of learning, such as SRL. In line with these developments, educators, policy-makers and educational researchers have been deeply interested in understanding students' capacity to control their own learning both in school and beyond since mid-1980s (Boekaerts & Corno, 2005).

However, an important question that needs to be asked is "how well have we equipped our youth to assume the burden of learning for themselves" (Zimmerman et al., 1996, p. 1)? As students often do not have the will and skill for academic achievement, teachers need instructional approaches that can offer insight and direction into the processes of SRL (Zimmerman, 1990). Therefore, based on the positive relationship between SRL and academic achievement (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988) and positive contributions of interventions that aimed to foster SRL skills (Dignath & Büttner, 2008; Dignath et al., 2008; Perels et al., 2009; Perels, Gürtler, & Schmitz, 2005; Schunk & Ertmer, 2000), the need for SRL training should be emphasized.

1. 3. Statement of the Problem

The importance of providing education that enables students to function as active learners who take responsibility for acquiring knowledge and skills and are motivated to sustain self-directed, lifelong learning has been a prominent and consistent theme in the history of school reform efforts (Wang & Peverly, 1986). However, in traditional classrooms, students tend to depend on their teachers to access information and expect teachers to set goals for them, guide the learning process through these goals, provide the information and learning materials, motivate them through extrinsic rewards or feedback, and monitor their performance (Boekaerts & Niemivirta, 2000). This dependence and expectations imply that it is teachers who determine activities that students will engage in, strategies they will use to accomplish the task, and criteria to evaluate student progress. In brief, it is teachers who take responsibility for the teaching-learning process and control what is being learned, when, how, and to what extent the content is learned, whereas students may not even have a clear understanding of their own needs and goals, but they just

tend to find a way to comprehend, store, and activate the information provided by the teacher (Boekaerts & Niemivirta, 2000).

Teachers' regulation of students' learning process results in a lack of opportunities for students to organize and regulate their own learning (Boekaerts & Niemivirta, 2000) and difficulties in planning the study time and monitoring study activities (Van den Hurk, 2006). Social cognitive theorists attribute students' failures to their disbelief in their ability to successfully use a self-regulation response (Zimmerman, 2001), stating that many students do not self-regulate when they can, and many of those who do are less effective than they might actually be (Corno, 1986). Similarly, students feel less self-efficacious when managing themselves to carry out academic activities than they do when managing the content aspects of instruction (Zimmerman, Bandura, & Martinez-Pons, 1992). Research also shows that a large number of students face difficulties regulating their learning process efficiently and effectively (Pintrich, 2004; Schunk & Ertmer, 2000; Winne, 2005; Zimmerman, 2002) and feel resistant to or under-prepared for challenges they face during learning due to underdeveloped self-regulation ability (Torosyan, 2007). For example, students' not being fully prepared for class, taking exams only after last-minute cramming, submitting assignments without revising them carefully and their lack of awareness regarding how they spend their time are problems consistently encountered (Zimmerman et al., 1994).

Having been educated with traditional methods, students studying at Erciyes University, Department of English Language and Literature (ELL) also had problems resulting from lack of regulating their learning process: They did not set academic goals, nor did they monitor their academic development. In addition, informal interviews with students revealed that planning and organizing studies proactively are the most common challenges the students faced. Some students stated that they had never tried being more proactive in controlling their studies either because they had prejudices regarding the effectiveness of it or because they did not know how to. Another crucial problem common to almost all students was the fact that they did not have a study plan. Most of them did not have regular study hours; they procrastinated

until the day before the exam and crammed for the exam only the day before, which led to failure. Worse than that, they did not understand why they failed although they had studied *a lot*. This situation indicated that these students needed training on regulation of their learning process.

To solve such problems, students must be taught how to learn especially at universities, which require student initiative and responsibility for learning (Jossberger, Brand-Gruwel, Boshuizen, & Van de Wiel, 2010). SRL is believed to solve these problems because it highlights autonomy and control by students themselves, who monitor, direct, and regulate actions towards goals of information acquisition, developing expertise, and self-improvement (Paris & Paris, 2001). The control over the factors is consistent with the idea that self- regulation is not a general disposition; it is a way of approaching academic tasks which students learn through experience and self-reflection, implying that it can be learnt (Pintrich, 2000; Van den Hurk, 2006). Hence, students can be taught to become more self-regulated by enhancing perceptions of self-efficacy and acquiring effective strategies, which empowers them to increase their personal control over their behaviors and environment (Zimmerman, 1989a). Since the self-regulatory process of learning gives students a sense of control and encourages them to pay attention to their methods of learning (Zimmerman, Bonner, & Kovach, 1996), teachers can teach students how to learn by training them to use different learning strategies. Although research shows that the self-regulatory process is teachable (Paris & Paris, 2001; Perels et al., 2009), and students have the potential to become self-regulated and they only need support and scaffolding (Winne, 2005), few teachers effectively prepare students to learn independently; if they do, they do so only to a limited extent (Zimmerman, 2002).

From research perspective, despite abundant research on SRL, there is an increasing need for developing students' self-regulatory strategies and self-regulatory system (Mezei, 2008) and there are still areas that need further investigation. First, due to the difficulty in operationally defining the construct, only limited aspects of SRL have been examined simultaneously (Abar & Loken, 2010). Existing research

has mostly investigated the key processes involved in self-regulation (Zimmerman, 1989a, 1990, 2002), the correlation between the use of self-regulatory skills and academic achievement (Zimmerman & Martinez-Pons, 1986, 1988; 1990; Pintrich & De Groot, 1990) focusing on selected components of self-regulation, such as goals, self-efficacy, or motivation. Zimmerman and Bandura (1994) maintain that much of the SRL research has centered on task-related cognitive and metacognitive strategies, such as mnemonic encoding and self-monitoring. Researchers have also examined the effects of SRL intervention on academic achievement (Perels et al., 2005; Perels et al., 2009; Schmitz & Weise, 2006), but most of these were experiemental intervention studies aiming to investigate the extent to which the intervention improved students' problem-solving skills (Fuchs, Fuchs, Prentice, Burch, Hamlett, Owen, & Schroeter, 2003; Kistner, Rakoczy, Otto, Dignath-van Ewijk, Büttner, and Klieme, 2010; Perels et al., 2005, 2009; Stoeger & Ziegler, 2008)rather than to improve students' SRL skills for its own sake. In addition, to the knowledge of the researcher, no study has been reported to involve training that focuses on developing self-regulatory skills of students aspiring to be English teachers. Moreover, few studies (Perels et al, 2005, 2009; Stoeger & Ziegler, 2008) designed interventions which incorporated training of several SRL components in regular classroom instruction. Second, most SRL studies are quantitative studies based on questionnaires (Chen, 2002; Fuchs et al., 2003; Ozturan Sagirli, Ciltas, Azapagasi, & Zehir, 2010; Stoeger & Ziegler, 2008), so classroom-based qualitative studies that investigate students' progress throughout the SRL training process involving their reflections of the process are apparently lacking. Third, despite its crucial role in success and the attention it has received from researchers from different domains throughout the world, SRL research is still in its infancy in Turkey, and the few SRL studies in Turkey are limited to the investigation of the changes in students' SRL skills throughout their college education (Ozturan Sagirli et al., 2010), students' behaviors involving SRL skills (Ozturan Sagırlı, & Azapagasi, 2009), the relationship among classroom environment perceptions, self-regulation, and science achievement (Sungur & Gungoren, 2009), the contribution of motivational beliefs, cognitive, and metacognitive strategy use to achievement in biology (Yumusak,

Sungur, & Cakiroglu, 2007), and the effectiveness of problem-based learning and traditional instructional approaches on students' SRL (Sungur & Tekkaya, 2006).

1. 4. Purpose of the Study

Therefore, this study addresses the need to raise Turkish prospective English language teachers' (i.e. undergraduate students') awareness of SRL through training and encourages them to implement SRL strategies to improve their learning. In addition, it aims to determine the SRL strategies that students reportedly used before, during, and after the training and investigate the relationship between the self-regulatory training that involves all SRL components and students' awareness of regulating their own learning process, use of SRL strategies in content courses, and academic success. In brief, the purpose of the study was to promote the understanding that students could actually "be the controller of their learning, rather than the victim of it" (Zimmerman et al., 1996, p. 9). This study sought answers to the following research questions:

1. What is the relationship between self-regulatory training and students' regulation of their study habits and academic achievement?

    1a. What self-regulatory strategies are the students aware of before the training?

    1b. What self-regulatory strategies do the students most frequently use during and after the training process?

    1c. What is the relationship between the SRL training and the students' awareness and reported use of self-regulatory strategies?

    1d. What are the students' perceptions of the effectiveness of the self-regulatory training?

1e. What is the relationship between the SRL training and the students' academic achievement?

1. 5. Significance of the Study

Based on social cognitive theory, this SRL study addressed how students selectively activate, modify, and sustain their learning practices especially outside the school context. One purpose of the study was to improve students' SRL skills so that they took the responsibility and control of their learning process even after graduation. It also aimed to investigate the students' reported use of SRL strategies before and during the SRL training, and the relationship between the SRL training and students' awareness, reported use of SRL strategies, and their success.

The study has significance in terms of several aspects related to research. First, it will contribute to SRL literature by examining the relationship between SRL training and students' awareness, their use of SRL strategies during their self-regulation process, and their academic achievement. Second, unlike many previous SRL studies, this study encompasses the whole self-regulation process as a cycle, guiding students into experiencing all phases of self-regulation, systematically monitoring and evaluating the process. Third, it will be a response to Olaussen and Braten's (1999) suggestion that it is necessary to carry out research in different contexts across countries to determine the generalizability of self-regulation models. Therefore, the context of the study is another contribution to the literature, as it includes a Eurasian student population, in contrast to the bulk of SRL research conducted in North American and European settings (Schunk, 2005a). In this sense, this study will help show how well principles of self-regulation generalize across diverse student populations (Schunk, 2005a). Fourth, the present study is valuable also because most of the previous SRL studies rely exclusively on correlational methods, which greatly contribute to understanding SRL, but do not yield in-depth data regarding the process itself and the reasons for particular actions or thoughts (Abar & Loken, 2010). To address this gap in the literature, this study aims to make use of both quantitative and qualitative methods, exploring not only the frequency of

strategy use, but also the reasons and ways of students' implementation of the strategies and the modifications they made.

Finally, the study might be considered as a response to Schunk and Ertmer's (2000) call for not only relying on modeling, but giving students greater responsibility for their own learning and teaching self-regulation in content areas. This study addressed these two needs in the sense that the training aimed to transfer the responsibility for learning to students by encouraging them to set their own goals, select their own strategies, monitor the SRL process and the effectiveness of the strategies, and evaluate learning outcomes, mostly outside the classroom via homework. In addition, the training attempted to enhance the application of self-regulation process in Introduction to Linguistics course, as it required incorporating the training content into homework. Schunk and Ertmer (2000) also suggest that greater research attention should be given to self-reflective practice. In this study, self-reflection is supported throughout the training by self-monitoring of goal achievement; the students reflect about each phase of the self-regulation process in their journal entries.

From a practical point of view, the study will raise awareness of students, teachers, curriculum designers, and administrators regarding the incorporation of SRL approach to content courses. As instruction which is designed to increase student SRL promotes SRL processes and learning, SRL should be infused in content courses offered at universities (Fuchs et al., 2003).

As for the implications of the study, because the participants are students most of whom aim to become teachers, it is hoped that the training will contribute to their academic self-regulation both as students and as future teachers. Training future teachers on self-regulatory skills is also believed to help them organize their learning processes with the use of self-regulatory strategies and use these strategies as teachers in their classrooms. As future teachers, they are expected to transfer their SRL skills into their future classrooms to promote SRL and to use these skills as guides for regulation of their own teaching practices and professional development. In addition, the results of this study might stimulate more interest in SRL in teaching

content courses, and the training program might be improved, adapted, and incorporated into the curricula of teacher education programs. Finally, the findings of the study are believed to trigger further research with an aim to promote SRL approach in various contexts and examine concerns and problems in self-regulation research.

1. 6. Limitations of the Study

Because this study has a mixed methods design, the number of participants is small when compared to the quantitative studies, which makes it difficult to generalize the results to other contexts. However, in mixed method studies, the transferability of the results is more important than their generalizability. As Mackey and Gass (2005) suggest, in qualitative research, the research context is considered to be integral as findings of qualitative research are difficult to transfer directly from one context to another. Therefore, the findings could be transferred only to Turkish universities. Another significant limitation of this study is that it relies on self-reports. Because the students applied the SRL strategies during homework outside the classroom, observing them during the process of decision-making and SRL implementation processes was not possible. To compensate for this limitation, the students were encouraged to reflect on all behaviors, affects, and thoughts related to the process in their journal entries. Nevertheless, data collection instruments which yield data on the actual student behaviors might be used in future research as a profitable extension of this study.

1. 7. Definition of Key Terms

The following terms are frequently used throughout the study:

Self-regulation:

In a broad sense, regulation means "keeping something regular; . . . maintaining a variable at some value despite disturbances to the variable" (Vancouver, 2000, p. 304). Self-regulation is the regulation of the self by the self;

hence, it means changing oneself to conform to some idea or concept (Forgas et al., 2009). It refers to the processes by which the human psyche controls its functions, states and inner processes with a view to bringing the self into preferred standards, both consciously and unconsciously (Vohs & Baumeister, 2004).From an educational perspective, it refers to "being able to develop knowledge, skills and attitudes which can be transferred from one learning context to another" (Boekaerts, 1999, p. 446).

Self-regulated learning:

SRL refers to the cyclical and dynamic learning process in which self-generated thoughts, feelings, and actions are planned and systematically oriented towards attainment of students' own learning goals (Zimmerman, 2000, 2001; Zimmerman & Schunk, 1989, 2011). In other words, it is a learning process during which students actively and systematically regulate their metacognition, motivation, and behavior to achieve their personal goals (Zimmerman, 1989a; Zimmerman & Schunk, 2011).

Self-regulated learning strategies:

SRL strategies are actions and processes involving agency, purpose, and instrumentality perceptions by learners, which are employed to acquire information or skills (Zimmerman, 1989a; Zimmerman & Martinez-Pons, 1986). Examples to such strategies are organizing and transforming information, self-consequating, seeking information, rehearsing, using memory aids, etc. (Zimmerman & Martinez-Pons, 1986).

Self-efficacy:

According to Bandura (1986), as important determinants of human self-regulation, self-efficacy beliefs refer to people's perceptions about their capacities and capabilities to control the events that affect their lives and organize and implement actions necessary to attain designated types of performances or skill. Rather than the skills one possesses, it is related to judgments of what one can do

with those skills (Bandura, 1986). Zimmerman (1989a, 2000) defines self-efficacy as personal beliefs regarding having the means to learn or perform a task effectively; one's capabilities to organize and implement actions required to attain performance of skill for specific tasks at designated levels.

Self-regulatory/SRL skills:

SRL skills refer to students' ability to self-regulate their learning (Dignath et al., 2008).

Self-monitoring:

Self-monitoring refers to deliberate attention to specific aspects of one's behavior (Schunk, 1983c; Schunk & Ertmer, 2000).

CHAPTER 2

LITERATURE REVIEW

2. 1. Overview of the Chapter

This chapter aims to provide theoretical background regarding the defining features of self-regulation and key processes involved, the social cognitive theory on which most self-regulation research is based, and models developed for SRL. Another purpose is to review the research literature that is the most pertinent to the proposed study, presenting the studies which focused on self-regulation in the field of education, such as the relationship between self-regulation and academic achievement, self-regulatory strategies students most frequently used, and the intervention studies that aimed to train students to be self-regulated learners.

2. 2. Characteristics of Self-regulation and Self-regulated Learning

There is no simple and straightforward definition of the construct of self-regulation (Boekaerts & Corno, 2005; Boekaerts et al., 2000) due to being a generic term used for a number of phenomena which are controlled by different processes rather than a unitary construct (Boekaerts & Niemivirta, 2005) and due to the complexity and diversity of the processes involved (Pintrich, 2000). The complex nature of self-regulation led to different definitions suggested by theoreticians from different viewpoints. From a psychological point of view, for example, it is defined as a highly adaptive and distinctively human personality process through which people seek to exert control over their thoughts, feelings, and performances and change their responses so as to live up to certain standards (Baumeister, Gailliot, DeWall, & Oaten, 2006). It is not a mental ability, unitary personality trait, stage of development (Schunk, 2001; Zimmerman, 1998a), or an academic performance skill (Zimmerman, 2002). Rather, it is considered as self-directive processes and self-

beliefs through which students transform their mental abilities into task-related academic skills and performance (Zimmerman, 1998a, 2001, 2002, 2008). This self-directiveness requires self-regulated students to initiate and direct their own efforts to acquire knowledge or skill to accomplish their goals and promote their academic achievement rather than relying on other agents of instruction, such as teachers (Zimmerman, 1989a). Therefore, self-regulation of the learning process is considered to be crucial in that it gives students a sense of personal control, which is a major source of motivation to continue learning on one's own (Zimmerman, 1985, 1995a).

SRL theorists regard students as self-regulated to the extent that they are metacognitively, motivationally, and behaviorally active participants in their own learning process(Zimmerman, 1986; 1989a; 1989b). Hence, the term self-regulated is connected with learning forms that are metacognitively guided, at least partially intrinsically motivated, and strategic (Zimmerman, 1990). Zimmerman's definition emphasizes three significant elements required for students' learning to be regarded self-regulated: "students' SRL strategies, self-efficacy perceptions of performance skill, and commitment to academic *goals*" (Zimmerman, 1989a, p.329). Hence, in order for learners' strategic actions to be considered as self-regulated, the learning process must involve the use of specific strategies to achieve academic goals and be based on self-efficacy perceptions.

Metacognition as a significant component of SRL refers to decision-making processes which regulate the selection and use of various forms of knowledge (Zimmerman, 1989a). In other words, it refers to the awareness, knowledge, and control of cognition and involves three general processes: planning (i.e., goal setting, task analysis, organizing the material), monitoring (i.e., tracking of attention, self-evaluating/self-testing, questioning), and regulating (i.e., fine-tuning and continuous adjustment of cognitive activities) (Pintrich, Smith, Garcia, & McKeachie, 1991, p. 23). Through metacognition, learners set goals, plan, organize, self-instruct, self-monitor, and self-evaluate their performance at various stages of the learning process and become self-aware regarding their general academic strengths and weaknesses and knowledgeable and decisive about how to regulate engagement in tasks in order

to maximize learning processes and outcomes (Zimmerman, 1986; 1990). Metacognition is important because a student who has an appropriate repertoire of effective cognitive strategies and motivation to apply them may still fail to do so in many school learning situations, as a result of poor metacognitive control (Corno, 1989).

In terms of motivational processes, self-regulated learners consider themselves as competent, self-efficacious, autonomous (Zimmerman, 1986), and intrinsically motivated (Zimmerman & Martinez-Pons, 1988). Therefore, the definition assumes a motivational orientation by learners, which is sustained by self-perceptions of efficacy, and it includes the strategic control of motivation, cognition and behavior during the process of goal attainment. Self-regulated students also report high self-attributions and intrinsic task interest and display effort and persistence during learning (Zimmerman, 1990).

In behavioral processes, students proactively select, structure, and create positive social and physical environments that maximize learning, such as management of study environment and help seeking (Zimmerman & Risemberg, 1997), seeking advice, information or places where they can learn best (Zimmerman, 1986; 1990; Zimmerman & Martinez-Pons, 1988), take the steps to master it, find a way to succeed even when they encounter obstacles (Zimmerman, 1990). This view suggests that effective learners are aware of functional relationships between their patterns of thought and action (i.e., strategies) and social and environmental outcomes (Zimmerman, 1986; Zimmerman & Martinez-Pons, 1988). They use these specific processes, metacognitive and motivational strategies, or responses purposefully to enhance their awareness of the potential benefits of self-regulation processes, learning abilities, thus playing an important role in determining the form and amount of instruction they need (Zimmerman, 2001). Paris and Paris (2001) also emphasize the metacognitive and motivational aspects of SRL, defining the former as a combination of knowledge about appropriate actions and the latter as a drive to pursue goals in environments that allow students to be autonomous. In summary, metacognitive strategies (e.g., planning, monitoring, and evaluating the learning

process), strategy use, and motivation are supplementary components that promote SRL (Dignath & Büttner, 2008).

Pintrich (2000) also suggests a process definition which highlights the dynamic and cyclical nature and involves the characteristics of SRL: "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation and behavior, guided and constrained by their goals and the contextual features in the environment" (p. 453) and these self-regulatory activities can mediate the relationships between individuals and the context, and their achievement. Boekaerts and Corno (2005) also emphasize the process being active and constructive, and that self-regulated learners are engaged in this process of meaning generation, adapting their thoughts, feelings, and actions so as to affect their learning and motivation. Pintrich and De Groot (1990) suggest three components of SRL that are especially important for classroom performance: (1) metacognitive strategies for planning, monitoring, and modifying cognition, (2) students' management and control of their effort on academic tasks, and (3) cognitive strategies that students use to learn, remember, and understand the material, as well as motivation to use the strategies and regulate their cognition and effort.

It should be noted that the prefix 'self' should not limit the SRL approach to only asocial forms of education (e.g., discovery learning, self-education); it can also include social aspects of learning (e.g., modeling, guidance, help-seeking, feedback from peers/teacher) (Zimmerman, 2001). Nevertheless, the key point that determines if learning is self-regulated or not is whether the students show "personal initiative, perseverance, and adaptive skill in pursuing it" rather than its focus on social aspects(Zimmerman, 2001, p. 1). In other words, learning is not something that happens *to* students, but it is something that happens *by* students (Zimmerman, 2001). The implication of this theory in SRL is that students are not passive recipients, but they have an active role in controlling the whole learning process (Schunk, 2001; Shirkhani & Ghaemi, 2011). Empirical research also shows that self-

regulated students differ from others in terms of their proactive orientation and performance and their abilities to self-motivate (Zimmerman et al., 1992).

SRL approach has great contributions to education in that it has shifted the focus of educational analysis from students' learning abilities and environments as fixed entities to their personally initiated processes and responses with the aim of improving learning abilities, outcomes and environments (Zimmerman, 1990; 2001). In line with this shift, the perception of student achievement has also shifted from being examined mainly with regard to student ability measures or the quality of teaching, schools, and home environments to focusing on how students personally activate, alter, and sustain their learning practices in specific contexts (Zimmerman, 1986). The advantage of this shift is supported by the fact that even high-ability students may not achieve optimally because they fail to use or control their cognitive, affective, and motoric learning processes (Zimmerman, 1986). Empirical research also shows that even not all gifted students are good self-regulators, and they might need increased awareness and practice of self-regulatory strategy use (Zimmerman & Martinez-Pons, 1990). This viewpoint has led self-regulation theorists to focus on students' use of a variety of specific sub-processes to achieve self-designated goals (Zimmerman, 1986). Before these sub-processes are discussed within a social cognitive framework, some aspects of SRL that are considered to be important by different theoretical perspectives are going to be presented.

2. 3. Key Features of SRL Common to All Theories

Several theoretical perspectives exist to guide self-regulation research (Zimmerman, 2001; Zimmerman & Schunk, 2001). According to Zimmerman (1990), even though definitions of SRL differ depending on the researcher's theoretical perspective and the aspect of self-regulation the theory emphasizes, there are three key features that are in common for all definitions: (1) systematic use of SRL strategies (i.e. metacognitive, motivational, and behavioral), (2) responding to self-oriented feedback regarding the effectiveness of learning, and (3) independent motivational processes.

First, self-regulated students choose and use SRL strategies to achieve desired academic outcomes based on feedback about the effectiveness of learning (Zimmerman, 1990).Zimmerman's (1989a, p. 329) definition of SRL specifically emphasizes "how learners represent contemporary actions and conditions in terms of strategies reaching subsequent goals".

Second, regardless of their theoretical perspective, all theorists state that a crucial feature of SRL is students' responsiveness to self-oriented feedback on learning effectiveness (Zimmerman, 1990). Students continuously monitor and evaluate the effectiveness of their learning methods or strategies and respond to this feedback through personal (e.g., self-perception) or behavioral changes (e.g., sustaining the strategy, replacing it with another, or adapting it) (Zimmerman, 1989a, 1990, 2000, 2001). This means that feedback from previous experiences is used to make adjustments for subsequent efforts (Zimmerman, 2000). Zimmerman (1990) states that from a social cognitive perspective, this feedback loop is considered to function both as negative feedback to reduce the gap between goals and observed outcomes and as positive feedback to raise the goals based on observed outcomes.

Third, students' motivational processes, such as self-efficacy and self-motivation and their learning processes are interdependent, and motivational processes affect how and why students choose to utilize a certain process, strategy or response (Zimmerman, 1990, 2001). Motivational aspects of self-regulation are important because they indicate why students do what they do or why they are/are not inclined to do what is expected from them (Rozendaal, Minnaert, & Boekaerts, 2003). According to Schunk (1994),students have to regulate both their actions and underlying motives: achievement-related cognitions, beliefs, intentions, and affects. This is because contextually-related self-processes, such as perceived self-efficacy, explain variations in motivation to self-regulate one's performance (Bandura, 1997). In addition, most self-regulation theorists claim that SRL requires additional preparation time, vigilance, and effort, and unless the outcomes of the students' efforts are attractive enough, students may not be motivated to self-regulate (Zimmerman, 2001).

2. 4. Theoretical Perspectives of SRL

In line with the interest and attention towards SRL and because of the importance attached to the topic, theoreticians from widely divergent perspectives have become interested in the issue of how students acquire the ability to self-regulate their learning (Zimmerman & Schunk, 1989, 2001). Paris and Paris (2001) maintain that this variety is due to the relevance of SRL to various aspects of learning and control. These theories include ones that are based on Piaget's constructivist theory, Vygotsky's sociocultural theory, social cognitive theory, and information processing theories (Zimmerman & Schunk, 1989, 2001) (see Table 1). These theories have significant potential to guide research on student study patterns and assist students to become more self-reliant and effective (Zimmerman, 1986).

Zimmerman (2001, p. 8) compares distinctive SRL theories from a framework of five common underlying issues: (1) students' motivation to self-regulate during learning, (2) the processes through which students become self-reactive or self-aware, (3) the key processes/responses students use to attain academic goals, (4) the effect of social and physical environment on SRL, and (5) how students acquire the capacity to self-regulate during learning. These underlying issues can be explained briefly from social cognitive perspective as follows:

Social cognitive perspective suggests that motivational factors influence students' decisions to the SRL strategies they know (Zimmerman & Martinez-Pons, 1988). Self-awareness involves self-perceptive states, such as self-efficacy, that emerge from specific self-observation responses (Zimmerman, 2001). Self-regulated learners are confident, diligent, and resourceful about educational tasks, and they are aware when they know a piece of information or possess a skill and when they do not (Zimmerman, 1990). As for the key processes, self-regulation constitutes three sub-processes- self-observation, self-judgment, and self-reaction- which interact with each other in a reciprocal manner (Bandura, 1986; Schunk, 1989). Next, social cognitive theorists investigated the relationship between self-regulation processes and social processes (e.g. modeling, verbal persuasion) as well as environmental factors (e.g., the nature of the task and setting) (Zimmerman, 2001). Finally, social

cognitive view posits that students go through the steps what Zimmerman (2000, p. 29; 2002) hypothesizes to be "developmental levels of regulatory skills" during acquisition and attainment of skill/strategy until they achieve a level of self-regulating their learning in an adaptive way and in changing conditions. The development initiates from social sources and gradually shifts to self-sources through four levels (Zimmerman, 2001, p. 22). The first is *observation* level, during which students learn to distinguish the main features of a model's skill/strategy. At *emulative* level, student's performance enactive approximates the general form of a model's skill/strategy. At *self-control* level, students are able to perform a skill/strategy based on mental representations of a model's performance. *Self-regulation* level refers to the time when students are able to adapt their skills/strategies systematically depending on changes in personal or contextual conditions. Zimmerman (2001) also maintains that children's development affects sub-processes of SRL. Schunk (2001) also cautions that researchers involved in SRL training should take developmental limitations of children into consideration. A summary of the analysis of the key processes in SRL from various theoretical perspectives is displayed in Table 1.

Table 1- A comparison of theoretical views regarding common issues in self-regulation of learning (Zimmerman, 2001, p. 9).

Common Issues in Self-regulation of Learning					
Theories	**Motivation**	**Self-awareness**	**Key processes**	**Social and physical environment**	**Acquiring capacity**
Operant	Reinforcing stimuli are emphasized	Not recognized except for self-reactivity	Self-monitoring Self-instruction Self-evaluation	Modeling Reinforcement	Shaping behavior and fading adjunctive stimuli
Phenomenological	Self-actualization is emphasized	Emphasize role of self-concept	Self-worth Self-identity	Emphasize subjective perceptions of it	Development of the self-system
Information Processing	Motivation is not emphasized historically	Cognitive self-monitoring	Storage and transformation of information	Not emphasized except when transformed to information	Increases in capacity of system to transform information
Social cognitive	Self-efficacy, outcome expectations, and goals are emphasized	Self-observation Self-recording	Self-observation Self-judgment Self-reactions	Modeling and enactive mastery experiences	Increases through social learning at four successive levels
Volitional	It is a precondition to volition based on one's expectancy/values	Action controlled rather than state controlled	Strategies to control cognition, motivation, and emotions	Volitional strategies to control distracting environments	An acquired ability to use volitional control strategies
Vygotskian	Not emphasized historically except for social context effects	Consciousness of learning in the ZPD	Egocentric and inner speech	Adult dialogue mediates internalization of children's speech	Children acquire inner use of speech in a series of developmental levels
Constructivist	Resolution of cognitive conflict or a curiosity drive is emphasized	Metacognitive monitoring	Constructing schema, strategies, or personal theories	Historically social conflict or discovery learning are stressed	Development constrains children's acquisition of self-regulatory processes

Next, reasons for adopting the social cognitive perspective as the theoretical framework of the study will be explained, followed by a detailed account of SRL from a social cognitive perspective.

2. 4. 1. Why Social Cognitive Theory?

Social cognitive theory is perfectly suited to explain SRL in the sense that it holds a view of human agency in which individuals are proactively engaged in their own development and can determine the outcomes of their actions, which is the aim of self-regulatory practices (Schunk & Pajares, 2009; Zimmerman & Risemberg, 1997). The proactive aspect of SRL is of crucial importance because self-regulated learners are not only reactive to their learning outcomes; instead, they *proactively* seek opportunities to learn: they initiate actions to promote self-observation, self-evaluation, and self-improvement (Zimmerman, 1998a, 1989b, 2001)**.**

Another distinctive characteristic of social cognitive theory is that it assigns a central role to self-regulatory functions through interaction among personal, behavioral, and environmental triadic processes (Bandura, 1986). In other words, human behavior is "motivated and regulated by internal standards and self-evaluative reactions to their own actions", which means that after people adopt personal standards, they evaluate the discrepancies between their performance and the standard against which it is measured, and they self-react; these self-reactions in turn influence subsequent behavior (Bandura, 1986, p. 20). Therefore, behavioral consequences are sources of motivation and information, not reinforcers of response like in behavioral approach (Bandura, 1986). Moreover, social cognitive perspective is more comprehensive than behavioral view in that it includes a number of person (self-) processes, and it is more restrictive than cognitive view because it does not focus on mental phenomena unless they are manifested overtly during social and behavioral functioning (Zimmerman, 1989a). In brief, as Zimmerman (1989a, p. 337) posits, among the advantages of a social cognitive approach to self-regulated academic learning, three of them are especially important to educational psychologists: (1) It distinguishes the impacts of personal (self-) regulatory influences from behavioral ones; (2) it links students' self-regulatory processes to

specific social learning or behaviorally enactive experiences and explains their reciprocal effect; and (3) it identifies two key processes in the achievement of SRL: self-efficacy perceptions and strategy use and explains their relation to student motivation and achievement. Moreover, research also indicates that the origin and maintenance of complex skills is both social and cognitive (Zimmerman & Kitsantas, 1997). In addition, a meta-analysis of SRL training intervention studies reveals that the training is most effective when it has a social cognitive foundation or is based on a combination of social cognitive and metacognitive theories (Dignath et al., 2008). Social cognitive approach will continue to guide academic analyses and interventions to the extent that it makes students' SRL processes observable and trainable (Zimmerman, 1989a).

2. 4. 2. Social Cognitive View of Self-regulated Academic Learning

The theoretical framework which guided the study of SRL from a social cognitive perspective is based on Bandura (1986). According to Bandura (1986), people's behaviors are not only directed at suiting the preferences of others, but internal standards or self-evaluative reactions to their own actions also motivate and regulate much of their behavior. Therefore, behavior is "a product of both self-generated and external sources of influence" (Bandura, 1986, p. 454).

Understanding how the human capacity to self-regulate develops and its subcomponents and functions have been an important focus of interest in Bandura's (1986) social learning theory, now labeled as social cognitive theory (Zimmerman, 2000). As a result, social cognitive theory, initially developed to explain modeling influences on human functioning, has influenced the theory and research in self-regulation to a great extent, guiding research on social factors of self-regulation and directing researchers to study bidirectional relationships between social and cognitive events (Zimmerman, 2001). As stated before, in social cognitive theory, people are not driven by inner forces, nor are they automatically shaped and controlled by external stimuli; rather, human functioning is explained through a model of "reciprocal causation/determinism" or "triadic reciprocality" in which behavioral, personal (e.g., cognition, motivation, affect, and biological events), and

environmental factors function as bi-directionally interacting determinants of each other (Bandura, 1986, p. 12). The term 'reciprocal' refers to "mutual action between causal factors", and 'determinism' signifies "the production of effects by certain factors" (Bandura, 1986, p. 23).

Therefore, according to social cognitive theory, people must regulate their motivational, affective, and social skills in addition to cognitive aspects (Bandura, 1993). For example, self-regulation requires both behavioral skill in the management of environment and the sense of "personal agency" to use this skill when necessary, emphasizing the importance of self-beliefs and affective reactions (Zimmerman, 2000, p. 14). It occurs to the extent that a student can use personal processes to regulate behavior and the learning environment, and thus exerting strategic control over each of the three influences by using strategies (Zimmerman, 1989a). Behavior is regulated by its effects, and actions that lead to rewards are often repeated, while ones that bring unrewarding or punishing outcomes are discarded (Bandura, 1986). These adjustments are significant in the process of self-regulation because personal, behavioral and environmental factors continually change during learning and performance, and thus must be monitored using three self-oriented feedback loops, as shown in Figure 1 (Zimmerman, 2000).

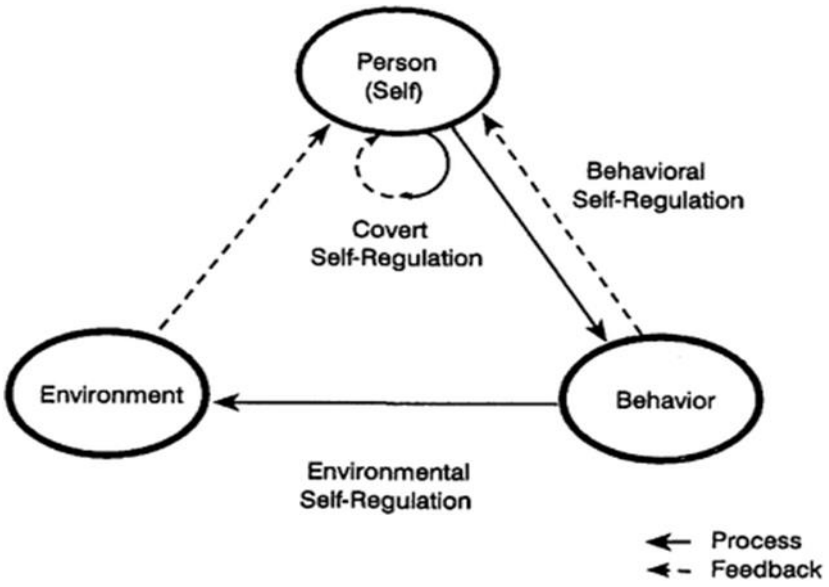

Figure 1- A triadic analysis of self-regulated functioning (Zimmerman, 1989a, p. 330)

Bandura (1986) highlights that reciprocality does not imply equality in terms of strength or temporal patterning of bidirectional influence; the influence of factors varies depending on activities, people, and situation. Nor is SRL an absolute state of functioning; in contrast, it varies in degree depending on the social and physical context, personal influences that can change with teaching or development (e.g., level of knowledge and metacognitive skill), and outcomes of behavioral performance (Thoresen & Mahoney, 1974).Moreover, according to Bandura (1986), the effects of each factor can be changed through personal efforts to self-regulate, outcomes of behavioral performance, and changes in environmental context. Therefore, it should be noted that researchers studying SRL should be careful with regard to variations in context and personal experience (Zimmerman, 1989a).

2. 4. 2. 1. Personal Influences

In social cognitive theory of academic self-regulation, students regulate the motivational, affective, and social determinants of their intellectual functioning as well as the cognitive aspects (Zimmerman, 1986, 1990). People's thoughts, beliefs and other personal factors influence their behavior, the effects of which, in turn, influence their thoughts (Bandura, 1986). Personal influences involve factors such as self-efficacy, goal-setting, metacognitive planning, students' knowledge, goals, and affect (Zimmerman, 1989a).

Self-efficacy refers to perceived capability to implement actions required to attain designated levels of performance/learning (e.g., the belief that one can get an A from a test) (Bandura, 1986). According to social cognitive theorists, self-efficacy is a crucial personal variable that affects SRL (Bandura, 1986; Zimmerman, 1986). It is such a crucial component of SRL that it partly determines the operation of various functions of a self-regulatory system, such as self-monitoring, goal-setting, cognitive processing, the outcomes, and perceived causes of success and failure (Bandura, 1991). To be more specific, self-efficacy influences use of learning strategies, self-monitoring, behavioral performances, and learning environments (Zimmerman, 1989a), and thus learning and behavioral change (Schunk, 1984a, 1986).

In addition, self-efficacy is hypothesized to affect choice of activities, interest, time and effort expended on a certain endeavor, persistence in the case of difficulties, and the amount of stress they experience while dealing with problems and demands of the process; hence, students who have low self-efficacy for learning may avoid tasks, whereas ones who perceive themselves as efficacious are more likely to participate (Bandura, 1986, 1991; Schunk, 1984a, 1986, 2001; Schunk & Pajares, 2009; Schunk & Zimmerman, 2007; Zimmerman, 2001). This theory was also confirmed by empirical research, which revealed that individuals with high self-efficacy in music spent time playing or listening to music, and ones with high self-efficacy in reading spent time on reading activities (Guthrie, Wigfield, Metsala, & Cox, 1999). In addition, high level of self-efficacy increases perseverance and leads to better learning (Bandura, 1986; Britton & Tesser, 1991). For example, Schunk and Zimmerman (1997) maintain that highly self-efficacious students regard difficult reading tasks as challenging and work hard to master them, using their cognitive strategies productively. Moreover, Guthrie et al. (1999) also found that self-efficacy is a predictor of reading comprehension along with other variables such as reading amount, motivation, socioeconomic status, and past text comprehension.

Research also indicates that students' self-efficacy perceptions are related to self-monitoring, academic motivation, achievement (Zimmerman & Martinez-Pons, 1990) and students' cognitive engagement, their use of metacognitive strategies, and performance (Pintrich & De Groot, 1990). Finally, students' self-efficacy perceptions are found to be closely related to performance growth during SRL training (Stoeger & Ziegler, 2008). Schunk (1981) found self-efficacy to be an accurate predictor of arithmetic performance for different levels of task difficulty and modes of treatment (i.e., modeling of division operations or didactic instruction).

Effective self-regulation also entails goals and motivation to attain them (Bandura, 1986; Zimmerman, 1989a). Goals function as standards based on which future performance/knowledge level is evaluated, and when learners make self-satisfaction contingent upon the attainment of goals, they are more likely to persist until their performances are up to that standard (Zimmerman, 2001). Goals need to

be set “hierarchically, such that process goals operate as proximal regulators of more distal outcome goals” (Zimmerman, 2000, p. 17). Schunk (1990, 2001) and Zimmerman (2002) also emphasize that goals incorporating specific performance standards, that are proximal and at the appropriate difficulty level also influence the effort learners expend to attain the goal and make it easier to gauge progress toward the goal, which in turn, promotes self-efficacy, results in greater motivation, and enhances learning. Providing children with specific, proximal goals fosters arithmetic skill development and perceived efficacy for solving problems (Bandura & Schunk, 1981; Schunk, 1983a) and promotes SRL and intrinsic interest (Bandura & Schunk, 1981). Increased self-efficacy, in turn, leads students to set more challenging goals and be more committed to them (Bandura, 1986,1991; Schunk, 1990). Self-regulated learners proactively increase performance discrepancies by raising goals and seeking more challenging tasks (Zimmerman, 2000) and tend to set higher goals upon achieving their goals (Zimmerman, 1990).There is also empirical evidence showing that challenging goals lead to highest level of mathematical achievement and self-efficacy (Schunk, 1983b). In brief, literature suggests that goals students set should be realistic: challenging but attainable (Schunk, 1990). Another factor that affects the influence of goals is their being set by students themselves. In a study which assessed the effects of self-set goals, Schunk (1985) found that students who set goals showed greater SRL during the instructional sessions compared to their no-goal peers, and students who self-set goals judged efficacy for accomplishing goals higher than the ones who were assigned goals.

As shown in Figure 1 and discussed before, in addition to the reciprocal relationship among the constituents, there is interaction among personal factors themselves as well. For example, students’ self-efficacy perceptions depend partly on each of four other types of personal influence (i.e., students’ knowledge, metacognitive processes, goals, and affect); likewise, long-term goals and use of metacognitive control processes depend on self-efficacy perceptions, affect, and self-regulatory knowledge (Zimmerman, 1989a). Similarly, anxiety, which is an affective state, or low self-efficacy perceptions may undermine students’ use of metacognitive control processes and inhibit setting long-term goals (Zimmerman, 1989a). Based on

the assumption that SRL presupposes cognitive flexibility and suggesting that it is facilitated by positive emotions, Pekrun, Goetz, Titz, and Perry (2002) examined how students' academic emotions relate to their self-regulation. The results show significant positive correlations between positive academic emotions and perceived self-regulation, suggesting that positive emotions foster students' self-regulation, while negative emotions lead them to rely on external guidance. Pekrun et al. (2002) also suggest the possibility of a reverse direction of relation as well: Self-regulation of learning may induce positive feelings, whereas external control may induce negative ones, such as anger, anxiety, or boredom.

2. 4.2. 2. Behavioral Influences

Students' efforts to self-regulate their learning are determined not only by personal processes (e.g., cognition or affect), but also by environmental and behavioral events reciprocally (Schunk, 2001). Bandura (1986) suggests three sub-processes in the self-regulation of behavior: *self-observation, self-judgment, and self-reaction.* As each process includes actions that are observable, trainable, and interactive, they are regarded as behavioral influences, and they are highly interdependent as well as influenced by personal and environmental processes (Zimmerman, 1989a).

Self-observation refers to students' observing their performance as they evaluate information regarding personal processes or actions that affect their learning and achievement (Zimmerman & Paulsen, 1995). It involves students' systematic monitoring of their own performance prompting them to self-evaluate by comparing self-observed performance levels with learning goals, which provides judgments regarding how well they are progressing toward their goals, how to motivate their efforts, and how performance level may change the subsequent behaviors leading to personal and behavioral self-reactions (Bandura, 1991; Zimmerman, 1989a; Zimmerman, 2001; Zimmerman & Bandura, 1994). Therefore, self-monitoring (used interchangeably with self-observation) is a crucial component of SRL in that it helps students to focus their attention on and evaluate the effectiveness of their performance and reveals inadequate learning strategies (Chen, 2002). For example,

noticing that they accomplish less when they study with a friend than when they are alone, students may increasingly prefer studying on their own (Schunk, 2001). As another example, self-monitoring might reveal that the goal is too ambitious/broad or the strategy needs modification as it is not appropriate or adequate to achieve the goal. Yet another example is that listening to an audiotape of one's speech (self-observation) affects self-judgment with regard to the skill, which in turn determines the subsequent willingness to continue the practice (self-reaction) (Zimmerman, 1989a). In addition to its role in the adjustment of strategies, monitoring is also influential on self-efficacy: If monitoring shows a weakness in performance, students' self-efficacy will also be affected, which, in turn, will affect their subsequent motivation and choice of strategies (Zimmerman, 1989a). Bandura (1986) also emphasizes the effect of self-monitoring on self-efficacy, stating that learning through the observation of one's own behaviors is the most effective method for altering self-efficacy perceptions and improving better knowledge retention. Zimmerman and Kitsantas (1999) showed that self-monitoring the use of a strategy in a single session enhanced self-efficacy, self-reaction beliefs, and writing skill. In addition to influencing several components of self-regulation, self-observation is also influenced by both personal and environmental processes, such as goals and self-efficacy (Schunk, 1990). Finally, behaviors should be observed close in time to their occurrence rather than long after them and continuously rather than intermittently (Schunk, 1990, 2001), which leads to positive self-reactive effects during learning (Zimmerman, 1989a).

Zimmerman (1989a) suggests two commonly used behavioral methods of self-observation- *reporting* and *recording* of actions and reactions- to increase its accuracy, proximity, and informativeness (e.g., diaries, progress worksheets, or behavioral graphs). Schunk (1983c) also states that self-monitoring is often accompanied by recording the frequency or intensity of the behavior monitored. Records are important as they "capture personal information at the point it occurs, structure it to be most meaningful, preserve its accuracy without need for intrusive rehearsal, and provide a longer data base for discerning evidence of progress" (Zimmerman, 2000, p. 20). Therefore, without recording, observations may not

reliably reflect behaviors due to selective memory (Schunk, 1990, 2001), so keeping records influences learning, motivation and self-efficacy (Zimmerman, 1989a).There is empirical evidence showing that self-recording fosters greater mastery of skills and more positive self-efficacy perceptions, self-reactions, and intrinsic interest (Zimmerman & Kitsantas, 1996, 1997, 1999). Evidence showing that students' self-monitoring based on self-recording enhances their self-reactions and self-efficacy beliefs is consistent with the existence of a self-oriented feedback loop underlying self-regulation (Zimmerman, 1989a). Schunk (1983c) also reports that students who recorded (i.e., both self-recorded and the externally recorded) their performance display greater self-efficacy, skill, and task persistence than their no-recording peers.

Self-judgment involves comparison of current performance with the goal (Schunk, 1990, 2001) and students' responses based on systematic comparison of their performance levels as observed with the goal, which implies that self-evaluation depends on personal processes and self-observed responses (Zimmerman, 1989a). Students' self-judgment is related to the type of standards employed (e.g., absolute versus normative), goal properties (i.e., specificity, proximity, and difficulty level), importance of goal attainment, and performance attributions (Schunk, 1990, 2001). Personal SRL processes, such as self-efficacy perceptions, also influence self-judgment; highly self-efficacious students do better self-judgment than their counterparts with lower self-efficacy (Zimmerman, 1989a). According to Zimmerman (1989a), two common ways of students' behavioral self-evaluations are *checking*, such as re-examining answers to questions, and *rating* answers based on answers of someone else or an answer key.

Self-reactions to the progress toward the goal motivate behavior (Bandura, 1986). Considering the goal progress as acceptable and anticipating satisfaction of goal accomplishment promotes self-efficacy and motivation (Schunk, 1990). Self-reactions to one's performance also involve personal processes as well as behavioral outcomes in a reciprocal relationship (Zimmerman, 1989a). Hence, they may lead to changes in self-observation or self-judgment; for example, students' success may show that systematic record-keeping is no longer necessary or that goals need to be

altered (Zimmerman, 2001). In addition, the level of self-efficacy affects students' choice of strategy, and feedback from the use of the strategy changes subsequent self-efficacy perceptions. Zimmerman (1989a) suggests three classes of self-reaction strategies, which match the three major classes of self-regulation strategies: *behavioral self-reactions* (e.g., self-criticism/praise), *personal self-reactions*, (e.g., proximal goal resetting, rehearsing, memorizing), and *environmental self-reactions*, (e.g., structuring the environment, asking for assistance from others).

2. 4. 2. 3. Environmental Influences

According to social cognitive theory, human functioning is highly dependent on social environmental context, which makes social environment a key component of SRL (Zimmerman, 1989a): Self-regulated students are aware of the effect of the environment on their learning covertly and behaviorally, and know how to use their personal influences to regulate their environment with the use of various strategies (behavior). Social cognitive research and theory suggests two major classes of environmental influence: *physical context* and *social experience* (Zimmerman, 1989a). Some specific examples to environmental influences are enactive outcomes, rewards for success, modeling, verbal persuasion, direct assistance from teachers, other students or adults, and literary or other symbolic forms of information, such as diagrams, pictures and formulas, and structure of the learning context, such as academic task and setting (Zimmerman, 1989a). Zimmerman and Martinez-Pons (1990) found that seeking peer assistance is one of the four SRL strategies out of the 14 determined by Zimmerman and Martinez-Pons (1986) that differentiated gifted students from their non-gifted peers. Moreover, changing an academic task to adjust the difficulty level or an academic setting to turn it into a quiet study place affects SRL (Zimmerman, 1989a).

This triadic model of social cognitive theory has been supported by empirical studies the results of which revealed strategies that show parallelism with the components of the model (Zimmerman & Martinez-Pons, 1986; 1988; 1990). In Zimmerman and Martinez-Pons' (1986) study, strategies that self-regulated students reported using in different study contexts are closely connected to the triadic model.

The strategies were related to self-regulation of students' personal functioning (e.g., organizing and transforming, rehearsing and memorizing, goal-setting and planning), academic behavioral performance (e.g., self-evaluation and self-consequences), and learning environment (e.g., environmental structuring, seeking information, reviewing records, seeking social assistance). The triadic spectrum for SRL is also represented in strategies used by gifted students: organizing and transforming (personal), self-consequating (behavioral), and reviewing notes, and seeking peer assistance (environmental) (Zimmerman & Martinez-Pons, 1990). Therefore, strategies derived from social cognitive theory are predictive of students' performance in class, and students' achievement is an indicator that a triadic model of self-regulation may have merit for training students to become more effective learners.

2. 5. SRL Models

As stated before, there is a variety of theoretical perspectives on SRL, and researchers with different foci attempted to model how cognitive, metacognitive, motivational, and contextual factors impact the learning process (Jossberger, Brand-Gruwel, Boshuizen, & Van de Wiel, 2010). Accordingly, different models of SRL have been developed over the past three decades toexplain and discuss different constructs and conceptualizations of self-regulation (Pintrich, 2000), and many of them have been supported by empirical studies. The models have been developed byBoekaerts, Borkowski, Pintrich, Winne, and Zimmerman (Puustinen & Pulkkinen, 2001).According to Pintrich, (2000, 2004), despite focusing on different constructs, all models of SRL share four basic assumptions about learning and regulation: active, constructive assumption (i.e., students are active and constructive participants of the learning process), potential for and ability to control assumption (i.e., students can potentially monitor, control, and regulate some aspects of their cognition, motivation, behavior, and learning environment), and goal, criterion, and standard assumption (i.e., students should set goals against which they assess the operation and effectiveness of the learning process and modify it), and the assumption that self-regulatory activities are mediators between personal/contextual characteristics as

well as outer expectations and achievement/performance. In summary, students are aware of their goals and intentionally use strategies and engage in actions that will help them reach those goals (Pintrich, 2000).

On the other hand, although all theorists perceive SRL as a cycle in which self-assessment and self-evaluation of the learning process influence the following learning processes, they stress different aspects of this process and the constituent components (e.g., by giving a more motivation-oriented versus a metacognitive-based definition) (Puustinen & Pulkkinen, 2001; Zeidner et al., 2000). Among these, Zimmerman's (2000) and Zimmerman et al.'s (1996) models, which are based on social cognitive theory, will be discussed in this study.

2. 5. 1. Zimmerman's (1998a; 2000; 2002) Three-phase Cyclical Model

The interactive nature of the three self-regulatory processes is depicted in a three-phase cyclical model of self-regulation, which involves *forethought, performance or volitional control*, and *self-reflection* (Zimmerman, 1998a, 2000, 2002). Forethought phase includes processes and beliefs that precede efforts to learn/act and set the stage for learning or performance, such as the selection of strategies that are going to be used to achieve goals (Zimmerman, 2000). Performance or volitional control includes processes during implementation of strategies and affects attention and action. Self-reflection involves processes occurring afterperformance efforts and influencing the response to the experience. In addition, self-reflections affect forethought with regard to subsequent efforts to learn, and the self-regulatory cycle is thus completed (Zimmerman, 2000). Figure 2 illustrates the cyclical phases of self-regulation in Zimmerman's (1998a, 2000; 2002) model.

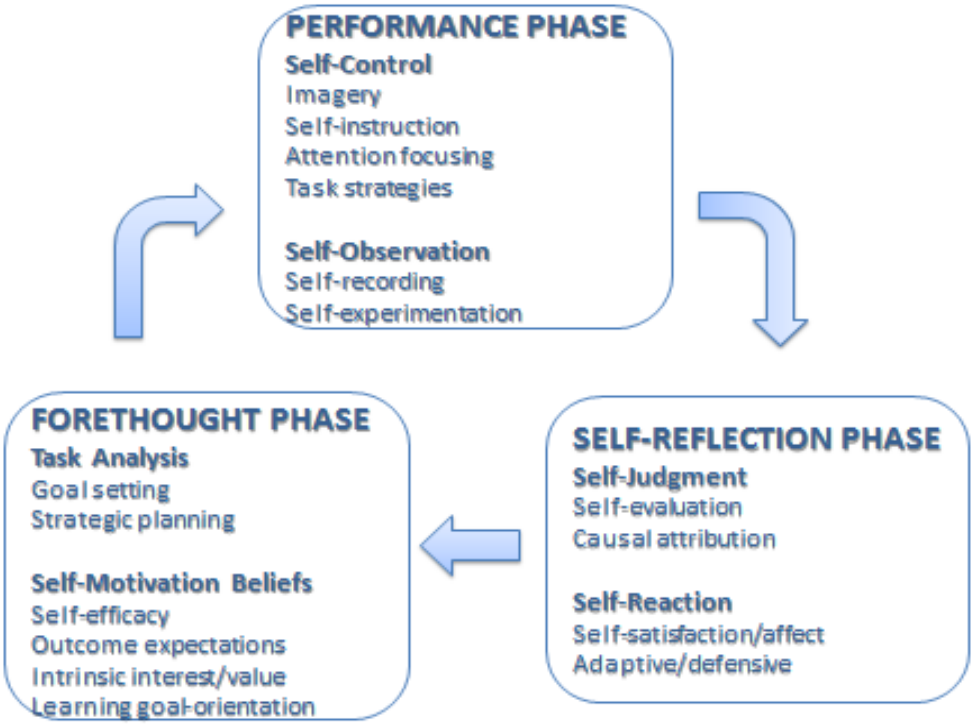

Figure 2- Zimmerman's cyclical model of self-regulated learning (Zimmerman, 2002, p. 67).

2. 5. 1. 1. Forethought Phase

Bandura (1991; 1993) states that most human behavior is regulated by forethought, through which people motivate themselves, guide their actions proactively, form beliefs regarding what they can do, anticipate possible outcomes of prospective actions, set goals, and plan courses of action to accomplish their goals.This phase refers to processes and beliefs that precede efforts to learn and set the stage for learning (Zimmerman, 1998a). It involves two major categories: task analysis and self-motivation (Zimmerman, 2000).

2. 5. 1. 1. 1. Task analysis

Task analysis involves goal-setting and strategic planning. *Goal-setting* refers to deciding upon specific outcomes of learning or performance (Zimmerman, 2000). Goals are so critical in self-regulation that they are present in all three phases: In forethought, goals are set and strategies are selected to achieve them; in performance control, goal-directed actions (i.e., strategies) are implemented and performance is

monitored with regard to its appropriateness for the goal, and in self-reflection, progress towards the goal is evaluated and strategies are adjusted for the attainment of the goals (Zimmerman, 1998a). Setting goals provide students with self-oriented feedback loops through which they monitor their effectiveness and adapt their functioning (Zimmerman & Schunk, 2011).

The second component of task analysis, *strategic planning,* refers to directing efforts to control learning in terms of deciding appropriate methods for the task, and affects and is affected by enactive feedback from these efforts (Zimmerman, 1989a). Planning and selection of strategies as well as goals entail cyclical adjustments due to changes in personal, behavioral and environmental components (Zimmerman, 2000). In other words, self-regulated students should adjust their goals and strategies due to diverse and changing interpersonal, intrapersonal, and contextual conditions. For example, no self-regulatory strategy will work equally well for everybody, and they are unlikely to work optimally for a person on all tasks or occasions; as one improves, the strategies they use also change (Zimmerman, 2000).

2. 5. 1. 1. 2. Self-motivation

Self-motivation is a key element for self-regulation because self-regulatory skills are not very valuable if one is not motivated to use them (Zimmerman, 2000). In fact, although sometimes people know what to do in a particular situation, they do not behave optimally, because self-referent thought mediates the relationship between knowledge and action (Bandura, 1986). Self-regulated students display motivated actions, (i.e., goal-directed and controlled behaviors) that they apply to specific situations, which is informed by metacognition and fueled by affect and desire (Paris & Paris, 2001). Students should be motivated to exert effort, persist when they have difficulty, set attainable but challenging goals, and feel self-efficacious for their achievements (Paris & Paris, 2001). Because students' personal initiative in acquiring knowledge and skill is essential in SRL theories, students' motivational processes and learning processes are considered as interdependent(Zimmerman, 1990). Motivation is essential also because self-regulated learners should be proactive to set goals and engage in a self-regulatory

cycle (Zimmerman & Schunk, 2011). Zimmerman and Martinez-Pons (1986, 1988) maintain that motivational factors are also assumed to influence students' decisions to use the SRL strategies they know. The results of Zimmerman and Martinez-Pons' studies (1986, 1988) confirm that students who reported using self-regulatory strategies tended to volunteer more for special tasks related to coursework, solicit additional information, and express interest in the course. Pintrich (1999) also suggests three motivational components that may be connected to SRL components: an expectancy component, including students' beliefs about their ability to perform a task, a value component, involving students' goals and beliefs regarding the importance of and their interest in the task, and an affective component, referring to their emotional reactions to it.

Knowing a strategy without the motivation to use it is not sufficient for effective learning or performance (McCoach & Siegle, 2003); students must have not only the skill but also the will to improve their learning (Zusho & Pintrich, 2003). Research shows that although the ability to withstand competing attractions is an important aspect of academic self-regulation, both college and high school students reported weak sense of efficacy to engage in academic activities when there were more interesting things to do (Zimmerman et al., 1992; Zimmerman & Bandura, 1994). Therefore, unfortunately, possessing self-regulatory skills does not necessarily guarantee being able to implement them in the face of difficulties or more interesting activities (Zimmerman & Bandura, 1994).This finding indicates that a high sense of self-regulatory efficacy is required to overcome the distractions, and students need to be taught skills and strategies for managing not only the cognitive aspects of their learning but also methods to motivate themselves to sustain their academic pursuits when they face difficulties or attractive alternatives (Zimmerman & Bandura, 1994). A significant point is that a person's willingness to sustain their self-regulatory efforts depends highly on their self-regulatory efficacy (i.e. beliefs about their capability to plan and manage particular areas of functioning) (Zimmerman, 2000).

It should be highlighted that the relationship between motivation and self-regulation is not one way; just like motivation promotes self-regulation, having a self-regulatory view generates motivation: In SRL approach, both product and process to know what is known, what requires additional effort, and what skills are effective are assessed to gauge learning, which can have profound motivational consequences on students' classroom behavior and attitudes, such as greater responsibility, sustained effort, awareness about learning, and personalized mastery goals (Paris & Paris, 2001).

Key self-motivational beliefs that will influence one's effort and persistence are self-efficacy, outcome expectations, intrinsic interest, and goal-orientation (Zimmerman, 2000). *Outcome expectations* refer to beliefs about anticipated consequences of actions (e.g., the consequences the grade A will produce after graduation, such as a good job) (Bandura, 1986; Schunk, 1990; Schunk & Zimmerman, 2007). According to Schunk (2001), sustained motivation is dependent upon outcome expectations and self-efficacy beliefs; students should believe that if they change their study habits, they will achieve more and that they are able to change them. Positive outcome expectations are highly important in regulating behavior, as people tend more to be engaged in tasks when they believe that an action will produce positive outcomes and when they value the outcomes (Schunk, 1990; Schunk & Zimmerman, 2007). Research suggests that efforts to strategically regulate learning are associated with higher self-perceptions of mathematical and verbal efficacy, which are correlated with students' use of SRL strategies (Zimmerman & Martinez-Pons, 1990). Both outcome and self-efficacy expectations provide students with representations of future consequences which help them to set goals (Zimmerman, 2001). On the other hand, outcome expectations may not lead to behavior; for example, students who believe that the teacher will praise them for getting a high grade (positive outcome expectation) may not study much if they doubt their abilities for performing well (low self-efficacy) (Schunk, 1990).

Intrinsic interest refers to the value students give to the skill for its own sake (Zimmerman, 2002). The capacity to self-regulate learning is associated with self-efficacy and intrinsic task interest (Schunk, 1986, 1996; Zimmerman, 1995a). Finally, *goal-orientations* are aims or reasons for being engaged in achievement tasks and are related to why people set that particular goal (Pintrich, 2000) and how they engage in the task of achieving the goal (Schunk et al., 2010). Goal-orientedness is an important aspect of self-regulation because cognitions, behaviors, and affects, which students activate and sustain during the process, are systematically oriented towards the attainment of goals (Zimmerman, 1989; 1990). Research shows that students who are more learning goal-oriented showed the largest increase in learning (Stoeger & Ziegler, 2008). Process (or learning/mastery) goal orientation represents a focus on learning and mastering the task for self-improvement, and sustains motivation and improves acquisition and performance better than outcome (or performance) goal-orientation (Zimmerman, 2000). On the other hand, performance goal-oriented students are mainly concerned with gaining favorable judgment of others (Meece, 1994). Meece (1994) reports that students who are oriented towards mastery goals show high levels of SRL and task engagement, make use of SRL strategies more frequently, and are more likely to choose challenging tasks allowing them to learn new skills and to attribute outcomes to their strategic efforts. This means that students influence their learning by adopting mastery goals that optimize self-regulatory processes (Meece, 1994, p. 25). Stoeger and Ziegler (2008) also found that students who were more mastery goal-oriented benefited more from the SRL training and showed the largest increase in learning.

Schunk and Ertmer (2000) argue that mastery goals and continuous self-evaluation leads to high self-efficacy, motivated strategy use, and achievement. Moreover, comparing highly self-regulated students (i.e., ones who reported studying more supplemental material for a longer time, had high metacognition, effort management, time and environment skills, and academic efficacy) with their low self-regulated peers, Abar and Loken (2010) found that the former group had higher levels of mastery orientation, whereas the latter group reported lower mastery orientation and higher levels of performance-avoidance orientation. Clearly, students

who are interested in a subject and enjoy increasing their mastery of it are more motivated to learn in a self-regulated fashion (Zimmerman, 2002).

2. 5. 1. 2. Performance or Volitional Control Phase

Performance or volitional control phase involves processes which occur during learning efforts and affect attention, concentration, and action (Zimmerman, 1998a). This phase consists of two major classes: self-control and self-observation(Zimmerman, 2000).

Self-control processes, such as self-instruction, imagery, attention-focusing, and task strategies, help students to focus on the task and maximize their effort to attain their goals (Zimmerman, 2000). Zimmerman (2000) explains different forms of self-control as such: *Self-instruction* involves overt or covert description of how to proceed as the student carries out a task, such as memorizing a formula. *Imagery* refers to forming mental pictures. *Attention focusing* is implemented to improve concentration and exclude other covert processes or external events. *Task strategies* help learning/performance by reducing a task into its essential parts and reorganizing parts meaningfully, including study strategies (e.g., note-taking and reading for comprehension) and performance strategies (e.g., writing techniques and problem-solving).

Self-observation informs and motivates people to assess the quality, rate, quantity, and originality of their behavior, which yields information to gauge goal progress (Schunk, 1990). By observing covert thought patterns, emotional reactions, or overt performances, people become aware of recurring patterns in their functioning and try to identify regularities and reasons or conditions that cause them (Zimmerman, 2000).Zimmerman (2000) also asserts that setting specific, proximal and hierarchical process goals during the forethought phase leads to selective self-observation during performance, which in turn "produces feedback that is evaluated for progress and interpreted for meaning during the self-reflection phase" (Zimmerman, 2001, p. 21). This is a very good example for the interdependent relationship between the phases and the cyclic nature of the model. The fidelity,

consistency, temporal proximity and accuracy of self-observations, informativeness of performance feedback to guide following efforts to self-regulate, and the valence of behavior are some features that influence the effectiveness of SRL (Zimmerman, 2000, 2001). Zimmerman (2000) claims that the "accuracy and constancy of learners' self-monitoring . . . directly influence the effectiveness of their strategic adjustments and the nature of their self-beliefs" (p. 14).

When self-observations do not provide students with diagnostic information, they can try s*elf-experimentation,* which refers to systematic personal experimentation by varying the aspects of their functioning that are in question (Zimmerman, 2000). For example, having realized that they always study while listening to music, students may carry out an experiment to see whether studying with or without music leads to better learning.

2. 5. 1. 3. Self-reflection Phase

Bandura (1986, p. 21) considers self-reflection as a "distinctly human" characteristic, through which people analyze and make sense of their experiences, explore their cognitions and beliefs, self-evaluate and change their thinking and behavior based on their self-evaluations.Self-reflection involves processes that occur after performance/learning efforts and influences learners' reactions to the experience (Zimmerman, 1998a). There are two major self-reflective processes that are linked closely with self-observation: self-judgment and self-reaction (Bandura, 1986).

2. 5. 1. 3. 1. Self-judgment

One type of self-judgment is *self-evaluation*, which refers to comparing self-observed performance with a particular standard or goal; another is *causal attribution*, referring to beliefs about reasons for failure or success, such as attributing failure to limited ability, insufficient effort, or use of inappropriate strategies (Zimmerman, 2002). Attributing failure to incorrect or inefficient use of strategies rather than to more stable factors (e.g., ability) or less controllable ones

(e.g., luck, the teacher) helps sustain motivation and further use of strategies because such attributions maintain perceptions of efficacy until all strategies are tried (Paris & Paris, 2001; Zimmerman, 2000). Moreover, such attributions protect against negative self-reactions and promote strategy adaptation because strategies are correctable. On the other hand, unimportant goals or outcomes that cannot be attributed to ability or effort are not likely to produce self-reactive effects (Schunk, 2001). Research also shows that strategy attributions preserve one's personal satisfaction and sense of self-efficacy to eventually master the skill (Zimmerman & Martinez-Pons, 1992).

2. 5. 1. 3. 2. Self-reaction

The first form of self-reaction is *self-satisfaction,* referring to perceptions of satisfaction/dissatisfaction and the affect about performance (Zimmerman, 2000). Self-beliefs and affective reactions about performance contexts, such as doubts or fears, play a significant role in self-regulation (Zimmerman, 1995b). Self-satisfaction is of pivotal importance, because when it is made conditional upon attainment of goals, it makes people direct their actions accordingly and create self-incentives to persist in their effort (Zimmerman, 2000).

The second form of self-reaction is *adaptive/defensive inferences*, which are conclusions regarding how people need to change their self-regulatory approach during the learning process (Zimmerman, 2000). The former refers to adjustments to increase the effectiveness of learning methods (e.g., modification of an ineffective learning strategy or of goals hierarchically), and the latter refers to efforts to protect the person from future dissatisfaction by withdrawing or avoiding opportunities to learn and perform (e.g., dropping a course) (Zimmerman, 2002; Zimmerman & Martinez-Pons, 1992).

Self-reflections from prior efforts to learn feeds back to planning in the subsequent forethought process regarding further efforts to learn and future actions, hence completing the self-regulatory cycle and starting a new cycle (Zimmerman, 2000). For example, self-dissatisfaction reduces self-efficacy and intrinsic interest in

doing the task (Zimmerman, 2000) and might lead to lower levels of self-efficacy (Zimmerman & Bandura, 1994), whereas self-satisfaction reinforces self-efficacy to accomplish the skill and learning goal orientations (Schunk, 1996) and intrinsic interest (Zimmerman & Kitsansas, 1997).These self-motivational beliefs form the basis for people's sense of personal agency concerning their persistence in their cyclical self-regulatory efforts and goal attainment (Zimmerman, 2000). Therefore, the cyclical social cognitive model explains self-satisfaction and persistence of successful people and avoidance of ones who fail (Zimmerman, 2000).

Theories are useful heuristically to the degree that they raise specific issues that can be resolved through research (Zimmerman, 1986). In line with this statement, the cyclical model of self-regulation has also been supported by empirical studies. Zimmerman and Kitsantas (1996, 1997, 1999) found high correlations among learners' forethought, performance, and self-reflection processes.Their findings indicate that participants who set process goals (forethought) and self-monitored and self-recorded performance (performance/volitional control) attributed their failure to strategy choice or use (self-reflection), and they displayed significantly higher levels of self-efficacy, higher skill mastery, more positive self-reactions, and significantly greater intrinsic interest. Bandura and Schunk's (1981)study also reveals causal links among various self-regulatory sub-processes: students who set specific proximal goals tend more to self-observe their performance and achieve, displaying higher self-efficacy. Findings of Cleary and Zimmerman (2000) are similar: The processes of forethought and self-reflection phases, which their study focused on, correlated with each other significantly. In addition, experts displayed significantly higher levels of self-regulatory processes during practice efforts, such as setting more specific goals, selecting more technique-oriented strategies, making more strategy attributions, and displaying higher levels of self-efficacy than non-experts and novices. Finally, self-reflection attributions predicted forethought strategy selection during further efforts to learn. Zimmerman and Risemberg (1997) also presented a social cognitive model of writing which included the triadic forms of self-regulation, and concluded that successful writers used self-regulation strategies pertaining to all three forms: environmental structuring (e.g.,

time-planning and management), behavioral (e.g., self-monitoring, self-recording, self-consequences, self-verbalization), and personal (e.g., goal-setting, self-evaluative standards, cognitive strategies and mental imagery). In addition, strategic feedback loop during the development of triadic self-regulatory skill both enables writers to be sensitive and adaptive to their output and affects self-efficacy perceptions, which in turn helps to motivate them to sustain their efforts and continue to self-regulate. Therefore, writers' sense of self-efficacy predicts their self-regulatory processes, intrinsic motivation to write, and performance outcomes.

2. 5. 2. Zimmerman et al.'s (1996) Instructional Model of Self-regulation

Based on the social cognitive theory, Zimmerman et al. (1996) developed what they call the academy model, which is an instructional model to use in classroom contexts and involves explicit training in goal-setting, strategy use, self-monitoring and systematic practice. They maintain that students do not continue to use a learning strategy unless the knowledge of it leads to goal-setting, strategic process, outcome self-monitoring and greater self-efficacy; therefore, strategy training should be within a larger framework of self-regulatory training.

According to Zimmerman et al.'s (1996) instructional model, unlike traditional classrooms, tutors or coaches give students explicit self-regulatory training in goal-setting, strategy use, self-monitoring, and systematic practice in the classroom. The aim of the model is to convert classrooms into learning academies by making students' learning methods and techniques a primary focus of homework, helping them to monitor and interpret their outcomes strategically, and by incorporating a self-regulatory learning cycle (Zimmerman et al., 1996). By turning their classrooms into academies, teachers can enhance SRL in school environment (Zimmerman et al., 1996).

The model includes a 4-step self-regulatory cycle, which enhances learning, students' self-efficacy perceptions, and their control over the learning process (Zimmerman et al., 1996). This self-regulatory cycle helps students to self-observe and self-evaluate their effectiveness, set goals and conduct strategic planning,

implement learning strategies, self-monitor changes, and adjust strategic choices based on self-evaluation. Figure 3 displays the instructional model of SRL, on which the design of the SRL training in this study is based.

Figure 3- Instructional model of self-regulated learning (Zimmerman et al., 1996, p. 11)

As displayed in Figure 3, this cycle involves four interrelated processes that are applied systematically and continuously. The first step in the self-regulatory cycle -*self-evaluation and monitoring*- refers to students' evaluation of their personal effectiveness and current level of learning during studying or test-preparation. While doing this, they make use of observations, records of previous performances and outcomes. In order for the students to self-evaluate their performances and monitor their improvements accurately, they need to keep a detailed performance record.

The second step-*goal-setting and strategic planning*- refers to "setting of educational goals or sub-goals and planning for sequencing, timing, and completing activities related to these goals" (Zimmerman & Martinez-Pons, 1986, p. 618). It involves the analysis of learning task, records, previous study experiences, or feedback from peers or teacher, setting specific learning goals, and

planning/identifying/refining a strategy based on the requirements of the task and the goal. Goal-setting is a key aspect of self-regulation because cognitions, behaviors and affects activated and sustained during the process are systematically oriented towards the attainment of goals (Zimmerman, 1989a; 1990). Therefore, goal-setting provides students with self-oriented feedback loops through which they monitor their effectiveness and adapt their functioning (Zimmerman & Schunk, 2011).

The third step-*strategy implementation and monitoring*- involves implementation of the strategy chosen and monitoring how accurately it is implemented, making adjustments when necessary based on the feedback received from self-monitoring.

During the fourth step-*strategic outcome monitoring*-, students make connections between learning outcomes and strategic processes in order to determine effectiveness. Their monitoring is extended in that besides strategic processes, it also includes monitoring the personal effectiveness in implementing the strategies, performance outcomes, and variations related to the effectiveness of the strategy(ies) used, because one strategy which is very effective for one person/task may not be for another. Zimmerman et al. (1996) maintain that self-monitoring of strategic outcomes is of vital importance for self-regulation because it produces corrective cognitive, emotional and behavioral reactive effects. Hence, in case of unfavorable outcomes, self-regulated learners tend to improve their strategies rather than perceiving those outcomes as failures and reacting unproductively, such as giving up. For example, students might modify the strategy, add new ones or simply give up implementing it and adopt a new one and go through the steps again. The aim is to encourage the students to vary the strategies, identify the most effective ones with a view to maximizing their performance outcomes and achieving their goals.

In summary, self-regulated learners set specific learning or performance goals and monitor the effectiveness of their learning methods or strategies and respond to their evaluations (Zimmerman, 1989a). Just like the social cognitive theory it is based on, an essential feature of this model is its cyclical nature; self-monitoring at each phase yields feedback that might lead to alteration of subsequent goals,

strategies, or performance efforts (Zimmerman et al., 1996). This continuous self-monitoring supports Bandura's (1991) statement that intermittent self-monitoring is only partially informative, and produces less effective self-regulation than does regular self-monitoring of one's own performances.

2. 6. Self-regulated Learning Strategies

According to Bandura (1986), students' use of SRL strategies is crucial as it leads them to arrive at valuable self-efficacy knowledge, which in turn guides them during forming judgments and constructing and choosing courses of action. The proactive use of strategies to achieve self-set goalsis a crucial feature of self-regulated learners (Zimmerman, 2000). Self-regulated students use SRL strategies to accomplish their desired academic outcomes on the basis of feedback about the effectiveness of learning and skill (Zimmerman, 1990). The effective use of self-regulation strategies enhances perceptions of self-control (i.e., autonomy, competence, or efficacy), which are considered to be the motivational basis for self-regulation during learning (Zimmerman, 1986).

Zimmerman (1990) states that all students use regulatory strategies to some extent; however, self-regulated students differ from others in that they are aware of strategic relations between regulatory processes and learning outcomes, and they systematically use metacognitive, motivational, and behavioral strategies to achieve their academic goals, respond to feedback on the effectiveness of their learning, and have self-perceptions of academic achievement. Therefore, to consider strategic actions as self-regulated, students must be aware of their academic goals and self-efficacy perceptions (Zimmerman, 1989a). Students' use of SRL strategies depends on their knowledge of strategies, metacognitive decision-making processes (e.g. task analysis, planning based on goals), and performance outcomes, which enables them to have the control of their personal control over their behavior and environment due to the reciprocal nature of the triadic formulation (Zimmerman, 1989a).

2. 7. Triadic Interrelationship of Strategies

There are three classes of strategies to control behavior, the environment, or covert processes (Zimmerman, 1989a, p. 330).

Covert self-regulation involves monitoring and adjusting cognitive and affective states, (e.g. imagery for remembering or relaxing), and as illustrated in Figure 1, a person's covert processes affect each other reciprocally (Zimmerman, 2000). Social cognitive theorists are especially interested in the effects of metacognitive processes on other personal processes (i.e. cognitive and affective states): An example to this could be students' use of an elaboration strategy for associating the Spanish word 'pan' with its English counterpart 'bread', (i.e. bread is baked in a pan), will increase their knowledge base in Spanish (Pressley, 1982, cited in Zimmerman, 1989a, p 330).

Behavioral self-regulation consists of self-observing and strategically adjusting performance processes (e.g. one's method of learning) (Zimmerman, 2000). For example, a student's proactive use of a self-evaluation strategy, such as checking math homework, provides the student with information about accuracy and whether further checking is necessary. In this reciprocal process, causation is personally initiated, implemented with the use of strategies, and regulated through perceptions of efficacy. Self-efficacy functions as a sort of "thermostat that regulates strategic efforts to acquire knowledge and skill" (Zimmerman, 1989a, p. 330).

Environmental self-regulation includes observing and adjusting environmental conditions or outcomes (Zimmerman, 2000). For example, a student's manipulation of the study environment proactively, such as arranging a quiet study area before starting doing homework, involves an intervening behavioral sequence of a variety of responses like changing the study-room, eliminating noise, arranging adequate lighting, arranging a suitable place to study, etc. The extent to which this structured setting will be continued to be used depends on perceptions of its effectiveness in how much it helps learning. As stated earlier, even if learning strategies can be initiated from the environment, they are not considered as self-

regulated unless they are influenced by personal processes, such as goal-setting or self-efficacy perceptions.

2. 8. Why adopt a SRL framework for strategy instruction?

Using SRL as a guiding framework has theoretical, empirical, methodological and instructional benefits. Theoretically, SRL provides a comprehensive view of the processes that students engage in during learning; empirically and methodologically, these processes can be captured in real time and show learning gains; and instructionally, the implications of SRL can help teachers in guiding students be more effective learners (Winters & Azevedo, 2005).

Literature suggests that it is not sufficient to know about learning strategies and their functions; in order to use them effectively, students also need to have skills to regulate the use of strategies to be empowered in terms of their strategy use (Souvignier & Mokhlesgerami, 2006). More specifically,they need to adapt the strategies to a specific situation and implement them in a self-regulated manner: plan, self-monitor, and self-evaluate and self-adjust their effectiveness systematically (Zimmerman et al., 1994).

For example, Harris' (1990) review of research reveals that knowledge of reading and writing strategies does not promote learning unless self-monitoring and decision-making procedures are taught. Therefore, instruction of a set of strategies on its own is not sufficient for strategy training to be effective; training should be supported by an adequate foundation of students' self-regulatory capacity which fuels their efforts to search for and apply personalized strategic learning mechanisms (Tseng, Dörnyei, & Schmitt, 2006; Zimmerman, 1994). Paris and Paris (2001) identify the components of appropriate strategy training as metacognition, motivation, domain-specific knowledge, and features of the classroom tasks, which are among the foci of SRL. In addition, incorporating SRL components into strategy training is necessary to maintain and generalize strategy use (Harris & Graham, 1996). For example, training on metacognitive aspects of self-regulation, such as selecting appropriate strategies, checking comprehension and state of knowledge,

correcting deficiencies, and realizing the utility of cognitive strategies, promotes learning (Bandura, 1993) as it helps students to be aware of where and when to use the strategy (Zimmerman, 1994).

2. 9. Research Studies that Investigated SRL

Self-regulation research encompasses different domains with a variety of foci mainly because it involves a complex, superordinate set of functions common to several fields of psychological research, such as cognition, problem-solving, decision-making, metacognition, conceptual change, motivation, and volition (Boekaerts & Corno, 2005). Paris and Paris (2001) attribute the abundance of self-regulation research to the fact that self-regulation served a worthy objective for students of all ages in all disciplines: to understand how students become adept and independent in their educational pursuits.

As stated before, an outgrowth of psychological investigations into human self-control and constructivist learning theories fostered the idea that students should take responsibility for their own learning and should play an active role in the learning process (Zimmerman, 2001). This outgrowth led to an increase in the application of general models of self-regulation to issues of academic learning (Pintrich, 2000). Therefore, SRL has been considered as one of the essential axes of educational practice and is necessary from kindergarten until retirement age due to the rapid change in the demands of the environment (Boekaerts, 1997; 1999). The application of self-regulation to education broadened its scope to actual learning beyond the historical emphasis of performance of previously learned actions (Schunk, 2005a). As a result, there has been a growing interest in finding ways to study SRL in real contexts, real time and events; hence, recent research studies have focused on the practical aspect of SRL (Winne & Perry, 2000). For this reason, researchers and practicing educators have been interested in explaining how students can control their thoughts, feelings, and actions to achieve academically, be masters of their own learning processes, adapt to dynamic contexts by constantly enhancing their skill, improve their performance using a systematic and regular method of learning, learn and achieve despite apparent limitations in mental ability, social

environment background, or in quality of schooling or why they fail despite the apparent advantages of these factors (Zimmerman, 1989a, 2001, 2008; Zimmerman & Schunk, 2001). Hence, important research on self-regulation of learning and performance has been conducted throughout the world in recent decades (Boekaerts et al., 2000; Dignath & Büttner, 2008; Dignath et al., 2008; Winne & Perry, 2000; Zimmerman & Schunk, 2011). This research has also led to the emergence and development of various theories, models, trainings, and further research studies (Zimmerman, 2008), improved the understanding of academic self-regulation, and had important implications for school practices (Schunk, 2005a).

Research on academic self-regulation has addressed various facets of self-regulation (Boekaerts et al., 2000). It has also evolved over years; while the focus was on cognitive strategies in the 1970s, there was a paradigm towards experimental investigations of various strategy conditions which focused on metacognitive aspects of learning in the 1980s, and strategy intervention studies appeared in the 1990s (Paris &Paris, 2001). Schunk (2005a) listed the foci of SRL research as comparison of good with poor self-regulators to determine key processes; the relations among self-regulation, motivation, and learning; the development of self-regulatory skills; and the effects of interventions designed to improve students' self-regulation and achievement.Due to the abundance of studies related to self-regulation and SRL, only the ones that are relevant to the scope of this study- the studies that investigated the relationship between SRL and academic achievement, the SRL strategies students mostly used, and the effects of SRL training on self-regulation or academic achievement- will be discussed in this study.

2. 9. 1. Self-regulated learning and academic achievement

As Zimmerman (1989a) states, a great deal of laboratory and field research has investigated common SRL strategies that students use in order to be academically successful and showed the important role these strategies play in academic achievement. The common finding of these studies is that the capacity to self-regulate learning is associated with academic achievement (Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1986, 1988). Pintrich (2004) expresses the

crucial role of self-regulation in academic achievement stating that cultural, demographic, or personality characteristics of students or contextual characteristics of a classroom are not the only factors that influence learning and achievement; people's self-regulation of their cognition, motivation, and behavior mediate the relations between the person, context, and eventual achievement.

As stated by Paris and Paris (2001, p. 89), research on learning and achievement has focused on cognitive strategies, metacognition, motivation, task engagement, and social supports in classrooms for the last three decades, and SRL "emerged as a construct that encompassed various aspects of academic learning and provided more holistic views of the skills, knowledge, and motivation that students acquire". Social cognitive theory posits that human achievement is highly dependent on self-regulation (Zimmerman, 1981) and that given the same environmental conditions, people who are skillful at regulating their own motivation and behavior are more successful in their pursuits than those who have limited means of personal agency (Bandura, 1989). Because the main aim of learning is to achieve desired outcomes, such as good performance (Perels et al., 2005) and because self-regulation is theorized to be highly related to achievement, understanding the concept of self-regulation to develop these achievement capabilities has attracted a great deal of attention (Chen, 2002).

All theorists assume that achievement effects are mediated by the self-regulatory activities (Boekaerts & Corno, 2005) and many SRL processes (e.g., self-efficacy) have been shown to be causal determinants of students' success (Pintrich & Schunk, 2002). As a result, there has been a growing body of research on the relationship between SRL processes and student academic achievement (Bandura, 1986; Schunk, 1984a, 1984b) and there is a great deal of empirical evidence regarding the importance and effectiveness of SRL for academic achievement (Bandura, 1986; Paris & Paris, 2001; Pintrich & De Groot, 1990; Schunk, 1984a; Zimmerman, 1990; Zimmerman & Bandura, 1994; Zimmerman & Martinez-Pons, 1986, 1988; Zimmerman & Schunk 2001). What makes SRL so important is this

abundant literature base demonstrating a strong relationship between SRL processes and academic achievement (Bandura, 1997; Pintrich, 2003).

Self-regulation is considered as a process that can explain achievement differences among students and improve their achievement (Boekaerts et al., 2000; Zimmerman & Martinez-Pons, 1986, 1988; Zimmerman & Schunk, 2008). More precisely, "good self-regulators academically do better than poor self-regulators even after controlling for other potentially influential factors" (Zimmerman & Bandura, 1994, p. 846). For example, Risemberg and Zimmerman (1992) maintain that students who are active in their own learning motivationally, behaviorally, and metacognitively tend to achieve at higher levels. Moreover, studentswho can initiate learning tasks, set their own specific goals, select and use appropriate strategies to achieve these goals, monitor and evaluate their own progress, and adapt their efforts on the basis of learning outcomes systematically are more likely to achieve at higher levels than their peers who depend on their teacher for carrying out these functions (Boekaerts, 1997; Risemberg & Zimmerman, 1992; Zimmerman et al., 1996). In contrast, students who are considered to have academic problems often have self-regulatory skill and motivation deficits (Cleary, Platten, & Nelson, 2008).

Researchers studied the relationship between academic achievement and students' use of self-regulatory strategies by investigating distinctive attributes of self-regulated students (Kosnin, 2007; Pintrich & De Groot, 1990; Sungur & Gungoren, 2009; Zimmerman & Martinez-Pons, 1986, 1988; Zimmerman et al., 1992).

One of the seminal studies that sought to examine the relationship between academic achievement and reported SRL strategy use was conducted by Zimmerman and Martinez-Pons (1986). Interviewing high school students from high and low achievement tracks concerning their use of SRL strategies in different learning contexts (i.e., during class, homework, and study), Zimmerman and Martinez-Pons found that students in the two achievement groups differed significantly in their reported use of nearly all categories of self-regulation. High-achieving students displayed significantly greater use of 13 categories of SRL strategies than low-

achievers (all except self-evaluation), which makes these strategies predictors of success. On the other hand, their peers from the low achievement track reported to use significantly more non-self-regulated responses that show reactive statements indicating lack of personal initiative. The results suggest that the students' reported use of SRL strategies predicted their achievement track with 93% accuracy. The categories of SRL strategies will be presented in the next part which focuses on the SRL strategies that students use.

In a follow-up study, Zimmerman and Martinez-Pons (1988) investigated the relationship between teachers' observations of students' SRL performances in classroom situations and students' reported use of SRL strategies and their achievement outcomes. According to the results, the students' use of SRL strategies made a significant contribution to their mathematics and verbal achievement. Likewise, Zimmerman et al. (1992) also sought to determine the influence of students' self-efficacy beliefs, personal goal-setting, and use of learning strategies on their academic achievement. The results indicate that students' perceived efficacy for SRL enhanced and predicted their perceived self-efficacy for academic achievement, which, in turn, correlated with their grade goals and final grades in social studies. Therefore, perceived self-efficacy influenced achievement both directly and indirectly through its impact on self-set goals. Two important components of SRL, perceived academic self-efficacy and personal goal setting, accounted for 31% of the variance in level of academic achievement in social studies.

Based on the strategies Zimmerman and Martinez-Pons (1986; 1988) suggested, Cleary (2006) assessed the frequency of students' use of different self-regulation strategies when preparing for science tests. Cleary examined the effects of gender, grade level, and achievement group on students' use of self-regulation strategies, task interest, and perceived instrumentality. The strategies were classified in three groups: (1) environment structuring, organization, goal-setting/planning, and self-control, (2) seeking information, seeking social support, reviewing records, and transforming information, and (3) maladaptive regulatory behaviors such as the extent to which students will avoid difficult tasks or will exhibit negative behaviors

(e.g., losing their study notes or waiting until the last minute to study). The grade level was found not to affect the dependent measures; however, gender affected the environmental/behavioral management significantly in favor of females. As for the success level, high-achieving students used environmental and behavioral management strategies and seeking and learning information strategies more frequently and maladaptive self-regulation strategies less frequently. Moreover, high-achieving students' interest and perceived value of studying and performing well in science was found to be greater. The relationship between students' self-motivational beliefs (i.e., task interest and perceived instrumentality) with their use of specific SRL strategies were also analyzed, and both were found to be predictive of students' use of environmental/behavioral management strategies, although task interest had a greater effect.

As stated before, mechanisms through which students regulate their own academic learning have also been the subject of increasing research (Zimmerman & Schunk, 1989). Therefore, within the last two decades, researchers have begun to empirically research the role of students' personal attributes and psychological processes which underlie their self-regulation of academic learning (Zimmerman, 1994). For example, motivational processes such as perceptions of self-efficacy and positive self-reactions during learning are as essential to setting effective writing goals and sustained achievement as cognitive measures of writing competence (Zimmerman & Bandura, 1994). Zimmerman and Bandura (1994) investigated the predictiveness of the social cognitive theory of self-regulation for academic achievement in writing, and the results support the theory and Zimmerman et al.'s (1992) findings in that the self-regulatory factors contributed substantially to the attainment of writing course grades. Students' perceived self-efficacy to manage their writing tasks predicted their self-efficacy for academic achievement, which, in turn, raised students' goals to improve their writing skills. In short, perceived academic self-efficacy influenced quality of writing and writing grades both directly and indirectly through its impact on personal goal setting, accounting for 35% of the variance in grades. The researchers explained this relationship stating that students

who had high levels of self-efficacy put more effort when they failed to achieve, and they persisted until they succeeded.

Pintrich and De Groot (1990) also investigated correlational relationships between motivational orientation, SRL, and classroom academic performance in science and English classes. The constructs of the measure included motivational orientation components (i.e., self-efficacy, intrinsic value), self-regulation, and use of learning strategies. The results indicated that both motivational and SRL components are important in classroom academic performance. The use of self-regulatory strategies correlated also with achievement, as self- self-regulation emerged as the best predictor of academic performance. Therefore, the results show that both motivational and SRL components are important in classroom academic performance. The results were similar for science achievement, too. Sungur and Gungoren (2009) conducted a study with an aim to explore the relationship among classroom environment perceptions, motivational (i.e., mastery goal orientation, performance goal orientation, self-efficacy, and intrinsic interest), and cognitive (i.e., strategy use) components of academic self-regulation and science achievement. Students' perception of classroom environment regarding motivating tasks, autonomy support, mastery evaluation, and self-regulation correlated positively with science achievement. Another study which investigated the extent to which the ability of SRL predicted academic achievement among undergraduates was conducted by Kosnin (2007) in Malaysian context. The findings demonstrate a significant effect of the SRL ability on achievement, as SRL predicted GPA better for high achievers, who were better users of SRL, than low achievers, which supported the results of the previous studies. For high achievers, resource management strategies (time and study environment, effort regulation, peer learning, and help seeking), test anxiety, metacognitive learning strategies and lack of self-efficacy were significant overall predictors. On the other hand, within the low achievement group, those who reported more use of metacognitive learning strategies, higher test anxiety, low internal attribution of control over learning as well as low task value achieved better.

In addition to examining the relationship between achievement and students' regulation of their academic behaviors, some researchers also investigated how achievement is related to specific SRL strategies. For example, in their study in a Turkish context, Yumusak, Sungur, and Cakiroglu, (2007) found that cognitive and metacognitive strategy use accounted for 9% of the variation in students' achievement: Rehearsal, organization, management of time and study environment, and peer learning contributed significantly to the prediction of achievement. In addition, motivational beliefs accounted for 10% of the variation in students' achievement. More specifically, extrinsic goal orientation and task value were found to be statistically significant contributors to the prediction of students' achievement. While higher levels of extrinsic goal orientation were associated with lower levels of achievement, higher levels of task value were found to be associated with higher levels of achievement. Yumusak et al's results are consistent with Pintrich, Smith, Garcia, and McKeachie's (1993) argument that components of self-regulation including motivation and use of various cognitive and metacognitive strategies and achievement are all significantly correlated with each other. Lynch and Dembo (2004) also sought to identify learner self-regulation skills which predicted academic success in a blended education context, and time and study environment management was found to be one of the five self-regulatory attributes. Chen (2002), who investigated SRL strategies in a lecture-led concept learning environment versus a hands-on computer lab learning environment, reported similar results: appropriate management of study time and environment predicted lab assignment scores. As for the lecture type of learning environment, effort regulation was the strategy that led to achievement.

Overall, the results of studies that investigated the influence of SRL are consistent regarding the positive effect on academic achievement and learning motivation, suggesting that self-regulation processes are a distinguishing feature of high achievers (Zimmerman, 1998b; Zimmerman 2001; Zimmerman & Bandura 1994; Zimmerman & Martinez-Pons, 1986, 1988, 1990).

2. 9. 2. Studies that investigated self-regulatory strategies

Empirical evidence for the positive impact of self-regulation on learning and achievement has led to the great research interest in identifying and promoting SRL strategies (Dignath et al., 2008), which has illuminated specific strategies and motivations triggering achievement in specific subject areas (Paris & Paris, 2001). There is a growing body of research which shows the important role of SRL strategies, and most SRL research in the early 21st century focused on identifying and enhancing the use of effective strategies (Paris & Paris, 2001).Research shows that self-regulated learners use SRL strategies more frequently and achieve better than their peers who use strategies less frequently (Zimmerman & Martinez-Pons, 1986, 1988, 1990). Furthermore, gifted students spontaneously use SRL strategies more frequently (Risemberg & Zimmerman, 1992) and in greater amount (Zimmerman & Martinez-Pons, 1990) in comparison to non-gifted students.

One of the earliest studies on students' use of SRL strategies that reflect students' actual performance in the classroom was conducted by Zimmerman and Martinez-Pons (1986). Unlike the previous studies on SRL, this study did not rely on laboratory training, but it reflected students' reported strategy use in various learning contexts through interviews. The fourteen categories of SRL strategies identified were as such: seeking information, reviewing notes, keeping records and monitoring, organizing and transforming, seeking teacher assistance, reviewing text, rehearsing and memorizing, goal-setting and planning, seeking peer assistance, environmental structuring, self-consequences, seeking adult assistance, reviewing tests, and self-evaluation. Interestingly though, the results were parallel to the strategies derived from social cognitive theory and self-regulation laboratory training research. Similarly, Zimmerman and Martinez-Pons (1990) explored the extent to which students' grade, sex, and giftedness influence their mathematical and verbal self-efficacy and self-regulatory strategy use (i.e., use of the strategies investigated in Zimmerman & Martinez-Pons, 1986). The results indicated that girls reported significantly more record-keeping and monitoring, environmental structuring, and goal-setting and planning. In addition, gifted students used certain SRL strategies

more: organizing and transforming, self-consequating, seeking peer assistance, and reviewing notes. Moreover, students displayed greater perceptions of efficacy and use of learning strategies as they advanced in school. This final result is interesting because it contrasts with the findings of Ozturan-Sagirli et al. (2010), who sought to determine the effect of university education on the skill to learn self-regulation and whether there are differences between the first-year and fourth year students in terms of their self-regulatory skills. The results indicate significant differences in favor of first year students in terms of the following self-regulatory strategies: elaboration, organization, critical thinking, time and study environment, peer-learning and help-seeking, and the following motivational skills: goal-orientation, task value, and self-efficacy. The findings indicate that students give up using their self-regulatory skills during their university education, which, according to the researchers, is due to job-related exams during the senior year or lack of courses which support promotion of self-regulation.

In another study conducted in a Turkish context, Ozturan-Sagirli and Azapagasi (2009) explored whether university students studying elementary mathematics education used their self-regulation capabilities and which strategies they used to arrange their self-regulation capabilities. The findings of individual and focus group interviews revealed that the participants mostly reported using metacognitive self-regulation, time/study environmental management, rehearsal, elaboration, peer learning, organization and help-seeking, critical thinking and effort regulation, in order of significance, metacognitive self-regulation being the most significant. This finding reveals that time/study environmental management is the second most frequently used self-regulatory strategy. It is also worth highlighting that all these strategies are related to only the planning and implementation stages of Zimmerman et al.'s (1996) model, indicating that students might need awareness-raising for self-reflection and monitoring of the outcomes of the strategies they use.

Research was also carried out to assess specific SRL strategies, such as time planning (i.e., time management, scheduling and planning one's study time) and self-monitoring (i.e., focusing attention and monitoring study activities) and how they

relate to achievement (Van den Hurk, 2006). The results support the literature in that students who managed their time and self-monitored more effectively were more efficient in allocating their individual study time, prepared more appropriately for the tutorial group meeting, and achieved higher scores on cognitive tests. Zimmerman et al. (1994) also report that there is clear evidence showing that students' awareness of and purposeful strategic efforts to manage study time effectively makes a difference in academic achievement, improved self-efficacy perceptions, and intrinsic interest. While skilled learners engage in effective time management, less skilled ones show poor time management (Bembenutty & Karabenick, 1998). More empirical evidence with regard to the strong relationship between time management and academic achievement is reported by Kitsantas, Winsler, and Huie (2008), who examined whether self-regulation (metacognitive and time management strategies) and motivational beliefs (task value and self-efficacy) predicted college students' academic performance. The strongest correlation was with time and study environment management among self-regulation variables, and with both task value and self-efficacy among motivation variables. Time management was also correlated significantly with later cumulative grade point average (GPA) as well as task value and self-efficacy. A very interesting result is that among the self-regulated strategies and motivation variables, only time management skills continued to predict student GPA a year later. These results are parallel with Britton and Tesser's (1991) results, which indicated that two time management components (i.e., students' beliefs in planning time and their short-range planning) are significant predictors of cumulative GPA**.** Among SRL strategies, time management has attracted special attention of researchers.

2. 9. 3. Studies that investigated the influence of self-regulatory training

The promising relationship between SRL and academic achievement (Dignath & Büttner, 2008; Dignath et al, 2008; Fuchs, Fuchs, Prentice, Burch, Hamlett, Owen, & Schroeter, 2003; Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1986, 1988), and SRL being a key competence for lifelong learning (Klug et al., 2011; Perels et al., 2009; Schunk, 2005a; Zimmerman et al., 1996)

clarify the value of SRL training. Students can learn new forms for SRL, but they need to be instructed, provided with plenty of practice, and appropriate feedback (Winne, 1997). SRL can be generated via authentic and repeated experiences in school by explicit instruction and engaging students in situations in which self-regulation is blended to the nature of the task (Paris & Paris, 2001). Therefore, the issue of how teachers can increase students' levels of self-regulation becomes a crucial one (Zimmerman, 1986). Schunk and Pajares (2009) suggest that with the help of social cognitive theory as a framework, teachers can improve students' affective states and correct their misconceptions and habits of thinking (i.e., personal influences), develop their academic skills and self-regulation (i.e., behavioral influences), and change learning environments (i.e., environmental influences) to ensure success. Hence, innovations of classroom interventions consisted of changes in traditional classroom arrangements in order to establish the responsibility and independence of the learners (Boekaerts & Corno, 2005).

Factors discussed above, educational researchers' and teachers' aim to improve learning and make it more efficient, and new standards in promoting lifelong learning at school have resulted in a large number of SRL training studies presenting a large variation in terms of theoretical assumptions, underlying models, study designs, goals, educational fields, and aspects of learning (Dignath & Büttner, 2008; Dignath et al., 2008). The ones that are relevant to the scope of this study in terms of the purpose and the content of the training will be included in this study.

Such trainings are of vital importance because providing students with knowledge and skills regarding how to self-regulate their learning helps them to self-initiate motivational, behavioral, and metacognitive activities in order to control their learning (Zimmerman, 1998a). Although self-regulation has been researched since 1970s, strategy intervention in the classroom started to be highlighted only in the 1990s (Paris & Paris, 2001). After that, considering that SRL can be enhanced through instruction and training (Dignath & Büttner, 2008; Dignath et al., 2008; Perels et al., 2005), many researchers attempted to investigate how to promote SRL among students (Dignath & Büttner, 2008) by teaching the processes derived from

the theory, which hypothesized to develop academic self-regulation (Zimmerman, 1994). An important question researchers sought to answer was whether SRL training promotes learning (Fuchs et al., 2003). In this regard, a major line of research examined the effects of interventions designed to improve students' self-regulatory skills and academic achievement by teaching them SRL strategies (Schunk, 2005a). Schunk maintains that these strategies often are involved setting goals, using effective task strategies, monitoring progress, taking notes, organizing studying, and establishing a productive work environment among others.

Perels et al. (2005) conducted an experimental intervention study with the aim of enhancing 8th grade German students' self-regulatory and mathematical problem-solving competence through training outside the classroom with the help of homework activities. The participants were assigned to four groups: self-regulation training, problem-solving training, combined training (self-regulation and problem solving), and no training. The self-regulation training group received instruction on self-regulation components (goal setting, motivation, volitional strategies, self-efficacy, self-reflection/handling errors) The results indicated a significant difference between the combined training group and others but no difference among the other groups in terms of enhancing self-regulatory competencies, which meant that only the combined training led to an increase. There was a significant increase in the combined training group for motivation/volition, self-reflection/handling errors, and self-efficacy. A very interesting finding of the study was that the training of the self-regulatory strategies improved mathematical problem-solving skills, too, which suggests that students might have implemented the strategies on their own to improve their mathematical problem solving skills. In addition, self-efficacy improved in both combined training and self-regulatory training groups. Transferring the training context to classroom setting, Perels et al. (2009) conducted a follow-up study in which they designed a self-regulation intervention with an aim to investigate the impact of training students' self-regulatory competence in math classes on SRL and math achievement. The results were similar to Perels et al.'s (2005) study: The intervention group stated significantly more self-regulated behavior and showed better knowledge of the self-regulation strategies in the posttest. In addition, although

mathematical competencies of both groups improved after the intervention, the students in the intervention group showed higher improvement. Perels et al. (2009) concluded that it is necessary to attach importance to the components of self-regulation in order to support self-regulation and learning achievement.

Similarly, Fuchs et al.(2003) assessed contribution of SRL strategies, when combined with problem-solving transfer instruction, to primary school students' mathematical problem solving in an experimental study. Academic improvement of the transfer-plus-SRL groups at all achievement levels (i.e., high, average and low achievement) was more than both the control groups and problem-solving transfer groups. The researchers suggested that the superior growth of the combined treatment may be related to SRL. In addition, transfer-plus-SRL group reported higher levels of self-regulation. Students in the combined treatment scored better on three of the four questions assessing self-efficacy, goal orientation, self-monitoring, and effort than those in the problem-solving transfer treatment group and the control group. The results also support the relationship between achievement level and SRL, as the effect sizes were larger for high and average-achieving students than for low-achieving ones.

Souvignier and Mokhlesgerami (2006) also designed an experimental study to investigate the effect of SRL strategy training on students' understanding of reading strategies, their competence to apply them, and reading comprehension. Three aspects of teaching SRL- strategy knowledge (Strat), cognitive self-regulation (CSR) and motivational aspects of self-regulation (MSR)- were combined within three different versions of a learning environment (i.e., Strat, Strat+ CSR, and MSR+ Strat+ CSR groups). The last group was the control group. The results indicated that all three strategy-oriented groups had at least somewhat better reading comprehension scores than the control group, but differences between the three groups were small.The MSR+ Strat+ CSR group had significantly higher reading comprehension scores at the retention test. In terms of understanding and applying the reading strategies, only the MSR+ Strat+ CSR group outperformed the control classes at the end of the school year. When the MSR+ Strat+ CSR and the control

group were compared, short-term effects were moderate, while long-term effects were considerable. While MSR+ Strat+ CSR and Strat groups showed considerable short-term increases in producing solutions to overcome difficulties when dealing with texts, only the former showed superior long-term effects. Therefore, integrated training which covered all aspects of SRL led to an obvious improvement in terms of the application of reading strategies as the most promising attempt to establish long-lasting effects.

In an experimental study, Stoeger & Ziegler (2008) sought to determine whether self-regulatory training would improve self-regulation (i.e., time management, self-efficacy, and self-reflection of learning) and how it influences motivation (i.e., willingness to exert effort, interest, goal orientation, and helplessness) and achievement. The training had significant effects in terms of self-regulation as the students in the training group reported improved time management skills and self-reflection of their own learning as well as increased self-efficacy in comparison to the control group. The training proved to be influential also in terms of motivation, as the students who received training demonstrated improvement of learning goal orientation, willingness to exert effort, and interest, and their level of perceptions of helplessness decreased after the training. The training also had a positive influence on achievement, as all three variables (i.e., time management, learning goal orientation, and self-efficacy perceptions) related significantly to growth rates of students in their quiz scores. Overall, students who demonstrated good time management skills, a high learning goal orientation, and/or high levels of self-efficacy perceptions benefited most from the training. Findings of a similar study revealed that training of academic time management, which involves scheduling, planning, and managing one's study time, helped students to better self-regulate their use of study time and, in turn, improved their grade-point average (GPA) (Zimmerman, Greenberg, & Weinstein, 1994). Likewise, Britton and Tessor (1991) concluded that students' beliefs in planning time and their short-range planning were more strongly related to their academic achievement than were their SAT scores.

Vandevelde, Van Keer, and De Wever (2011) incorporated SRL components into tutoring sessions of 5th and 6th grade students, and found a significant increase in motivationand metacognitive awareness after the intervention for 6th graders, but no significant differences for 5th graders, which was, according to the researchers, due to the metacognitive immaturity of the 5th graders. In terms of strategy use, the intervention was beneficial in that students approached certain aspects of SRL differently after the intervention. For one thing, students' consideration of self-evaluation enhanced, as they reported more profound methods after the intervention. For another, responses regarding goal setting and planning moved from being similar and basic to reflecting more systematic and goal-oriented approaches which integrate various strategies. In addition, students reported more engagement in environmental structuring, such as avoiding distraction, and a higher awareness of personal preferences regarding study environment. Moreover, while students reported strategies mainly based on rehearsing (e.g., remaking exercises, covering the learning material, reciting, copying material before the intervention), they also expressed use of elaboration strategies (e.g. generating and answering questions, summarizing, and mnemonic techniques) after it.

Askell-Williams, Lawson, and Skrzypiec (2012) designed a classroom instructional intervention to examine the effect of teachers' use of a tool designed to develop students' expertise in cognitive and metacognitive strategies for learning: Focusing attention on, elaboration of, structuring of, and monitoring understanding of key ideas. The results demonstrated that students' cognitive and metacognitive strategy knowledge was generally at less than optimal levels before the intervention, and the intervention had the potential to provoke awareness of effective cognitive and metacognitive strategies.

Unlike the majority of studies that investigated the students' use or improvement of SRL strategies, Kistner et al. (2010) focused on the strategies teachers instructed. The researchers investigated the extent to which teachers' direct and indirect promotion of SRL is related to the development of students' performance. The results revealed that teachers mostly instructed cognitive

strategies, especially elaboration and organization, followed by motivational and metacognitive strategies. In addition, the teachers were observed to instruct strategies mostly implicitly, whereas explicit strategy teaching and supportive learning environment were rare. The researchers also found positive relations between strategy instruction and students' development in mathematical achievement, but the correlation was significant only for organization strategies, and not for others (i.e., elaboration, planning and systematic activity, monitoring and evaluation, resource management, and feedback). It was concluded that explicit strategy instruction was positively related to students' learning development, whereas implicit instruction was not, as students whose teachers instructed a higher number of strategies explicitly showed a higher level of mathematical reasoning after the teaching unit.

In summary, the results of the intervention studies in the literature reveal that self-regulatory strategies can be improved through training and that there is a requirement for training these strategies (Dignath et al., 2008). In addition, SRL interventions proved to be effective, enhanced students' academic performance (Dignath & Büttner, 2008; Dignath et al., 2008; Fuchs et al., 2003; Perels et al., 2005, 2009; Schunk, 2005a; Schunk & Ertmer, 2000) and were transferred beyond the training context (Schunk, 2005a). Moreover, there is a great body of evidence that self-regulatory strategy training can also improve the effectiveness of students' learning methods (Zimmerman, 1994). Benefits of interventions are made available to students and teachers so that they can adapt and use the methods in their classrooms (Paris & Paris, 2001).

This study will contribute to the existing literature in many ways. First, most of the SRL studies are correlational studies investigating the relationship between different components of self-regulation. As for the intervention studies, most of them examined the extent to which the training improved students' academic skills such as problem-solving or reading comprehension. This study, however, focused more on students' improvement of their self-regulatory skillsthan their content knowledge. Second, the longitudinal aspect of the study fits well into the dynamic nature of self-regulation. In other words, the studywill expand the existing literature in that it

examined how students' reported use of SRL strategies changed over the traing period, exploring the relationship between the training and students' improvement of self-regulatory skills rather than assessing students' self-regulatory skills at one particular time. Third, students' reflections regarding the self-regulation process yields invaluable information considering their experiences and thoughts throughout the process.Finally, to the knowledge of the researcher, this study will be one of the few intervention studies conducted in Turkey. In that sense, it yields invaluable information to the SRL literature regarding how Turkish university students experience the SRL training process.

CHAPTER 3

METHODOLOGY

3. 1. Overview of the Chapter

In this chapter, methodological procedures for this study are presented. First, the research design of the study is explained, focusing on how the study was conducted. Details regarding the training are also presented. The participants and the setting in which the study was carried out are explained, followed by data collection instruments. Finally, data collection and analysis procedures are described.

3. 2. Research Design and Research Methodology

In this section, the research design and methodology of the study will be explained, and reasons for using a mixed methods approach will be discussed.

3. 2. 1. Research Design

The present research study was designed as a mixed method intervention study to examine the relationship between the SRL training and students' awareness and use of SRL strategies and academic achievement. Having taught at the department for six years, the researcher hypothesized that students needed SRL training to take the responsibility of their own learning. Therefore, based on Zimmerman et al.'s (1996) instructional SRL model, a SRL intervention was designed to promote self-regulation during homework activities and to increase students' awareness and skills to actively engage in and control their learning process. Students' reflections, experiences, perceptions, behaviors, and strategies they used were investigated throughout the training based on the journal entries they wrote each week. Students referred to their self-monitoring forms and quiz and homework scores (e.g., via the graphs in which they had been recording their scores)

while taking action and reflected on their experiences and thoughts in their journal entries. In addition, the design included weekly homework questions for students to complete at home and quizzes to take in class. Finally, a questionnaire was administered before and after the training to investigate how frequently the students reportedly used the SRL strategies derived from the literature. In that way, the researcher found an opportunity to compare the results of questionnaires before and after the training and investigate whether there has been a behavioral or perceptional change throughout the training. Data were collected and analyzed by means of both qualitative and quantitative methods, which determined the methodology of this study as mixed method approach (Creswell, 2007, Creswell & Plano Clark, 2011). Figure 4 displays the complex mixed methods design utilized in this study, followed by a crosswalk (Table 2) presenting the research questions addressed, data collection instruments, and analysis methods used to answer each question. The abbreviations *quan* and *qual* stand for quantitative and qualitative respectively, and capitalization in the figure and the table indicates the priority on the quantitative data in the study (Creswell, 2009).

Figure 4- Design of the study

Table 2-Crosswalk presenting the research questions addressed, data collection instruments, and analysis methods.

Research Questions	Journals	Questionnaires	Quizzes	Documents (self-monitoring forms, graphs)	Training evaluation form
What self-regulatory strategies are the students aware of before the training?	X (QUAN & qual)	X (QUAN)			
What is the relationship between the SRL training and the students' awareness and reported use of self-regulatory strategies?	X (QUAN & qual)	X (QUAN)			
To what extent does the training affect the students' awareness and reported use of self-regulatory strategies?	X (QUAN & qual)	X (QUAN)			X (QUAN)
What are the students' perceptions of the effectiveness of the self-regulatory training?	X (QUAN)				X (QUAN)
What is the relationship between the SRL training and the students' academic achievement?			X (QUAN)	X (QUAN)	X (QUAN)

3. 2. 2. Research Methodology

Although the majority of the studies aiming to investigate students' reported use of strategies were designed to collect data through SRL strategy scales or inventories (Chen, 2002; Fuchs et al., 2003; Ozturan Sagirli, Ciltas, Azapagasi, & Zehir, 2010; Stoeger & Ziegler, 2008), qualitative research methods are also required to arrive at a deeper understanding of SRL. In order to answer the research questions both quantitatively (i.e., frequency counts, percentages, means) and qualitatively, data collection techniques from both methodologies were used. Hence, the methodology of the study was determined as a mixed methods approach, which involves collecting, analyzing, and mixing quantitativeand qualitative data in a single study (Creswell, 2009; Creswell & Plano Clark, 2011). The rationale behind using the mixed methods approach was that it enables the researcher to draw on more than one possibility (Tashakkori & Teddlie, 1998), utilizing strengths of both methodologies (Creswell, 2009). The combination of these two approaches helps answer questions that cannot be answered by qualitative or quantitative approaches alone and provides a more comprehensive understanding of the research problem (Creswell & Plano Clark, 2011). In other words, limitations of one method can be compensated by the strengths of the other (Creswell & Plano Clark, 2011). In addition, researchers are not restricted to use one type of data collection tool typically associated with qualitative or quantitative research, but they can use all data collection tools available, which contributes to the triangulation of findings (Creswell & Plano Clark, 2011). The quantitative data and their analysis give a general understanding of the research problem, while quantitative data and their analysis explore participants' views in more depth (Tashakkori & Teddlie, 1998).

In this study, quantitative data provided the researcher with a general understanding of students' awareness and frequency of the SRL strategies that they used and the changes in the use of strategies throughout the training, while qualitative data yielded a deeper and enhanced insight into their experiences, thoughts, and emotions throughout the SRL training. In that sense, it is regarded a step forward in research methodology, providing more insight as qualitative data

help explain aspects that the quantitative data might be inadequate to address (Creswell, 2009).

More specifically, the study has a complex mixed methods design in which the qualitative strand is embedded into the quantitative strand to enhance the application of a traditional quantitative design, which is typical in mixed methods approach (Creswell & Plano Clark, 2011). The use of quantitative and qualitative methods was predetermined and planned at the beginning of the research process and the procedures were implemented as planned; therefore it is a *fixed* mixed methods approach (Creswell & Plano Clark, 2011). In terms of the timing, sequential timing was adopted, as the two strands were implemented in distinct phases during data collection and analysis (Creswell & Plano Clark, 2011). First, the intervention and the data collection method during the intervention (i.e., journals) were planned, and it was believed that a questionnaire that included a comprehensive body of SRL strategies was necessary both to identify the strategies students reported using before and after the training and to gauge the changes, if any, occured after the training. Therefore, quantitative data were collected first to enhance the intervention design. Next, throughout the intervention, qualitative data were collected and analyzed, which revealed the strategies students reported using during the intervention. Finally, quantitative data were collected after the training to investigate the possible changes in the reported use of strategies. There is an interactive level of interaction between the qualitative and quantitative strands of the journal data, as the qualitative data (i.e., students journal entries) were converted into quantitative data through frequency counts and percentages during the analysis (Creswell & Plano Clark, 2011). On the other hand, the quantitative questionnaire data and qualitative journal data have an independent level of interaction because the two strands are distinct.

Creswell and Plano Clark (2011) state that researchers who use an embedded design can keep the two sets of results separate while reporting the analysis and mix the results during interpretation. Therefore, quantitative data from questionnaires and qualitative data from journals were collected and analyzed and reported separately. The two strands were mixed when drawing conclusions during discussion at the end

of the study (Creswell & Plano Clark, 2011). As for the priority given to the strands, quantitative methods have been given priority, and qualitative data provided supportive information to address the research questions. Therefore, qualitative data were embedded within larger quantitative data as the primary database (Creswell, 2009).

3. 2. 2. 1. Self-regulatory training

Zimmerman et al. (1996) claim that when self-regulatory processes are followed in the improvement of study skills, students become more aware of the developments in their academic achievement and experience a higher sense of self-efficacy. Therefore, teachers should implement a self-regulatory cycle, in which they help and empower students to self-observe their effectiveness (Zimmerman et al., 1996). Hence, with a view to improving students' study skills and guiding students to take responsibility for their own learning process, a 7-week SRL training program was designed based on self-regulatory framework. The training took place for seven weeks during two block class periods of 90 minutes each.

The training was based on Zimmerman et al.'s (1996) cyclical instrcutional model, in which the participants are actively involved in the learning process going through the cyclical phases of SRL. According to the model, the teacher involves the students in the learning process and gradually transfers the responsibility to them during the training by asking them to self-monitor, self-evaluate their effectiveness in learning/task performance, and identify their deficiencies (i.e., self-evaluation and monitoring). In order to learn on their own, students must be able to focus on a deficient part of a skill and monitor the effectiveness of their strategy while they are trying to improve it (Zimmerman, 1994). Next, they set goals that will lead them to overcome these deficiencies and choose self-regulatory strategies to eliminate the negative factors that hinder the effectiveness of their studies based on their goals (i.e.,goal setting and strategic planning).

The rationale behind giving students choice for goal-setting and strategic planning is that the availability of choice and control for people is considered as a condition for self-regulation (Zimmerman, 1994). Schunk (2001) also states that in order for self-regulation to be facilitated, students should have some choice in one or more of the self-regulatory processes; when all aspects of the task is predetermined, the source of control is external. Likewise, Paris and Paris (2001) caution that students who comply with teachers and use instructed strategies are regulated by others, not self. Butler (2002, p. 84) also supports this idea stating that "if it is the teacher or researcher who analyzes a task, anticipates problems, and defines useful strategies, then students have little opportunity to problem solve strategies themselves". Similarly, Zimmerman (2000) maintains that although social models might be advantageous in presenting high quality methods of skill, they may inhibit students from assuming self-direction. Therefore, in order to encourage students to self-regulate their method of academic learning (Paris & Paris, 2001; Sungur & Gungoren, 2009; Zimmerman, 1994), students were given opportunities to choose their own strategies and create their own learning conditions according to their self-set goals. This opportunity is believed to increase the value of the strategy for them.

After strategic planning, students implement the strategies they have selected, self-monitor their implementation of the strategies and learning/performance outcomes, and adjust their strategic methods when necessary (i.e., strategy implementation and monitoring). It is very important to self-monitor and evaluate the effectiveness of self-regulatory strategies and self-react to feedback about their effectiveness in a number of ways, such as continuing the strategy if it is successful and modifying it when it is not. Finally, they self-evaluate the effectiveness of the strategies on learning outcomes and achievement of goals (i.e., strategic outcome monitoring).

Therefore, the training served following aims: to increase students' awareness on self-regulation, promote SRL to encourage and guide students to assume responsibility for their own learning process, develop their SRL skills by systematic application of self-regulatory methods inside and outside the classroom, and thus,

help them learn to recognize and appreciate the links between their study behaviors and learning outcomes. To this end, self-regulatory strategies were incorporated into students' study skills in such a way that they would be able to use them effectively under all circumstances throughout their learning process even after graduation. Another focus was on "what students do . . . to manage and feel self-efficacious about their learning (Zimmerman et al., 1996, p. 18). In other words, students learn self-regulation through experience and self-reflection (Pintrich, 1995).

The training procedure was incorporated into the content of the course rather than focusing solely on self-regulatory training, based on the literature findings stating that self-regulatory training which is embedded in content instruction is more effective and yields better results than solely SRL or content instruction (Perels et al.,2005, 2009). The blend of content knowledge and self-regulatory skills will empower students to regulate and continue their learning outside the classroom and direct it on their own (Lanehart & Schutz, 2001). Paris and Paris (2001) also highlight the importance of embedding strategies into daily classroom activities so that teachers and students have opportunities to practice the strategies in authentic activities throughout the curriculum. If the activities require the use of strategies, students are more likely to develop thoughtful approaches to learning, which contributes to the meaningfulness and effectiveness of the training and motivation it generates. Therefore, students' monitoring and evaluating their use of strategies as well as keeping track of their academic achievement became more realistic, meaningful, and effective when they were assigned a reading material that would be covered during classes.

An important feature of the training was that it gave students opportunities to make choice and exercise control about what problems to solve and what strategies to use when solving them. In this way, students were shifted the responsibility to plan and select the strategy, coordinate actions and people, attain goals, monitor understanding, and evaluate learning outcomes. In addition, the training encouraged peer interaction, collaboration, and feelings of self-efficacy as a consequence of their engagement with the SRL process. Another important point in the training is that

concentrating on the learning process before attending to the learning outcome may encourage students to continue expending effort on the development of SRL skills (Zimmerman et al., 1996).

3. 2. 2. 1. 1. Students' out-of-class activities throughout the training

The students were informed about the material that would be covered each week in their syllabus at the beginning of the semester. Lesson plans included the discussion of one chapter each week, 10 homework questions for each chapter to be answered by the students before class, and a quiz at the end of each class session.

The students were expected to study the content before class, and for each study session, they were to keep performance records, referred in the study as *self-monitoring form*. They recorded the time they started and finished studying, the amount of time they studied and the study context (i.e., where and with whom they studied and whether there were any distractions in the study environment) on their self-monitoring form. After that, analyzing the data in their self-monitoring form, they were expected to assess the time, amount and context of study for each week, and considering how successful they thought they would be at homework and quiz, they rated their self-efficacy for homework and quiz separately. For example, if a student thought that he was going to get at least eight out of ten, the self- efficacy rating would be eight. Asking students to give self-efficacy ratings after studying increases self-monitoring during the study session as well as awareness of which goals have been achieved (Zimmerman et al., 1996). Therefore, giving self-efficacy ratings for each study session was expected to increase students' awareness towards self-efficacy and make their self-monitoring more meaningful.After rating their self-efficacy, students were to record their ratings in their self-monitoring forms and *self-efficacy and performance score graphs* for homework questions and quizzes, which showed their self-efficacy and actual score for each week's quiz and homework questions. Finally, students answered the homework questions and wrote their entries in their weekly reflective journals based on the guiding questions provided by the researcher each week.

Students' rating their self-efficacy regularly is crucial in that it makes them monitor and evaluate the effectiveness of their implementation of strategies and the textent to which strategies help them attain their goals. As Bandura (1991) claims, overestimates of self-efficacy beliefs are related to poorer academic outcomes, a possible explanation of which might be the fact that overconfidence may undermine students' motivation to study hard.

3. 2. 2. 1. 2. Students' in-class activities throughout the training

Throughout the training process, at the beginning of each class, students discussed their experiences and perceptions regarding the particular phase of the self-regulatory cycle for that week as well as the challenges and improvements in their self-regulatory skills in groups. The group discussions lasted for 15 minutes, followed by a 15-minute whole-class discussion. For example, in week 6, students discussed how they were implementing the strategy they had selected, the extent to which it was appropriate and effective in acieving their goals. These discussions were a crucial part of the training process, as they provided students with opportunities to share their experiences and make suggestions for and learn from each other. Effective strategies can be learned from peers in situations that make strategy use salient, such as during discussion (Paris & Paris, 2001). In brief, students were not only self-regulating their learning, but also providing regulatory support for one another in the form of articulating goals, planning, suggesting strategies, or maintaining motivation (Winters & Azevedo, 2005).

After the discussion, the course content was covered, the answers for the homework questions were discussed, and the students graded their own work. At the end of each class, the students were given a quiz, which was evaluated by the students themselves in the classroom if time availed or by the teacher after the class. Next, the students recorded their actual scores for homework questions and quizzes on their graphs, using a colored pen to compare their actual grades with their self-efficacy ratings. Each session ended with the provision of the topic for the journal entry for the following week by the researcher.

3. 3. Research questions

This study sought answers to the following research questions:

1. What is the relationship between self-regulatory training and students' regulation of their study habits and academic achievement?

   1a. What self-regulatory strategies are the students aware of before the training?

   1b. What self-regulatory strategies do the students most frequently use during and after the training process?

   1c. What is the relationship between the SRL training and the students' awareness and reported use of self-regulatory strategies?

   1d. What are the students' perceptions of the effectiveness of the self-regulatory training?

   1e. What is the relationship between the SRL training and the students' academic achievement?

3. 4. Participants

The participants of the study composed of 30 sophomore (i.e., second-year) students who are studying at the Department of English Language and Literature, Erciyes University, Kayseri, Turkey.

Participants were selected through purposeful sampling (Creswell, 2009; Creswell & Plano Clark, 2011). The reason for selecting university students as participants is based on the assumption of most theorists that young children cannot self-regulate their learning formally (Zimmerman, 1989a) and that self-regulation capacity increases with age (Paris & Paris, 2001; Studenska, 2011), experience, opportunity, and desire (Paris & Paris, 2001). More specifically, self-monitoring learning outcomes, which is a pivotal component of self-regulation process, is a

complex metacognitive activity involving directed attention and sophisticated reasoning processes, which develops with age (Zimmerman, 1990). For this reason, older and more experienced students are believed to be more able to assess their work and progress (Paris & Paris, 2001) and to self-regulate during learning (Bandura, 1986), whereas younger children do not use effective monitoring strategies (Souvignier & Mokhlesgerami, 2006). Pintrich (1995) also maintains that SRL is particularly appropriate for college students because they have great control over their own time schedule and their way of approaching studying and learning. Therefore, younger students may not have been able to meet the requirements of the training effectively, especially when reflecting in journal entries. The reason for recruiting particularly students at Erciyes University Department of ELL was that the researcher, who had been teaching in that institution for six years, knew that the students needed support in controlling their academic behaviors and wanted to explore how SRL training would help them.

All students taking the Introduction to Linguistics course volunteered to participate in the study and received self-regulatory training during the classes, and thus fulfilled the requirements of the training. In total, 65 students were involved in the training; however, some students missed a few classes, which meant that they were not involved in the training during class, and did not take the quiz or submit their journal entries. Based on Creswell and Plano Clark's (2011, p. 174) argument that the researcher may "sample individuals who can shed light on the phenomenon being studied" as the study develops, 30 students who attended classes and submitted their weekly journals regularly (i.e., at least five out of seven journal entries) were selected as participants. The rationale behind including only the students who submitted the maximum number of journals as participants was that the study aimed to learn from participants who were exemplars of good practice (Patton, 2002). As Patton asserts, more can be learned from intensively studying exemplary, information-rich cases than can be learned from statistical depictions of what the average case is like. In this study, complete and comprehensive journal entries were required to observe the impact of the training accurately. Moreover, especially because the training process was cyclical, indicating that the feedback from one

phase led to adjustments in the next phase, missing a class meant breaking the chain of the cycle. In addition, missing a class meant missing aquiz and a particular part of the training. However, continuous assessment of progress is necessary for effective self-regulation. Therefore, students who missed more than two classes were eliminated from the study.

Two of the participants were male, and 28 were female. This difference in the number of participants in terms of gender is due to the fact that just like in many education departments in Turkey, the department of ELL also has more female students than males. Participants' ages ranged from 19 to 22, the mean of which was 20.03. The variety in ages might be due to the fact that some students started university late because they had passed the university entrance exam later than their peers, or they had studied at some other university before. Figure 5 displays the percentages of participants' ages.

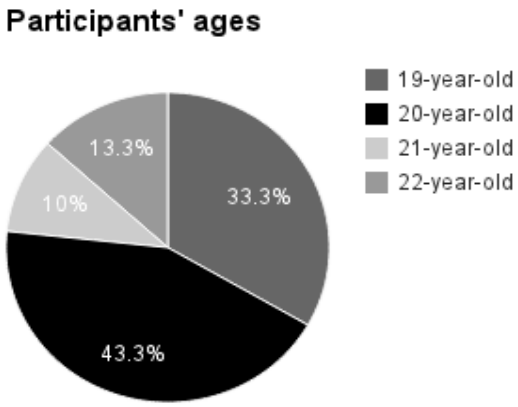

Figure 5- Percentages of participants' ages

3. 5. Setting

This study was conducted at Erciyes University, Faculty of Arts, Department of ELL, which educates future teachers of English. The instruction offered at the department consists of two semesters, each of which lasts for 15 weeks. The language of instruction is English for all courses. The curriculum of the undergraduate ELL program involves courses on English language skills (i.e., reading, writing, listening, and speaking), English literature (i.e., mostly British literature from 18th, 19th and 20th centuries), Linguistics, and English Language Teaching. The rationale behind offering linguistics and language teaching courses as well as literature courses within the ELL program is the fact that almost all the graduates of the department become English teachers at different contexts, receiving the teaching certificate from the Faculty of Education. Therefore, the department aims at providing students with opportunities through which they could enhance their language skills, field knowledge regarding both British literature and English language teaching, and support them in the field that they would like to pursue their postgraduate education or career.

The course during which this study took place was called Introduction to Linguistics, which is offered in the second year of the program for two hours per week. The course content included chapters about different aspects of linguistics, such as morphology, phonology, syntax, semantics, and pragmatics, as well as first and second language acquisition. The course is introductory in the sense that it gives students an overview of different aspects of language and an opportunity to discuss language acquisition as a preparation for methodological courses. The main text book for the course was 'The Study of Language' by George Yule. Additional materials from different sources were also provided at the beginning of the semester.

The department accepts 100 students every academic year, 50 for daytime and 50 for evening education. Because a class of 50 students would be too crowded, the students are divided into two groups depending on the last digit of their student numbers. The odd numbers form group A and the even numbers form group B.

Therefore, there are 2 groups of daytime and 2 groups of evening students for each year, which makes roughly 25 students in each group.

3. 6. Data Collection Instruments

Due to the design of the study, data collection proceeded along two strands: qualitative and quantitative. In their study in which they evaluated various implementation studies and the assessment tools of self-regulation in the classroom, Boekaerts & Corno (2005, p. 200) state that "a combination of instruments is preferable over a single instrument for assessing self-regulation as a process and the effects of interventions to improve students' self-regulatory capacity". With this in mind, a number of assessment tools were used to collect data for this study.

This section presents the instruments used during data collection and how they were implemented. In this research study, data were collected through questionnaires, weekly reflective journals, quizzes, and training evaluation survey.

3. 6. 1. Questionnaire

A questionnaire was used in order to explore the participants' reported use of self-regulatory strategies before and after the training. The rationale behind using a questionnaire was the fact that questionnaires enable the researcher to generalize the findings from a sample of responses to a larger population so that inferences can be made about the behaviors of the population (Creswell, 1994). The questionnaire was an adaptation of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and DeGroot (1990) and Pintrich, Smith, Garcia, and McKeachie (1991). Pintrich, Smith, Garcia, and McKeachie (1993) define it as a self-report instrument designed to assess college students' motivational orientations and their use of different learning strategies. Although there is an instrument developed and validated by Capa-Aydin, Sungur, & Uzuntiryaki (2009) specifically to assess multidimensional nature of *teacher* self-regulation (i.e., Teacher Self-regulation Scale- TSRS), *students'* self-regulation level is still measured most commonly by MSLQ (Chen, 2002; Kitsantas et al., 2008; Kosnin, 2007; Lynch &

Dembo, 2004; Matuga, 2009; Ozturan Sagirli et al., 2010; Sungur & Gungören, 2009;Sungur & Tekkaya, 2006;Yumusak, Sungur, & Cakiroglu, 2007). The rationale behind using MSLQ is that SRL perspective includes not only cognitive, but also motivational, affective, and social contextual factors, which are all included in MSLQ (Pintrich, 2000). Schunk (2005b) also states that MSLQ has stimulated much research on SRL because it provides researchers with a valid and reliable measure, and it is easy to administer; therefore, it is likely to continue as a commonly used instrument. Although the students in this study were aspiring to become teachers, MSLQ was administered instead of TSRS because the purpose of the SRL training was to improve the participants' SRL skills for learning rather than teaching. TSRS, on the other hand, involves self-regulated strategies teachers use during their teaching practices.

The MSLQ includes items related to motivation (e.g., intrinsic goal-orientation, extrinsic goal-orientation, task value, control of learning beliefs, self-efficacy for learning and performance, and test anxiety) and learning strategies (e.g., cognitive and metacognitive strategies (i.e., rehearsal, elaboration, organization, critical thinking, meta-cognitive self-regulation) and resource management strategies (i.e., time and study environment management, effort regulation, peer learning, and help seeking).

The questionnaire, administered both at the beginning and the end of the training, sought answers to research questions 1a, 1b, and 1c, which were related to students' reported use of SRL strategies before and after the training and the relationship between the training and students' reported strategy use respectively. The purpose of the questionnaire was to find out the extent to which students reportedly used the self-regulatory strategies stated in the literature. The questionnaire consisted of two parts. The first demographic part aimed at gathering background information about the participants: their names, gender, age, reason for majoring in ELL, and whether they would like to be teachers of English after graduation. In the second part, the students were provided with 100 statements capturing self-regulatory strategies compiled from the literature and asked to rank

them on a 7-point Likert-scale depending on the extent to which they reflect their own actions. The response options were ‘always’, ‘generally’, ‘often’, ‘sometimes’, ‘rarely’, ‘almost never’, and ‘never’.

There were 100 items in total, but it was thought that this many items might be tiring and boring for students to deal with at a time. Therefore, the questionnaire was split into two parts (i.e., 50 items each) paying special attention to parallelism in terms of the macro strategies the items belonged to. The questionnaire was prepared in English. However, given that all participants were Turkish-speakers, it was translated into Turkish by the researcher. A colleague of the researcher, who is an instructor of English at Erciyes University School of Foreign Languages, checked the accuracy of the translation and compared it with the original version. Discrepancies were resolved through informal discussions and necessary changes were made in the wording of the statements to make sure that the items are clear in Turkish. After that, in order to make sure that the two versions were comparable, the Turkish version was translated back into English by another colleague of the researcher, who is an instructor of English at Anadolu University School of Foreign Languages and a graduate of Department of Translation and Interpretation. Comparing this translated version with the original English version, the final version of the questionnaire was created. The final versions of the questionnaire can be seen in the appendices, both in Turkish (Appendices A and B) and in English (Appendices C and D).

Reliability statistics revealed that Cronbach’s Alpha coefficient for the questionnaire was 0.95. Descriptive statistics revealed that the mean of the items was 5.21. Therefore, it can be concluded that the questionnaire performed well in terms of reliability. Table 3 displays the Cronbach’s Alpha coefficients of each category/subscale.

Table 3- Reliability statistics of the questionnaire

Category	Cronbach's Alpha	Number of items
Goal-setting	,731	5
Time-management	,648	11
Metacognitive regulation	,781	19
Cognitive strategies	,844	13
Effort regulation	,459	5
Environmental structuring	,780	8
Help-seeking	,781	10
Self-evaluation	,885	11
Self-efficacy	,795	8
Test anxiety	,646	2

3. 6. 2. Homework

For academic learning techniques to become self-regulated and for students to develop their use of self-regulatory strategies and skills, students need opportunities to rehearse and practise these techniques on their own in contexts where they can exercise personal choice and control. Homework is invaluable for self-regulation because it gives students opportunities to schedule, organize and practice without the existence of a teacher (Zimmerman, 1998). To be more specific, through homework, students are provided with opportunities to apply and practice the newly acquired strategies, and thus, it enhances students' use of learning strategies and their self-monitoring of goal-attainment (Zimmerman et al., 1996). In addition, homework is a means for task accomplishment, which is considered to be an important factor for the maintenance of motivation academic work (Corno, 1989).

Homework had a crucial function in the SRL training in this study, as it functioned as a means of students' application and transfer of effective learning strategies outside the classroom and their self-monitoring of goal attainment.

Therefore, being a tangible reason to study the content material, homework served to train students on regulating their learning process outside the classroom in addition to its function as an out-of-class practice activity for content mastery (Zimmerman et al., 1996).

With this in mind, students were assigned 10 questions each week, prepared by the researcher related to the chapter covered that particular week from the textbook and other content material. The homework was worth 10 points; 1 point for each question. They were supposed to answer the questions after studying the content before class. Appendix E involves a sample sheet of homework questions.

3. 6. 3. Quizzes

At the core of the training were weekly achievement measurements (i.e., quizzes) through which students' academic performance was measured. A quiz of ten questions was prepared by the researcher for each class session with a view to giving the students opportunities to to check their comprehension of the content, track their improvement, and evaluate the effectiveness of the strategies they were implementing. Taking the fact that goal-setting is appropriate only when task difficulty remains relatively constant (Schunk, 1990), the researcher paid special attention to prepare questions for homework and quizzes at the same difficulty level as much as possible. The quizzes were also worth 10 points; 1 point for each question. They were administered at the end of each class. A sample quiz can be seen in Appendix F.

3. 6. 4. Self- monitoring form

As stated by Bandura (1991), evaluative self-reactions cannot be aroused to a great extent if one does not have a clear understanding of how he is doing. To this end, as a common self-observation method, students' recording their actions might be illuminating (Schunk, 2001) as it influences their learning, motivation and self-efficacy (Zimmerman, 1989). Such forms function as graphic stimuli of self-recorded data, and using them increases the accuracy of self-observations and judgments of

daily progress and provides direct evidence of progress (Zimmerman et al., 1994). In addition, keeping performance records make students aware of how much time they wasted in previous study sessions (Zimmerman et al., 1996).Students with poor study habits are surprised at the data they generate in records, realizing how much study time they wasted on non-academic activities and sources of procrastination (Schunk, 1990, 2001; Zimmerman et al., 1994).

Schunk (2001) maintains that self-observation is most helpful when it focuses on the particular circumstances under which learning occurs, such as the time, place and the duration of performance. Based on this argument, students in this study were provided with a self-monitoring form so that they could monitor specific aspects of their study habits regularly, such as the time and amount of the study session and the study context (i.e., where and with whom the study took place and whether there were any distractions). For example, a record of quiz scores when studying with peers versus studying alone can reveal whether studying with peers is a distraction or a benefit. These records are highly beneficial and essential for self-regulatory training in that they help students make more accurate self-evaluations relying on real data rather than their intuitions, as they have tangible proof regarding the amount of time and context (i.e., place, with whom, etc.) they study. Moreover, the regularity and proximity of self-recording are also of vital importance in the accuracy of self-observational responses (Zimmerman, 2001). This is why the students were asked to record the details of every study session regularly and proximally in their self-monitoring forms. The self-monitoring form is displayed in Appendix G.

3. 6. 5. Journals

In this study, the evaluation of the training process was based on student journals, which is considered as an unobstusive qualitative data source to minimize the potential bias that qualitative data might bring into the intervention (Creswell & Plano Clark, 2011). Journals are an important data collection tool for a variety of reasons. First, journals are a means to self-reflect and convey change, allowing students to express the activities they complete, situations they encounter, and their feelings and thoughts in their own words (Morrison, 2002). As it was not possible for

the researcher to observe these changes or situations because they took place outside the classroom, journals were used alternatively. In this regard, journals enrich the intervention process through students' reflections about their actual experiences and perceptions throughout the process. Second, journals fit perfectly to the dynamic nature of self-regulation process in that the content of each journal entry was designed to match a particular step in the self-regulation cycle: self-evaluation and monitoring, goal-setting and strategic planning, strategy implementation and monitoring, and strategic-outcome monitoring. While composing each journal entry, students were expected to elaborate and reflect on their implementation of and feelings about their development in regulating their studies and learning. In that sense, journals were critical in this SRL training because they gave students opportunities to think critically about their cyclic strategic efforts, monitor their use of self-regulatory strategies, and review the self-regulatory training progress step by step. In brief, journal entries helped students observe learning over time and focus their attention on the relationships between the different components of the self-regulatory cycle for each journal entry (Schmitz & Wiese, 2006). As a result, journals provide illuminating examples of SRL (Randi, 2004). Third, guiding questions for journal entries served as an external cue in that students elaborated on why and how they used a specific strategy, to what extent it worked, and ways to increase its effectiveness, which in turn stimulated metacognitive thoughts. Fourth, as journals reminded the students of the strategy directly in their everyday learning situation (i.e., at home), it enhanced the transfer of the training content presented in the classroom to the actual learning situation.

Designing user-friendly journals with clear and simple instructions which specify how the journal writers record the relevant information is crucial to maximize the effectiveness of journal entries (Alaszewski, 2006). Therefore, the students were explained in detail what they were expected to include in their journal entries. As it was believed that students would convey their thoughts and experiences much more easily and the entries would involve more in-depth and richer reflections in the students' mother tongue, students were asked to write their journals in Turkish.

The topic of focus for the journal entry for each week was determined by the researcher before the training based on the phase of the self-regulatory cycle. Students were asked to reflect on their current study habits in the first three journal entries. The focus of the first journal entry was students' general study habits. (i.e., the factors that make it easy for them to study effectively and succeed). The topic of the second journal entry was more specific; students were expected to reflect on their current time management skills. The third journal entry focused on whether students set any academic goals. Starting from the fourth journal entry, students were asked to reflect on their implementation of self-regulatory strategies throughout the training process. For example, in the fourth journal entry, having analyzed their self-monitoring forms and identified their deficiencies and possible reasons for them, students were expected to set goals and plan the strategy(ies) they were going to implement to overcome these deficiencies. In the fifth and sixth journal entries, they elaborated on their implementation of strategies, monitoring their effectiveness and appropriateness for their needs and goals, and adjustments, changes, or additions they made when necessary. The focus of the seventh journal entry was the evaluation of the whole SRL training procedure, its effects on students' learning outcomes, and other improvements students made throughout the self-regulatory training process. Students' reflections in their journal entries also provided thick, rich description of insights with regard to the impact of the training on their self-regulation and learning.Guiding questions for the journal entries can be seen in Appendix H.

3. 6. 6. Self-efficacy and performance score graphs

Literature reveals that prompting students to keep records influence their learning, motivation and self-efficacy (Zimmerman, 1989a). Therefore, students were asked to keep regular records of their performances at homework questions and quizzes. Each student had two graphs, (i.e., one for homework and one for quizzes) in which they recorded their self-efficacy ratings and actual performance scores for each week. These graphs were important visual tools which helped students to monitor their academic progress and self-efficacy ratings and the relationship between the two throughout the training process. Therefore, by comparing self-

efficacy ratings with performance scores, students were able to see the possible inaccuracies in self-judgment, which guided students for more realistic self-monitoring for the following study periods. Sample graphs for quizzes and homework are presented at Appendix I and J respectively.

3. 6. 7. Training Evaluation Form

In addition to the changes in strategy use, another aim of the study was to evaluate the effects of the training in terms of students' perceptions regarding various aspects of learning and study habits. In that sense, training evaluation form was administered after the training in order to answer the fourth research question. The form included 18 items on a 5-point Likert scale that aimed to gauge the students' perceptions regarding the effectiveness of the training.

Cronbach's Alpha coefficient for the training evaluation form was found to be 0.84; which means that the instrument was reliable. The mean of the items was 4.37. Table 4 displays the reliability results of the training evaluation form and the mean of the items.

Table 4- Reliability statistics of the training evaluation form

Cronbach's Alpha	Mean	Number of items
.843	4.371	18

Students were also asked to express whether the training helped them to improve their studies. If they thought it did, they were asked to choose the appropriate options provided, such as being more organized, getting higher grades, feeling more confident, becoming a better student, and being aware of why they succeed/fail. Finally, they were asked to rate the overall effectiveness of the training for their academic development out of 100. The training evaluation form is displayed in Appendix K.

3. 7. Data collection procedure

This part of the study gives general information about data collection procedure in general, followed the timeline of the training and data collection procedure week by week.

Data collection for the study was conducted in four phases. The first phase included the quantitative data collected through the questionnaire before the SRL training (i.e., referred to as 'pre-training questionnaire' throughout the study). The second phase included qualitative data derived from the weekly reflective journals students kept throughout the training process. The third phase consisted of administration of the questionnaire after the training (i.e., referred to as 'post-training questionnaire' throughout the study), followed by the administration of training evaluation form.

Official permissions were obtained from the ethical committee. Participants were informed about the purpose of the study without too much detail and consent forms were collected. Students were explained that participation was on a voluntary basis and that their responses would only be used for research purposes and kept strictly confidential.

Data collection was conducted by the researcher. The researcher was present at every stage of the data collection process; when administering the questionnaires, designing and teaching the course, planning and conducting the training, and collecting and assessing homework, quizzes, and journals. The researcher made herself available to participants at all times in case they needed scaffolding or feedback outside the classroom.

3. 7. 1. Timeline of data collection procedure

The procedure followed during the data collection, including the training will be presented. Table 5 displays the timeline, followed by more detailed description of the procedure week by week.

Table 5- Timeline of the training and data collection procedure

Week	Phase in the model (Zimmerman et al., 1996)	Procedure followed
1	Introduction	• Pre-training questionnaire • Introduction of the SRL terms & documents of the training (i.e., self-monitoring forms, graphs, journals, etc.) • Explanation of the requirements of the course including the training • Assigning the topic of Journal entry 1 (i.e., current study habits)
2		• Discussion of current study habits • Quiz 1 • Assigning Homework Questions 1 • Assigning the topic of Journal 2 (i.e., current time-management strategies)
3	Self-evaluation and monitoring	• Discussion of current time-management strategies • Answering Homework Questions 1 • Quiz 2 • Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph • Assigning the topic of Journal 3 (i.e., reflecting on whether they set goals)

Table 5 continued

4	Goal-setting and strategic planning	• Discussion on goals & strategic plans • Answering Homework Questions 2 • Quiz 3 • Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph • Assigning the topic of Journal 4 (i.e., reflections regarding setting a goal to overcome the problems they face and choosing a strategy to achieve their goal)
5	Strategy implemantation and monitoring	• Discussion on students' selected strategies and reasons for selecting that particular strategy and their implementation of it. • Answering Homework Questions 3 • Quiz 4 • Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph • Assigning the topic of Journal 5 (i.e., reflections on the implementation of the strategy and its effectiveness)
6		• Discussion on the implementation of the strategy, to what extent it is appropriate and effective. • Answering Homework Questions 4 • Quiz 5 • Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph • Assigning the topic of Journal 6 (i.e., reflections on the implementation of the strategy and its effectiveness)

Table 5 continued

7	Strategic outcome monitoring	• Discussion on the effectiveness of the strategy implementation and any modifications made. • Answering Homework Questions 5 • Quiz 6 • Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph • Assigning the topic of Journal 7 (i.e., evaluation of the training; the extent to which the self-regulatory training contributed to students' studies and in what ways)

Week 1- Introduction of SRL

The first step of the data collection procedure was the pre-training questionnaire. The questionnaire was administered the second week of the semester during the class hour, as most students were absent the first week. The researcher had planned to distibute the second sheet of the questionnaire the following week to avoid tiredness or boredom; however, as the students stated that they were not tired or bored and could fill out the second form, both forms were completed consecutively. The questionnaire was distributed before the training so as to explore the students' reported use of self-regulatory strategies before the training.

The researcher was present while students were filling out the questionnaire to make explanations if necessary or answer students' possible questions. Although students were not given a time limit to complete the questionnaire, most students completed it in approximately 15 minutes.

After the questionnaires were collected, students were introduced the key terms related to SRL, such as self-monitoring and self-efficacy and were informed about the training process and its requirements. At the end of the session, students were given the topic for their first journal entry, which was related to their current study habits. While reflecting on their study habits, they were expected to elaborate on when, what time, where, how, how frequently, with whom they generally study,

factors that promote their learning, the problems they face during their learning processes, and their suggestions to solve these problems.

Week 2- Self-evaluation and monitoring

At the beginning of the second session, students were invited first to a group and then a whole-class discussion concerning how they perceived the strengths and weaknesses of their study behaviors and strategies they used to learn better. During the discussion, students and the researcher negotiated on the fact that the main reason for the difficulties and failures students were facing was the lack of effective planning and organization for study, which verified the need for the self-regulatory training. After the content was covered, the researcher made sure that all students had given a self-efficacy rating for that week's quiz (quiz 1). At the end of the session, the quiz was administered, the homework questions for the next chapter were assigned, and the topic of the next week's journal entry was provided. In their second journal entry, the students were to discuss how they managed their study time and how these techniques affected their learning and success.

Week 3- Self-evaluation and monitoring continued

After discussing how they planned and managed their study time and covering the content of the chapter, students checked their self-efficacy ratings for homework questions and the quiz, and recorded them on their graphs. After that, the teacher distributed last week's quizzes (quiz 1) for the students to grade their responses based on the whole-class discussion of the answers and to record the quiz score in the quiz graph. Next, homework questions were answered with the whole class; the students assessed their own work and gave themselves a grade from 1 to 10; 1 point for each correct answer. Students' rating their answers is a crucial method for self-judgment in Zimmerman et al.'s (1996) model. After students recorded their actual scores on the homework graph, quiz 2 was administered. Afterwards, quiz questions were answered, and students recorded their second quiz scores on their graphs. Finally, students were provided with their journal topic, which was regarding the second step in the self-regulatory cycle: goal-setting. In the journal entry,

students were to reflect on their current goal-setting behaviors (i.e., whether they set goals to manage their studies and if so, how frequently). In addition, for the following week, they were to examine their time-monitoring forms, their self-efficacy ratings and actual scores for homework questions and quizzes, identify their deficiencies, and set goals to overcome these deficiencies. In their journal entries, they were expected to elaborate on their deficiencies and goal, reflecting on their expectations as to how this particular goal would solve the problem. While setting goals in order to overcome the weaknesses they identified during self-evaluation, they made connections between their goals and the course content, which made the process more meaningful.

Week 4- Goal-setting and strategic planning

The session started with a short presentation by the researcher about the significance of setting goals to achieve success. Afterwards, students worked with their peers in small groups to analyze and evaluate the study context data in their self-monitoring forms (i.e., time, amount of time, place, and with whom they studied, and whether there were distractions in the study context), self-efficacy ratings, homework and quiz scores, link variations between them, and identify specific problems that should be solved. The aim was for students to self-evaluate their current study habits, discover areas of deficiency and set process goals to overcome the problems. Students also discussed the goals that they had set and explained in their journal entry with their peers, exchanged ideas and made modifications in their goals if necessary. In addition, they were to plan strategies to achieve their goals and suggest strategies to each other regarding how they could improve their study procedures. During strategic planning, they needed to consider their deficiencies and goals so that they could choose the strategy(ies) that would best meet their needs and help them achieve their goals.

After the group discussion, students were encouraged to share their experiences of goal-setting as well as interesting findings from their discussions that could guide other students during their strategic planning phase. Students were reminded that they were supposed to strictly implement the strategy(ies) they had

selected during their studies throughout the week, monitor the effectiveness of their implementataion of the new strategy, and reflect on how the implementation was affecting their studies in their journals.

After the whole-class discussion, the content was covered, questions of homework 2 were answered, and students recorded their homework scores on their graphs. Next, quiz 3 was administered, but as there was no time left to check the answers, the teacher graded the quizzes after class. The class finished with the researcher's provision of the topic of the next journal entry, which was regarding the students' goal and strategic planning, and how effectively they were employing the strategy.

Week 5- Strategy implementation and monitoring

After the content was covered, homework questions 3 were answered and grades were recorded on the graphs. Then quiz 4 was implemented, quiz questions were answered during a whole-class discussion, and students were given time to record their scores on their graphs. Next, students shared their experiences during the implementation of the strategy(ies) in small groups, evaluated their self-monitoring forms, self-efficacy ratings and performance scores, and compared the effectiveness of their strategy with their peers'. For their next journal entry, they were asked to reflect on their experiences and feelings during their monitoring of strategy implementation. They were to elaborate every single detail (e.g., how they felt about how the strategy worked) and mention modifications they had made.

Week 6- Strategy implementation and monitoring continued

On week 6, students were to continue the procedures that they carried out at week 5 so that they could apply the strategies they had chosen for an extended period of time, monitor their effectiveness, evaluate accurately, and make necessary refinements. During class, students discussed their strategy implementation, how it affected their learning, self-efficacy, and performance scores, and to what extent it helped them achieve their goals. In addition, they explained the modifications they

had made in their implementation if there were any. These modifications might be considered as examples to inspire primarily adaptive inferences, thereby encouraging advantageous forms of self-reactions (Stoeger, 2008). Modifications in strategies is important because "self-regulated individuals must continuously adjust their goals and choice of strategies" (Zimmerman, 2000, p.17). For their next journal, students were to monitor, evaluate and reflect on their strategy implementation.

Week 7- Strategic outcome monitoring

This week was the final week of the training. The content was covered, homework questions were answered, and students recorded their grades on their graphs. After the administration of the quiz (Quiz 6), quiz questions were also answered and grades were recorded on the graphs. Then students were involved in group discussions to evaluate the outcomes of the strategy they had been implementing as well as the whole training process based on the data on their self-monitoring forms, graphs (i.e., homework and quiz scores), and the extent to which they had achieved their goals. Their final journal entry was also regarding strategic outcome monitoring; they were asked to evaluate the outcomes of their strategy implementation besides the whole training process.

3. 8. Data Analysis Procedures

In mixed methods research, data analysis occurs both within the quantitative (i.e., descr,ptive and inferential numeric analysis) and qualitative (i.e., description and thematic text) approaches (Creswell, 2009; Creswell & Plano Clark, 2011). Researchers should not only perform quantitative analyses involving numerical rates of occurrence, but also qualitative analysis of the nature of the reported strategies, as it seems to be more appropriate to investigate the intervention effects (Vandevelde et al., 2011). In this study, analysis of the data was conducted in two phases and results were reported accordingly. Because quantitative and qualitative data were collected sequentially, they were analyzed in different phases and connected, rather than merged (Creswell & Plano Clark, 2011).

3. 8. 1. Analysis of Quantitative Data

Quantitative data from questionniares and training evaluation forms were prepared and organized (Creswell, 2008). Data were coded by assigning numeric values as a preparation for analysis and analyzed using the Statistical Packages for Social Sciences(SPSS) (Creswell & Plano Clark, 2011). Both descriptive and inferential statistics were used to analyze the data.

3. 8. 1. 1. Descriptive Statistics

Descriptive analyses were conducted to explore the questionnaire data to answer the first and second research questions, which sought to identify the strategies students used before, during, and after the training. The same procedure was conducted with the training evaluation forms to answer the fourth research question, which sought an answer to students' perceptions of the effectiveness of the training. In order to answer the third research question and explore the extent to which the training process related to students' awareness and use of strategies, the frequency of strategies in the first three journal entries (which indicated the students' use of the strategies before the guidance of the training) and the last four journal entries (in which students reflected on the cyclical steps of the SRL model) were compared. Descriptive statistics yielded the mean, range, and standard deviation of each item. Items with the highest means were identified as the ones that were reportedly most frequently used.

3. 8. 1. 2. Data Transformation

In addition, to determine the frequency of SRL strategies students reported using before and during the training, the qualitative data from the journals were quantified. Dealing with qualitative data quantitatively is a long and well-developed tradition (Miles & Huberman, 1994). The quantification involved counting the number of times the qualitative themes derived from journal entries occurred in the text data (Creswell, 2009). In other words, the results of preliminary coding were used for quantitative analysis; data belonging to each category were assembled, and

frequency of each code was counted (Watling, 2002), and percentage of each code over the total was calculated. In this way, qualitative data were transformed into quantitative data, which enabled the researcher to compare the qualitative data with quantitative results at the interpretation level. The codes and frequencies of the reportedly used strategies before the training answered the first research question and ones during the training process answered the second research question.

3. 8. 1. 3. Paired sample t-test

Paired sample t-test is used in a situation in which repeated measures are obtained at *t* time points from each participant to determine whether the distribution of the response is changing over time (Davis, 2002). In other words, a paired samples t-test is used when collecting questionnaire data or testing the same people twice. In the present study, the same group of students completed questionnaires before (Time 1- pre-training questionnaire) and after the training (Time 2- post-training questionnaire). The aim was to investigate the possible changes in students' reported SRL strategy use throughout the training to arrive at a conclusion regarding the relationship between the SRL strategy use and SRL training. To this end, students' responses to each strategy on the 7-point Likert scale were grouped to form 12 SRL categories.The SRL categories that the individual strategies belonged to were goal-setting (GS), time management (TM), metacognitive regulation (MET), cognitive strategies (COG), effort regulation (EFF), environmental structuring (ENV), help-seeking (HS), self-evaluation (S_EVAL), self-efficacy (SE), attribution (ATTR), test anxiety (ANX), and peer-learning (PL). First, the means of these SRL categories before and after the training were compared to observe whether there was a statistically significant difference between Time 1 and Time 2 for these categories. Afterwards, in order to identify whether there was a significant difference between students' responses to individual SRL strategies before and after the training, t-test was computed to each specific strategy.

3. 8. 1. 4. Repeated Measures ANOVA

In order to answer the fifth research question, which addressed the relationship between the SRL training and students' academic achievement, quiz scores were analyzed through repeated measures ANOVA. The aim was to investigate whether there was a significant difference between the scores of quizzes which were administered in regular intervals. In repeated measures ANOVA, the same individuals participate in all treatments and are measured on a number of occasions corresponding to each treatment level (Girden, 1992). The researcher compares the group's performance under one treatment with its performance under another treatment, which means that each student becomes its own control (Creswell, 2008). The goal of the analysis was to determine whether distribution of the responses is changing over time (Davis, 2002). Therefore, the variations in quiz scores were assessed for differences at different times throughout the SRL training.

The advantage of measuring the same individuals at different times is that differences in post-treatment measures cannot be attributed to individual characteristics such as motivation or intelligence (Girden, 1992). In other words, equivalent pre-treatment measures are not a matter of concern because each individual serves as his/her own control. In that sense, this analysis method is not affected by internal validity threats related to comparing groups (Creswell, 2008). Another advantage of repated measures is that because the same individuals can take part in all conditions of the study, small number of individuals might be recruited, each measured repeatedly (Girden, 1992).

3. 8. 2. Analysis of Qualitative Data

Research accounts of journals (diaries) increasingly focus more on using qualitative and quantitative analysis of diary data complementarily (Morrison, 2002). Similarly, in this study, in order to identify the strategies students reported using before and during the training process and to derive the frequencies of the reported use of these strategies, journal data were analyzed both quantitatively and qualitatively. Data were analyzed qualitatively in order to arrive at a rich and in-

depth description of students' experiences and reflections throughout the SRL training. The research questions of the study were used as a guide.

First, raw data gathered through students' weekly journal entries were prepared for analysis by compiling and organizing them for review in a way that each student had a set of entries. Organization of qualitative data is very important due to the large amount of information gathered throughout the study (Creswell, 2008). Second, data were read through and reviewed to obtain a general understandingof the data. Creswell and Plano Clark (2011) suggest that writing memos or notes (i.e., short phrases or ideas) in the margins is an important first step in forming broader categories of information, such as codes or themes. Therefore, categories/labels were generated of the journal entries beside each paragraph during reading. Third, detailed analysis was begun with a coding process. Coding refers to "taking raw data and raising it to a conceptual level . . . mining the data, digging beneath the surface to discover the hidden treasures contained within data" (Corbin & Strauss, 2008). Creswell and Plano Clark (2011, p. 208) maintain that coding, which refers to "the process of grouping evidence and labeling ideas so that they reflect increasingly broader perspectives", is the core feature of qualitative data analysis process. Data were analyzed inductively; therefore, they were not precoded. As stated by Creswell (2009), sentences indicating self-regulatory student behaviors were identified and segmented into categories by dividing the text into small units. Afterwards, these categories were assigned a label (i.e., code), and the codes were written next to the appropriate segment of the text (Creswell, 2009). In brief, students' statements were dissected meaningfully to arrive at codes, which refer to labels for assigning units of meaning to the descriptive data (Miles & Huberman, 1994). The codes were developed based on the merging information collected by the participants; therefore, the labels for the codes came from the exact words of the participants (i.e., in vivo coding) and reflected the most descriptive wording for the topics (Creswell, 2009). In vivo codes, which refer to the actual words and phrases repeatedly used by participants (Corbin & Strauss, 2008; Miles & Huberman, 1994), are good leads as they generally emphasize regularities in the setting (Miles & Huberman, 1994). Finally, to reduce the number of categories, the codes related to

each other were grouped into general themes and patterns that run across the data for regularly occurring phrases regarding the actual experiences of the participants (Creswell, 2009; Creswell & Plano Clark, 2011; Maxwell, 2013; Merriam, 2002) (i.e., specific strategies students used, example situations they elaborated in journal entries, etc.). For example, a student's statement that s/he has been studying in the mornings was coded as 'ST MORN', and studying 3 hours a week was coded as 'ST 3/w'. As these two codes were related and could be combined into a more general theme, they were labeled as ST REG, referring to studying regularly. As the data were coded by hand, short labels were assigned to the codes, as suggested by Miles and Huberman (1994).

3. 9. Validity and reliability

Validity as an important issue in research design refers to the "correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account (Maxwell; 2013, p. 122). It serves the aim of checking the quality of the data, results, and interpretation (Creswell & Plano Clark, 2011).

Unlike quantitative researchers, qualitative researchers can rarely control the validity threats during planning the research; they have to use evidence during the research to make the alternative hypotheses implausible (Maxwell, 2013). One such threat is the reactivity, which refers to the effect of the researcher on the setting and participants (Maxwell, 2013). However, although trying to "control for" the effect of the researcher is appropriate to a quantitative approach, the goal in a qualitative study is not to eliminate this affect, but to understand and use it productively (Maxwell, 2013, p.124). Nevertheless, to minimize this threat and incrase the credibility of the findings, the researcher stayed as long on-site as possible and made sure her purpose is clear to the participants, as suggested by Maxwell (2013) and Miles and Huberman (1994). The sustained presence of the researcher at the research setting promotes the feeling of trust between the researcher and participants (Miles & Huberman, 1994).

In addition, triangulation, which refers to the process of collecting and converging different types of data on the same phenomenon, serves to increase the validity and credibility of results (Creswell, 2008; Creswell & Plano Clark, 2011; Fontana & Frey, 1994; Maxwell, 2013). In this study, data were triangulated through the use of different data collection methods and types of data. Data were collected unobtrusively through both weekly journals, homework, and quizzes throughout the training, questionnaires before and after the training, and training evaluation forms after the training. In addition, as suggested by Maxwell (2013), numbers (i.e., quantitative data) were used in addition to qualitative data, which also helps minimize the validity threats.

Finally, in order to negate any bias that the researcher might have brought into coding, the researcher asked a colleague to cross-check the codes, which Creswell (2009) calls intercoder agreement or cross-checking. Miles and Huberman (1994) call this process check-coding and state that it not only helps definitional clarity but also is a good means to check reliability. This procedure involved checking whether different coders agree on codes used for the same phrases in the text. The researcher and the inter-coder discussed the codes to assess the intercoder agreement. The level of intercoder agreement was found to be 88%.

3. 10. Organization of the Results Chapter

Chapter 4 presents the findings of the study, which will be explained based on the research questions. As data from different sources will be mixed at the interpretation level in the discussion section, results of different data collection tools will be presented separately. First, students' reported use of SRL strategies before the training will be presented, followed by the ones used during and after the training. Next, the effects of the training on students' awareness and strategy use and their perceptions of how the training influenced their learning will be discussed respectively. Finally, the extent to which the training procedure influenced students' academic achievement will be examined through the analysis of the quiz scores.

CHAPTER 4

RESULTS

4. 1. Overview of the Chapter

In this chapter, the results of the study will be presented. Theorganization of the chapter is based on the research questions of the study. The SRL strategies discussed are the ones that students *reportedly* used; however, phrases such as 'strategies students used/implemented' were used while discussing the results to avoid repetition.

The first research question sought to examine the self-regulatory strategies students were aware of or used before the training. To answer this question, self-regulatory strategies students reported using in the questionnaire before the training will be presented along with their means and standard deviations. In order to explore the students' use of SRL strategies in more detail, strategies that students reported using in their first three journal entries will be presented with their frequencies and percentages over the total number of strategies. The same procedure will be carried out to address the second research question, which sought to determine self-regulatory strategies students reported using both during the training via journal entries and after the training via post-training questionnaire. Third, the relationship between the training and students' awareness and reported strategy use will be discussed based on the results of the paired samples t-test and changes in frequencies of the reported strategy use in journal entries, and students' verbal evaluations in their journal entries. The fourth research question, which aimed to investigate students' perceptions of the effectivenesss of the training procedure, was addressed through the analysis of the data gathered from training evaluation forms. Finally, the extent to which the training influenced students' academic achievement will be discussed based on the quiz scores students earned throughout the training.

4. 2. Strategies students most frequently used before the training

This part of the study discusses the strategies students reported using in the questionnaire they completed before the training and in their first three journal entries, which were written at the beginning of their implementation of the self-regulatory cycle.

4. 2. 1. Strategies students most frequently reported using in pre-training questionnaire

Table 6 shows self-regulatory strategies reported being most frequently used in the pre-training questionnaire. These are the twenty items with the highest mean scores in the 7-point Likert scale, ranging from 1 (never) to 7 (always). In addition, the mean and standard deviation of each strategy are presented.

Table 6- Most frequently used strategies as reported in pre-training questionnaire, their means and standard deviations

Item #	Strategy	Mean	SD
I44	I ask a classmate about homework assigned when I miss a class.	6.65	.72
I43	I take my own notes in class.	6.58	.77
I100	I find time to review my notes or readings before a test.	6.55	.73
I99	When I take a test, I think about items that I cannot answer.	6.51	.57
I29	I isolate myself from noisy places while studying.	6.44	.90
I30	I switch off the TV to concentrate on my studies.	6.20	1.56
I85	I am open to feedback to improve my work.	6.13	.69
I91	If I fail a course, I try to find out the source of my error and adapt my performance.	6.06	.88
I52	If I am confronted with a difficult reading text, I slow down my pace.	6.03	1.40
I26	I try to find a place where I can study the most efficiently.	6.00	1.36
I24	I choose the location where I study to avoid too much distraction.	6.00	1.03
I9	I make plans for improvement when I do poorly.	6.00	1.41
I73	When I become confused about something I am reading, I go back and try to figure it out.	5.93	1.30
I86	I am open to changes based on the feedback I receive.	5.89	1.20
I47	When studying, I often try to explain the material to a classmate or a friend.	5.89	1.17
I28	I avoid watching TV if I have an assignment.	5.89	1.31
I27	I choose a time with few distractions for studying for my courses.	5.89	1.31
I79	I am certain I can master the skills being taught.	5.86	.74
I98	When I take a test, I think about how poorly I am doing.	5.82	1.16
I25	I find a comfortable place to study.	5.82	1.48

Analysis of the strategies displayed in the table reveals that students mostly used resource management strategies (i.e., environmental structuring, time management, help-seeking, and peer-learning). In fact, 11 (55%) out of these 20 strategies are resource management strategies. More specifically, strategies with highest means are related to environmental structuring (I24, I25, I26, I27, I28, I29, I30), metacognitive regulation (I9, I52, I73), test anxiety (I98, I99), self-evaluation (I85, I86), help-seeking (I43, I44), management of study time (I100), self-efficacy for learning and performance (I79), peer-learning (I47), and attributing success to effort or strategy use (I91). Among those strategies, ones that were most frequently used are related to environmental structuring (35%) and metacognitive regulation (15%). Figure 6 displays the percentage of the reported use of each strategy. Strategies related to environmental structuring were regarding avoiding noise (I29), avoiding distractions (I24, I27, I28, I30), and organizing an efficient study area (I25, I26).

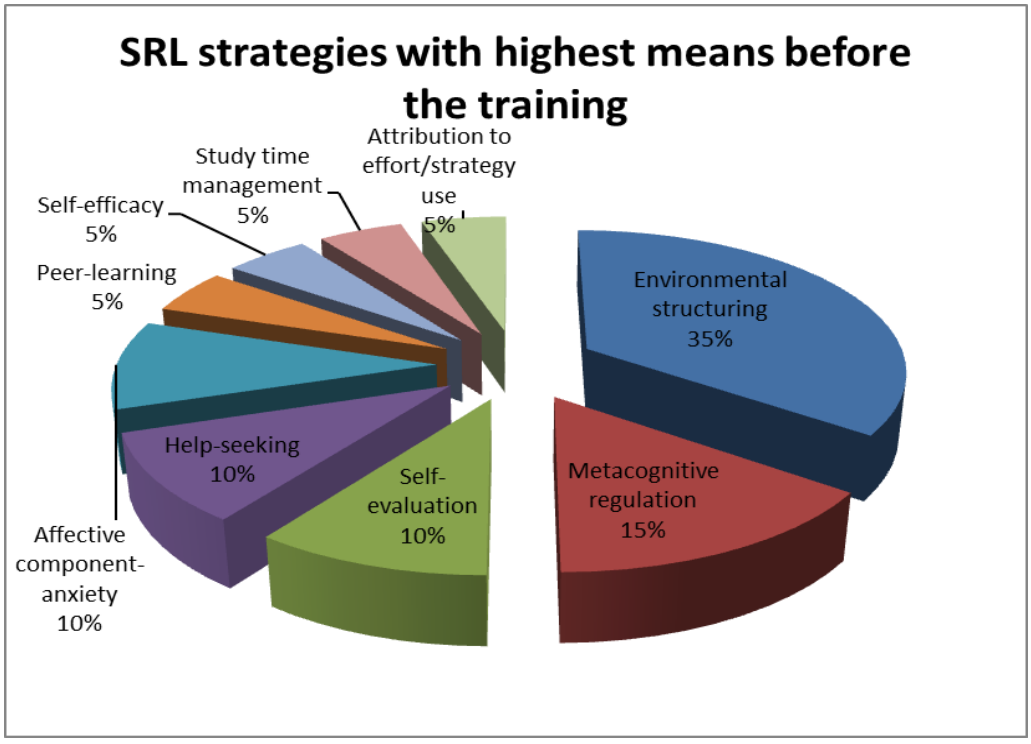

Figure 6- Percentage of each strategy before the training

4. 2. 2. Strategies students most frequently reported using in initial journals

Table 7 presents strategies students reported using in their journal entries at the beginning of the training. The results are based on students' first three journal entries in which they reflected on their study habits to be successful learners, their ways of managing their study time, and whether they set academic goals.

Table 7- Most frequently used strategies as reported in initial journals, their frequencies, and percentages

Strategies students reported using before the training	**Frequency of the strategy**	**Percentage of the strategy over the total**
Setting realistic goals	29	16.2%
Note-taking	20	11.1%
Time management	17	10%
Revision of the material	14	7.7%
Regular study periods	13	7.2%
Avoiding noise	13	7.2%
No/Poor time management	11	6.1%
Having no study plan	10	5.5%
Having no goals	10	5.5%
Having a study plan	10	5.5%
Being prepared for class	9	5%
Studying with peers	7	3.9%
Studying alone	6	3.3%
Self-rewarding success	5	2.7%
Avoiding distractions	3	1.6%
Prioritizing tasks	2	1.1%

Frequency counts of the strategies in the first three journals revealed surprising results in that *setting goals* and *managing their study time* were among the most frequently reported strategies. As an example, P5 stated in her third journal that she set goals in the past and experienced the positive contributions of it: "When I started high school, I set goals to pass the university entrance exam. My goal while preparing for the exam was to make fewer mistakes in tests, and I enjoyed the benefit of this in the exams I took". However, although she was aware of the benefits of goal-setting and having a study plan, she failed to continue implementing the strategies: "Although I have promised myself at the beginning of each semester since I started studying at university that I would study regularly within a study plan, I have not been able to do that so far" (P5).

In addition, students considered time management as an important resource management strategy. On the other hand, the results are interesting in that although the frequencies of goal-setting (16.2%) and effective management of study time (10%) are among the highest, the frequencies of having no goals (5.5%) and poor time management (6.1%) are rather high, too. This might be because students actually knew that they needed to set goals or manage their time effectively, but they failed to do so. P21's comment in her second journal entry is a very interesting example to this:

> I have problems managing my time effectively when studying. I can be distracted very easily. I take breaks for a few minutes. Sometimes I sit at the table studying for 2 hours, and when I look back, I realize all I have done is that I have read two or three pages. If I can manage my time effectively, I will do my other homework and attend social activities, too. However, because I cannot, I have difficulty finishing my homework. I think this is my biggest problem and barrier on the path for success.

The results also indicate that *note-taking* emerged as a very common strategy students relied on before the training. Another high-frequency strategy was *having regular study periods*. It is interesting to observe that some students (e.g., P14) became aware of the importance of having regular study periods early in the training process by comparing self-efficacy ratings with actual quiz grades. P14 reported:

“My self-efficacy ratings are higher than my quiz grades. It seems like I am over-confident. I now realize that being confident is not enough, one needs to study, and study systematically within a study plan. I will be more careful about studying consistently in the following weeks” (P14).

Negative statements indicating that students did not use a particular strategy, such as “I do not have regular study periods” or “I never set goals” were categorized separately to gauge the improvement of the use of the strategies more accurately, as these reports revealed that students did*not* use the strategies. A very interesting reflection by P4 indicates the prejudice students might have against being able to adhere to the study plan: “I do not have a study plan . . . one must have a study plan to be more effective. In fact, planning is a must in all cases. However, although people stick to the plan for a few days, they start diverting from the plan; adhering to the plan becomes difficult”. It seems like because students did not know how to implement the necessary strategies effectively in a self-regulatory manner or monitor and evaluate the effectiveness of their strategy use, they did not know the degree to which the strategies contributed to their learning. As a result, they quit using the study plan, believing that they “cannot stick to the plan” or “do not abide by the plan”, and thus “do not like studying based on a plan” and only set a goal if they are “in real trouble” (P19).

The comparison of the strategies students reported using most frequently in questionnaires and their journal entries revealed a pattern involving both overlaps and differences. For example, in both pre-training questionnaire and journal entries, note-taking stood out as the second most frequently used strategy. Another commonality is the management of study time. Although time management was not among the most popular strategies in the questionnaire, it could be stated that the students were at least aware of its importance. Moreover, environmental structuring, which is another resource management strategy, was reportedly used very frequently by the students, as indicated both in the questionnaire (e.g., avoiding noise or other distractors, avoiding TV, finding a place to study efficiently) and journal entries (e.g., avoiding noise, studying alone, avoiding distractions). Finally, students

reported making frequent use of their peers as sources of information (i.e., help-seeking and peer-learning) both in questionnaires and journal entries, implying that they perceived seeking help and leaning from peers as strategies that promote learning.

On the other hand, although students reported setting goals for their learning, revising the material, having a study plan, having regular study periods, and self-rewarding in their journal entries, items related to these strategies were not rated as frequently implemented in the questionnaire. One reason might be the time difference between the two data collection procedures. The questionnaire data reflect students' responses at the first week of the training, whereas the journal data show students' reflections during the first three weeks. Therefore, even the first weeks of the training might have raised students' awareness regarding these strategies, and they might have started using them. Another reason might be that guiding questions for journal entries might have helped students reflect more deeply. Alternatively, as students were writing their journal entries at home, they might have had more time to think and arrive at sounder reflections when writing journals than when they were rating the items in the questionnaire.

4. 3. Strategies students most frequently used during and after the training

This part of the study answers the second research question, which sought to determine strategies most frequently used throughout and after the training process.

4. 3. 1. Strategies students most frequently reported using in post-training questionnaire

Table 8 shows self-regulatory strategies most frequently reported in the post-training questionnaire. These are the items that achieved the twenty highest mean scores on the 7-point Likert scale, ranging from 1 (never) to 7 (always). In addition, the mean and the standard deviation of each strategy are presented.

Table 8- Most frequently used strategies as reported in post-training questionnaire, their means and standard deviations

Item #	Strategy	Mean	SD
I100	I find time to review my notes or readings before a test.	6.55	.68
I44	I ask a classmate about homework assigned when I miss a class.	6.55	.68
I43	I take my own notes in class.	6.37	.86
I30	I switch off the TV to concentrate on my studies.	6.37	1.11
I29	I isolate myself from noisy places while studying.	6.34	1.04
I99	When I take a test I think about items that I can't answer.	6.27	.92
I86	I am open to changes based on the feedback I receive.	6.24	.91
I51	I monitor my speed and time available during an exam.	6.24	.98
I27	I choose a time with few distractions for studying for my courses.	6.24	.68
I84	I cannot study if the room is dark.	6.20	1.49
I52	If I am confronted with a difficult reading text, I slow down my pace.	6.17	.84
I47	When studying, I often try to explain the material to a classmate or a friend.	6.17	.92
I74	When I study, I go through the readings and my class notes and try to find the most important ideas.	6.13	.91
I26	I try to find a place where I can study the most efficiently.	6.13	1.12
I85	I am open to feedback to improve my work.	6.13	1.24
I73	When I become confused about something I am reading, I go back and try to figure it out.	6.10	.72
I24	I choose the location where I study to avoid too much distraction.	6.06	1.09
I87	If I fail a course or cannot learn a material, this is because I have not used the right strategy.	6.03	1.01
I54	When I am reading, I stop once in a while and go over what I have read.	6.03	1.05
I79	I am certain I can master the skills being taught.	6.00	.70

The results are consistent with the results of the pre-training questionnaire. Students used environmental structuring (I24, I26, I27, I29, I30, I84), metacognitive regulation (I51, I52, I54, I73, I74), self-evaluation (I85, I86), help-seeking (I43, I44), management of study time (I100), and peer-learning (I47) most frequently. In addition, items related to test anxiety (I99), attribution of success to strategy use (I87), and self-efficacy (I79) were other high-frequency items. Overall, strategies students most frequently used were related to environmental structuring (30%) and metacognitive regulation (25%). Figure 7 displays the percentage of the reported use of each strategy.

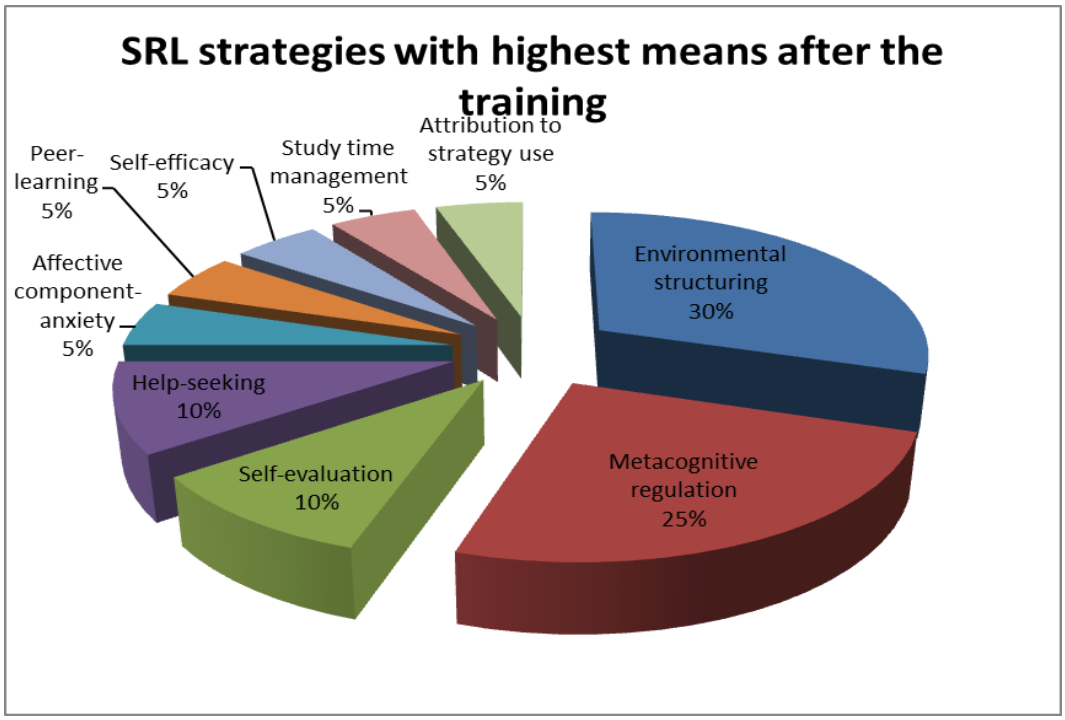

Figure 7- Percentage of each strategy after the training

4. 3. 2. Strategies students most frequently reported using in journals throughout the training

The findings show that students used a variety of self-regulatory strategies during the training to regulate their academic behaviors (622 in total), and the frequency of the strategies increased greatly. Table 9 displays the strategies students reported using during the training, their frequencies, and percentages.

Table 9- Most frequently used strategies as reported in journals throughout, their frequencies, and percentages

Strategies students reported using during training	**Frequency of the strategy**	**Percentage of the strategy over the total**
Regular study periods	130	20.9%
Setting realistic goals	117	18.8%
Revision of the material	77	12.3%
Having a study plan	51	8.1%
Time management	36	5.7%
Self-rewarding success	35	5.6%
Avoiding noise	32	5.1%
Avoiding distractions	32	5.1%
Studying alone	26	4.1%
Studying with peers	24	3.8%
Organizing a regular study area	22	3.5%
Increasing study hours	22	3.5%
Studying in the mornings	13	2%
Prioritizing tasks	5	0.8%

The results are consistent with the results of the journals before the training. The students reported using strategies such as having regular study periods, setting realistic goals, managing study time, revising the material, avoiding noise, having a study plan, studying with peers, studying alone, self-rewarding success, and avoiding distractions.

As indicated in the table, the most commonly used strategy was *having regular study periods* (e.g., studying three days a week or 1 hour a day) with the frequency of 130. For example, P3 states: “I guided myself to study regularly . . . I studied in regular periods . . . My goal is not to procrastinate until the last day”. In addition, within this strategy, students also adopted more specific strategies to make

their studies more effective and efficient, such as *studying in the mornings*, which was suggested 13 times. The students reported that they could focus on the material better and got less distracted in the mornings.

Students' remarks on *setting realistic goals* were also very frequent: 117. They were asked to identify their academic problems by examining their self-monitoring forms, thinking about their study habits and past experiences and to set a goal to solve this problem. Due to the cyclical nature of the self-regulatory model implemented during the training, students frequently referred back to their goal and strategies they had been using to achieve their goal. For example, P5 refers to her previous goal in her fifth journal entry:

> One goal I set in the previous journal entry was to read more deeply rather than superficially to comprehend the content of the material I was reading. Now, I read the content more than once, and I have realized that I understand better. Another goal I set was to study harder. I allocate more time for studying. If I need to study for two hours, I do not quit before two hours. I do not stop before I finish the material.

Another high-frequency strategy preferred by students was sparing time for *revision of the material*, with the frequency of 77. An example extract from the journal entries reveals P3's reflections on the influence of revision: "This week, not leaving my studies until the last day and doing revisions the day before the exam led to an increase in my self-efficacy". As for *having a study plan*, students' frequency of using this strategy was 51. P4 stated in her fourth journal entry that she decided to have a regular study plan: ". . . most importantly, I need to study on a regular basis because without a plan, it is impossible to be successful". This quotation reveals that at least she was aware of her need for a study plan to be successful.

Nineteen students (63.3%) maintained that they could manage their study time effectively or that they believed that *effective time management* was important, with the frequency of 36. For example, P23 elaborated on her use of the time in detail: "because I control the time, I have opportunities to answer the question of how to exploit it more efficiently. For example, knowing that I study three pages in

two hours guides me towards learning how to study efficiently and by setting goals to minimize the time wasted".

Self-rewarding success was another strategy implemented by many students, with the frequency of 35: "When I finished studying, we went to the cinema. I was so happy; I both finished the material I was supposed to study and rewarded myself. I think I can get better results if I go on like that. . . I learned to give rewards to myself depending on my quiz scores." (P22)

Avoiding noise in the study context was reported to be another strategy used by students, with the frequency of 32. Similarly, *avoiding distractionsor learning to say 'no' to distractions*, such as TV, meeting friends or using a mobile phone was considered to be an important strategy to increase the efficiency of the study time, with the same frequency. While regulating their study environment, some students preferred to *study alone* considering that studying alone would make their learning less time-consuming and more efficient, whereas others preferred to *study with peers.*

Another strategy that students used in order to make their studies more effective was *organizing a regular study area*, such as library or private room. Students maintained 22 times that they had determined a regular study area, with frequencies of 9, 8 and 5 for private room, library and study room (in the dorm) respectively. As P14 asserted, "in general, my study context is good. I study at the study room at the same table as usual".

Students also reported *increasing the amount of the study time*, the frequency of which was 22. This finding is worth considering because more students preferred having regular study hours to increasing the amount of study time, believing that studying more frequently rather than studying for long hours would yield better results. P17 stated she would increase her study hours to achieve her goal of getting 10 from the quiz: "The amount of my study was 5h 07 min. and 5h 56 min. for the first two weeks. My next goal is to increase my study hours to six and then to seven hours a week". Finally, one strategy that was not as commonly used as others (frequency: 5) was to *prioritize tasks*, such as doing more important or difficult tasks

earlier in order to have more time to concentrate. the. Interestingly, this strategy was not among the most frequently used strategies in the previous studies, either (Britton & Tesser, 1991; Zimmerman & Martinez-Pons, 1986). The reason for this might be that the students set a single goal and did not feel the need to prioritize, which is generally associated with multiple-goal contexts.

4. 4. The relationship between the training and students' awareness and reported use of SRL strategies

In this part of the study, the relationship between the training and students' awareness and use of SRL strategies will be discussed to address the third research question. To this end, the results of the paired sample t-test will be presented to discuss whether there is a statistically significant difference between the pre and post-training questionnaires. Students' responses to the pre and post-training questionnaires were compared both for each SRL strategy and the category that each strategy belongs to. Moreover, frequencies of the strategies as reported in journal entries before and throughout the training were compared. Finally, students' reflections in their journal entries regarding their SRL strategy use during the training will be incorporated where appropriate.

4. 4. 1. Questionnaire Data

4. 4. 1. 1. Results of paired sample t-test

Paired sample t-test was computed to further investigate the changes in the strategy use for each category and each item throughout the training. Table 10 provides the results of the paired samples t-test for each SRL category, the most important of which is the value that is in the final column of the table (i.e., Sig. (2-tailed) value). This value identifies whether or not the two condition means (i.e., pre-training and post-training questionnaire) are statistically different for each category. The Sig (2-Tailed) value which is greater than 0.05 shows that there is no statistically significant difference between the two conditions. It could then be concluded that the differences between condition means are likely due to change and not likely due to the IV manipulation. On the other hand, the Sig (2-Tailed) value which is less than or equal to 0.05 means that there is a statistically significant difference between the two conditions, indicating that the differences between condition means are not likely due to change and are probably due to the IV manipulation.

As presented in the table below, the results of the paired samples t-test computed for each SRL category indicate statistically significant differences between the students' ratings for metacognitive strategies, cognitive strategies, effort regulation, and self-evaluation before and after the SRL training (0,007<0.05; 0.001<0.05; 0.001<0.05; 0.017<0.05). This means that students' responses to SRL strategies related to these four categories improved to a greater extent than the other categories.

Table10- t-test results for SRL categories

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	GS PRE-GS POST	-,17857	3,59066	,67857	-1,57088	1,21374	-,263	27	,794
Pair 2	TM PRE-TM POST	-2,35714	7,57782	1,43207	-5,29551	,58123	-1,646	27	,111
Pair 3	MET PRE-MET POST	-7,07143	12,80315	2,41957	-12,03597	-2,10689	-2,923	27	**,007**
Pair 4	COG PRE-COG POST	-5,96429	8,11255	1,53313	-9,11000	-2,81857	-3,890	27	**,001**
Pair 5	EFF PRE-EFF POST	-2,07143	2,80117	,52937	-3,15761	-,98525	-3,913	27	**,001**
Pair 6	ENV PRE-ENV POST	-1,71429	4,72861	,89362	-3,54785	,11928	-1,918	27	,066
Pair 7	HS PRE-HS POST	,17857	6,13462	1,15933	-2,20019	2,55733	,154	27	,879

Table 10 continued

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 8	S_EVAL PRE-S_EVAL POST	-4,17857	8,66690	1,63789	-7,53924	-,81790	-2,551	27	**,017**
Pair 9	SE PRE-SE POST	-1,00000	4,65077	,87891	-2,80338	,80338	-1,138	27	,265
Pair 10	ATTR PRE-ATTR POST	-,92857	4,38793	,82924	-2,63003	,77289	-1,120	27	,273
Pair 11	ANX PRE-ANX POST	,60714	1,81229	,34249	-,09559	1,30988	1,773	27	,088
Pair 12	PL PRE-PL POST	-,25000	,75154	,14203	-,54142	,04142	-1,760	27	,090

In order to identify the statistically significant differences between individual SRL strategies, paired sample t-test was also computed for each strategy. The resultsrevealed that the Sig. (2-Tailed) value for the items displayed in Table 11was less than 0.05 (e.g., 0.000 for Pair 10). Therefore, it can be concluded that there are statistically significant differences between the mean scores of these items (e.g., Item 10 and Post-item 10, i.e. Item 10 before and after the training). Figure 8, which follows Table 10, presents the comparison of means of statistically significant items in pre and post-training questionnaire according to paired samples t-test results.

Table 11- Items that are significant according to paired sample t-test results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 10	I10 - I10POST	-1,21429	1,39728	,26406	-1,75609	-,67248	-4,599	27	,000
Pair 11	I11 - I11POST	-,71429	1,65232	,31226	-1,35499	-,07358	-2,287	27	,030
Pair 14	I14 - I14POST	-,92857	1,41234	,26691	-1,47622	-,38092	-3,479	27	,002
Pair 15	I15 - I15POST	-,53571	1,17006	,22112	-,98942	-,08201	-2,423	27	,022
Pair 16	I16 - I16POST	-,89286	1,42307	,26894	-1,44467	-,34105	-3,320	27	,003
Pair 18	I18 - I18POST	-,57143	1,37244	,25937	-1,10361	-,03925	-2,203	27	,036
Pair 20	I20 - I20POST	-,89286	1,59488	,30140	-1,51129	-,27443	-2,962	27	,006

Table 11 continued

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 21	I21 - I21POST	-,92857	1,74119	,32905	-1,60373	-,25341	-2,822	27	,009
Pair 33	I33 - I33POST	-,64286	1,63785	,30952	-1,27795	-,00777	-2,077	27	,047
Pair 58	I58 - I58POST	-,85714	1,40671	,26584	-1,40261	-,31168	-3,224	27	,003
Pair 62	I62 - I62POST	-,67857	1,38921	,26254	-1,21725	-,13989	-2,585	27	,015
Pair 64	I64 - I64POST	-1,07143	1,84448	,34857	-1,78664	-,35621	-3,074	27	,005
Pair 66	I66 - I66POST	-,78571	2,00660	,37921	-1,56379	-,00763	-2,072	27	,048
Pair 70	I70 - I70POST	-,71429	1,80241	,34062	-1,41319	-,01538	-2,097	27	,045

Table 11 continued

Pair 72	I72 - I72POST	-,71429	1,82284	,34448	-1,42111	-,00746	-2,073	27	,048
Pair 75	I75 - I75POST	-1,14286	1,62650	,30738	-1,77355	-,51217	-3,718	27	,001
Pair 84	I84 - I84POST	-1,00000	1,88562	,35635	-1,73117	-,26883	-2,806	27	,009
Pair 87	I87 - I87POST	-,71429	1,78174	,33672	-1,40517	-,02340	-2,121	27	,043

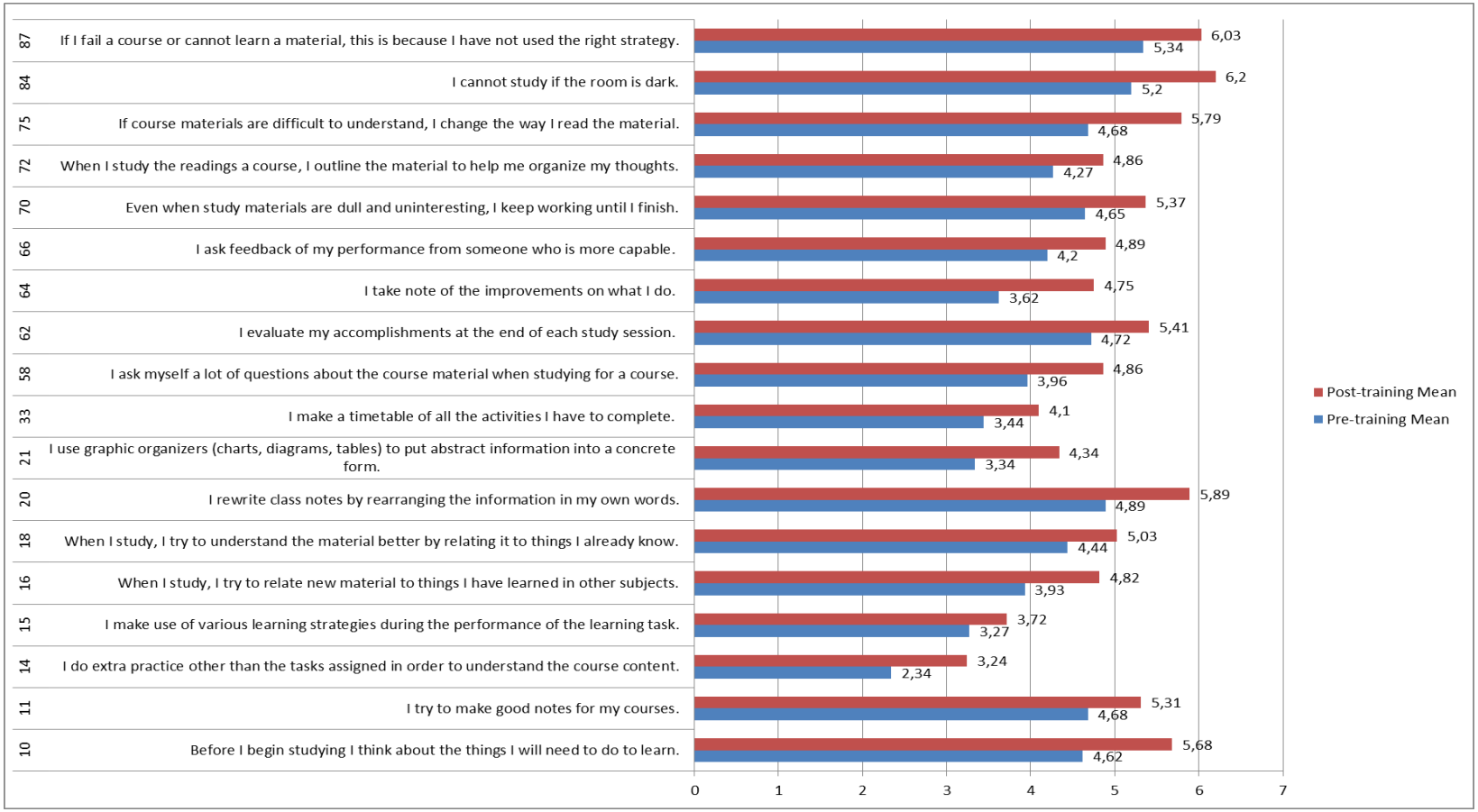

Figure 8- Comparison of means of statistically significant items in pre and post-training questionnaire

4. 4. 1. 2. Strategies that were quitted and adopted in the post-training questionnaire

Comparison of means of the twenty most frequently used strategies reported in questionnaires administered before and after the training reveals interesting results in that students rated 15 of the 20 items most frequently in both questionnaires.On the other hand, 5 items were rated lower than others after the training, which meant that these strategies were not among the most frequent 20 in the post-training questionnaire; instead, five other strategies were rated more highly.

A closer analysis of the items reveals that the items reported only in the pre or post-training questionnaire belonged to the same macro strategies. Table 12 displays these strategies to present a better picture of the changes throughout the training. The three columns on the left display the item number, the macro strategy, and the strategy itself in the pre-training questionnaire and the three columns on the right display their counterparts in the post-training questionnaire.

Table 12- Strategies used only before and only after the training

Strategies reported among the most frequent only before the training (Pre-training questionnaire)			**Strategies reported among the most frequent only after the training (Post-training questionnaire)**		
Item #	**Macro strategy**	**Strategy**	**Item #**	**Macro strategy**	**Strategy**
I9	Metacognitive regulation	I make plans for improvement when I do poorly.	I51	Metacognitive regulation	I monitor my speed and time available during an exam.
I28	Environmental structuring	I avoid watching TV if I have an assignment.	I74	Metacognitive regulation	When I study, I go through the readings and my class notes and try to find the most important ideas.
I25	Environmental structuring	I find a comfortable place to study.	I54	Metacognitive regulation	When I am reading, I stop once in a while and go over what I have read.
I98	Affective component-test anxiety	When I take a test, I think about how poorly I am doing.	I84	Environmental structuring	I cannot study if the room is dark.
I91	Attribution to effort or strategy use	If I fail a course, I try to find out the source of my error and adapt my performance.	I87	Attribution to strategy use	If I fail a course or cannot learn a material, this is because I have not used the right strategy.

In addition to the increase in the means, the table indicates that there was an increase in the number of metacognitive strategies. Two of the newly adopted metacognitive strategies were related to self-monitoring (i.e., I51- 'I monitor my speed and time available during an exam' and I54 - 'When I am reading, I stop once in a while and go over what I have read') and one was related to organization (i.e., I74- 'When I study, I go through the readings and my class notes and try to find the most important ideas').

Another interesting result was in terms of the change in the attribution of success. While I91 in the pre-training questionnaire (i.e., 'If I fail a course, I try to find out the source of my error and adapt my performance') might be interpreted as attribution to both effort and strategy use, I87 in the post-training questionnaire (i.e., 'If I fail a course or cannot learn a material, this is because I have not used the right strategy') indicates a direct attribution to strategy use.

4. 4. 2. Journal Data

The effect of the training as reflected in journal entries will be discussed both by displaying the frequencies of the strategies each student reported using before (second column) and after the training (third column), the percentages of the increase after the training (fourth column), comparison of the percentages in initial journals and journals throughout, and students' quotes regarding their improvement of their use of self-regulatory strategies.

Table 13- Frequencies of strategies used by each student before and during the training and the percentage of increase.

Participants	Total number of strategies used in Journals 1, 2 and 3	Total number of strategies used in Journals 4, 5, 6 and 7	Percentage of increase in the frequency of strategies used
P1	2	9	450%
P2	4	18	450%
P3	9	23	255.5%
P4	4	10	250%
P5	5	8	160%
P6	2	14	700%
P7	3	12	400%
P8	1	9	900%
P9	-	22	2200%
P10	2	7	350%
P11	11	20	181%
P12	-	6	600%
P13	7	23	328.5%
P14	7	20	285.7%
P15	3	13	433.3%
P16	8	44	550%
P17	4	21	525%
P18	6	17	283.3%
P19	-	11	1100%
P20	1	11	1100%
P21	2	17	850%
P22	5	23	460%
P23	8	15	187.5%
P24	2	11	550%
P25	2	28	1400%
P26	1	19	1900%
P27	2	13	650%
P28	6	19	316.6%
P29	6	10	166.6%
P30	-	8	800%

The results displayed in Table 13 indicate that the training increased all students'awareness and the frequency of strategy use to a great extent. The frequencies during the training are much higher than the ones before. Starting from the fourth journal entry, which takes place during the first phase of the training (i.e., self-evaluation and monitoring), students started to use strategies more frequently. The comparison of the strategies reported being used in journals before and during the training reveals similar results. Figure 9 displays the comparison of the frequency of each strategy before and during the training.

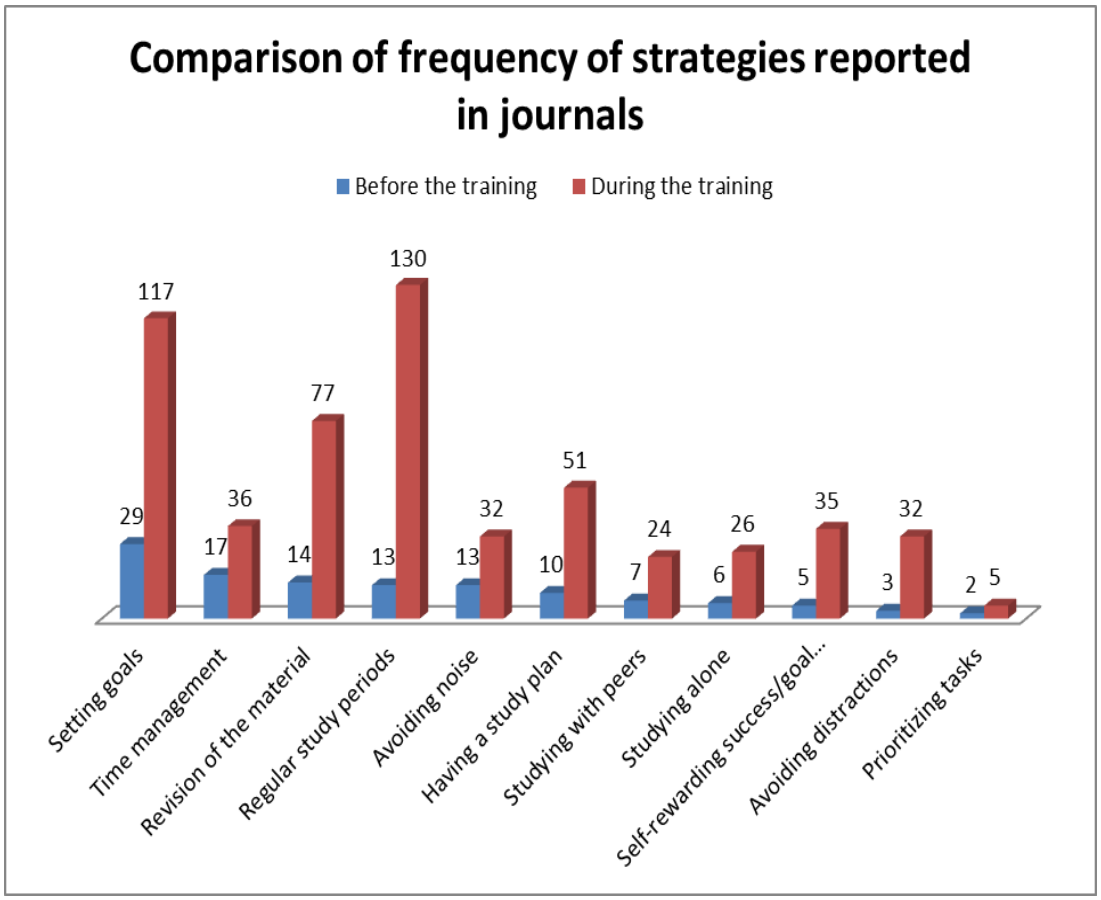

Figure 9- Comparison of the frequency of each strategy before and during the training

As displayed in Figure 9, the strategies reported during the training were consistent with the ones reportedly used before the training, but there was a great increase in their frequency. As an example, the training encouraged the students to set goals, which is a crucial SRL strategy, more frequently and systematically.

Although some students reported to set goals before the training (frequency: 29), others (frequency: 10) asserted that despite the importance of goal-setting, they did not set goals. However, the training proved to increase the frequency of the reported use of goal-setting to a great extent (frequency: 117).

The frequency of scheduling regular study periods has also increased greatly. P18 elaborated on her progress in setting regular study periods: "Considering all the studies I have carried out this semester, the most important improvement, to me, is my progress in being able to study regularly. I used to study only at the last minute, as everyone did, and this training taught me that I can be better and more effective". The perception that everyone studies at the last minute reveals how common procrastinating was among the students. Another student's (P9) remarks regarding studying regularly is also worth considering:

> During the first few weeks, I studied only one or two days before class, and most of the time in the morning of the day of the course, and thus most of the time I was anxious about not being able to cover all the material. Thinking retrospectively, I now think that I was torturing myself. Now, I have realized that I cannot be successful studying like that. Finding an appropriate strategy and implementing it during studies affects success dramatically. Although everyone claims that regular studies increase success, I was not aware of that; going through this training process, I experienced it myself and learned more effectively.

The frequency of the reported management of the study time also increased more than double (from 17 to 36). The students who reported not being able to manage their study time before the training reported at the end that they eventually improved their time management skills. As an example, P23, who stated in her first and second journals that she could not manage her time efficiently but hoped that she could learn ways to do so through the training stated in her fifth and sixth journal entries that she improved her time management techniques. Her evaluation of her improvement in her seventh journal entry is promising: "I am very happy to realize that I do not have time management problems any more. Moreover, I understand

what I read better and more quickly. The material that I study in two hours is not ridiculously little as it used to be; I learned how to use time efficiently".

In addition to the increase in the frequencies of strategy use, another major contribution of the training was students' improvement of their SRL skills by incorporating the cyclic SRL phases into their studies. More specifically, the training guided the students to monitor their study habits, act proactively to identify the problems they had, set academic goals, implement strategies to achieve the goals, and continuously monitor and self-evaluate their implementation and the effectiveness of the strategies. The self-monitoring form was indispensable during this process in that it helped the students visualize the amount and quality of their actual study time outside the classroom, which in turn aroused their awareness of their deficiencies, and helped them monitor their progress. Once they witnessed the positive effects of the strategy implementation, the students continued using and varying their strategies and adopted new strategies, such as organizing a regular study area, increasing study hours, or studying in the mornings. The following quotation demonstrates how the training affected awareness of deficiencies in study habits and increasing self-efficacy, which is consistent with the results of Perels et al. (2005).

> I have become aware of many mistakes I have made so far. The strategies I have applied made me realize that I used to study at night for few hours, which led to my deficiencies in learning. The training has contributed a lot: the most important of all, it helped me learn more about my own study habits. The first thing I learned was to guess my approximate grade in the exams, which increased my self-efficacy. (P15)

The training also fostered attribution of success to effective strategy use and effort. It has already been stated that students rated the item related to attributing success to strategy use (I87) higher in the post-training questionnaire. Students also elaborated on attributing success to strategy use in their final journal entry in which they evaluated the whole training program. For example, P18, who experienced an increase of 283.3% in her strategy use, maintained: "most importantly, this training

has taught me how to study. Studying regularly and making revisions, rather than cramming the last minute, are very important methods both in terms of time and the effectiveness of the studies". Moreover, the training promoted the transfer of the strategies to other tasks in other courses, which could be regarded as a crucial step for students to internalize the strategies. As an example, P9, who experienced a 2200% increase, stated: "In consequence, I have observed that studying regularly, frequently, and without being anxious has increased my success. Moreover, I applied the strategies and my study plan while studying for other courses, too, and it worked". This sample quotation implies that suggestive evidence exists regarding the internalization of the strategies, although there is no descriptive evidence indicating a cause and effect relationship.

4. 5. Students' perceptions of the effectiveness of the SRL training

This part of the study discusses the students' perceptions of the effectiveness of the SRL training on their studies and learning, addressing the fourth research question.

In the training evaluation form, students were asked to rate the overall effectiveness of the training on their academic development over 100, and the mean of the percentages was 80.93%. Students were also asked about the ways in which the SRL training helped them, given five choices as well as an 'other' option, and they were asked to tick all the ways that they thought it had helped. Table 14 displays the responses and their percentages.

Table 14- Students' perceptions regarding the contribution of the SRL training

Ways in which the SRL training contributed	**Percentage**
Be more organized	86.2%
Be aware of why I succeed/fail	86.2%
Get higher grades	82.7%
Become a better student	82.7%
Feel more confident	79.3%

The percentages indicate that students were fairly satisfied with the training. In addition to selecting the options, one student (P27) also commented that it "has raised [her] awareness" and she has "become able to see deficiencies". Another student (P18) maintained that it was "effective for seeing [her] success" and "for more motivation". In addition, P23, who selected all five options, stated that "the difference or improvement between the first and the last journal entry has revealed where we were and where we are now". Finally, P11, who also thought the training helped her in all five ways, asserted that it helped her "see that [she] can be very successful when [she tries] to study with determination. These are very interesting comments revealing that the training has achieved its aim, at least by raising students' awareness regarding the fact that they can actually control their academic behaviors and succeed by using appropriate strategies.

Students were also provided with 18 items related to the effectiveness of the training in the training evaluation form, and asked to rate the items on a 5-point Likert scale depending on the extent to which they agreed with each item. Table 15 displays the items, their means and standard deviations. The table indicates that means of the items are fairly high, supporting the previous data in that the training has had beneficial influences on students' study habits.

Table 15- Students' evaluations of the SRL training

Item #	Item	Mean	SD
I17	I believe that monitoring skills are valuable.	4.62	.56
I1	Self-regulatory training helped my learning.	4.62	.56
I15	Planning will help me in my courses.	4.55	.57
I13	This training helped me become more organized.	4.53	.50
I12	This training helped me become more confident in my learning.	4.51	.68
I7	I completed all weekly assignments throughout the semester.	4.41	.62
I5	I will teach self-regulated strategies to my future students.	4.41	.68
I4	I am confident that I have learned the material covered in this course.	4.37	.62
I3	Self-regulated learning has made a difference in the way I study.	4.37	.67
I18	I plan to use these monitoring skills in the future.	4.31	.71
I16	Keeping track of my studies will help me in my courses.	4.28	.59
I9	I revised the notes I had taken during classes frequently.	4.24	.57
I8	I read the required reading materials thoroughly each week.	4.24	.57
I2	I have become a better student after this training.	4.24	.78
I6	I met all the goals that I had set at the beginning of the semester.	4.07	.72
I14	I am going to use the methods I learned to monitor my study habits and progress.	4.07	.66
I10	I scheduled a specific time every week to work on my assignments.	4.06	.70
I11	I asked help from my instructor or peers when I needed help.	3.93	1.13

4. 6. The relationship between the training and students' academic success

Finally, the fifth research question, the purpose of which was to examine the relationship between the SRL training and students' academic achievement, will be addressed. In order to answer this question, quiz scores students earned each week were analyzed via repeated measures ANOVA. Important descriptive statistics of quiz scores will be presented, followed by more detailed inferential analysis results.

4. 6. 1. Descriptive statistics

First, descriptive statistics were employed to compute means and standard deviations of quiz scores. The results of decriptive statistics are displayed in Table 16.

Table 16- Descriptive statistics of weekly quizzes

Quiz Number	Mean	Standard Deviation	Number of Participants
Quiz 1	6,7667	2,26949	30
Quiz 2	7,2000	1,49482	30
Quiz 3	6,1333	1,87052	30
Quiz 4	6,8667	1,69651	30
Quiz 5	7,3333	1,93575	30
Quiz 6	8,8667	1,27937	30

The table indicates that mean scores increased although not consistently and reached its peak at the final week. Fortunately, students were aware of the inconsistency in quiz scores and reasons for it. For example, P4's 4th journal entry revealed that she was aware of the decrease in her grades, and she attributed it to the ineffectiveness and irregularity of her studies:

> In our group work the first week, my peers and I got together and tried to understand the whole chapter. We all understood really well and I earned 10 from the first quiz. . . I got 6 from the last quiz. I earned a good grade in a quiz if I had started studying a few days before the quiz, but a bad grade if I had procrastinated until the last day and studied only superficially. I am aware of my mistakes and trying to fix them.

P24 elaborated in journal 6 how the break for midterm exams and the eid influenced her grades:

> I had set a regular plan and got used to it, but the break for the midterm exams and the eid broke the chain. I could not study regularly because I did not want to study when I had the chance to spend time with my family. Also, my grades decreased the week after the midterms because of both the anxiety due to exams and adaptation problems after the break.

It could be deduced from this quotation that if students had had the chance to implement the requirements of the training more continuously (i.e., without any breaks at all), the results could have been better. It seems like the breaks affected students' strategic plans negatively: "In the class right after the eid break, I realized that I totally forgot the previous subject. I remembered the content when the teacher reviewed it in class. That was the worst week for me so far" (P1). Likewise, P3 also referred to the negative influence of the break on her achievement:

> When we finished chapter 4, it was time for midterm and eid break. Because these two breaks were consecutive, I did not have the chance to study for Applied Linguistics. Because there was a break of almost two and a half weeks, I forgot the subject I had studied. . . If I had reviewed the previous subjects or studied the new subject during these two weeks, it would have been easier to retain the content and I would not have had difficulty.

4. 6. 2. Tests of within-subjects effects

Table 17 displays whether there was an overall significant difference between the means at different time points. According to the results, there is a significant difference among quiz scores.

Table 17- Tests of within-subjects effects

Measure: Q (i. e., Quiz)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Sphericity Assumed		126,961	5	25,392	10,523	,000	,266
factor 1	**Greenhouse-Geisser**	**126,961**	**3,982**	**31,885**	**10,523**	**,000**	**,266**
Huynh-Feldt		126,961	4,695	27,043	10,523	,000	,266
Lower-bound		126,961	1,000	126,961	10,523	,003	,266
Sphericity Assumed		349,872	145	2,413			
Error (factor1)	Greenhouse-Geisser	349,872	115,474	3,030			
Huynh-Feldt		349,872	136,151	2,570			
Lower-bound		349,872	29,000	12,065			

From this analysis, the F value for the time factor, its associated significance level, and effect size (Partial Eta Squared) were discovered. The values in the Greenhouse-Geisser row, as indicated in bold in the table, indicate that when ANOVA with repeated measures was used with a Greenhouse-Geisser correction, mean scores for Q (i.e., Quiz) were statistically significantly different ($F(3.982, 31.885) = 10.523$, $p < 0.0005$). In addition, Partial Eta Squared was found to be .266, which means that 26% of the variability in quiz scores is accounted for by the time period that was measured (at what time students took the quiz; time 1, time 2, etc.). This percentage could be considered a big practical effect.

4. 6. 3. Pairwise Comparisons

Tests of within subject effects show an overall significant difference in means, but provide no information regarding where the differences occur. Because the results were statistically significant, using the Greenhouse-Geisser F in significance levels with the corrected degrees of freedom, further analysis (i.e., post-hoc test) was employed to discover which specific means differed. In other words, this analysis aimed to investigate whether the differences between the quiz scores are statistically significant. Pairwise Comparisons were conducted via Bonferroni post-hoc test. Table 18 presents the results of the Bonferroni post-hoc test.

Table 18- Pairwise comparisons

Measure: Q

(I) factor1	(J) factor1	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
	2	-,433	,400	1,000	-1,713	,847
	3	,633	,441	1,000	-,776	2,043
1	4	-,100	,350	1,000	-1,220	1,020
	5	-,567	,533	1,000	-2,272	1,139
	6	-2,100*	,419	**,000**	-3,440	-,760
	1	,433	,400	1,000	-,847	1,713
	3	1,067	,368	,106	-,111	2,244
2	4	,333	,326	1,000	-,710	1,377
	5	-,133	,392	1,000	-1,386	1,119
	6	-1,667*	,319	**,000**	-2,688	-,646
	1	-,633	,441	1,000	-2,043	,776
	2	-1,067	,368	,106	-2,244	,111
3	4	-,733	,429	1,000	-2,104	,638
	5	-1,200	,463	,223	-2,682	,282
	6	-2,733*	,398	**,000**	-4,006	-1,460
	1	,100	,350	1,000	-1,020	1,220
	2	-,333	,326	1,000	-1,377	,710
4	3	,733	,429	1,000	-,638	2,104
	5	-,467	,428	1,000	-1,836	,903
	6	-2,000*	,336	**,000**	-3,073	-,927
	1	,567	,533	1,000	-1,139	2,272
	2	,133	,392	1,000	-1,119	1,386
5	3	1,200	,463	,223	-,282	2,682

Table 18 continued

	4	,467	,428	1,000	-,903	1,836
	6	-1,533*	,355	**,002**	-2,668	-,399
	1	2,100*	,419	**,000**	,760	3,440
	2	1,667*	,319	**,000**	,646	2,688
6	3	2,733*	,398	**,000**	1,460	4,006
	4	2,000*	,336	**,000**	,927	3,073
	5	1,533*	,355	**,002**	,399	2,668

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 18 presents the significance level for differences between the individual time points. The Sig. values typed in bold display that there were statistically significant differences between scores of quizzes 1 and 6, 2 and 6, 3 and 6, 4 and 6, and 5 and 6. The difference between quizzes 3 and 6 has the biggest effect with a mean of 2,733.

4. 6. 4. Profile Plot

This plot of the Means between the conditions is the last element to repeated measures ANOVA analysis. It displays that there is a very clear difference between mean scores of quiz six and others. This graph can be useful in gaining an understanding of the change in the means throughout the training. As discussed before, although not systematic due to the decrease in the third week, there is an overall increase. In addition, the increase after the decrease in the third week is linear.

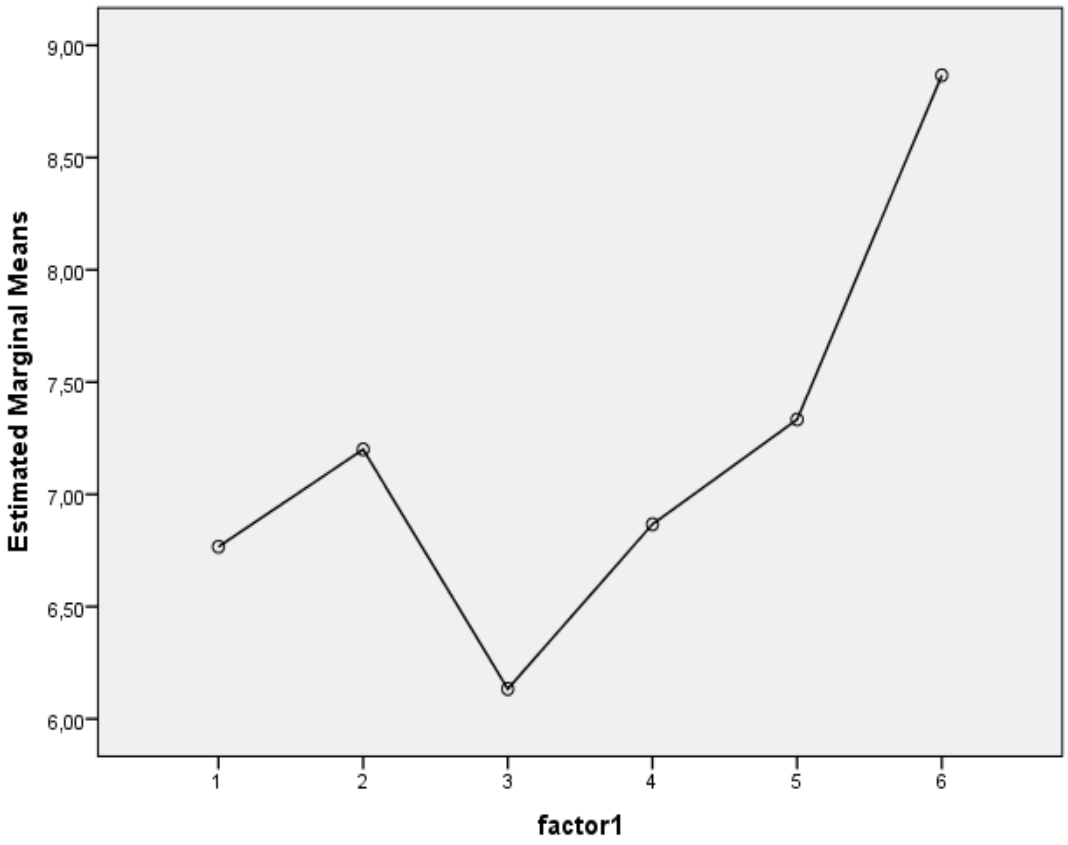

Figure 10- Graph of estimated marginal means

4. 7. Summary of the Results

In brief, the results of the study indicate that the most frequently reported strategies were resource management strategies (i.e., environmental structuring, time management, help-seeking, and peer-learning. Students also reported regulating their metacognition frequently. In general, the students consistently reported using the same strategies before and after the training. Moreover, despite some differences, strategies with highest means were also reported being used in journal entries. In addition, t-test results show statistically significant differences between the students' ratings for metacognitive strategies, cognitive strategies, effort regulation, and self-evaluation before and after the SRL training. Moreover, students reported using metacognitive strategies more often after the training. Another important result of the study was that the training increased the awareness and SRL strategy use of all students: both the frequency and variety of the SRL strategies reported by students

increased throughout the training. As for the students' perceptions regarding the effectiveness of the SRL training, most students considered it to be effective, stating that it helped them to be more organized and aware of why I succeed/fail, get higher grades, become a better student, and feel more confident. Finally, there was an increase in students' quiz scores, which reached its peak during the last week of the training, and there is a statistically significant difference between quizzes 1 and 6, 2 and 6, 3 and 6, 4 and 6, and 5 and 6. In summary, the study supports the existing literature in that it provides empirical suggestive evidence to the fact that SRL skills can be taught and the use of SRL strategies have beneficial outcomes for students' affect and academic achievement.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

5. 1. Overview of the Chapter

This chapter involves discussion of the findings and their relationship with the results of the previous research in the literature. It also includes implications of the findings, limitations of the study, and suggestions for further research.

5.2. Discussion of the study

One interesting finding of the study is that students' responses to the items in the questionnaires are mostly consistent with their reflections through the open-ended guiding questions in their journal entries. For this reason and because the study adopted a mixed methods approach in which the findings of qualitative and quantitative data were planned to be mixed at the interpretation level, all related findings from different data collection instruments addressing the same research question will be merged during the discussion.

5. 2. 1. Strategies students reported using most frequently

One aim of this study was to explore the self-regulatory strategies students used before and after the training. According to the results gathered from journal entries and questionnaires, strategies students reported using throughout and after the training are consistent with the ones used before the training. For this reason, these results will also be presented together to avoid repetition.

First, it should be stated that strategies students used reflect social cognitive theory and self-regulatory models proposed by Zimmerman et al. (1996) and Zimmerman (2000) in that they include SRL components such as goal-setting, self-

monitoring, self-efficacy, attribution, etc. In addition, students reflected on their strategic planning and adjustments based on the feedback they received from their self-monitoring and self-evaluations.

The results indicate that students mostly relied on resource management strategies. Among resource management strategies, the most popular strategy was environmental structuring. This finding supports the theory which suggests that self-regulated students are aware of the effect of the environment on their learning and know how to improve the environment by using different strategies (Zimmerman, 1989a). In other words, they are sensitive to their environment and resourceful in changing it when necessary (Lynch & Dembo, 2004). Students in this study also used their personal influences to regulate their environment with the use of various strategies, such as avoiding distractions or finding a place where they can study efficiently. Similarly, Vandevelde et al. (2011) found exactly the same result in a different context (i.e., Belgium). They maintained that students reported more engagement in environmental structuring, such as avoiding distraction, and a higher awareness of personal preferences regarding study environment after the tutoring program focusing on self-regulated learning. The results support findings of previous empirical research, which revealed that environmental and behavioral management strategies and seeking information strategies were reported being used most frequently (Cleary, 2006). In a Turkish context, Ozturan Sagirli and Azapagasi (2009) and Ozturan Sagirli et al. (2010) found that strategies related to management of study environment are among the most frequently used. Corno (1986) also regard environmental control as one of the most active steps students can take to maximize their concentration. This result also supports the finding of Zimmerman and Martinez-Pons' (1986, 1988), studies, in which students reported great use of environmental management. In addition to the frequent use of the strategy in a variety of contexts, Kitsantas et al. (2008) also found that time and study environment management had the strongest correlation with academic performance, which attributes a pioneer role to environmental regulation in fostering academic achievement.

Students' structuring their study environments also supports social cognitive theory. SRL theorists consider students as metacognitively, motivationally, and behaviorally active participants in their own learning process, and behaviorally, self-regulated students select, structure, and create environments that maximize learning to meet their needs(Zimmerman, 1986). Management of studyareas requires locating a place that is quiet and relatively free of visual and auditory distractions so that one can concentrate (Zimmerman & Risemberg, 1997). Similar to what Zimmerman and Risemberg (1997) stated, while regulating their study environment to maximize the effectiveness and efficiency of their studies, students in this study avoided noise and distractions and chose a comfortable place to study efficiently. This finding supports Chen (2002), who emphasized the importance of managing to handle distractions and maintain concentration. Interestingly, resource management strategies (e.g., management of time and study environment, peer learning, and help seeking) were also found to be frequent strategies also in Malaysian context (Kosnin, 2007). Further cross-cultural research might be carried out to examine whether these strategies are frequently used regardless of cultural context.

In addition to structuring the physical environment, students seemed to make use of their social environment. Students' making use of their physical and social environment supportssocial cognitive theory, which claims that human functioning is highly dependent on social environmental context (Zimmerman, 1989a). Specifically, they used help-seeking and peer-learning **s**trategies. There is substantial evidence indicating that seeking assistance from others is a valuable self-regulating, proactive learning strategy that can provide the foundation for autonomous achievement (Zimmerman, 1986). Empirical research also supports the theoretical importance of this strategy (Karabenick, 1998; Zimmerman & Martinez-Pons, 1988). Seeking peer assistance as a social source of assistance was found to be a frequently used SRL strategy in previous research, too (Ozturan Sagirli & Azapagasi, 2009; Zimmerman & Martinez- Pons, 1986, 1990). However, although seeking help from peers was a commonly used strategy in this study as reported in both questionnaires and journal entries, seeking help from teachers or library was rated much less frequently. This might be due to students' misconceptions regarding being an

autonomous student who manage their studies and academic difficulties on their own. In contrast, seeking teacher assistance was found to be one of the strategies that were predictive of students' achievement track in school (Zimmerman & Martinez-Pons, 1986). Peer-learning is also considered as a valuable proactive self-regulatory strategy in previous research (Karabenick, 1998; Ozturan Sagirli & Azapagasi, 2009; Schunk & Zimmerman, 1994; Zimmerman, 1986; Zimmerman & Martinez-Pons, 1986, 1988). As reported both in questionnaires and journal entries, students cooperated with their peers to share what they had understood from the material with a friend and to ask about homework assigned when they missed a class. This result is not surprising when the context of the study is considered, because the instructors at the department pay special attention to promote cooperation and solidarity among students both for instructional and social purposes. For example, discussions and exchanging information or ideas through group work is encouraged during classes. This was also the case throughout the training; students helped each other by sharing their experiences or ideas regarding regulation of their studies at the beginning of each class session, which might have fostered the use of help-seeking strategy. Students' positive attitude towards help-seeking also emphasizes the fact that SRL approach includes not only discovery learning or self-instruction, but also social aspects of learning, such as help-seeking and feedback from peers/teacher (Zimmerman, 2001). In fact, two of the twenty most frequently reported items were related to feedback; students stated that they were open to feedback to improve their work and doing changes based on the feedback they receive.Note-taking and reviewing notes, which are forms of help-seeking, are also very frequently reported strategies both in questionnaires and journal entries, implying that students rely heavily on their class notes as an important learning source when studying, and they are used to taking notes during classes.

The second most frequent strategy was metacognitive regulation, such as strategic planning (e.g., making plans for improvement when doing poorly) and self-monitoring (e.g., monitoring speed and time available during exams, slowing down the pace of reading when confronted with a difficult text, stopping once in a while and going over the text while reading, and going back and trying to figure out the

problem when confused about something while reading). Students' frequent regulation of metacognition, which is necessary to maintain the efficiency of the SRL system (Corno, 1989), is another result that supports the literature. Use of metacognitive self-regulation has also been reported as the most frequently used strategy by Ozturan-Sagirli and Azapagasi (2009). This finding might indicate that Turkish students have a tendency towards making use of their metacognitive skills. Similarly, as in case of environmental structuring strategies, Turkish students were found to be similar to Malay students in that both groups of students made great use of metacognitive learning strategies (Kosnin, 2007). The awareness and frequent use of metacognitive strategies are promising for education as metacognitive strategies were found to be an indispensable component of self-regulatory training (Dignath et al., 2008).

However, a surprising finding of the study is that although students reported frequent use of metacognitive strategies in both questionnaires and journals, they reported cognitivestrategies less frequently in questionnaires and did not report any in journals. In contrast, previous research reported frequent use of rehearsing, elaboration, and critical thinking (Ozturan & Azapagasi, 2009), elaboration, organization, and critical thinking (Ozturan Sagirli et al., 2010), rehearsing and elaboration (Vandevelde et al., 2011), and rehearsing and memorizing (Zimmerman & Martinez-Pons, 1986).

Other strategies reported being most frequently used were setting realistic goals, time management, regular study periods, and being prepared for class. Although there were no items related to 'regular study periods' or 'being prepared for class' in the questionnaire, these strategies emerged as very commonly used by students, as reflected in their journal entries. Students' setting regular study periods and being prepared for class might be due to weekly homework and quizzes as they might have indirectly guided students to adopt this strategy. After all, students had to keep up with the content in an organized manner to succeed in homework and quiz each week. Therefore, these two strategies imply that students assumed responsibility and a proactive role in their own learning.

A very interesting finding is that whereas having regular study periods or a study plan, managing the study time effectively, and goal-setting, which are important components of SRL, were reported very frequently in journal entries, the lack of the use of these strategies was reported almost as frequently. This finding shows that although students were not totally unaware of the importance of these strategies, they probably had had problems actually implementing them. The reason for the failure might be the lack of explicit or implicit training promoting these strategies. As the students were educated in traditional classrooms in which the teacher set the goals and students did what teachers expected them to do, they were not in the habit of using strategies efficiently. This finding supports Boekaerts and Niemivirta (2000) who highlighted that teachers' regulation of students' learning process results in lack of opportunities for students to organize and regulate their own learning. In addition, this kind of teacher control led to difficulties in planning the study time and monitoring study activities (Van den Hurk, 2006). Regarding the inefficient use of the study time, P21's quote, "Sometimes I sit at the table studying for 2 hours, and when I look back, I realize all I have done is that I have read two or three pages", is an exact example for Schunk's (1990) and Zimmerman et al.'s (1994) finding that many students who have poor study habits are surprised to figure out that they waste a great deal of their study time on nonacademic activities. In brief, it might be that although the students were aware of the problem, they did not know how to actually solve it, which led to mixed reports regarding the use of these strategies.

Finally, the items related to self-efficacy for skill development and attribution of success to effort or strategy use was among the highly rated items. Students reported that they were self-efficacious in terms of mastering the skills being taught. This finding is very important and advantageous for the effectiveness of self-regulatory training because self-efficacy has positive effects on important self-regulatory parameters such as effort, persistence, and achievement (Schunk & Ertmer, 1999). As for attribution, fortunately, students attributed success to strategy use or effort rather than ability, stating that if they fail a course, they try to find out the source of their error and adapt their performance. This item could be interpreted

as attribution to strategy use or effort, as 'adapting the performance' could be done both by adapting the strategy or effort expended. Interestingly, students attributed success *directly* to strategy use after the training, stating that if they failed a course or could not learn, this was because they had not used the right strategy. This shift to direct attribution to strategy use might be due to the focus and emphasis given to the importance of strategy use throughout the training. In other words, as they continuously used SRL strategies throughout the training, they appreciated the value of strategy use in learning, and were asked to monitor the effectiveness of strategies and improve them continuously, which led them to attributing success or failure to strategy use.

5. 2. 2. The relationship between the training and students' awareness and reported use of SRL strategies

Another purpose of the study was to determine the extent to which the training influenced students' awareness and reported SRL strategy use. Overall, the training had positive contributions in that sense. This awareness is important because the quality of students' knowledge about how they learn influences their engagement in SRL and academic achievement (Schunk & Zimmerman, 1989). Students were provided with an opportunity throughout the training to set their own goals, implement strategies to attain these goals, and monitor and evaluate the learning process. Therefore, by following the cyclical steps of the SRL cycle, students were able to select and apply strategies for the attainment of their goals, monitored the effectiveness of the strategies, and evaluated the effects of the strategies on their goal-attainment or learning outcomes.

One interesting finding was that 15 out of 20 most frequently used strategies in the pre-training and post-training questionnaires were the same, which shows consistency in the frequency of the strategies used. This might imply that students identified their strategies at the beginning of the training and used them consistently and automatically. Moreover, in addition to the consistency in the use of the strategies, means and frequencies of most strategies increased and students adopted new strategies throughout the training. This means that the training was influential

both in terms of the frequency and variety of the strategies. That is, in addition to applying the strategies more frequently, students also extended their strategy repertoire throughout the training.

Throughout the training, there was an increase in the means of 16 out of 25 (64%) most frequently reported strategies, which means that students rated their use of these strategies more highly after the training. In addition, as indicated in Table 12, frequencies of the strategies reported throughout the training increased for all students. These increases indicate that students used more strategies during the training, implying that the training achieved its goal to raise students' awareness and use of SRL strategies. This finding might be regarded as an example to Schmitz and Wiese's (2006) assertion that SRL at home plays a considerable role within university learning.

Consistent with being most commonly used strategies, metacognitive regulation and environmental management strategies proved to show the biggest increase. Two of the three newly adopted metacognitive strategies were related to self-monitoring, which might show that students attached greater importance to self-monitoring in time. This might be a result of the fact that students self-monitored their self-regulation process throughout the training, and thus, appreciated the value of it even more. In addition to the increase in reported use of environmental structuring, time management strategies also were found to have increased to a great extent throughout the training. This finding is consistent with previous research findings, which claim that self-regulated students are more able to manage their time and restructure their physical environment to meet their needs (Zimmerman & Martinez-Pons, 1986). On the other hand, less skillful self-regulators showed poor time management (Bembenutty & Karabenick, 1998). In addition, similar to the results of Britton and Tesser (1991), SRL training fostered better management of study time. Moreover, research suggests an association between students' willingness to delay gratification and their tendencies to use time management strategies (Bembenutty, 2009; Bembenutty & Karabenick, 2004). Therefore, the increase in time-management strategies might be tied to their tendency to delay gratification

more often. However, exploring the connections between strategies was not among the foci of this study; therefore, further examination is needed to confirm this connection in the context of the present study. The increase in using time management strategies is promising in that it is a significant topic in the field of education not only in terms of theory and research but also classroom practice (Garcia-Ros, Perez-Gonzalez, & Hinojosa, 2004). More specifically, despite being an important determinant of success, effective time management is difficult to achieve for many students; both high school and college students often complain about the lack of time to carry out all the tasks they are assigned (Garcia-Ros et al., 2004). This study showed along with others (Britton & Tesser, 1991; Stoeger & Ziegler, 2008; Zimmerman et al., 1994) that students' time management skills can be improved through SRL training. As stated in the results of Van den Hurk (2006), better time management and self-monitoring skills might lead to higher scores in tests as students become more efficient in allocating their individual study time.

In addition, the frequency of goal-setting as reported in journals increased greatly (i.e., from 29 to 117), indicating that the training guided students to take the responsibility of setting their own goals. This result is promising but not surprising because the students were asked to set goal(s) and monitor the appropriateness of them continuously. Therefore, it might be deduced from this result that goal-setting became a regular self-regulatory behavior throughout the training. Frequent use of goal-setting supports the findings of Schmitz and Wiese's (2006) study, in which students set specific academic goals, such as having regular study periods like studying 3 days a week or on particular days of the week, just like students in the present study did.

Another strategy that was increasingly used throughout the training was self-rewarding success. The beneficial effect of self-rewarding is two-folded: For one thing, anticipation of rewards **e**nhances motivation and self-efficacy, which is validated as students work at a task and note their own progress; receiving the reward then becomes a symbol of the progress (Schunk, 1990). For another, students rewarded themselves (e.g., chocolate, movies, going out with friends) on the

condition that they achieved their goal. In other words, they delayed their favorite activities until the goal was accomplished, and only if the goal was accomplished did they do these activities. This is consistent with Schunk (1990) who maintains that individuals usually make rewards contingent on task progress or goal attainment. Therefore, students in this study became more aware of delay of gratification, which refers to "students' postponement of immediately available opportunities to satisfy impulses in favor of pursuing . . . academic goals that are temporally remote but more valuable" (Bembenutty & Karabenick, 1998, p. 329). By delaying favored activities until the goals were attained, students in this study both enjoyed the feeling that they deserved the reward and switched their priorities from fun activities to academic responsibilities. This result might be regarded as an indicator of students' improvement of self-regulatory skills, because self-regulated students strategically delay gratification by voluntarily delaying immediate gratification to enact academic rewards that are temporarily distant but highly valuable, whereas their less-skilled peers are unwilling to delay gratification (Bembenutty & Karabenick, 1998).

In fact, previous research demonstrated a strong link between delay of gratification and resource management strategies (e.g., management of study time and environment and efforts to persist when necessary), meaning that students who delayed gratification also spent more time studying, organized their schedules and study environments, and persisted when tasks were boring or difficult (Bembenutty & Karabenick, 1998; Pintrich et al., 1993). There might be a connection between students' frequent use of resource management strategies and delaying gratification in this study, but further research needs to be conducted to verify this connection.

Another very important influence of the training was that it improved students' ability to identify their academic problems and create or adopt new strategies depending on their needs and goals. This required self-regulatory behaviors, such as self-monitoring implementation of strategies in the light of goals and adopting more specific strategies to meet their needs and achieve their goals. The use of these strategies specific to their own needs and goalsis of crucial importance as it implies that students started being proactively involved in learning process and

controlling it. Some of the new strategies students reported using throughout the training were organizing a regular study area, increasing study hours, and studying in the mornings. The rationale behind organizing a regular study area might be to avoid distraction or waste of time and increase efficiency of the study session. That is, being in a specific study area means that this area is for studying, but nothing else. As for increasing study hours, it indirectly highlights the importance of effort. As students believed that the effort they expend is not enough, and they need to put more effort, they decided to increase their study hours. Finally, students preferred studying in the mornings, probably because they felt that they understand the content better in the morning.

Findings of the initial journals revealed that a high percentage of students reported not setting goals, managing their study time, or having a study plan before the training. Many students were either unaware of or did not have the skills to manage their study time, set goals, or plan their studies .Unfortunately, students who cannot plan their study time, set specific goals, and monitor their progress are at a disadvantage (Zimmerman et al., 1994). On the other hand, they did not continue reporting these negative statements throughout the training, and the use of these strategies increased. The reason might be the requirements of the training; students were expected to set goals and implement strategies to achieve these goals. In fact, having a study plan and regular study periods turned out to be strategies the frequency of which increased the most, indicating that students heavily relied on these strategies. This is reflected in journals, too, as some students attributed the decline or fluctuation in their quiz grades to not being able to stick to their study plans due to the breaks during the semester.

5. 2. 3. The relationship between the training and students' academic achievement

The present study supports conclusions of previous SRL studies showing that SRL intervention during content instruction might be beneficial for awareness-raising for self-regulation, SRL strategy use, and academic achievement even though

conducted for a limited amount of time (Perels et al., 2005, 2009). It highlights the link between SRL and academic achievement, which is critical.

Statistical analysis of the quiz scores revealed an increase in quiz scores in time. This increase in the quiz scores, which related to academic achievement, may be due to the SRL training students received. The resuls yield evidence that suggests there is a relationship between the SRL training and academic achievement, although this relationship cannot be a considered cause and effect relationship because the data gathered is based on self-reports.Because students employed the SRL components consciously and paid special attention to optimizing the effectiveness of them, these proactive actions might have indirectly influenced academic achievement. For example, as stated before, during the training, students implemented strategies such as studying regularly or avoiding distractions. It is quite expected that the *consistent* use of such strategies contribute to success. An important point worth highlighting here is that these strategies were employed within a self-regulatory framework continuously to attain self-set goals, and their effectiveness was continuously monitored. In other words, the students continuously and systematically monitored their progress, self-evaluated, and modified their use of strategies, which is likely to have increased their learning, and thus achievement. This finding is consistent with abundant research stating that a self-regulated approach to learning contributes to academic achievement (Zimmerman, 1990).

However, quiz scores did not increase consistently, which might be due to the irregularities in students' implementation of the strategies as they reflected in their journals. For example, it might be that they simply did not study regularly during the 2-week break period or studied at home in front of TV, which led to a decrease in their grades. Alternatively, this fluctuation might be due to the difficulty of the content or the quiz questions. As P1 stated, some subjects were easy enough to understand by reading once and easier and more fun than others. In addition, although the researcher paid special attention to keep the difficulty level of quizzes for each week stable, it might be that students found questions in some quizzes more difficult than others. Finally, the fact that the quiz scores did not increase in a

consistent manner might be explained by Jossberger et al.'s (2010) assertion that although SRL can help students develop knowledge and skills more effectively, using self-regulatory processes will not automatically produce high levels of performance. Likewise, in Stoeger and Ziegler's (2008) experimental study on the effect of SRL training on achievement, students in the training group did not show any academic improvement. The researchers attributed this to little time to practice during the training. They explained that practice time available for the training group was lower than the time for the control group because in the training group, time usually used for mathematics instruction was spent to explain how the training materials were to be applied. Although there is no control group in the present study, the fact that some (i.e., generally more than one third) of the class time was allocated to self-regulatory training might have a decreasing effect on achievement. Further research is necessary to verify the existence of such an effect and examine the influence of SRL training in an extended period of time, during which students find opportunities to practice both the content and SRL strategy use more often.

A great deal of research demonstrates that higher achievers use more self-regulatory strategies, control their physical environment to meet their needs, and use time management skills (Chen, 2002). For example, self-regulatory practices have a significant effect on achievement in Malaysian context, indicating that SRL predicted GPA better for high achievers, who were better users of SRL, than low achievers Kosnin (2007). For high achievers, resource management strategies (e.g., time and study environment, effort regulation, peer learning, and help seeking), test anxiety, metacognitive learning strategies and lack of self-efficacy were significant overall predictors. Although examining the extent to which strategies predicted academic achievement was not within the scope of this study, it could be stated that the strategies that were salient in the present study were the same as the ones in Kosnin's and Chen's studies.

In summary, abundant research revealed that higher achievers use more self-regulatory strategies, control their physical environment to meet their needs, seek help when needed, and use time management skills, which are all very frequently used strategies in the present study. For example, strategies common to Zimmerman

& Martinez-Pons' (1986) study and the present one are reviewing notes, keeping records and monitoring, organizing and transforming, reviewing text, goal-setting and planning, seeking peer assistance, environmental structuring, and self-evaluation. For example, the results of the studies by Zimmerman and Martinez-Pons (1986; 1988) reveal that self-regulated learners made use of environmental structuring strategies (e.g. creating a study area), seeking social assistance from teachers, and seeking and reviewing information from literary sources. Because environmental influences affect personal and behavioral aspects according to the proposed triadic formulation, educators should encourage the improvement of them.

5. 3. Implications of the study

Self-regulated aspects of learning have important optimistic implications for the effectiveness of the effort students make to learn and their academic achievement (Chen, 2002; Dunlosky & Theide, 1998). This study also has important implications to improve the quality of students' learning process, filling the gap between research findings and their implementations to reinforce teaching and learning practices.

First, considering that self-regulation is crucial for learning and performance and that SRL strategies can be taught, students, teachers, and researchers need to pay more attention to optimize the use of SRL strategies until they are internalized and used automatically. To this end, Zimmerman (1990, p. 14) expressed the need for "instructional approaches that can offer direction and insight into the processes of self-regulated learning".

With this in mind, in order to prepare students for enormous amount of information and competitive requirements of lifelong learning and help them become skilled self-regulated learners, teachers should provide students with explicit training in how to self-regulate their academic behaviors. This training should aim to help students become motivated and proactive strategy users who gain new knowledge, extend their skills, and educate themselves throughout their lives taking the responsibility for their own learning. To achieve this goal, teachers need to create

classroom environments in which students have opportunities to make choices, seek challenges, and reflect on their progress.

In this way, students can develop their SRL skills and control their behaviors and affect in order to improve their academic learning and performance in the long run. The present study might serve the literature as a response to Zimmerman's (1990) call. In this regard, the study provides teachers and students with practical information regarding the SRL procedure, which means that they can apply or adapt the procedure for their own needs and context. Therefore, the results of this study could guide teachers who would like to incorporate SRL into their classrooms to help their students appreciate the value of shifting the control of the learning process to students and realize that effective self-regulation can boost learning and self-efficacy perceptions. The training in this study could be regarded as a good model because various strategy types (i.e., not just cognitive strategies) were involved, and benefit of strategy use was emphasized, as suggested by Dignath et al. (2008). In addition, in order to maximize the effectiveness of the SRL strategy training and motivate students to use SRL strategies,students were taught not only the strategy itself, but also how and when to use it, and why it was important (Zimmerman et al., 1994). In addition, it included all components of SRL and was incorporated into the content of the class, as suggested by Perels et al. (2005, 2009).

A crucial instructional implication of a self-regulatory approach is to make students value the importance of SRL components such as goal-setting and self-monitoring so that they can continuously evaluate their success through a personal feedback loop. Self-monitoring could be supported by self-recording, which proved to be beneficial in this study for students to visualize the time and effort they expended on their studies. One tool could be self-monitoring forms with which students can keep track of their behaviors to use this information as feedback for further decisions and adjustments. Students might also be encouraged to keep journals for continuous monitoring and reflection. Keeping track of the details of their studies encourage students to assess their improvement at a metacognitive level.

Second, the integration of theory and research from educational psychology into teaching content (i.e., Applied Linguistics) will lead to an interdisciplinary relationship guiding teachers and students for more effective learning (Lanehart & Schutz, 2001). Since self-regulatory process of learning gives students a sense of control and encourages them to pay attention to their methods of learning and self-regulate their academic activities (Zimmerman et al., 1996), SRL training is expected to eventually increase levels of learning and academic achievement. This means that students can become better learners if they become more aware of their learning and act upon that awareness. Likewise, the results of this study indicated that SRL training proved to be beneficial not only in terms of its relationship with students' awareness regarding assuming responsibility of their own learning process and strategy use, but also in terms of their academic achievement. Therefore, it could be claimed that equipping students with self-regulatory skills is essential for better learning. Furthermore, a self-regulated approach to learning not only contributes to achievement, but it also has implications for teacher-student interaction and organization of school as a learning environment (Zimmerman, 1990).

In a broader sense, literature suggests that self-regulation is an influential topic fostering student success, which makes it an indispensable component of teaching programs. Therefore, teachers, administrators, and policy makers should be more aware of the influential effects of self-regulation, and education programs should incorporate self-regulation into their curriculum as a beneficial approach to increase success and persistence in controlling educational performences even after graduation. SRL-incorporated courses starting from the first year of undergraduate education will empower students to implement strategies such as setting goals, strategic planning, self-monitoring, self-evaluating, help-seeking when necessary, among many others. Equipping students with self-regulatory strategies and positive motivational beliefs (e.g., self-efficacy) earlier on in their studies will prepare and sustain their motivation for more demanding, upper level courses as they pursue their education (Kitsantas et al., 2008). As Lanehart and Schutz (2001) assert, educational researchers and practitioners must be interested in SRL regardless of discipline. However, it should be clear that the development of SRL skills takes time and

requires enormous effort both from students and teachers, but positive results could be achieved if support is adaptive to students' needs, skills, and goals (Jossberger et al., 2011).

5. 4. Limitations of the study

The most important limitation of this study is that it relies on students' self-reports rather than their actual behaviors. Because students were regulating their study habits outside the classroom, how they went through the SRL process could not be observed. Journal entries in which students reflected on their experiences and thoughts during the process were used to make up for this limitation. With the help of journals, the researcher tried to get an understanding of other self-regulatory behaviors, such as decision making procedures, reasons for the selection of a particular strategy, and the effect of their actions on their regulation. Nevertheless, observing these procedures could have provided with more accurate and in-depth exploration of students' experiences of regulating their learning process.

Another significant limitation was time; because of time constraints, the training lasted for seven weeks. Undoubtedly, an extended training period would have helped students internalize and retain the strategies, and the researcher would have been able to monitor students' development better, leading to more reliable results.

Finally, small sample size might be considered a limitation; however, considering that the study was a mixed methods study involving qualitative methods, a bigger sample size would have been too complex and time-consuming to deal with.

5. 5. Suggestions for further research

Research on SRL has evolved, changed its focus for decades, and the most recent studies involve interventions. Although SRL literature has reported numerous intervention studies that offered SRL training to students, most of these are experimental studies that investigated the relationship between SRL training and

academic achievement. More research should be conducted in which SRL training is a means to improve students' self-regulatory competence. In other words, improving self-regulation and helping students become self-regulated should be an end in itself for the training rather than a means to an end (i.e., which is generally academic achievement). The results of such research will yield important information regarding the practical applications of SRL to classrooms in the long run. Further research should also seek to determine younger students' use of self-regulation strategies and the age at which the training can be effectively employed to test the assumption that older learners are more suitable for self-regulatory training.

In addition, as stated before, internalizing SRL strategies is no easy task; in contrast, it is a long and challenging process. The social cognitive model of development of SRL, which was discussed before, suggests four levels to be self-regulated (i.e., observation, emulative, self-control, and self-regulation). Students do not start internalizing strategies until the third level: self-control. For the internalization of the strategies, greater amount of time and practice is required. In addition, as Schunk and Zimmerman (2007) state, modeling and feedback help internalization via visual images, verbal meanings, and nonverbalized rules and strategies. Schunk and Rice (1993) also refer to modeling, guided practice, faded self-guidance, and covert self-instruction for strategies to be internalized. Therefore, further research could examine the extent to which students in this study employ SRL strategies after an extended period of time. To do this, researchers could make students practice using SRL strategies for an extended period of time, observe them, provide feedback, gradually decreasing the amount of feedback and allowing students to self-guide and self-instruct. Investigating the differences between students' responses, experiences, and perceptions right after the training and after a longer time period will yield interesting results. Obviously, it is also important to conduct longitudinal studies with a variety of participants to verify the consistency of the present findings.

Moreover, the results of this study showed similarities with previous research conducted in diverse research settings in terms of the strategies used. With this in

mind, cross-cultural research could be conducted to explore the commonalities and differences among cultures in terms of SRL strategy use. Searching for connections between the use of strategies with education systems might also yield interesting implications for learning. This cross-cultural research could also involve investigation of the relationship between different SRL strategies and academic achievement, which would reveal what strategies students from different cultures use and how it is connected to their success.

Furthermore, teachers are expected to self-regulate their learning and teaching, just as they are expected to foster student SRL (Van Eekelen, Boshuizen, & Vermunt, 2005). As most of the participants in this study aim to become English teachers, further analysis of the extent to which they execute SRL strategies for their teaching practices in their teaching environments will reveal invaluable data. As Capa-Aydin et al. (2009) maintained, manystudies investigated pre-service teachers' self-regulatory processes as learners, stating that they will teach them to their students. However, to the knowledge of the researcher, no follow-up studies were conducted regarding how these prospective teachers teach the SRL processes to their students. The results of such research studies will be beneficial to express the need for the incorporation of SRL components in curricula, especially of teacher education programs.

In addition, as time and self-efficacy are vital for success, a study that seeks to determine the correlation between effective management of study time, self-efficacy and academic achievement would yield invaluable results. Further research could also explore whether students' use of self-regulation strategies is influenced by variables such as gender, age, major at university, or GPA.

Finally, there are also methodological suggestions for further research. As suggested before, a review of literature reveals that most SRL researchers collected data through self-reports (e.g., questionnaires, interviews, journals, etc.). Although self-reports might yield important data, they are disadvantageous in two ways. First, findings are interpreted based on what participants *say* rather than what they actually *do*. Second, they generally capture only a snapshot of self-regulatory behaviors rather

than focusing on participants' decision-making processes, the rationale behind using a specific strategy, or how it is actually implemented or monitored, which contradicts with the dynamic and cyclical nature of self-regulation (Zimmerman, 2000, 2001). For example, although a great deal of importance is attached to metacognition in self-regulation, these data collection tools cannot gauge how participants use their metacognition during the process.

Therefore, this study could be extended with the use of instruments revealing data on actual behaviors of students, such as observations, audio/video recordings, webcam recordings (i.e., for behaviors outside the classroom), think-aloud protocols, micro-analytic methods, and computer-based eye-tracking methods. In brief, further research including observations of students' use of the strategies as well as the contexts in which they use them in an extended training period is needed to compensate for the limitations. The benefits of such methods are two-fold: First, they provide more information than self-reports and yield more reliable results. Second, they are more appropriate to explore the whole self-regulation process.

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APPENDIX A

ANKET 1

Sevgili öğrenciler,

Bu anket Ortadoğu Teknik Üniversitesi'nde yürütülmekte olan bir doktora tez çalışması için veri toplamak amacıyla hazırlanmıştır.Bu anketteki cümleler sizin bölüm derslerindeki tutumunuzla ilgilidir.**Lütfen cümleleri dikkatle okuyun ve cümlenin yanına sizin tutumunuzu en iyi ifade eden rakamı her bir cümledeki aktiviteyi ne sıklıkta yaptığınıza göre yazın. Tek bir doğru cevap yoktur; lütfen mümkün olduğu kadar sizin için doğru olan rakamı seçin.**Cevaplarınız kesinlikle gizli tutulacak ve başka hiçbir amaç için kullanılmayacaktır.İşbirliğiniz için teşekkür ederim.

Seniye

Vural

Bölüm 1- Kişisel bilgiler

İsim: **Cinsiyet: K / E**

Yaş:

- **Bulunduğunuz bölümü tercih etme nedenleriniz: (Birden fazla seçenek işaretleyebilirsiniz)**

____ Öğretmen olma isteğim ____Çalışma koşulları

____Çocuklarla/gençlerle çalışmak ____ÖSS puanım

____ Öğretmenlik mesleğinin statüsü ____Ailemin/çevremin etkisi

____İş bulma olanağı ____Diğer

(Lütfen belirtiniz .....) (mesai saatleri, uzun yaz tatili vb.)

- **Mezun olduktan sonra öğretmenlik yapmayı düşünüyor musunuz?**

____Kesinlikle düşünüyorum ____Düşünmüyorum

____Düşünüyorum ____Kesinlikle düşünmüyorum

____Başka iş fırsatlarını öğretmenliğe tercih ederim

Bölüm 2- Cümlelerdeki ifadelerle ilgili tutumunuzu en iyi yansıtan rakamı işaretleyiniz.

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
1. Ödevlerim için standartlar belirlerim.	7	6	5	4	3	2	1
2. Kısa vadeli (günlük/haftalık) öğrenme hedefleri belirlerim.	7	6	5	4	3	2	1
3. Uzun vadeli (aylık/sömestr için) öğrenme hedefleri belirlerim.	7	6	5	4	3	2	1
4. Derslerimde yüksek standartta öğrenme sağlarım.	7	6	5	4	3	2	1
5. Derslerim için çalışma saatlerimi ayarlamamı kolaylaştırmak amacıyla kendime hedefler belirlerim.	7	6	5	4	3	2	1
6. Sınavlardan iki hafta önce çalışmaya başlar ve çalışma hızımı duruma göre ayarlarım.	7	6	5	4	3	2	1
7. Öğrenmemi daha kolay ve etkili kılmak için en etkili stratejileri bulmaya çalışırım.	7	6	5	4	3	2	1
8. Hedeflerime ulaşmak için nasıl etkili bir şekilde ilerleyebileceğim hakkında düşünürüm.	7	6	5	4	3	2	1
9. Derslerimde başarısız olduğumda daha başarılı olmak için planlar yaparım.	7	6	5	4	3	2	1
10. Konuyu sadece okumaktansa çalışmaya başlamadan önce öğrenmem gereken şeyler hakkında düşünürüm.	7	6	5	4	3	2	1
11. Derslerimde tam ve mükemmel not tutmaya çalışırım.	7	6	5	4	3	2	1
12. Dersten önce ödev olarak verilen konuyu mutlaka okurum.	7	6	5	4	3	2	1
13. Derse hazırlık amacıyla okurken derste tartışmak ve konuya daha iyi odaklanmak için soru hazırlarım.	7	6	5	4	3	2	1
14. Dersin içeriğini anlamak için verilen ödevlerin haricinde ekstra pratik yaparım.	7	6	5	4	3	2	1
15. Dersteki aktiviteleri yaparken farklı öğrenme stratejilerinden faydalanırım.	7	6	5	4	3	2	1
16. Çalışırken yeni öğrendiğim şeylerle diğer derslerde öğrenmiş olduğum şeyler arasında bağlantı kurmaya çalışırım.	7	6	5	4	3	2	1
17. Çalışırken öğreneceğim bilginin gerçek hayatta nasıl faydalı olabileceğini hesap ederim.	7	6	5	4	3	2	1

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
18. Çalışırken konuyla önceden bildiğim şeyler arasında bağlantı kurarak konuyu daha iyi anlamaya çalışırım.	7	6	5	4	3	2	1
19. Hatırlamam gereken bilgiyi yazmak için not kartları kullanırım.	7	6	5	4	3	2	1
20. Ders notlarımı, bilgileri kendi cümlelerimle yeniden düzenleyerek tekrar yazarım.	7	6	5	4	3	2	1
21. Soyut bilgiyi somutlaştırmak için grafik, şema, tablo gibi "graphic organizer" lar kullanırım.	7	6	5	4	3	2	1
22. Terimleri hatırlamak için kelimeleri gözümde canlandırırım.	7	6	5	4	3	2	1
23. Çalışırken ders notlarımı gözden geçirir ve önemli noktaların taslağını çıkarırım.	7	6	5	4	3	2	1
24. Dikkatimi dağıtacak şeylerden kaçınmak için çalışacağım mekânı seçerim.	7	6	5	4	3	2	1
25. Çalışacak konforlu bir yer bulurum.	7	6	5	4	3	2	1
26. En etkili şekilde çalışabileceğim bir yer bulmaya çalışırım.	7	6	5	4	3	2	1
27. Derslerime çalışmak için dikkatimi dağıtacak şeylerin az olduğu zamanı seçerim.	7	6	5	4	3	2	1
28. Eğer ödevim varsa TV izlemekten kaçınırım.	7	6	5	4	3	2	1
29. Ders çalışırken gürültülü yerlerden uzaklaşırım.	7	6	5	4	3	2	1
30. Çalışmama konsantre olmak için televizyonu kapatırım.	7	6	5	4	3	2	1
31. Eğer ihtiyacım olduğunu düşünüyorsam ders için ekstra çalışma zamanı ayırırım.	7	6	5	4	3	2	1
32. Günlük olarak derslere devam etmek zorunda olmasam bile çalışma zamanımı günlere eşit olarak bölmeye çalışırım.	7	6	5	4	3	2	1
33. Bitirmem gereken bütün aktiviteler için bir çalışma tablosu hazırlarım.	7	6	5	4	3	2	1
34. Haftada yapmak zorunda olduğum şeylerin planını yaparım.	7	6	5	4	3	2	1
35. Yapmam gereken şeyleri takip etmek için bir ajanda kullanırım.	7	6	5	4	3	2	1

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
36. Çalışma zamanımı denetlerim/kontrol ederim.	7	6	5	4	3	2	1
37. Yardıma ihtiyacım olduğu zaman danışabilmek için ders içeriği konusunda bilgili birini bulurum.	7	6	5	4	3	2	1
38. Eğer zorluk yaşıyorsam bir uzmandan/iyi bilen bir kişiden yardım isterim.	7	6	5	4	3	2	1
39. Neyle uğraştığımızı ve problemlerimizi nasıl çözeceğimizi bilelim diye problemlerimi sınıf arkadaşlarımla paylaşırım.	7	6	5	4	3	2	1
40. Eğer ihtiyacım varsa hocamdan yardım alma konusunda ısrarcıyımdır.	7	6	5	4	3	2	1
41. Ödev ve sunularımı (vb.) hazırlarken farklı kaynaklar kullanırım.	7	6	5	4	3	2	1
42. İhtiyacım olan bilgiyi bulmak için kütüphane kaynaklarını kullanırım.	7	6	5	4	3	2	1
43. Derste kendi notumu tutarım.	7	6	5	4	3	2	1
44. Kaçırdığım bir ödev hakkında arkadaşımdan bilgi alırım.	7	6	5	4	3	2	1
45. Kendime soru alış-verişi yapabileceğim bir arkadaş ararım.	7	6	5	4	3	2	1
46. Notlarımızı karşılaştırmak için bir arkadaşla çalışırım.	7	6	5	4	3	2	1
47. Ders çalışırken ne anladığımı arkadaşlarıma açıklarım.	7	6	5	4	3	2	1
48. Bir parça okurken ya da ders dinlerken dikkatimi kontrol ederim.	7	6	5	4	3	2	1
49. Anlayıp anlamadığımı kontrol etmek için kendimi konu hakkında sorularla test ederim.	7	6	5	4	3	2	1
50. Dersi anlayıp anlamadığımı kontrol ederim.	7	6	5	4	3	2	1

APPENDIX B

ANKET 2

Sevgili öğrenciler,

İkinci bölümde lütfen **cümleleri dikkatle okuyun ve cümlenin yanına sizin tutumunuzu en iyi ifade eden rakamı her bir cümledeki aktiviteyi ne sıklıkta yaptığınıza göre işaretleyin.** Üçüncü bölümde ise aynı işlemi **cümleye ne derece katıldığınıza göre** yapın. Lütfen unutmayın ki **tek bir doğru cevap yoktur; lütfen mümkün olduğu kadar sizin için doğru olan rakamı seçin.** İşbirliğiniz için tekrar teşekkür ederim.

Seniye Vural

İsim:

Bölüm 2 (devamı)- Cümlelerin tutumunuzu ne derece yansıttığını en uygun rakamı işaretleyerek ifade ediniz.

	Her zaman	**Genellikle**	**Sık sık**	**Bazen**	**Nadiren**	**Neredeyse hiç**	**Asla**
51. Sınav anında hızımı ve kalan vaktimi kontrol ederim.	7	6	5	4	3	2	1
52. Zor bir okuma parçası ile karşılaşırsam okuma hızımı yavaşlatırım.	7	6	5	4	3	2	1
53. Sınavlara çalışırken derslerimde ne kadar başarılı olduğumun kaydını tutarım.	7	6	5	4	3	2	1
54. Okurken arada sırada durur ve okuduğum bölümü gözden geçiririm.	7	6	5	4	3	2	1
55. Ders için okurken bir bakarım ki ne okuduğum hakkında hiçbir fikrim yok.	7	6	5	4	3	2	1
56. Öğretmen konuşurken kendimi başka şeyler düşünürken ve anlatılanları gerçekten dinlemezken bulurum.	7	6	5	4	3	2	1
57. Ne öğrendiğimi gözden geçirmek için öğrendiklerimi özetlerim.	7	6	5	4	3	2	1

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
58. Bir ders için çalışırken kendime konu ile ilgili sorular sorarım.	7	6	5	4	3	2	1
59. Derslerimde ne durumda olduğumu anlamak için sınıf arkadaşlarımla iletişim kurarım.	7	6	5	4	3	2	1
60. Benim öğrendiklerimin onların öğrendikleriyle aynı olup olmadığını anlamak için sınıf arkadaşlarımla iletişim kurarım.	7	6	5	4	3	2	1
61. Önceden belirlemiş olduğum hedeflere ne derece ulaştığım açısından kendimi değerlendiririm.	7	6	5	4	3	2	1
62. Her bir çalışma sonunda başarılarımı değerlendiririm.	7	6	5	4	3	2	1
63. Ödevlerimi, raporlarımı vs. öğretmenime teslim etmeden önce nasıl olduğunu başkalarına sorarım.	7	6	5	4	3	2	1
64. Yaptığım şeylerdeki ilerlemelerimi not alırım.	7	6	5	4	3	2	
65. Belli bir iş yapma konusundaki ilerlemelerimi kontrol ederim.	7	6	5	4	3	2	1
66. Daha yetenekli/bilgili birinden performansım hakkında geribildirim (feedback) isterim.	7	6	5	4	3	2	1
67. Başkalarına ödev ve raporlarım vs. ile ilgili ne gibi değişiklikler yapılması gerektiğini sorarım.	7	6	5	4	3	2	1
68. Yapılan iş, ödev vs. zor olduğunda ya bırakır, vazgeçerim; ya da sadece kolay bölümleri çalışırım.	7	6	5	4	3	2	1
69. Yapmak zorunda olmasam bile konu sonundaki soruları cevaplar ve diğer alıştırmaları yaparım.	7	6	5	4	3	2	1
70. Konular ve materyaller sıkıcı bile olsa bitirene kadar çalışmaya devam ederim.	7	6	5	4	3	2	1
71. Dersi sevmesem bile iyi bir not almak için çok çalışırım.	7	6	5	4	3	2	1
72. Dersin okumalarını yaparken fikirlerimi organize etmeme yardımcı olması için konunun taslağını çıkarırım.	7	6	5	4	3	2	1
73. Okuduğum bir şeyle ilgili kafam karıştığında ger döner ve onu anlamaya çalışırım.	7	6	5	4	3	2	1

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
74. Ders için çalışırken okuma parçalarını ve ders notlarımı gözden geçirir ve en önemli fikirleri bulmaya çalışırım.	7	6	5	4	3	2	1
75. Eğer ders materyallerinin anlaşılması zorsa materyali okuma şeklimi değiştiririm.	7	6	5	4	3	2	1
76. Okuma parçalarındaki en karmaşık şeyleri bile anlayabileceğime eminim.	7	6	5	4	3	2	1
77. Öğretmenin anlattığı en karmaşık şeyleri bile anlayabileceğime eminim.	7	6	5	4	3	2	1
78. Ödevlerde ve sınavlarda mükemmel bir iş çıkarabileceğim konusunda kendime güvenim var.	7	6	5	4	3	2	1
79. Öğretilen becerileri öğrenebileceğime eminim.	7	6	5	4	3	2	1
80. Derslerle ilgili tüm konuları öğrenebileceğime eminim.	7	6	5	4	3	2	1
81. Dersleri geçeceğime eminim.	7	6	5	4	3	2	1
82. Sınavlarda yüksek not alacağıma eminim.	7	6	5	4	3	2	1
83. Sınavlar için konuları çalışma konusunda kendimi motive edebileceğime eminim.	7	6	5	4	3	2	1
84. Oda karanlıksa çalışamam.	7	6	5	4	3	2	1
85. Ödevlerimi geliştirmek için geri bildirim (feedback) almaya açığımdır.	7	6	5	4	3	2	1
86. Aldığım geri bildirimlere dayalı değişiklikler yapmaya açığımdır.	7	6	5	4	3	2	1
87. Eğer dersten kalırsam ya da konuyu öğrenemezsem, bu doğru stratejiyi kullanmamış olduğum içindir.	7	6	5	4	3	2	1
88. Eğer dersten kalırsam ya da konuyu öğrenemezsem, bu yeterince uğraş vermemiş olduğum içindir.	7	6	5	4	3	2	1
89. Eğer dersten kalırsam ya da konuyu öğrenemezsem, bu o konuyu öğrenmeye yeteneğim olmadığı içindir.	7	6	5	4	3	2	1
90. Eğer dersten kalırsam, daha iyi olmak için çabalamayı bırakırım.	7	6	5	4	3	2	1

	Her zaman	Genellikle	Sık sık	Bazen	Nadiren	Neredeyse hiç	Asla
91. Eğer dersten kalırsam, hatamın sebebini bulmaya çalışır ve performansımı adapte ederim.	7	6	5	4	3	2	1
92. Eğer derste başarılı olmuşsam, bu yeterince ehil (competent) olduğum içindir.	7	6	5	4	3	2	1
93. Öğrenme güçlükleri ile karşılaştığımda sakin kalabilirim çünkü yeteneklerime güvenirim.	7	6	5	4	3	2	1
94. Çalışma zamanımı iyi bir şekilde kullanırım.	7	6	5	4	3	2	1
95. Bir ders çalışma programına bağlı kalmak bana zor gelir.	7	6	5	4	3	2	1
96. Diğer aktivitelerden dolayı bu ders için çalışmaya fazla zaman harcamadığımı fark ederim.	7	6	5	4	3	2	1
97. Yeni konuyu adamakıllı çalışmadan önce nasıl organize edildiğini görmek için gözden geçiririm.	7	6	5	4	3	2	1
98. Bir sınava girdiğim zaman sınavda ne kadar kötü yaptığımı düşünürüm.	7	6	5	4	3	2	1
99. Bir sınava girdiğim zaman cevaplayamadığım soruları düşünürüm.	7	6	5	4	3	2	1
100. Sınavdan önce notlarımı ya da okumaları gözden geçirmeye zaman bulurum.	7	6	5	4	3	2	1

APPENDIX C

QUESTIONNAIRE 1

Dear students,

This questionnaire was prepared to collect data for a PhD dissertation study conducted at Middle East Technical University. The items in this questionnaire refer to your attitudes about your courses in the department. **Please read the items carefully**, and **mark/circlethe number that is most suitable to you depending on how often you perform the action**. **There is no single correct answer;** please **respond as accurately as possible**. Your responses will be kept confidential.

Thank you for your cooperation.

Seniye Vural

Part 1- Personal information

Name: Gender: M / F

Age:

- Your reasons for selecting your major (Please tick all that apply)

____ My desire to become a teacher ____Working conditions

____ Working with children/young adults ____My ÖSS score

____ The status of the teaching profession ____The influence of my family/environment

____ Job opportunities ____Other

(Please specify .....) (working hours, long summer holiday, etc.)

- Are you considering becoming a teacher after graduation?

____Absolutely yes ____No

____Yes ____Absolutely no

____I would prefer other job opportunities to being a teacher

Part 2- Mark the appropriate number that reflects how frequently you use each strategy in your studies.

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
1. I set standards for my assignments.	7	6	5	4	3	2	1
2. I set short term (daily/weekly) learning goals.	7	6	5	4	3	2	1
3. I set long term (monthly/semester) learning goals.	7	6	5	4	3	2	1
4. I keep a high standard of learning in my courses.	7	6	5	4	3	2	1
5. I set goals to help me manage studying time for my courses.	7	6	5	4	3	2	1
6. I start studying two weeks before exams, and I pace myself.	7	6	5	4	3	2	1
7. I try to find the most effective strategies to make my learning easier and effective.	7	6	5	4	3	2	1
8. I think about how to proceed effectively in order to achieve my goals.	7	6	5	4	3	2	1
9. I make plans for improvement when I do poorly.	7	6	5	4	3	2	1
10. Before I begin studying I think about the things I will need to do to learn.	7	6	5	4	3	2	1
11. I try to make good notes for my courses.	7	6	5	4	3	2	1
12. I make sure that I read the assigned material before class.	7	6	5	4	3	2	1
13. When reading for class, I prepare questions for discussion or to focus better.	7	6	5	4	3	2	1
14. I do extra practice other than the tasks assigned in order to understand the course content.	7	6	5	4	3	2	1
15. I make use of various learning strategies during the performance of the learning task.	7	6	5	4	3	2	1
16. When I study, I try to relate new material to things I have learned in other subjects.	7	6	5	4	3	2	1
17. When I study, I figure out how the information might be useful in the real world.	7	6	5	4	3	2	1
18. When I study, I try to understand the material better by relating it to things I already know.	7	6	5	4	3	2	1
19. I use note cards to write information I need to remember.	7	6	5	4	3	2	1

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
20. I rewrite class notes by rearranging the information in my own words	7	6	5	4	3	2	1
21. I use graphic organizers (charts, diagrams, tables) to put abstract information into a concrete form.	7	6	5	4	3	2	1
22. I visualize words in my mind to recall terms.	7	6	5	4	3	2	1
23. When I study, I go over my class notes and make an outline of important concepts.	7	6	5	4	3	2	1
24. I choose the location where I study to avoid too much distraction.	7	6	5	4	3	2	1
25. I find a comfortable place to study.	7	6	5	4	3	2	1
26. I try to find a place where I can study the most efficiently.	7	6	5	4	3	2	1
27. I choose a time with few distractions for studying for my courses.	7	6	5	4	3	2	1
28. I avoid watching TV if I have an assignment.	7	6	5	4	3	2	1
29. I isolate myself from noisy places while studying.	7	6	5	4	3	2	1
30. I switch off the TV to concentrate on my studies.	7	6	5	4	3	2	1
31. I allocate extra studying time for a course if I feel I need it.	7	6	5	4	3	2	1
32. Even if I don't have to attend classes daily, I try to distribute the study time evenly across days.	7	6	5	4	3	2	1
33. I make a timetable of all the activities I have to complete.	7	6	5	4	3	2	1
34. I plan the things I have to do in a week.	7	6	5	4	3	2	1
35. I use a planner to keep track of what I am supposed to accomplish.	7	6	5	4	3	2	1
36. I monitor/keep track of my study time.	7	6	5	4	3	2	1
37. I find someone who is knowledgeable in the course content to consult when I need help.	7	6	5	4	3	2	1
38. If I am having a difficulty, I inquire assistance from an expert.	7	6	5	4	3	2	1
39. I share my problems with my classmates, so we know what we are struggling with and how to solve our problems.	7	6	5	4	3	2	1

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
40. I am persistent to get help from the instructor if I need it.	7	6	5	4	3	2	1
41. I use a variety of sources in completing my assignments, presentations, etc.	7	6	5	4	3	2	1
42. I use library sources to find the information I need.	7	6	5	4	3	2	1
43. I take my own notes in class.	7	6	5	4	3	2	1
44. I ask a classmate about the assignment I have missed.	7	6	5	4	3	2	1
45. I look for a friend with whom I can have an exchange of questions.	7	6	5	4	3	2	1
46. I study with a partner to compare notes.	7	6	5	4	3	2	1
47. When studying, I often try to explain the material to a classmate or a friend.	7	6	5	4	3	2	1
48. I track my attention while reading a text or listening to a lecture.	7	6	5	4	3	2	1
49. I test myself about the material through questions to check my understanding.	7	6	5	4	3	2	1
50. I monitor my comprehension of a lecture.	7	6	5	4	3	2	1

APPENDIX D

QUESTIONAIRE 2

Dear students,

Please read the statements carefully, and **mark/circle the number that is the most suitable to you depending on how often you perform the action in each statement.** Please keep in mind that **there is no single correct answer;please respond as accurately as possible**. Your responses will be kept confidential. Thank you for your cooperation.

Seniye Vural

Name:

Part 2 (continued)- Mark the appropriate number that reflects how frequently you use each strategy in your studies.

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
51. I monitor my speed and time available during exams.	7	6	5	4	3	2	1
52. If I am confronted with a difficult reading text, I slow down my pace.	7	6	5	4	3	2	1
53. I keep a record on how well I am doing in my courses while studying for the exams.	7	6	5	4	3	2	1
54. When I'm reading, I stop once in a while and go over what I have read.	7	6	5	4	3	2	1
55. I often find that I have been reading for class but don't know what it is all about.	7	6	5	4	3	2	1
56. I usually find that when the teacher is talking I think of other things and don't really listen to what is being said.	7	6	5	4	3	2	1
57. I summarize my learning to examine my understanding of what I have learned.	7	6	5	4	3	2	1

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
58. I ask myself a lot of questions about the course material when studying for a course.	7	6	5	4	3	2	1
59. I communicate with my classmates to find out how I am doing in my classes.	7	6	5	4	3	2	1
60. I communicate with my classmates to find out if what I have learned is the same as what they have learned.	7	6	5	4	3	2	1
61. I evaluate myself in terms of the extent to which I achieved the goals I had set.	7	6	5	4	3	2	1
62. I evaluate my accomplishments at the end of each study session.	7	6	5	4	3	2	1
63. I ask others how my work is before submitting it to my teachers.	7	6	5	4	3	2	1
64. I take note of the improvements on what I do.	7	6	5	4	3	2	1
65. I monitor my improvements in doing a certain task.	7	6	5	4	3	2	1
66. I ask feedback for my performance from someone who is more capable.	7	6	5	4	3	2	1
67. I ask others what changes should be done with my homework, papers, etc.	7	6	5	4	3	2	1
68. When work is hard, I either give up or study only the easy parts.	7	6	5	4	3	2	1
69. I work on practice exercises and answer end of chapter questions even when I don’t have to.	7	6	5	4	3	2	1
70. Even when study materials are dull and uninteresting, I keep working until I finish.	7	6	5	4	3	2	1
71. I work hard to get a good grade even when I don't like a class.	7	6	5	4	3	2	1
72. When I study the readings of a course, I outline the material to help me organize my thoughts.	7	6	5	4	3	2	1
73. When I become confused about something I'm reading, I go back and try to figure it out.	7	6	5	4	3	2	1

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
74. When I study, I go through the readings and my class notes and try to find the most important ideas.	7	6	5	4	3	2	1
75. If course materials are difficult to understand, I change the way I read the material.	7	6	5	4	3	2	1
76. I am certain I can understand the most difficult material presented in readings.	7	6	5	4	3	2	1
77. I am confident I can understand the most complex material presented by the teacher.	7	6	5	4	3	2	1
78. I am confident I can do an excellent job on assignments and tests.	7	6	5	4	3	2	1
79. I am certain I can master the skills being taught.	7	6	5	4	3	2	1
80. I am sure that I can learn all the material for courses.	7	6	5	4	3	2	1
81. I am sure that I will pass my courses.	7	6	5	4	3	2	1
82. I am sure that I will obtain high scores in the exams.	7	6	5	4	3	2	1
83. I am sure that I can motivate myself to study the material for the exams.	7	6	5	4	3	2	1
84. I cannot study if the room is dark.	7	6	5	4	3	2	1
85. I am open to feedback to improve my work.	7	6	5	4	3	2	1
86. I am open to changes based on the feedback I receive.	7	6	5	4	3	2	1
87. If I fail a course or cannot learn a material, this is because I have not used the right strategy.	7	6	5	4	3	2	1
88. If I fail a course or cannot learn a material, this is because I have not put enough effort.	7	6	5	4	3	2	1
89. If I fail a course or cannot learn a material, this is because I do not have the ability to learn it.	7	6	5	4	3	2	1
90. If I fail a course, I give up trying to improve.	7	6	5	4	3	2	1
91. If I fail a course, I try to find out the source of my error and adapt my performance.	7	6	5	4	3	2	1
92. If I have been successful in a course, this is because I am competent enough.	7	6	5	4	3	2	1

	Always	Usually	Frequently	Sometimes	Rarely	Hardly ever	Never
93. I can remain calm when facing learning difficulties because I can rely on my abilities.	7	6	5	4	3	2	1
94. I make good use of my study time.	7	6	5	4	3	2	1
95. I find it hard to stick to a study schedule.	7	6	5	4	3	2	1
96. I often find that I do not spend very much time on my courses because of other activities.	7	6	5	4	3	2	1
97. Before I study new material thoroughly, I often skim it to see how it is organized.	7	6	5	4	3	2	1
98. When I take a test, I think about how poorly I am doing.	7	6	5	4	3	2	1
99. When I take a test, I think about items of the test I cannot answer.	7	6	5	4	3	2	1
100. I find time to review my notes or readings before a test.	7	6	5	4	3	2	1

APPENDIX E

HOMEWORK 1

Chapter 2- Animals and Human Language

Name & Number: **Self-efficacy:**

Date: **Grade:**

1. What is the difference between communicative and informative signals?

2. What are five characteristics that differentiate human languages from animal communication?

3. The fact that there is no natural or iconic relationship between objects and linguistic signs (words) is called ……

4. What is the difference between human language and animal communication in terms of productivity?

5. The fact that human beings acquire a language not from parental genes, but in a culture with other speakers is called

   …….

6. Animals can only communicate about things happening now and here. This is related to ……

7. How can you support that language is culturally transmitted? Give an example.

8. Why might bonobos be better at language learning than other chimpanzees?

9. While Sue Savage-Rumbaugh was trying to teach Matata (a chimpanzee) to communicate through symbols, her son, Kanzi, spontaneously started using the symbol system without difficulty. Matata, on the other hand, had some difficulty. This shows the importance of ……

10. At the end of the studies, were the chimpanzees at the linguistic level comparable to a human child at the same age? Discuss.

APPENDIX F

QUIZ 2

Chapter 2- Animals and human language

Name: **Number:**

Date: **Grade:**

1. Washoe, the baby chimpanzee used the phrase “water bird” to refer to a “swan”. This shows that her communication system has the potential for ……

2. Human beings can talk about their memories or future plans thanks to the property of their language called …….

3. Words in English such as “internet”, “wi-fi”, “i-pod” are new; they did not exist 20 years ago. This is an example of the property of human language called ……..

4. Why were the chimpanzees not able to articulate the sounds in human speech?

5. Does the fact that dogs heel when someone says “heel” show that the dog understands the meaning of the word? How can you explain this?

6. Human language has 2 levels: the physical level (individual sounds) and the meaning level when we combine the sounds. This property is called ……..

7. A Turkish child brought up by an English family will eventually speak …… This property is called ……

8. In the attempt to teach Sarah, the chimpanzee, to communicate with humans, a blue triangle referred to “apple”. Is this shape arbitrary? Why? Why not?

9. Each signal in the animal communication system is fixed, and it relates to a particular object/occasion. This is called ……

10. Is human language instinctive? Explain.

APPENDIX G

SELF-MONITORING FORM

Date	Assignment	Time started	Time spent	Study context			Self-efficacy	
				Where?	With whom?	Distraction?	HW	Quiz

APPENDIX H

GUIDING QUESTIONS FOR JOURNAL ENTRIES

Week 1- Current Study Habits

What are the factors that help you learn more easily? Which specific actions or procedures facilitate your learning and how?

Week 2- Management of Study Time

Do you manage your study time? If yes, how? What are the advantages and disadvantages of these techniques? Please write detailed responses explaining the effect of these techniques on learning and giving examples.

Week 3- Self-evaluation and monitoring

Do you set academic goals? How often? Please give examples. Next, examine your self-monitoring form carefully. Compare the data in your self-monitoring forms with your homework and quiz scores. Think about how all these variables affect each other. Based on your self-monitoring form, identify a specific problem you are facing in your studies and think about a goal to overcome this problem.

Week 4- Goal-setting and strategic planning

Refer to this week's class discussion with your peers about the results of your self-evaluation and goal. What is your goal? What strategy(ies) are you planning to use to attain your goal?

Week 5- Strategy implementation and monitoring

Implement the strategy(ies) you have selected. Throughout the week, observe whether the implementation of the strategy(ies) help you on the path to achieve your goal. Are you observing any specific improvements? Reflect on any modifications you make on the strategy use, explaining how and why.

Week 6- Strategy implementation and monitoring

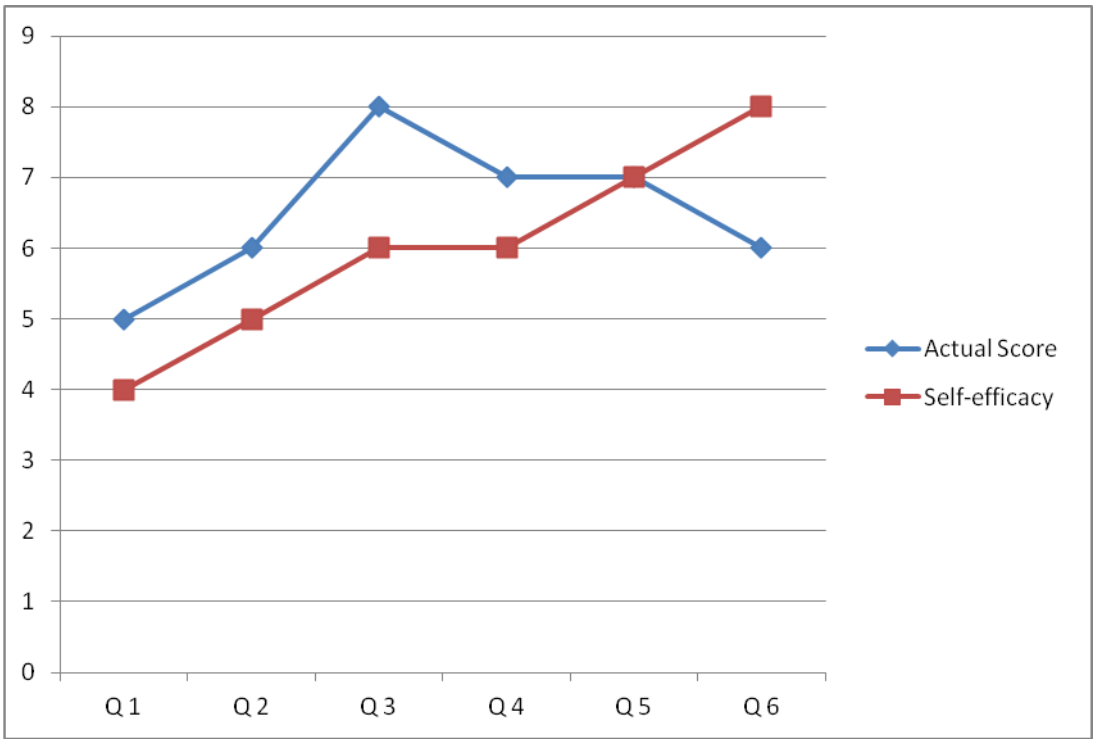
Continue implementing your strategy(ies) and observing its effectiveness. Are you observing any specific improvements? Reflect on any modifications you make explaning how and why.

Week 7- Strategic outcome monitoring

Think about the whole process. Reflect on how the process has contributed to your strategy use and quiz and homework scores. In what ways has the process made changes? Has it helped you to attain your goal? How? Reflect on any contribution or limitation you have experienced.

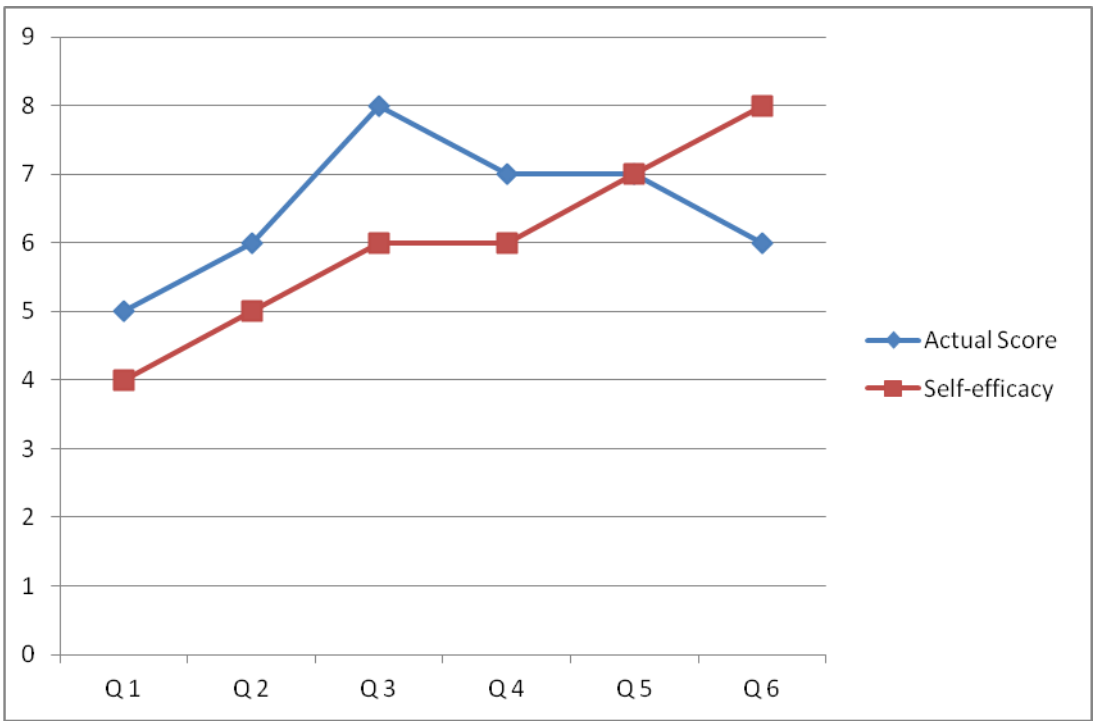
APPENDIX I

SAMPLE GRAPH FOR QUIZ SELF-EFFICACY AND ACTUAL QUIZ SCORES



APPENDIX J

SAMPLE GRAPH FOR HOMEWORK SELF-EFFICACY AND ACTUAL HOMEWORK SCORES



APPENDIX K

TRAINING EVALUATION FORM

Name:

Please mark the number that indicates the extent to which you agree with each statement.

	Completely agree	Agree	Undecided	Disagree	Completely disagree
1. Self-regulatory training helped my learning.					
2. I have become a better student after this training.					
3. Self-regulated learning has made a difference in the way I study.					
4. I am confident that I have learned the material covered in this course.					
5. I will teach self-regulated strategies to my future students.					
6. I met all the goals that I had set at the beginning of the semester.					
7. I completed all weekly assignments throughout the semester.					
8. I read the required reading materials thoroughly each week.					
9. I revised the notes I had taken during classes frequently.					
10. I scheduled a specific time every week to work on my assignments.					
11. I asked help from my instructor or peers when I needed help.					
12. This training helped me become more confident in my learning.					
13. This training helped me become more organized.					

14. I am going to use the methods I learned to monitor my study habits and progress.					
15. Planning will help me in my courses.					
16. Keeping track of my studies will help me in my courses.					
17. I believe that monitoring skills are valuable.					
18. I plan to use these monitoring skills in the future.					

Do you feel that the training you have gone through this semester has helped you to improve your studies? If you think it has, in what ways? Please tick all that apply and/or add other ways if you have other reasons.

_____ No

____Yes

____ Be more organized

____ Get higher grades

____ Feel more confident

____ Become a better student

____ Be aware of why I succeed/fail

____ Other

How would you rate the overall effectiveness of this training for your academic development? ____ %

APPENDIX L

TURKISH SUMMARY

I. GİRİŞ

İnsanlar kendilerini anlamayı ve kontrol etmeyi çok severler ve bu pek çok filozofa, teoloğa ve psikoloğa göre insanları bir tür olarak ayıran en önemli özelliktir (Zimmerman & Schunk, 2001). Bu yüzden insanların öz-düzenleme ve öz-kontrol yeteneği bin yıllardır Avrupa ve doğu felsefesinde tekerrür eden bir temadır ve sosyal psikolojinin öz-düzenlemeye ilgisi 1990'ların sonunda başlamıştır (Forgas, Baumeister, & Tice, 2009). Aslında öz-düzenleme Psikoloji bilimi tarafından başarıya katkıda bulunan iki temel değişkenden biri olarak belirlenmiştir (diğer değişken zekadır) (Forgas ve diğerleri, 2009). Bandura (1986, p. 354) tarafından "insana özgü bir yetenek", Zimmerman (2000, p. 13) tarafından "insan olarak en önemli özelliğimiz", Boekaerts, Pintrich, ve Zeidner (2000, p. 4) tarafından "akıl ve insan davranış bilimiyle son derece alakalı, önemli bir konu" olarak ifade edilen öz-düzenleme, psikoloji, tıp ve spor eğitimi gibi çeşitli alanlarda araştırmaların odağı olmuştur.

Pek çok farklı alanda araştırma konusu olan öz-düzenleme, eğitim alanında da son 30 yılda önemli derecede ilgi görmüştür (Pintrich, 2003; Zimmerman & Schunk, 2001). Eğitim açısından bakılınca, öğrencileri öz-düzenleme becerileriyle donatmak, bağımsız ve ömür boyu öğrenmeyi hedefleyen öğrenciler eğitmek için son derece önemli bir amaçtır çünkü öğrenmeyi güçlendirmek sadece içerik bilgisini artırmayı değil, aynı zamanda çalışma yeteneklerini, sosyal yetenekleri ve istenen güdüsel uyumları da geliştirmeyi gerektirir (Kadıoğlu, Uzuntiryaki, & Çapa-Aydın, 2011). Bu amaçla bağlantılı olarak, eğitim psikolojisi alanında pek çok kuramcı öğrencilerin

öz-düzenleme kapasitelerinin alanını eğitimin akademik yönüne odaklanarak daraltmıştır ki bu da öz-düzenlemeye dayalı öğrenme (ÖDDÖ) kavramının eğitim araştırmalarının yaygın bir konusu olmasına yol açmıştır (Boekaerts & Corno, 2005). "Nispeten yeni ve giderek artan şekilde önemli bir alan" (Boekaerts ve diğerleri, 2000, p. 1) olarak nitelenen ÖDDÖ sürecinin önemini açığa çıkaran giderek artan miktarda kanıt vardır (Zimmerman, 1986).

Eğitim psikolojisinde öz-düzenlemeye olan ilgi pek çok etkene bağlanabilir. Birinci etken eğitim alanında meydana gelen davranışsalcılıktan bilişselciliğe doğru olan önemli değişim (Chen, 2002) ve bunun sonucu olarak odağın sonuçtan öz-düzenleme sürecinin kendisine kaymasıdır (Zeidner, Boekaerts, & Pintrich, 2000). Bu değişim öğrencilerin kendi öğrenme süreçlerinde daha fazla sorumluluk almasına yol açmış (Chen, 2002) ve öz-düzenleme çalışmaları "psikoloji ve eğitimin doğal ve organik bir parçası" haline gelmiştir (Zeidner ve diğerleri, 2000, p. 749). Eğitim psikologları tarafından okul ve sonrasında başarılı öğrenmenin anahtarı olarak görüldüğü için öz-düzenleme eğitim alanında araştırmaların odağı olmuştur (Boekaerts, 1999; Dignath, Buettner, & Langfeldt, 2008; Schunk, 2005a; Zimmerman, 2002), ve bu, "bu alanda eser patlamasına" yol açmıştır (Zeidner ve diğerleri, 2000, p. 750).

İkincisi, son yıllarda insan kabiliyeti anlayışında önemli değişiklikler olmuştur: değişmez bir nitelikten ziyade, bilişsel, sosyal, güdüsel ve davranışsal becerilerin farklı amaçlara ulaşmak için organize edildiği ve etkin bir şekilde kullanıldığı üretken bir beceri olarak görülmeye başlanmıştır (Bandura, 1993). Buna benzer olarak, ÖDDÖ'nün amacı öğrencilerin öğrenme becerileri ve çevrelerini değişmez öğeler olarak değil, daha iyi öğrenme için yetenek ve çevrelerini geliştirmek amacıyla kendilerinin başlattığı süreçler ve tepkiler olarak görmelerini sağlamaktır (Zimmerman, 1990, 2001). Bu yeni yetenek anlayışının öğrencilerin öğrenme süreçlerini kendilerinin kontrol ederek hedeflerine ulaşabildiklerinin altını çizerek öğrenme anlayışlarını değiştirmelerine yol açtığı söylenebilir. Ayrıca, öğrencilerin beceri ve yeteneklerinin başarıyı tamamıyla açıklamadığını, motivasyon

ve öz-düzenleme gibi diğer etkenlerin de oldukça etkili olduğunu gösteren çokça kanıt vardır (Zimmerman, 2001).

Üçüncüsü, bilgi miktarında büyük artışlara sebep olan teknolojideki hızlı gelişmelerden dolayı öğrenciler öğrenme kabiliyetleri konusunda yeni gereksinimlerle karşı karşıya kalmaktadırlar ve öz-düzenleme bu gereksinimleri karşılamak için ortaya çıkan önemli bir kavramdır (Bandura, 1993; Dignath ve diğerleri,2008; Perels, Dignath, & Schmitz, 2009; Zimmerman, Bonner, & Kovach, 1996). Bu etkene yakından bağlı olan bir başka etken de eğitimcilerin öğrencilerde olmasını umut ettikleri bir özellik olan hayat boyu öğrenmenin çağdaş gereksinimleridir (Schunk, 2005a; Perels ve diğerleri, 2009; Zimmerman ve diğerleri, 1996). Hayat boyu öğrenmeyi gerektiren bir toplumda öğrencilerin kendi öğrenmelerini düzenleme becerisi hem akademik hem akademi dışı bağlamda başarılı olmak için gitgide daha da önemli bir hal almaktadır (Zimmerman, 2008). Perels ve diğerlerinin (2009) belirttiği gibi, hayat boyu öğrenenler bu gereksinimler için aktif, donanımlı ve hazırlıklı olmalıdırlar; yeni bilgiyi öğrenebilmeli ve var olan bilgiyi yeni gereksinimlere uyarlayabilmelidirler. Toplum ayrıca öğrencilerin eğitim hayatları boyunca ve sonrasında ve profesyonel hayatları boyunca öz-düzenlemeye dayalı olarak öğrenebilmelerini gerektirir (Dignath & Büttner, 2008). Kısaca, "hayat boyu öğrenmenin gerekli bir birincil şartı" olarak, ÖÖDÖ'nün öğrenme sürecinin sorumluluğunu öğretmenden öğrenciye transfer ederek pek çok problemi çözmede son derece önemli olduğu iddia edilmektedir (Klug, Ogrin, Keller, Ihringer, & Schmitz, 2011, p. 51). Dolayısıyla, öğrencilerin öğrenme süreçlerinde aktif bir şekilde müdahil olmaları gibi öğrenme anlayışındaki güncel değişiklikler, öğrenmenin etkinliğini artıracak ÖDDÖ gibi yeni yaklaşımlara olan ihtiyacı da beraberinde getirmiştir. Bu gelişmelere paralel olarak, eğitim politikalarını düzenleyenler ve eğitim araştırmacıları 1980'lerin ortasından beri öğrencilerin kendi öğrenmelerini hem okulda hem okul sonrasında kontrol etme kapasitelerini anlama konusuyla oldukça ilgilenmişlerdir (Boekaerts & Corno, 2005).

Bu noktada sorulması gereken önemli bir soru şudur: "Gençlerimizi kendi öğrenmelerinin yükünü alma konusunda ne kadar eğittik" (Zimmerman ve diğerleri,

1996, p. 1)? Öğrenciler genellikle akademik başarı konusunda isteğe ve beceriye sahip olmadıkları için öğretmenler ÖDDÖ süreçleri açısından öğrencileri yönlendirecek eğitimsel yaklaşımlara ihtiyaç duyarlar (Zimmerman, 1990). Bunun sonucu olarak, ÖDDÖ ile akademik başarı arasındaki olumlu ilişkiye (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988) ve ÖDDÖ becerilerini geliştirmeyi amaçlayan müdahalelerin olumlu katkılarına dayanarak (Dignath & Büttner, 2008; Dignath ve diğerleri, 2008; Perels, Gürtler, & Schmitz, 2005; Perels ve diğerleri, 2009; Schunk & Ertmer, 2000) ÖDDÖ eğitimi ihtiyacı daha da çok vurgulanmalıdır.

Bu çalışma Türk öğrencilerin ÖDDÖ farkındalığını ÖDDÖ eğitimi yoluyla artırmayı ve onları öğrenmelerini geliştirmek için ÖDDÖ stratejileri kullanmaya teşvik etmeyi amaçlamaktadır. Çalışmanın bir başka amacı, öğrencilerin eğitimden önce, eğitim sırasında ve sonrasında kullandıklarını ifade ettikleri ÖDDÖ stratejilerini belirlemeyi ve ÖDDÖ eğitimi ile öğrencilerin öğrenme süreçlerini öz-düzenleme farkındalıkları, içerik derslerinde ÖDDÖ stratejileri kullanımları ve akademik başarıları arasındaki ilişkiyi incelemektir. Kısaca, çalışmanın amacı öğrencilerin "kendi öğrenmelerinin kurbanı değil, kontrolörü olabileceklerini" (Zimmerman ve diğerleri., 1996, p. 9) anlamalarını sağlamaktır. Çalışma aşağıdaki araştırma sorularını cevaplamayı hedeflemektedir:

2. Öz-düzenleme eğitimi ile öğrencilerin çalışma alışkanlıklarını düzenlemeleri ve akademik başarıları arasındaki ilişki nedir?

    1a. Öğrenciler eğitimden önce hangi öz-düzenleme stratejilerinin farkındadırlar?

    1b. Öğrenciler eğitim sırasında ve sonrasında en çok hangi öz-düzenleme stratejilerini kullanmışlardır?

    1c. Öz düzenleme eğitimi ile öğrencilerin öz-düzenleme stratejileri farkındalıkları ve kullanımları arasındaki ilişki nedir?

1d. Öğrencilerin öz-düzenleme eğitiminin etkinliği konusunda algıları nelerdir?

1e. ÖDDÖ eğitimi ve öğrencilerin akademik başarıları arasındaki ilişki nedir?

Bu çalışmanın öz-düzenleme literatürü için pek çok açıdan önemi vardır. Birincisi, çalışma literatüre öz-düzenleme eğitimi ile öğrencilerin öz-düzenleme stratejileri ve kullanımı ve akademik başarıları arasındaki ilişkiyi inceleyerek katkıda bulunacaktır. İkincisi, önceki ÖDDÖ çalışmalarının aksine, bu çalışma öz-düzenlemenin bütün aşamalarını uygulamaları konusunda öğrencileri yönlendirerek ve süreci sistematik bir şekilde gözlemlemelerini ve değerlendirmelerini sağlayarak bir halka olarak tüm öz-düzenleme sürecini içerir. Üçüncüsü, Olaussen ve Braten'in (1999) öz-düzenleme modellerinin genellenebilirliğini belirlemek için farklı bağlam ve ülkelerde çalışma yapılması gerektiği noktasındaki çağrısına bir cevap niteliğindedir. Dördüncüsü, bu çalışma pek çok önceki çalışma korelasyonel metotlarla yapıldığı için de önemlidir; bu çalışmalar ÖDDÖ anlayışı hakkında bize bilgi verse de sürecin kendisi ile ilgili ve süreç sırasındaki davranış ve düşüncelerin nedenleri ile ilgili detaylı bilgi vermemektedir. (Abar & Loken, 2010). Literatürdeki bu boşluğu doldurmak için bu çalışma hem nitel hem nicel metotlardan faydalanarak sadece strateji kullanımının sıklığını değil, aynı zamanda öğrencilerin belirli stratejileri kullanma sebepleri ve yolları ve yaptıkları değişiklikler hakkında da bilgi verecektir. Son olarak, bu çalışma Schunk ve Ertmer'in (2000) sadece model olmakla kalmama, öğrencilere kendi öğrenmelerinde daha çok sorumluluk verme ve içerik derslerinde öz-düzenleme öğretme çağrısına bir cevap olarak görülebilir.

II. LİTERATÜR TARAMASI ÖZETİ

Öz-düzenleme araştırmaları çeşitli odak noktalarına sahip farklı alanlar içerir çünkü psikoloji araştırmalarında ortak olan biliş, problem çözme, karar verme, üst biliş ve motivasyon gibi karmaşık fonksiyonları kapsar (Boekaerts & Corno, 2005). Paris ve Paris (2001) öz-düzenleme konusunda bol miktarda araştırma bulunmasını öz-düzenlemenin tüm yaştan ve disiplinlerden öğrencilerin amacına- öğrencilerin eğitim yaşamlarında nasıl bağımsız olduklarını anlamaya- hizmet etmesine bağlar.

Araştırmacılar öğrencilerin öz-düzenleme strateji kullanımı ile akademik başarı arasındaki ilişkiyi öz-düzenleme becerisi gelişmiş öğrencilerin onları diğerlerinden ayıran özelliklerini belirleyerek incelemişlerdir (Kosnin, 2007; Pintrich & De Groot, 1990; Sungur & Güngören, 2009; Zimmerman & Martinez-Pons, 1986, 1988; Zimmerman ve diğerleri, 1992).

ÖDDÖ strateji kullanımı ile akademik başarı arasındaki ilişkiyi inceleyen önemli çalışmalardan biri Zimmerman ve Martinez-Pons (1986) tarafından yürütülmüştür. Zimmerman ve Martinez-Pons yüksek ve düşük akademik gruplardan lise öğrencileriyle farklı öğrenme bağlamlarında ÖDDÖ strateji kullanımları hakkında mülakat yapmış ve farklı gruplardan öğrencilerin neredeyse tüm kategorilerden strateji kullanımı açısından anlamlı bir şekilde farklı olduklarını bulmuşlardır. Daha başarılı öğrenciler 13 ÖDDÖ stratejisi kategorisinde daha az başarılı öğrencilerden daha fazla strateji kullanmıştır ki bu durum bu stratejilerin başarıyı getirdiğini ima eder. Sonuçlara göre, ÖDDÖ strateji kullanımı öğrencilerin akademik başarı durumunu %93 oranında tahmin eder.

Bu çalışmayı takiben, Zimmerman ve Martinez-Pons (1988) öğretmenlerin öğrencilerin sınıfta ÖDDÖ strateji kullanımı gözlemleri ile öğrencilerin kullandıklarını ifade ettikleri stratejiler ve akademik başarıları arasındaki ilişkiyi incelemiştir. Sonuçlara göre, öğrencilerin ÖDDÖ strateji kullanımı matematik ve sözlü başarılarına önemli katkılar sağlamıştır. Buna benzer olarak, Zimmerman ve

diğerleri (1992) de öğrencilerin öz-yeterlik inançları, kişisel hedef belirleme ve öğrenme stratejileri kullanımının akademik başarılarına etkisini araştırmıştır. Sonuçlar, öğrencilerin öz-düzenleme öz-yeterliklerinin geliştiğini ve öz-düzenleme öz-yeterliklerinin akademik başarı öz-yeterliklerinin göstergesi olduğunu, akademik öz-yeterliğin de öğrencilerin not hedefleri ve notlarıyla ilişkili olduğunu göstermektedir. Pintrich ve De Groot (1990) da Fen ve İngilizce derslerinde motivasyon, ÖDDÖ ve sınıf akademik performansı arasındaki ilişkiyi araştırmış ve hem güdüsel hem ÖDDÖ bileşenlerin her ikisinin de sınıf akademik performansında önemli olduğunu bulmuştur. Ayrıca, sonuçlara göre, ÖDDÖ stratejileri kullanımı başarıyla da ilişkilidir.ÖDDÖ becerisinin akademik başarıyı ne derece öngördüğünü araştıran bir başka çalışma Kosnin (2007) tarafından Malezya'da yürütülmüştür. Bulgular, ÖDDÖ becerisinin başarı üzerinde önemli etkisi olduğunu göstermektedir; becerisi gelişmiş olan öğrencilerin daha başarılı oldukları gözlenmiştir.

ÖDDÖ ile akademik başarı arasındaki umut verici ilişki (Dignath & Büttner, 2008; Dignath ve diğerleri, 2008; Fuchs, Fuchs, Prentice, Burch, Hamlett, Owen, & Schroeter, 2003; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988) ve ÖDDÖ'nün hayat boyu öğrenme için önemli bir beceri oluşu (Klug ve diğerleri, 2011; Perels ve diğerleri, 2009; Schunk, 2005a; Zimmerman ve diğerleri, 1996) ÖDDÖ eğitiminin önemini ortaya çıkarmaktadır. Bu faktörler, eğitim araştırmacıları ve öğretmenlerin öğretimi geliştirme ve daha etkin kılma amaçları ve hayat boyu öğrenmeyi yaygınlaştıracak yeni standartlar, teorik varsayımlar, kullanılan modeller, dizayn, amaç, ve eğitim alanı açılarından çeşitlilik gösteren ÖDDÖ eğitimi çalışmalarının yapılmasına yol açmıştır (Dignath & Büttner, 2008; Dignath ve diğerleri, 2008). Mesela, Perels ve diğerleri (2005) ödev yoluyla öğrencilerin ÖDDÖ ve matematik problemleri çözme becerisini geliştirmek amacıyla deneysel bir müdahale çalışması yürütmüştür. Sonuçlar hem ÖDDÖ hem problem çözme eğitimi alan öğrenciler ile sadece ÖDDÖ ve sadece problem çözme eğitimi alanlar ve hiç eğitim almayanlar arasında anlamlı farklılıklar göstermektedir. Perels ve diğerleri (2009) önceki çalışmanın devamı olarak öğrencilerin ÖDDÖ yeteneklerinin matematik derslerine ve başarılarına etkisini araştırmıştır. Sonuçlara göre, eğitimden sonra hem eğitim alan hem de almayan grubun matematik becerileri

gelişse de eğitim alan grubun gelişmesi daha büyük olmuştur. Buna benzer olarak, Fuchs ve diğerleri (2003) deneysel bir çalışma ile ÖDDÖ stratejilerinin problem çözme transfer becerisi ile birlikte öğrencilerin matematik problem çözme becerisine katkısını incelemiş ve bütün seviyelerde transfer ve ÖDDÖ eğitiminin bir arada verildiği grupların akademik gelişmesinin diğerlerinden daha büyük olduğunu bulmuşlardır. Souvignier ve Mokhlesgerami (2006) de ÖDDÖ strateji eğitiminin öğrencilerin okuma stratejileri anlayışı, strateji kullanma becerileri ve okuduklarını anlamalarına etkisini araştırmış ve strateji bilgisi, bilişsel öz-düzenleme ve öz-düzenlemenin güdüsel yönlerinin birleştirildiği eğitim grubunun sonradan yapılan testte okuduğunu anlama skorlarının diğerlerine kıyasla ciddi derecede yüksek olduğunu bulmuşlardır.

Özetle, literatürdeki müdahale çalışmalarının sonuçları ÖDDÖ stratejilerinin eğitim yoluyla geliştirilebildiğini ve bu stratejilerin eğitiminin gerekli olduğunu ortaya koymuştur (Dignath ve diğerleri, 2008). Ayrıca, ÖDDÖ müdahaleleri öğrencilerin akademik başarılarını geliştirmiş (Dignath & Büttner, 2008; Dignath ve diğerleri, 2008; Fuchs ve diğerleri, 2003; Perels ve diğerleri, 2005, 2009; Schunk, 2005a; Schunk & Ertmer, 2000) ve eğitim bağlamının ötesine transfer edilmiştir (Schunk, 2005a). Bu müdahalelerin faydaları öğretmenlerin ve öğrencilerin onları adapte edip sınıfta kullanmaları açısından önem taşımaktadır (Paris & Paris, 2001).

III. ARAŞTIRMA YÖNTEMİ

Bu çalışma ÖDDÖ eğitimi ile öğrencilerin ÖDDÖ stratejileri farkındalıkları ve kullanımları ve akademik başarıları arasındaki ilişkiyi incelemek amacıyla bir karma metot müdahale çalışması olarak tasarlanmıştır. Bu metot tek bir çalışmada nicel ve nitel veri toplama, analiz etme ve karıştırmadan oluşur (Creswell, 2009; Creswell & Plano Clark, 2011). Çalışmada karma metot kullanılmasının amacı araştırmacıya her bir metodolojinin güçlü yanlarını kullanma imkânı vermesidir

(Creswell, 2009). Nicel veri ve analizi araştırma problemi hakkında genel bir fikir verirken, nitel veri ve analizi katılımcıların fikirlerini daha derinden ortaya çıkarır (Tashakkori & Teddlie, 1998). Bu çalışmada nicel veri araştırmacıya öğrencilerin ÖDDÖ stratejileri farkındalıkları, bu stratejileri kullanma sıklığı ve eğitim boyunca strateji kullanımlarındaki değişiklikler hakkında genel bilgi sağlarken, nitel veri öğrencilerin deneyim, duygu ve düşünceleri hakkında derinlemesine ve gelişmiş bilgi verir. Bu çalışmanın geleneksel nicel dizaynı geliştirmek için nitel kısmın nicel kısma entegre edildiği kompleks karma metot dizaynı vardır (Creswell & Plano Clark, 2011). Nicel ve nitel metotların kullanımı çalışma başlamadan önce belirlenmiş ve planlanmış olduğu ve süreç planlandığı gibi yürütüldüğü için bu bir sabit karma metot yaklaşımıdır (Creswell & Plano Clark, 2011).

Çalışmanın katılımcıları Kayseri, Türkiye'de bulunan Erciyes Üniversitesi İngiliz Dili ve Edebiyatı Bölümü'nde okuyan 30 ikinci sınıf öğrencisinden oluşmaktadır. Dilbilime Giriş dersine kayıtlı tüm öğrenciler çalışmaya katılımcı olmaya gönüllü olmuşlar ve dersler sırasında ÖDDÖ eğitimi almışlardır. Dolayısıyla, eğitime toplam 65 öğrenci katılmış, fakat bazı öğrenciler birkaç ders kaçırdıkları ve dolayısıyla quizlere giremedikleri ve günlüklerini teslim edemedikleri için çalışmadan çıkarılmışlardır. Katılımcılardan ikisi erkek, 28'i bayandır. Katılımcıların yaşları 19-22 arasında değişmektedir ve yaş ortalaması 20.03'tür.

Çalışmada kullanılan veri toplama araçları:

1. Anket
2. Ödevler
3. Quizler
4. Kendini gözlemleme formu
5. Günlük
6. Öz-yeterlik ve performans notları grafikleri
7. Eğitim değerlendirme formu

Veri Toplama Süreci

Çalışmaya başlamadan önce etik kurul izni alınmış, öğrencilere eğitim hakkında kısaca bilgi verilmiş, çalışmaya gönüllü olarak katıldıklarına dair rızaları alınmış, cevaplarının sadece çalışma için kullanılacağı ve araştırmacı dışında kimse tarafından görülmeyeceği hatırlatılmıştır.Veri toplama sureci Eylül 2011 ile Kasım 2011 arasında gerçekleşmiştir ve dört aşamadan oluşmuştur. Çalışmanın başında Pintrich ve diğerleri (1991) tarafından geliştirilen 'Öğrenmede Motive Edici Stratejiler Ölçeği' adapte edilmiş, Türkçe'ye çevrilmiş ve öğrencilerin literatürdeki ÖDDÖ stratejilerini ne sıklıkla kullandıklarını belirlemek için bu anketi doldurmaları istenmiştir. Böylece eğitimden önceki ankete dair nicel veri toplanmıştır. Sonra, öğrenciler 7 hafta boyunca Zimmerman ve diğerlerinin (1996) ÖDDÖ modeline dayanarak öğrencilerin ödevler sırasında öz-düzenleme pratiği yapmalarını teşvik edecek, ÖDDÖ farkındalıklarını artıracak ve öğrenme süreçlerini kontrol etmelerini sağlayacak bir ÖDDÖ eğitimine tabi tutulmuşlardır. Eğitim süresince tuttukları günlükte öğrenciler her hafta deneyimlerini, algılarını, davranışlarını, duygularını ve kullandıkları stratejileri yazmışlardır. Bunu yaparken öğrenciler çalışma zaman, süre ve mekânlarını kaydettikleri kendini gözlemleme formlarındaki bilgilere dayanmışlardır. Günlük verileri çalışmanın nitel veri kısmını oluşturmaktadır. Ayrıca, çalışmanın tasarımı öğrencilerin evde her bir hafta için konuyu çalıştıktan sonra evde cevapladıkları 10 soruluk ödevler ve derste girdikleri 10 soruluk quizler içermektedir. Öğrenciler günlüklerini yazarken ödev ve quiz notlarını ulaşılması gereken standartlar olarak görerek kendilerini değerlendirmişlerdir. Üçüncü olarak, önceki anket sonuçları ile karşılaştırmak ve öğrencilerin eğitim boyunca strateji kullanımında davranışsal veya algısal farklılıklar olup olmadığını belirlemek için anket eğitim sonunda öğrencilere tekrar verilmiştir. Son olarak, öğrencilerin eğitim sürecini değerlendirmeleri için eğitim değerlendirme formu uygulanmıştır. Veriler hem nitel hem nicel metotlarla toplanmış ve analiz edilmiştir.

Nicel Verinin Analizi

Anketlerden ve eğitim değerlendirme formlarından elde edilen nicel veri hazırlanmış, organize edilmiş (Creswell, 2008) ve SPSS araçlığıyla analiz edilmiştir. Birinci ve ikinci araştırma sorularını cevaplamak için öğrencilerin eğitim öncesinde, sırasında ve sonrasında kullandıklarını ifade ettikleri stratejileri bulmak amacıyla anket verisi betimsel olarak analiz edilmiştir. Dördüncü araştırma sorusunu cevaplamak ve öğrencilerin ÖDDÖ eğitimini nasıl algıladıklarını açıklamak için aynı prosedür eğitim değerlendirme formlarına da uygulanmıştır. Üçüncü araştırma sorusunu cevaplamak ve eğitim sürecinin öğrencilerin ÖDDÖ farkındalıkları ve strateji kullanımları ile ne derece ilişkili olduğunu incelemek için eğitimin başlarında yazılan ilk 3 haftaya ait günlük girişleri ile öğrencilerin ÖDDÖ modelinin döngüsel adımlarını takip ederek eğitim sırasında yazdıkları son 4 haftalık günlük girişleri karşılaştırılmıştır. Betimsel analizler her bir stratejinin ortalamasını ve standart sapmasını vermiştir ve ortalaması en yüksek olan stratejiler en sıklıkla kullanılanlar olarak belirlenmiştir.

Nicel verinin analizine ek olarak, öğrencilerin eğitimden önce ve eğitim sırasında kullandıklarını ifade ettikleri ODDO stratejilerinin sıklığını belirlemek için günlüklerdeki nitel veri nicel veriye dönüştürülmüştür. Nicel veriye dönüştürme günlük girişlerinde ortaya çıkan temaların öğrenci yazılarında geçme sıklığını sayarak elde edilmektedir (Creswell, 2009). Diğer bir deyişle, nitel verinin kodlama sonuçları nicel analiz için kullanılmış; her bir kategoriye ait veri bir araya getirilmiş, her bir kodun sıklığı sayılmış (Watling, 2002) ve kodların toplamının sıklığı üzerine yüzdesi hesaplanmıştır. Bu yolla nitel veri nicel veriye dönüştürülmüş ve nitel veriyi nicel sonuçlarla karşılaştırma fırsatı elde edilmiştir.

İkili örneklem t-test

İkili örneklem t-test, her bir katılımcıdan *t* zaman noktasında tekrarlı ölçümler alındığı durumlarda verilen cevapların zaman içerisinde değişip değişmediğini belirlemek için kullanılır (Davis, 2002). Diğer bir deyişle bu test aynı insanlardan

anket ya da test yoluyla iki kere veri toplandığı zaman kullanılır. Bu çalışmada aynı öğrenciler anketi ÖDDÖ eğitiminden önce ve sonra olmak üzere iki farklı zamanda doldurmuşlardır. Burada amaç, eğitim ile öğrencilerin rapor edilen ÖDDÖ strateji kullanımındaki olası değişiklikleri ve aralarındaki ilişkiyi belirlemektir. Bu sebeple öğrencilerin 7'lik Likert ölçekte ÖDDÖ stratejilerine iki farklı zamanda verdikleri cevaplar hem her bir strateji hem de stratejilerin ait oldukları kategoriler için karşılaştırılmış ve ÖDDÖ stratejilerinin ortalamalarında bu iki zamanda istatistiksel olarak anlamlı bir fark olup olmadığı araştırılmıştır.

Tekrarlı Ölçümler ANOVA

ÖDDÖ eğitimi ve öğrencilerin akademik başarısı arasındaki ilişkiyi incelemeyi amaçlayan beşinci araştırma sorusunu cevaplamak için quiz notları tekrarlı ölçümler ANOVA ile analiz edilmiştir. Tekrarlı ölçümler ANOVA'da bir grubun performansları farklı durumlarda incelenir (Creswell, 2008). Bu analizin amacı skorların dağılımının zaman içerisinde değişip değişmediğini (Davis, 2002) ve düzenli aralıklarla yapılmış quiz skorları arasında anlamlı bir fark olup olmadığını belirlemektir. Bu yüzden ÖDDÖ eğitimi boyunca farklı zamanlardaki farklılıkları belirlemek için quiz skorlarındaki değişimler değerlendirilmiştir.

Aynı bireyleri farklı zamanlarda ölçmenin avantajı müdahale sonrası ölçümlerdeki farklılıkların motivasyon veya zeka gibi bireysel özelliklere atfedilemeyecek olmasıdır (Girden, 1992). Diğer bir deyişle, müdahale öncesi eşit olması gereken ölçümler kaygı verici bir sorun değildir çünkü her bir birey kendinin kontrolü sayılmaktadır. Bu açıdan bu analiz metodu grupları karşılaştırma açısından içsel geçerlilik tehlikesinden etkilenmez (Creswell, 2008). Tekrarlı ölçümlerin bir başka avantajı da aynı bireylerin çalışmanın her durumuna katılabildikleri için çalışmada her biri tekrar tekrar ölçülen az sayıda katılımcı kullanılabilir (Girden, 1992).

Nitel Verinin Analizi

Öğrencilerin eğitim öncesinde ve sırasında kullandıklarını ifade ettikleri ÖDDÖ stratejilerini belirlemek ve bu stratejilerin kullanım sıklığını ölçmek için günlük verisi hem nitel hem nicel olarak analiz edilmiştir. Veri öğrencilerin ÖDDÖ eğitimi boyunca deneyim ve düşüncelerinin derinlemesine tarifi için nitel olarak analiz edilmiştir.

Öncelikle, öğrencilerin haftalık günlük yazıları aracılığıyla toplanan ham veri her bir öğrencinin günlük yazısı set halinde toplanıp organize edilerek analiz için hazırlanmıştır. Sonra, veri okunmuş ve içerik hakkında genel bir fikre sahip olmak için gözden geçirilmiştir. Okuma sırasında günlük yazılarından kategoriler ortaya çıkarılmış ve her bir paragrafın yanına notlar alınmıştır. Üçüncü olarak kodlama süreci ile detaylı analiz yapılmıştır. Kodlama "ham veriyi almak ve onu kavramsal seviyeye taşımak . . . veriyi derinlemesine incelemek, verinin içinde bulunan gizli hazineleri keşfetmek için yüzeyini kazmak" (Corbin & Strauss, 2008) anlamına gelir. Veri tümevarım metoduyla analiz edilmiştir: yani önceden kodlanmamıştır. Creswell'in (2009) dediği gibi, öz-düzenleyici öğrenci davranışı içeren cümleler belirlenmiş ve kategorilere ayrılmıştır. Sonrasından bu kategorilere bir isim (kod) verilmiş ve bu isimler metnin uygun bölümüne not alınmıştır (Creswell, 2009). Kodlar katılımcıların ağzından çıkan sözlerden ortaya çıkmıştır (Creswell, 2009). Son olarak, kategorilerin sayısını azaltmak için birbirleriyle ilişkili olan kodlar genel temalar olarak birleştirilmiştir (Creswell, 2009; Creswell & Plano Clark, 2011; Maxwell, 2013; Merriam, 2002).

IV. SONUÇLAR

Öğrencilerin ÖDDÖ Eğitiminden Önce En Sık Kullandıklarını İfade Ettikleri Stratejiler

Öğrencilerin ÖDDÖ eğitiminden önce doldurdukları anket sonuçları, öğrencilerin en çok çalışma çevresini düzenleme, zaman yönetimi, yardım arama ve arkadaştan öğrenme gibi kaynak yönetimi stratejileri kullandığını göstermektedir. En çok kullanılan 20 stratejiden 11'i (55%) kaynak yönetimi stratejisidir. Ortalama değeri en yüksek olan stratejiler, çalışma çevresini düzenleme (I24, I25, I26, I27, I28, I29, I30), biliş üstü düzenleme (I9, I52, I73), test gerginliği (I98, I99), kendini değerlendirme (I85, I86), yardım arama (I43, I44), çalışma zamanı yönetimi (I100), öğrenme ve performans için öz-yeterlik (I79), arkadaştan öğrenme (I47) ve başarıyı çabaya veya strateji kullanımına atfetmedir (I91). Bu stratejiler arasında en sık kullanılanlar çevre düzenleme (35%) ve biliş üstü düzenleme (15%) ile ilgilidir. Çevre düzenleme ile ilgili olan stratejiler gürültüden kaçınma (I29), dikkat dağıtıcı faktörlerden kaçınma (I24, I27, I28, I30), ve etkin bir çalışma alanı organize etme (I25, I26) hakkındadır.

Öğrencilerin eğitimin başlarında yazdıkları günlükler de benzer sonuçlar ortaya koymuştur. Günlük verisinde bulunan stratejilerin sıklıkları hedef belirleme ve zaman yönetiminin en sık rapor edilen stratejiler arasında bulunduğunu göstermektedir. Diğer taraftan, bu iki strateji öğrenciler tarafından en sık kullanıldığı rapor edilen stratejiler olmasına rağmen hedef belirlememe ve kötü zaman yönetimi de oldukça sıklıkla dile getirilmiştir. Bunun nedeni öğrencilerin aslında hedef belirleyip zamanı doğru kullanmaları gerektiğinin farkında olmaları ama bunu başaramamaları olabilir. Sonuçlar ayrıca not almanın öğrencilerin sıklıkla kullandıkları bir başka strateji olduğunu ortaya çıkarmıştır. Bir diğer sık kullanılan strateji ise düzenli çalışma periyodlarıdır.

Öğrencilerin ÖDDÖ Eğitiminden Sonra En Sık Kullandıklarını İfade Ettikleri Stratejiler

Öğrencilerin eğitimden sonra verilen ankette en sık kullandıklarını rapor ettikleri stratejilere bakıldığında sonuçların eğitimden önceki anket sonuçları ile tutarlılık gösterdiği görülür. Öğrenciler çalışma çevresi düzenleme (I24, I26, I27, I29, I30, I84), biliş üstü düzenleme (I51, I52, I54, I73, I74), kendini değerlendirme (I85, I86), yardım arama (I43, I44), çalışma zamanı yönetimi (I100), öğrenme ve performans için öz-yeterlik (I79) ve arkadaştan öğrenme (I47) stratejilerini en sık kullandıklarını ifade etmişlerdir. Ayrıca, test gerginliği (I99), başarıyı strateji kullanımına atfetme (I87), ve öz-yeterlik ile ilgili stratejiler (I79) diğer sık kullanılan stratejilerdir. Bu stratejiler arasında en sık kullanılanlar çevre düzenleme (30%) ve biliş üstü düzenleme (25%) ile ilgilidir. Öğrencilerin ÖDDÖ eğitimi sırasında tuttukları günlüklere bakıldığında, akademik davranışlarını düzenlemek için çeşitli öz-düzenleme stratejileri (toplamda 622) kullandıkları ve stratejilerin kullanım sıklığının büyük ölçüde arttığı görülmektedir. Sonuçlar eğitimden önce yazılan günlük sonuçları ile tutarlıdır; öğrenciler düzenli çalışma periyodları, hedef belirleme, zaman yönetimi, materyalleri gözden geçirme, gürültüden kaçınma, çalışma planının olması, arkadaşlarla çalışma, yalnız çalışma, başarıyı ödüllendirme ve dikkat dağıtıcı faktörlerden kaçınma gibi stratejiler kullandıklarını belirtmişlerdir.

ÖDDÖ Eğitimi ile Strateji Farkındalığı ve Kullanımı Arasındaki İlişki

Eğitimden önce ve sonra verilen anketlerde en sık kullanılan 20 strateji karşılaştırıldığında ortaya ilginç sonuçlar çıkmıştır. Öğrencilerin en sık kullandıklarını ifade ettikleri 20 stratejiden 15'i her iki ankette de aynıdır. Diğer taraftan, 5 stratejinin eğitimden sonra doldurulan ankette diğerlerinden daha az sıklıkla kullanıldığı ifade edilmiştir; bu sebeple bu 5 strateji eğitimden sonraki ankette ilk 20 strateji arasında bulunmamakta, onların yerine daha sık kullanıldığı belirtilen 5 diğer strateji bulunmaktadır. Bu stratejiler daha yakından incelenecek olursa sadece eğitimden önce ya da sonraki ankette bulunan stratejilerin de aslında aynı makro stratejilere ait olduğu görülür. Ayrıca, biliş üstü strateji sayısında artış olmuştur ve bunlardan ikisi kendini gözlemleme, biri ise organize etme ile ilgilidir.

Bir diğer ilginç sonuç ise başarının atfedildiği faktör ile ilgili algıda değişiklik olmasıdır. Eğitimden önce öğrenciler başarısızlığı çaba veya strateji kullanımına atfederken, eğitimden sonra başarısızlığın sebebinin direk yanlış strateji kullanımı olduğunu ifade eden cümle daha yüksek ortalamaya sahip olmuştur.

Günlük verilerine bakıldığında eğitimin bütün öğrencilerin strateji farkındalığı ve kullanım sıklığını büyük ölçüde artırdığı görülür. Eğitimin birinci safhası olan kendini değerlendirme ve gözlemlemeye denk gelen dördüncü günlükten itibaren öğrenciler stratejileri daha sık kullanmaya başlamışlardır. Eğitim sırasında kullanılan stratejiler eğitimden önce kullanılanlarla tutarlılık göstermektedir ve kullanım sıklığında büyük oranda artış bulunmaktadır.

Strateji kullanımı sıklığındaki artışa ek olarak eğitimin bir başka katkısı öğrencilerin dairesel ÖDDÖ safhalarını çalışmalarına katarak ÖDDÖ becerilerini geliştirmiş olmalarıdır. Diğer bir deyişle, eğitim öğrencileri çalışma alışkanlıklarını gözlemleme, problemlerini belirlemek için önceden harekete geçme, hedef belirleme, hedeflerine ulaşmak için stratejiler kullanma, stratejilerin ve strateji kullanımının etkinliğini sürekli olarak değerlendirme ve gözlemleme konularında yönlendirmiştir.

Öğrencilerin ÖDDÖ Eğitimi Hakkındaki Algıları

ÖDDÖ eğitimi sonunda verilen eğitim değerlendirme formunda öğrencilerden eğitimin genel olarak akademik gelişimlerine etkisini 100 üzerinden değerlendirmeleri istenmiş ve yüzdelerin ortalaması %80.93 olarak hesaplanmıştır. Öğrencilere ayrıca ÖDDÖ eğitiminin kendilerine hangi açılardan yardım ettiği sorulmuş, 5 seçenek ve bir de ‘diğer’ seçeneği verilmiş ve uygun olduğunu düşündükleri bütün seçenekleri işaretlemeleri istenmiştir. Sonuçlara göre öğrenciler eğitimin onları daha organize yaptığını (%86.2), neden başarılı/başarısız olduklarının farkında olmalarını sağladığını (%86.2), daha yüksek notlar almalarını sağladığını (%82.7), daha iyi öğrenciler olmalarını sağladığını (%82.7) ve kendilerine daha çok güvenmelerini sağladığını (%79.3) düşünmektedirler. Yüzdeler öğrencilerin ÖDDÖ eğitiminden oldukça memnun olduklarını göstermektedir. Eğitim değerlendirme formunun diğer sonuçlarına göre öğrenciler eğitim sonrasında kendini gözlemlemenin ve planlamanın öneminin farkına varmışlar, ÖDDÖ eğitiminin

öğrenmelerine katkısı olduğunu, onları daha organize ve daha kendine güvenen bireyler yaptığını ifade etmişlerdir.

ÖDDÖ Eğitimi ile Öğrencilerin Akademik Başarısı Arasındaki İlişki

ÖDDÖ eğitimi ile akademik başarı arasındaki ilişkiyi ölçmek için öğrencilerin her hafta aldıkları quiz notları betimleyici istatistikler ve tekrarlı ölçümler ANOVA ile analiz edilmiştir. Betimleyici istatistikler sonuçlarına göre, quiz notlarının ortalaması sistematik olarak olmasa da eğitim boyunca giderek artmış ve eğitimin son haftasında en yüksek seviyeye ulaşmıştır. Öğrenciler günlüklerinde notlardaki artışın sistematik olmayışını eğitimin ortasına denk gelen 2 haftalık vize ve bayram tatillerine bağlamış, tatil sırasında çalışmalarının aksadığını, bu yüzden notlarının düştüğünü belirtmişlerdir. Buradan yapılabilecek çıkarıma göre, öğrencilerin eğitimin gereklerini daha düzenli ve aralıksız olarak uygulama imkânları olsaydı sonuçlar daha olumlu çıkabilirdi. Ayrıca, bu düşüşten sonra quiz notlarının düzenli olarak arması da dikkat çekicidir.

Tekrarlı ölçümler ANOVA sonuçlarına göre farklı zamanlarda yapılan quizlerin ortalamalarında istatistiksel olarak anlamlı bir fark vardır. Ayrıca, Partial Eta Squared .266 olarak bulunmuştur ki bu quiz notlarındaki değişkenliğin %26'sının ölçülen zamanla açıklanabileceği anlamına gelir. Bu yüzde büyük bir etki olarak düşünülebilir. Buna ek olarak, spesifik olarak hangi ortalamaların farklılık gösterdiğini, yani quiz notları arasındaki farklılıkların istatistiksel olarak anlamlı olup olmadığını belirlemek amacıyla daha derinlemesine analiz (i.e., post-hoc test) yapılmıştır. Sonuçlara göre 1. ve 6., 2. ve 6., 3. ve 6., 4. ve 6., ve 5. ve 6. quizler arasında istatistiksel olarak anlamlı farklar çıkmıştır. Kısacası 6. quiz ve diğerlerinin ortalamaları arasında çok açık bir fark bulunmaktadır. 3. ve 6. quizler arasındaki fark 2,733 ortalamayla en yüksek etkiye sahiptir.

V. TARTIŞMA VE ÇIKARIMLAR

Öğrencilerin kullandıkları stratejiler hedef belirleme, kendini gözlemleme, öz-yeterlik ve atıfta bulunma gibi ÖDDÖ bileşenleri içermeleri açısından sosyal bilişsel teori ve Zimmerman ve diğerleri (1996) ve Zimmerman (2000) tarafından geliştirilen öz-düzenleyici öğrenme modellerini yansıtmaktadır. Buna ek olarak, öğrenciler stratejik planları ve öz-düzenleme süreci boyunca kendini gözlemleme ve kendini değerlendirme vasıtasıyla aldıkları geri bildirimlere dayalı değişimler konusunda da yaşadıklarını günlüklerinde dile getirmişlerdir.

Sonuçlar öğrencilerin en çok kaynak yönetimi stratejileri kullandığını göstermektedir ve bunlardan en popüler olanı çalışma çevresinin düzenlenmesidir. Bu bulgu öz-düzenleme becerisi gelişmiş öğrencilerin çevrenin öğrenmelerine etkisinin farkında oldukları ve farklı stratejiler kullanarak çevrelerini geliştirdikleri teorisini desteklemektedir (Zimmerman, 1989a). Diğer bir deyişle, öz-düzenleme becerisi gelişmiş öğrenciler çevrelerine karşı hassastırlar ve ihtiyaç olduğunda çevrelerini değiştirecek kadar donanımlıdırlar (Lynch & Dembo, 2004). Bu çalışmadaki öğrenciler de çevrelerin düzenlemek için kendi kişisel etkilerini dikkat dağıtıcı etkenlerden kaçınma veya etkin şekilde çalışabilecek bir yer bulma gibi farklı stratejiler aracılığıyla kullanmışlardır. Çalışmanın sonuçları bu açıdan Cleary (2006), Özturan Sağırlı ve Azapağası (2009), Özturan Sağırlı ve diğerleri (2010) ve Vandevelde ve diğerleri (2011) ile benzerlik göstermektedir.

Fiziksel çevreyi yapılandırmaya ek olarak, öğrenciler sosyal çevrelerinden de faydalanmışlardır ki bu da sosyal bilişsel teorinin önemli bir parçasıdır (Zimmerman, 1989a). Bu bağlamda öğrenciler yardım arama ve arkadaştan öğrenme stratejilerini kullanmışlardır. Yardım aramanın çok önemli bir öz-düzenleyici strateji olduğunu gösteren ciddi kanıtlar bulunduğuna göre bu bulgu da literatürle paralellik göstermektedir (Karabenick, 1998; Özturan Sağırlı & Azapağası, 2009; Zimmerman, 1986, 1990; Zimmerman & Martinez-Pons, 1988).

Çalışmada en sık kullanıldığı belirtilen ikinci strateji stratejik planlama ve kendini gözlemleme gibi stratejileri içeren biliş üstü düzenlemedir ki bu da literatürdeki diğer çalışmaları destekleyen bir başka bulgudur. Bu strateji ayrıca Özturan Sağırlı ve Azapağası (2009) tarafından da en sık kullanılan strateji olarak bulunmuştur. Bu da Türk öğrencilerin biliş üstü yeteneklerini kullanma eğilimlerinin olduğu şeklinde yorumlanabilir ve bu açıdan Malezyalı öğrencilerle de benzerlik göstermektedirler (Kosnin, 2007). Bu stratejiler ÖDDÖ eğitiminin vazgeçilmez bir parçası olduğundan bu stratejilerin farkındalığı ve sık kullanımı eğitim açısından umut vaat edicidir (Dignath ve diğerleri, 2008). Çalışmanın bir diğer ilginç sonucu da öğrencilerin hem anketlerde hem günlüklerinde sıklıkla biliş üstü stratejiler kullandıklarını ifade etmelerine rağmen anketlerde bilişsel stratejileri daha nadiren kullandıklarını ifade etmeleri ve günlüklerinde ise bu stratejilere hiç değinmemeleridir. Bunun tersine, önceki çalışmalar biliş üstü stratejilerin sıklıkla kullanımını rapor etmişlerdir (Özturan & Azapağası, 2009; Özturan Sağırlı ve diğerleri, 2010; Vandevelde ve diğerleri, 2011; Zimmerman & Martinez-Pons, 1986).

Öğrencilerin düzenli çalışma saatleri belirlemeleri ve derse hazırlıklı olmaları haftalık ödevlerden dolayı olabilir çünkü bunlar öğrencileri dolaylı yoldan bu stratejileri kullanmaya yönlendirmiş olabilir. Zira öğrenciler haftalık ödev ve quizlerde başarılı olabilmek için ders içeriğini geride kalmadan organize bir biçimde öğrenmek zorundadırlar. Bu yüzden bu iki strateji öğrencilerin kendi öğrenmelerinde sorumluluk aldıklarını ve aktif rol üstlendiklerini ima eder.

Son olarak, beceri geliştirme öz-yeterliği ve başarıyı çabaya ve strateji kullanımına atfetme ile ilgili maddelerin sıklıkla kullanılan stratejiler arasında yer alması ÖDDÖ eğitiminin etkinliği açısından önemli bir avantajdır çünkü öz-yeterliğin çaba ve başarı gibi önemli öz-düzenleme parametreleri üzerinde önemli etkisi vardır (Schunk & Ertmer, 1999). Atfetmeye gelince, neyse ki öğrenciler başarıyı yeteneğe değil çabaya veya strateji kullanımına, ÖDDÖ eğitiminden sonra da direk olarak strateji kullanımına atfetmişlerdir. Bu değişim, eğitim boyunca strateji kullanımına verilen önemden kaynaklanıyor olabilir. Diğer bir deyişle, öğrenciler ÖDDÖ eğitimi boyunca sürekli ÖDDÖ stratejileri kullandıklarından strateji kullanmanın öğrenmedeki önemli yerini ve değerini anlamış olabilirler.

Öğrencilerin en sık kullandıklarını ifade ettikleri 20 stratejiden 15'inin eğitimden önce ve sonra aynı olması kullanılan stratejilerin tutarlılığı açısından dikkat çekicidir. Bu durum öğrencilerin eğitim başında stratejilerini belirledikleri ve eğitim süresince düzenli ve otomatik olarak kullandıkları anlamına gelebilir. Dahası, çoğu stratejinin ortalamasının ve kullanım sıklığının artması ve öğrencilerin eğitim sırasında yeni stratejiler kullanmaya başlaması eğitimin hem strateji kullanım sıklığı hem de çeşitliliği açısından etkili olduğunun göstergesidir.

Bütün bunlara ek olarak, bu çalışma içerik öğretimi sırasında ÖDDÖ müdahalesinin öz-düzenleme farkındalığını artırması, ÖDDÖ strateji kullanımı ve akademik başarı açılarından faydalı olması yönüyle önceki çalışmalarının sonuçlarını desteklemektedir (Perels ve diğerleri, 2005, 2009). Bu bağlamda çalışma ÖDDÖ ve akademik başarı arasındaki bağlantının öneminin altını çizmektedir. Çalışmada toplanan veri öğrenci raporlarına dayalı olduğu için bu ilişkiye sebep-sonuç ilişkisi olarak bakılamasa da ÖDDÖ eğitimi ve akademik başarı arasında bir ilişki gözlenmiştir ve zaman içerisinde quiz notlarındaki yükselme ÖDDÖ eğitiminden kaynaklanıyor olabilir.

Çalışma sonuçlarından elde edilen çıkarımlara gelince, birincisi, öz-düzenlemenin öğrenme için son derece önemli olduğu ve ÖDDÖ stratejilerinin öğretilebilirliği düşünüldüğünde öğrencilerin, öğretmenlerin ve araştırmacıların ÖDDÖ strateji kullanımını stratejiler içselleşene ve otomatikleşene kadar en yüksek seviyeye taşımaları gereği ortaya çıkar. Buradan yola çıkarak, öğretmenler öğrencileri çok büyük miktardaki bilgiye ve hayat boyu öğrenmenin gereksinimlerine hazırlamak ve onları yetenekli öz-düzenleyici öğrenciler olarak yetiştirmek için öğrencilere akademik davranışlarını nasıl öz-düzenleyecekleri konusunda eğitim vermelidirler. Bu yolla öğrenciler uzun vadede ÖDDÖ becerilerini ve öğrenmelerini geliştirip davranış ve duygularını kontrol eder hale gelirler. Bu açıdan bu çalışma Zimmerman'ın (1990) çağrısına bir cevap niteliği taşımaktadır.

İkincisi, eğitim psikolojisi alanındaki teorinin ve araştırmaların içerik (Uygulamalı Dilbilim) öğretimine katılması öğretmen ve öğrencileri daha etkin öğretmeye yönlendirecek disiplinler arası bir ilişkiye yol açacaktır (Lanehart &

Schutz, 2001). Öğrenmenin öz-düzenleme süreci öğrencilere kendilerini kontrol duygusu verdiğinden ve onları öğrenme metotlarına dikkat etmeye ve akademik aktivitelerini öz-düzenlemeye teşvik ettiğinden (Zimmerman ve diğerleri, 1996), ÖDDÖ eğitiminin zamanla öğrenme ve akademik başarı seviyesini artırması beklenir. Bu da öğrenciler öğrenmelerinin daha farkında olurlar ve bu farkındalık çerçevesinde hareket ederlerse daha iyi öğrenciler olacakları anlamına gelir.

Daha geniş açıdan bakılacak olursa, öz-düzenleme öğrenci başarısını artıran etkili bir kavramdır ve bu onu öğretim programlarının önemli bir parçası haline getirir. Bu yüzden öğretmenler, idareciler ve politika yapıcıları öz-düzenlemenin etkilerinden haberdar olmalı ve eğitim programları müfredatlarına öz-düzenleme becerilerini başarıyı ve mezuniyetten sonra bile eğitimsel performansların kontrolünün sürekliliğini artıracak faydalı bir yaklaşım olarak katmalıdır. Lisans eğitiminin birinci yılından itibaren öz-düzenleme içeren dersler öğrencileri ÖDDÖ stratejileri kullanımı açısından güçlendirecektir ki bu da onları eğitimlerine devam ettikçe daha zor ve üst seviyedeki dersler için hazırlayacak ve motivasyonlarını artıracaktır (Kitsantas ve diğerleri, 2008).

Bu çalışmanın en önemli eksikliği öğrencilerin gerçek davranışlarına değil rapor ettikleri davranışlarına dayalı olmasıdır. Öğrencilerin öğrenmelerini öz-düzenlemeleri sırasında onları gözlemlemek deneyimlerinin daha doğru ve derinlemesine keşfedilmesini sağlardı. Bu sebeple bu çalışma gelecekte öğrencilerin gerçek davranışlarını ortaya çıkaran gözlem, işitsel/görsel kayıtlar, web kamerası kayıtları, sesli düşünme protokolleri, mikro-analitik metotlar ve bilgisayar destekli göz hareketlerini takip etme metodu gibi veri toplama metotlarıyla genişletilebilir. Ayrıca, zaman kısıtlaması nedeniyle ÖDDÖ eğitimi yedi hafta sürmüştür. Şüphesiz, daha uzun bir eğitim süreci öğrencilerin stratejileri içselleştirmelerine ve daha sonra kullanmak üzere saklamalarına yardımcı olurdu ve araştırmacı öğrencilerin gelişimini daha doğru biçimde gözlemleme fırsatı bulurdu. Bu yüzden bundan sonra, bu bulguların tutarlılığını ölçmek için değişik örneklem gruplarıyla daha uzun süreli çalışmalar yürütmek faydalı olacaktır. Ayrıca, öğrencilerin ÖDDÖ stratejilerini uzun bir zaman sonra ne derece kullandıkları araştırılabilir. Bunlara ek olarak, gelecekteki araştırmalarda ÖDDÖ eğitimi öğrencilerin öz-düzenleme yetkinliklerini geliştirecek

araçlar olarak tasarlanmalıdır. Bu tür araştırmaların sonuçları uzun vadede ÖDDÖ'nün pratik sınıf-içi uygulamalarına önemli katkısı olacaktır. Gelecekteki araştırmalar ayrıca daha genç öğrencilerin ÖDDÖ strateji kullanımını ve hangi yaştan itibaren ÖDDÖ eğitiminin etkin bir şekilde uygulanabileceğini belirlemeyi hedeflemelidir. Bunlara ek olarak, ÖDDÖ strateji kullanımı açısından kültürel farklılık ve benzerlikleri belirlemek için kültürlerarası çalışmalar yapılabilir.

APPENDIX M

CURRICULUM VITAE

PERSONAL INFORMATION:

Name & Surname: Seniye Vural

Date of Birth: 16.05.1977

Place of Birth: Kayseri, Turkey

Current Affiliation: Erciyes University, Faculty of Letters, Department of English Language and Literature, Kayseri, Turkey

Phone: +90 505 265 6763

E-mail: seniyevural@gmail.com

EDUCATION:

2007-2013: PhD, Middle East Technical University,

Faculty of Education, Department of Foreign Language Education

2012-2013: Fulbright Visiting Student Fellowhip, University of North Carolina at Greensboro,NC, USA.

Faculty of Education, Department of Teacher Education and Higher Education

2006-2007: MA, Bilkent University,

MA in Teaching English as a Foreign Language

2000-2005: MA, Erciyes University,
Faculty of Letters and Sciences, Department of English Language and Literature

1996-2000: BA, Ankara University,
Faculty of Letters, Department of English Language and Literature

EMPLOYMENT HISTORY:

2012-2013	Fulbright Visiting Student Researcher, Department of Teacher Education and Higher Education, Faculty of Education, University of North Carolina at Greensboro, NC, USA
2007- Present	Lecturer, Department of English Language and Literature, Faculty of Letters, Erciyes University, Kayseri, Turkey.
2004-2007	Instructor, School of Foreign Languages, Erciyes University, Kayseri, Turkey.
2003-2004	English Teacher, Active English Language School, Kayseri, Turkey.
2002-2003	Instructor, Faculty of Business Administration and Economics, Nevşehir, Turkey.

PUBLICATIONS:

Daloglu, A., & Vural, S. (2013). The effects of training on pre-service English teachers' regulation of their study time, *Australian Journal of Teacher Education, 38*(6), 45-70.

Vural, S. (2010).*Motivation: Bread and Butter for Language Teachers*, Lambert Publishing: USA.

CONFERENCE PRESENTATIONS:

- 27th International Self-directed Learning Symposium, February 6-8, 2013, Florida, USA.
- ANUPI International Congress- Vision and Innovation: Research and Learning in EAL, November, 8-11, 2012, Cancun, Mexico.
- The English Language: The Power to Connect, August 12-13, 2010, Cebu, Philippines.
- Pedagogical education: contemporary problems, modern concepts, theories and practices, October 22-23, 2009, St. Petersburg, Russia.
- 42nd Annual Meeting of the British Association for Applied Linguistics- Language, Learning, and Context, September 3-5, 2009, Newcastle, UK.
- TESOL France 27th Annual Colloquium, November 7-8, 2008, Paris, France.
- AAAL Annual Conference, March 29- April 1, 2008, Washington DC, USA.
- EgypTesol 2007, Best Practice in TEFL-7th Annual Convention, November 16-17, 2007, Cairo, Egypt.
- GSF- The 41st TESOL Annual Convention & Exhibit, March 20-24, 2007, Seattle, USA.

SCHOLARSHIPS & AWARDS:

- 2012-2013: Fulbright Student Visiting Researcher, University of North Carolina at Greensboro, NC, USA.
- 2010: Erasmus Teacher Exchange Program, Jagiellonian University, Poland
- 2006-2007: Bilkent University MA TEFL Scholarship
- 2006: Grundtvig Teacher Training Course: "Teaching English in Europe", Llangollen, UK.

APPENDIX N

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü X

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : Vural
Adı : Seniye
Bölümü : Yabancı Diller Eğitimi Bölümü, İngiliz Dili Öğretimi ABD

TEZİN ADI (İngilizce) : A MIXED METHODS INTERVENTION STUDY ON THE RELATIONSIP BETWEEN SELF-REGULATORY TRAINING AND UNIVERSITY STUDENTS' STRATEGY USE AND ACADEMIC ACHIEVEMENT

TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora X

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. X

Yazarın İmzası: Tarih: 24 Temmuz 2013