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## The Effects of Training on Pre-Service English Teachers' Regulation of Their Study Time

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*Abstract: Based on Zimmerman, Bonner, and Kovach's (1996) academy model, an intervention consisting of seven weekly training sessions to increase students' awareness of and ability to plan and manage their study time was developed. Participant students reflected on the implementation of each phase of the learning model in their weekly journal entries, through which the researchers monitored and evaluated the training process. The results indicate that the training proved to be beneficial in that students reported frequent use of a variety of strategies throughout the training process.*

### Introduction

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 learning materials, motivate them, monitor their performance, and give feedback (Boekaerts & Niemivirta, 2000). It is teachers who take responsibility for the 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 (Boekaerts & Niemivirta, 2000). Teachers provide the information, and students have to find a way to comprehend, store, and activate this information, which results in a lack of opportunities for students to organize and regulate their own learning (Boekaerts & Niemivirta, 2000). One particular problem that students who have had a teacher-centered way of learning face is planning and monitoring their study time (Van den Hurk, 2006).

Recent improvements in educational practices have put more emphasis on students' taking the responsibility for their own learning, which has led self-regulated learning (SRL) to become a frequent area of educational research (Chen, 2002). Self-regulation is defined as "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000, p.14; Zimmerman & Schunk, 2011). The human ability to self-regulate and self-control has been a recurring theme in western and eastern philosophies for millennia, and the interest of social psychology in self-regulation began to blossom in the late 1990s (Forgas, Baumeister & Tice, 2009). Considered by Zimmerman (2000) as "our most important quality as humans" (p. 13), by Boekaerts, Pintrich, and Zeidner (2000) as "an important topic that is highly relevant to the science of the mind and human behavior" (p. 4), and by Klug, Ogrin, Keller, Ihringer, and Schmitz (2011) as "a necessary prerequisite for lifelong learning" (p. 51), self-regulation has been the focus of research in a variety of disciplines, from psychology to medicine. From an educational perspective, equipping the 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). Schunk (2005) also considers motivation and self-regulation as critical for lifelong learning, which is a goal that educators hope to promote in students. In line with this perspective, educators, policy-makers and educational researchers have been deeply interested in understanding students' capacity to control their own learning both in school and beyond (Boekaerts & Corno, 2005). Researchers have also been interested in explaining how students can be masters of their learning processes; 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).

Academic time management component of academic self-regulation refers to how effectively students regulate study time to achieve their learning goals (Pintrich, Smith, Garcia, & McKeachie, 1993) and is considered as a hallmark of academic self-regulation (Zimmerman, 1994). It involves scheduling, planning, and managing one's study time (Chen, 2002). In the past, the issue of students' management of study time was considered to be "an indirect measure of mental ability or personality traits . . . a manifestation of stable underlying individual differences in aptitude or motivation" rather than strategically controllable (Zimmerman, Greenberg, & Weinstein, 1994, p. 181). In time, however, researchers focused on cognitive and behavioral processes that students used to plan and manage their study time and suggested that effective use of time assisted students to self-regulate their learning and academic performance (Zimmerman et al., 1994).

## **Background**

This paper focuses on study time management from a social cognitive view of learning, according to which students' management of study time involves three self-regulatory processes (Bandura, 1986). According to this perspective, the use of time affects and is affected by behavioral (self-observation of, self-evaluation of, and self-reaction to learning outcomes), environmental (materials used during time management, e.g. watch, agenda books, etc.), and personal influences (e.g. goals, attributions, motivation, self-efficacy) (Zimmerman, 1989). This implies that for effective time management, students should set attainable goals, attribute failure to incorrect strategy use or lack of effort, be motivated, and have a high level of self-efficacy to learn. In contrast, poor time management indicates deficiencies in one or more of these self-regulatory processes (Zimmerman et al., 1994). In brief, the regulation of study time includes self-monitoring, planning, self-efficacy, and goal-setting, which are the central processes in the social cognitive view of self-regulation (Schunk, 2001; Zimmerman, 1989). Goal-setting is of crucial importance, as control processes, such as the allocation of study time, are affected by one's goals (Ariel, Dunlosky, & Bailey, 2009). Britton and Tesser (1991) also show empirical evidence regarding the relationship between time management and self-efficacy and goal-setting.

Different models have been proposed to explain and discuss the constructs of self-regulation (Boekaerts & Niemivirta, 2000; Pintrich, 2000; Zimmerman, 2000; Zimmerman et al., 1996). According to Zimmerman et al.'s (1996) academy model, unlike traditional classrooms, tutors or coaches give their students self-regulatory training. By turning their classrooms into

academies, teachers can enhance SRL in the school environment (Zimmerman et al., 1996). An instructional model that involves explicit training in setting goals, strategy use, self-monitoring, and systematic practice can be used in classroom situations, and key aspects of this educational model can be introduced by teachers during homework activities. The aim of such a model is to convert the 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).

As displayed in Figure 1, this cycle involves four interrelated processes that are applied systematically and continuously. The first step is self-evaluation and monitoring, during which students judge their personal effectiveness through observations or recordings of prior performances and outcomes. Second, during the goal-setting and strategic planning phase, students analyze the learning task, set specific learning goals and plan/refine the strategy to achieve 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, 1989; 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 the implementation of the adopted strategy and monitoring how accurately it is implemented. The final step, strategic outcome monitoring, refers to the expansion of students' monitoring so that it also involves the link between learning/performance outcomes and strategic processes to determine effectiveness. An essential feature of this model is its cyclical nature; self-monitoring at each phase yields information that can change subsequent goals, strategies or performance efforts (Zimmerman et al., 1996).



**Figure 1: A Cyclical Model of Self-Regulated Learning (Zimmerman et al., 1996, p. 11)**

SRL strategies are defined as “actions directed at acquiring information or skill that involve agency, purpose (goals), and instrumentality self-perceptions by a learner” (Zimmerman

& Martinez-Pons, 1986, p. 615). Through interviews with students from high achievement and low achievement tracks concerning their use of SRL strategies during class, homework, and study, Zimmerman and Martinez-Pons (1986) identified the frequency of students' reported use of fourteen categories of such strategies: 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. Goal-setting and planning was defined by Zimmerman and Martinez-Pons (1986) as "statements indicating student setting of educational goals or sub-goals and planning for sequencing, timing, and completing activities related to these goals" (p. 618). The results also indicated that high achieving students displayed significantly greater use of 13 categories of SRL than low achievers (all except self-evaluation), which makes these strategies predictors of success. Although the high-achievers reported using self-evaluation as a SRL strategy less frequently, Zimmerman and Martinez-Pons (1986) do not deny the importance of it, and suggest improvement on better describing learning contexts where self-evaluations occur and improving procedures for questioning students regarding their use of self-evaluation. They asserted that statements representing self-evaluation (e.g., 'I check over my work to make sure I did it right.') might be considered too broad and reported being used by low-achieving students as much as high-achieving ones. Therefore, further research should be conducted to explore students' use of self-evaluation strategies, focusing on how and in what contexts they use them.

Ozturan-Sagirli and Azapagasi (2009) explored whether university students studying elementary mathematics education used their self-regulation capabilities and which methods 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.

As a key determinant of the SRL approach, time management has been discussed widely (Bembenutty, 2009; Zimmerman, 1994). Stating that time is a crucial aspect of planning and regulation, Eilam and Aharon (2003) focused on planning and time management strategies. They sought to identify students' self-regulatory behaviors through direct observation of their actual practice of regulation throughout the school year. The observations yielded eight broad categories of behavior related to planning and time management: getting into the habit of planning, considering alternatives for achieving goals, monitoring and reflection, increasing awareness of diverse cues over the course of monitoring, readjusting plans to improve rate of progress, demonstrating accountability for group decisions, looking further ahead, and manipulating plans. It is concluded that initially, the students were observed to have invested most of their time and effort into filling out the yearly and daily plan reports. After the acquisition of that skill, they were able to allocate more effort for the regulation process. The strategies used by the students reflect the self-regulatory cycle proposed by Zimmerman et al. (1996) in that they include goal-setting and strategic planning, monitoring and reflection. Moreover, 'readjusting plans to improve rate of progress' and 'manipulating plans' confirm the

cyclical nature of the model, as students reportedly adjusted their plan based on the feedback they received from their monitoring and evaluations.

Time management strategies have emerged as an important construct of SRL leading to higher academic achievement (Bembenutty, 2009; Zimmerman et al., 1996; Zimmerman & Risemberg, 1997). 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). While skilled learners engage in effective time management, less skilled ones show poor time management (Bembenutty & Karabenick, 1998). Zimmerman et al. (1994) maintain that there is clear evidence that students' awareness of and purposeful strategic efforts to manage study time effectively does make a difference in academic achievement, improved self-efficacy perceptions, and intrinsic interest.

Furthermore, in a study which explored the relationships among academic delay of gratification, self-efficacy, time management, and final course grade, Bembenutty (2009) found that students who are skillful at managing their time effectively prioritize their goals, and ones who engage in effective planning of activities, establish and maintain schedules to fulfill short and long-term goals, are able to estimate the time necessary for an assignment and set priorities among competing tasks. The results also revealed a positive association between time management and delay of gratification and self-efficacy; interestingly however, there seemed to be no correlation of course grade with delay of gratification or time management. In contrast, in a study in which they investigated whether the cumulative grade point average (GPA) of college students was affected by their time management, Britton and Tesser (1991) found that students who were able to manage their study time effectively and studied in settings that foster learning had higher GPAs. 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. Van den Hurk (2006) also found that students who planned their time better and had better self-monitoring skills were more efficient in allocating their individual study time, prepared more appropriately for the tutorial group meeting, and achieved higher scores on cognitive tests. Chen (2002), who investigated SRL strategies in a lecture-led concept learning environment versus a hands-on computer lab learning environment, reported similar results: only time and study environment management predicted lab assignment scores. In brief, there is abundant empirical research that supports the strong relationship between effective management of study time and academic achievement.

## **The Present Study**

Time management 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). 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).

The participants in the present study, in general, also did not have regular study hours, and they usually procrastinated until the day before the exam, which often led to failure. They did not understand why they failed although they had studied 'a lot'. Informal conversations with the participant students revealed that planning and managing the study time was one of the most important problems they faced, which was also confirmed in their first journal entries in which they elaborated on their study habits. Some students stated that they had never tried planning their study time; they studied whenever and however long they wanted to. Others seemed to be aware of the importance of managing the study time but seemed like they lacked the skills to make their learning process more effective and efficient.

From a general perspective, social cognitive theorists attribute students' failures to their not believing that they can use a self-regulation response successfully (Zimmerman, 2001). With a view to addressing this problem and guiding the students to take responsibility for their own learning process in general and to develop effective time management skills in particular, a training program was designed based on the self-regulatory framework. The rationale behind this self-regulatory basis is that it is not sufficient to know about strategies and their functions; in order to use them effectively, one needs to adapt them to a specific situation and implement them in a self-regulated manner: plan, self-monitor, and self-evaluate and self-adjust their effectiveness systematically (Souvignier & Mokhlesgerami, 2006; Zimmerman et al., 1994). More specifically, the purpose of this study was to investigate the students' reported use of SRL before and during the regulation of their study time, improve students' time management skills, and discuss the extent to which the SRL training contributed to the students' awareness and reported use of these strategies. The study sought answers to the following research questions:

1. What self-regulatory strategies are the students aware of before the training?
2. What self-regulatory strategies do the students most frequently implement during the training process?
3. To what extent does the training contribute to the students' awareness and reported use of self-regulatory strategies?

During the study, students self-observed and self-evaluated their effectiveness in their learning in general and ability to manage their study time in particular, set goals, adopted/adapted self-regulatory strategies to achieve these goals, implemented these strategies, self-monitored the implementation process, monitored and adjusted their strategic methods when necessary, and self-evaluated the effects of the procedure on the achievement of goals and learning outcomes. The self-regulatory aspect of the study implies that the main aim was to incorporate the self-regulatory strategies into students' study skills in such a way that they use them effectively under all circumstances throughout their learning process even after graduation.

## **Method**

### **Setting and Participants**

The present study was conducted at a state university in Turkey at the Department of English Language and Literature, which educate future teachers of English. University students were chosen as participants based on the assumption of most theorists that young children cannot self-regulate their learning formally (Zimmerman, 1989) and that older and more experienced students are believed to be better able to self-regulate during learning (Bandura, 1986). Therefore, younger students may not have been able to respond as effectively to the requirements of the training. Pintrich (1995) also maintains that SRL is particularly appropriate for university

students, as they can control their time schedule and their approaches towards studying and learning better. All students taking the ‘Introduction to Linguistics’ course volunteered to participate in the study, received self-regulatory training specifically on management of study time, and thus fulfilled the requirements of the training. In total, 55 students were involved in the training, and they were all supposed to submit their journal entries weekly. 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. When the training finished at the end of the term, 30 students who 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 is that complete and comprehensive journal entries were required to observe the impact of the training accurately. Moreover, especially because the training process is cyclical, indicating that the feedback from one phase leads to adjustments in the next phase, missing a class would break the chain of the cycle. 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 departments of teaching in Turkey, this department also has more female students than males. The ages of the participants ranged from 20 to 23. Participant students were informed that all information received would remain confidential and will only be used for research purposes.

### Procedure

This study was designed to involve a 7-week self-regulatory training process, focusing particularly on regulation of study time based on Zimmerman et al.’s (1996) model, during which the participants were actively involved in going through the cyclical phases of SRL. Based on the model, the instructor shifted the responsibility to the students during the training by asking them to self-evaluate and analyze their current study habits, identify their deficiencies, set goals that would lead them to overcome these deficiencies, determine self-regulatory strategies to eliminate the negative factors that hindered the effectiveness of their studies based on their self-evaluation, implement the strategies, self-monitor their implementation of the strategies and make the necessary modifications or vary the strategies throughout the process, and self-evaluate the effects of the strategies on learning outcomes. Table 1 displays the timeline of the training: the weekly procedures and the phase in the SRL model.

Week	Phase in the model	Procedure followed
1		<ul style="list-style-type: none"> <li>• Introduction of the terms</li> <li>• Explanation of the requirements of the course and the procedures for the training</li> <li>• Assigning the topic of Journal 1 (current study habits)</li> </ul>
2	Self-evaluation and monitoring	<ul style="list-style-type: none"> <li>• Discussion of current study habits</li> <li>• Administering Quiz 1</li> <li>• Assigning Homework Questions 1</li> <li>• Assigning the topic of Journal 2 (current time management strategies)</li> </ul>
3		<ul style="list-style-type: none"> <li>• Discussion of current time management strategies</li> <li>• Answering Homework Questions 1</li> <li>• Administering Quiz 2</li> </ul>

		<ul style="list-style-type: none"> <li>• Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph</li> <li>• Assigning the topic of Journal 3 (reflecting on whether they set goals &amp; set goals to manage their study time more effectively)</li> </ul>
4	Goal-setting and strategic planning	<ul style="list-style-type: none"> <li>• Discussion on the results of their self-evaluations, their reported deficiencies, suggested goals and strategic planning regarding how they are going to achieve these goals.</li> <li>• Answering Homework Questions 2</li> <li>• Administering Quiz 3</li> <li>• Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph</li> <li>• Assigning the topic of Journal 4 (reflections regarding setting a goal to overcome the problems they face and choosing a strategy to achieve their goal)</li> </ul>
5	Strategy implementation and monitoring	<ul style="list-style-type: none"> <li>• Discussion on students' selected strategies and reasons for selecting that particular strategy and their implementation of it.</li> <li>• Answering Homework Questions 3</li> <li>• Administering Quiz 4</li> <li>• Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph</li> <li>• Assigning the topic of Journal 5 (reflections on the implementation of the strategy and its effectiveness)</li> </ul>
6		<ul style="list-style-type: none"> <li>• Discussion on the implementation of the strategy, to what extent it is appropriate and effective.</li> <li>• Answering Homework Questions 4</li> <li>• Administering Quiz 5</li> <li>• Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph</li> <li>• Assigning the topic of Journal 6 (reflections on the implementation of the strategy and its effectiveness)</li> </ul>
7	Strategic-outcome monitoring	<ul style="list-style-type: none"> <li>• Discussion on the effectiveness of the strategy implementation and any modifications made.</li> <li>• Answering Homework Questions 5</li> <li>• Administering Quiz 6</li> <li>• Recording the self-efficacy ratings and actual scores of homework questions and the quiz on the graph</li> <li>• Assigning the topic of Journal 7 (evaluation of the training; the extent to which the self-regulatory training contributed to students' studies and in what ways)</li> </ul>

**Table 1: The Timeline of The Training Process.**

The training procedure was incorporated into the content of the course rather than focusing solely on self-regulatory training. It was believed that students' monitoring their use of time and evaluating and keeping the track of their academic achievement would be more

realistic, meaningful, and effective when they were assigned reading material that would be covered during classes. The literature also suggests that self-regulatory training which is incorporated into the content yields better results than solely SRL or content instruction (Perels, Gürtler, & Schmitz, 2005; Perels, Dignath, & Schmitz, 2009). In addition, in order to maximize the effectiveness of the SRL strategy training and motivate the students to use the strategies, students should be taught the strategy, how and when to use it, and why it is important (Zimmerman et al., 1994).

The students were informed about the material assigned for 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 at home, and a quiz at the end of each session. Weekly homework questions and quizzes were vital components of the training as they indirectly guided the students for regular study periods: the students had to keep up with the content to answer the homework questions and succeed in the quiz each week. The students were expected to study the content of the chapter at home, and for each study session, they were to record the time they started and finished studying, the amount of time they studied, and the study context (where and with whom they studied and whether there were any distractions in the study environment) on their self-monitoring form. Such forms function as graphic stimuli of self-recorded time management 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 are often surprised at the data they generate in records, realizing the time wasted on non-academic activities and sources of procrastination (Schunk, 1990, 2001; Zimmerman et al., 1994).

Having studied the content, analyzing the data in the self-monitoring form for that particular week, and considering how they regarded their success would be in homework questions and quizzes for the chapter, the students rated their self-efficacy. Self-efficacy refers to people's beliefs regarding their capabilities to control their level of functioning and other events affecting their lives, and to execute actions necessary to attain performances at designated levels (Bandura, 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). High level of self-efficacy increases perseverance and leads to better learning (Bandura, 1986; Britton & Tesser, 1991). As Zimmerman (2002) argues, 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. 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, the students were to record their ratings in their self-monitoring form and their graphs, which showed their self-efficacy and actual score for each week's quiz and homework questions. Finally, the students answered the homework questions and wrote their journal entries. Homework was another crucial component of the design of the study, as it functioned as a means of students' use of effective learning strategies and their self-monitoring of goal attainment. Therefore, being a tangible reason to read the content material, homework served to promote self-regulatory training in addition to its function as an out-of-class practice activity for content mastery (Zimmerman et al., 1996).

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), qualitative research methods are also required to arrive at a deeper understanding of SRL. In this regard, as effective means providing students with opportunities to elaborate on their thoughts and feelings, journals have also been used in self-regulation research (the word 'diary' was used in these studies) (Arsal, 2010; Guvenc, 2011; Randi, 2004; Schmitz & Wiese, 2006). For example, in a study which aimed at demonstrating the use of diaries in combination with time-series analyses, Schmitz and Wiese (2006) investigated the effects of a training program on daily SRL, using structured diary data. They asserted that when the sensitivity to contextual conditions, which influence reflections, and the process character of learning were taken into account, the diary method was undoubtedly very well-suited to study learning.

In this study, journals were considered to be 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). Second, journal entries fit perfectly with the dynamic nature of the 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. For example, while composing their journal entries, the students were expected to reflect on all phases of the self-regulatory cycle, such as the goals they set, strategies they implemented, self-monitoring of the effective use of the strategies, the evaluation of the self-regulation procedure, and the improvements they made throughout the self-regulatory training process. Hence, the students repeatedly practiced the strategies contained in the journal entry throughout the training process, and thus journal entries gave them opportunities to observe learning over time (Schmitz & Wiese, 2006). In that way, students focused their attention on the relationships between the different components of the self-regulatory cycle for each journal entry (Schmitz & Wiese, 2006). As Randi (2004) asserted, journals provide illuminating examples of SRL. Third, the guiding questions for the journal entries served as an external cue in that the 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. Finally, journals were critical in this SRL training also because they gave the 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.

The focus topic of the journal entries for each week was determined by the researchers before the training based on the phase of the self-regulatory cycle for each week. Designing user-friendly diaries with clear and simple instructions which specify how the diarists record the relevant information is crucial to maximize the effectiveness of journal entries (Alaszewski, 2006). Therefore, what they were expected to include in their journal entries was clearly explained to the students. Hence, for each entry, the students were expected to elaborate and reflect on their implementation of and feelings about their development in regulating their time, and thus their learning. As it was believed that the 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, the students were asked to write their journals in Turkish.

The students were asked to reflect on their current study habits in the first three journal entries. The focus of the first journal entry was the 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; the students were expected to reflect on their current time management skills. The third journal entry focused on whether the students set any goals for themselves while studying, especially to manage their time. Starting from the fourth journal entry, the students were asked to examine their study time in terms of its quantity (the amount and frequency of time studied) and quality (the study context: study place, with whom the study took place and the existence of any distractions), and reflected on their implementation of the self-regulatory strategies during the training process to manage their study time. For example, in the fourth journal entry, having analyzed their self-monitoring forms and identified their deficiencies and possible reasons for them, the 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, the students 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 procedure and its effects on students' learning outcomes.

Throughout the training process, at the beginning of each class session, the students discussed the improvements in their self-regulatory skills and their experiences and perceptions regarding the particular phase of the self-regulatory cycle in small groups for 15 minutes, followed by a 15-minute whole-class discussion. For example, in week 4, they discussed the results of their self-evaluations regarding their study habits (i.e. when, how, how long, how often, where, with whom they study, etc.), their deficiencies based on their self-evaluations, their goals and strategic plans as to how to achieve these goals. These discussions were a crucial part of the training process, as they provided the students with opportunities to share their experiences, make suggestions for, and learn from each other. After the discussion, the course content was covered, the answers for the homework questions were discussed, and the students graded their own work. Then the students were given the quiz, which was evaluated by students themselves in the classroom if time availed or by the teacher after the class. Homework questions and quizzes gave the students opportunities to evaluate the implementation and effectiveness of their selected strategies and refine their use when necessary. 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. The graphs included students' perceived self-efficacy ratings and actual quiz scores for each week. They were visual tools which helped students to visualize their academic improvement and their self-efficacy ratings and the relationship between the two throughout the training process. Each session ended with the provision of the topic for the journal entry for the following week by the researchers.

## **Data Analysis**

Research accounts of 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 the students reported to use before and during the training process and to derive the frequencies of the reported use of these strategies, the journal data were analyzed both quantitatively and qualitatively. During the analysis, behaviors that indicated self-regulation were identified, categorized, and coded (Maxwell, 2013). The results of preliminary

coding were used for quantitative analysis: frequency of each code was counted (Watling, 2002), and percentage of each code over the total was calculated. The codes and frequencies of the reportedly used strategy before the training answered the first research question and ones during the training process answered the second research question. In order to answer the third research question and explore the extent to which the training process contributed to the students' awareness and use of the strategies, the frequency of the 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 the researchers asked the students to go through the cyclical steps of the SRL model of Zimmerman et al. (1996)) were compared. The students' reflections in their journal entries also provided with insights with regard to the impact of the training on their self-regulation and learning.

## Results and Discussion

The results will be presented and discussed based on the research questions. First, the self-regulatory strategies the students were aware of or reported to use before the training will be presented along with their frequencies and percentages over the total number of strategies reported. Second, the self-regulatory strategies the students reported using during the training, their frequencies, and percentages over the total will be presented. Finally, the extent to which the training has affected the students' awareness and reported strategy use will be discussed based on the increase in the frequency of the reported strategies and students' evaluations in their journal entries.

### The Strategies Students Reported Using Before the Training

Table 2 presents the strategies the students reported using before the training. The results are based on students' 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.

Strategies students reported using before 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	5	2.7%
Avoiding distractions	3	1.6%

Prioritizing tasks	2	1.1%
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**Table 2- The Strategies Students Reported Using Before the Training, Their Frequencies and Percentages.**

The frequency counts of the first three journals before the training revealed surprising results in that *setting goals*, *note-taking* and *managing their study time* were among the most frequently reported strategies. This finding shows that students were not totally unaware of the importance of goal-setting and time management. 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”. The results indicate that note-taking, which is a general learning strategy, emerged as a very common strategy students relied on for academic achievement before the training. It is also interesting to observe that there were some students (e.g., P14) who realized the importance of having regular study periods early in the training process by comparing self-efficacy ratings with actual quiz grades. P14 reports: “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). On the other hand, although some students seem to be aware of the strategy, they sometimes fail to use it: “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).

The negative statements indicating that students do 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 reveal that students do 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 the students did not know how to implement the necessary strategies effectively in a self-regulatory manner, and did not 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 Strategies Students Reported Using During the Training***

This part of the study answers the second research question, which sought to determine most frequently used strategies throughout the training process. The findings show that the students used a variety of self-regulatory strategies to manage their study time more effectively (622 in total) and the frequency of the strategies increased greatly. Table 3 displays the strategies the students reported using during the training, their frequencies, and percentages.

<b>Strategies students reported using during training</b>	<b>Frequency of the strategy</b>	<b>Percentage of the strategy over the total</b>
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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%

**Table 3: The Strategies Students Reported Using During the Training, Their Frequencies and Percentages.**

Most of the reported strategies (i.e., goal-setting and planning, keeping records and monitoring, environmental structuring (organizing a regular study area), seeking peer assistance (studying with peers), reviewing notes, and reviewing text) are consistent with the strategies reportedly used by students in previous studies (Ozturan-Sagirli & Azapagasi, 2009; Zimmerman & Martinez-Pons, 1986). As indicated in the table, the most commonly used strategy was *having regular study periods*, such as 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 found their own ways 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. The students’ remarks on *setting realistic goals* were also very frequent: 117, indicating that the training raised awareness and guided the students to take the responsibility of setting their own goals. Another high-frequency strategy preferred by the 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 4<sup>th</sup> 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”.

Nineteen students 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”. This finding is similar to Zimmerman et al.’s (1994) finding in that time planning and management training helped students to self-regulate their use of study time more effectively. It also supports the 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).

*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) For one thing, the reward symbolizes the progress made (Schunk, 1990). For another, the 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. The students 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, the students 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 and show poor time management (Bembenutty & Karabenick, 1998). Moreover, when the association between students’ willingness to delay gratification and their tendencies to use time management strategies is considered, their time management skills are expected to improve (Bembenutty, 2009; Bembenutty & Karabenick, 2004). In fact, previous research demonstrated a strong link between delay of gratification and resource management (i.e., 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).

*Avoiding noise* in the study context was reported to be another strategy used by the students, with the frequency of 32. Similarly, *avoiding distractions or learning to say ‘no’ to distractions*, such as TV, meeting friends or using a mobile phone was considered to be an important strategy to make the most of the study time, with the same frequency. This finding supports Chen (2002), who emphasized the importance of managing to handle distractions and maintain concentration for success. 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*. Studying with peers is considered in previous research as another valuable proactive self-regulatory strategy (i.e. help-seeking) (Karabenick, 1998; Schunk & Zimmerman, 1994; Zimmerman, 1986; Zimmerman & Martinez-Pons, 1986, 1988). The students’ using peer learning as a strategy supports Chen (2002) who supported the general positive effects of collaborative learning and group work in learning although research on peer learning in the context of SRL is limited.

Another strategy that the students used in order to avoid wasting their time and make their study time more efficient was *organizing a regular study area*, such as library or private room. Environmental control is viewed as one of the most active actions to promote learning (Corno, 1986). Participant 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”. The results support the findings of Zimmerman and Martinez-Pons

(1986) who found that students reported great use of environmental management and who concluded that self-regulated learners tend to restructure their physical environment to meet their needs.

Another alternative strategy suggested and used by the students was *increasing the amount of the study time*, the frequency of which was 22. This finding is worth considering because most of the 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 will implement this strategy 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 popular as others, the frequency of which was 5, was to *prioritize tasks*, such as doing more important or difficult tasks earlier in order to have more time to concentrate. Interestingly, although literature suggests that students who are able to manage their time effectively are expected to set priorities among competing tasks (Bembenutty, 2009), 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.

#### ***The Effect of the Training Process on the Students’ Awareness and Reported Strategy Use***

The third research question of the study concerned the extent to which the training contributed to the students’ awareness regarding regulating their study time, and the results were generally as expected. The effect of the training will be discussed both by displaying the frequencies of the strategies each student reported to use before (second column) and after the training (third column), the percentages of the increase after the training, and the students’ quotes from their journal entries regarding their improvement of their use of self-regulatory strategies.

<b>Participants</b>	<b>Total number of strategies used in Journals 1, 2 and 3</b>	<b>Total number of strategies used in Journals 4, 5, 6 and 7</b>	<b>Percentage of increase in the frequency of strategies used</b>
P1	2	9	450%
P2	4	18	450%
P	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%

**Table 4: Frequencies of the Strategies Before and During the Training and the Percentage of the Increase.**

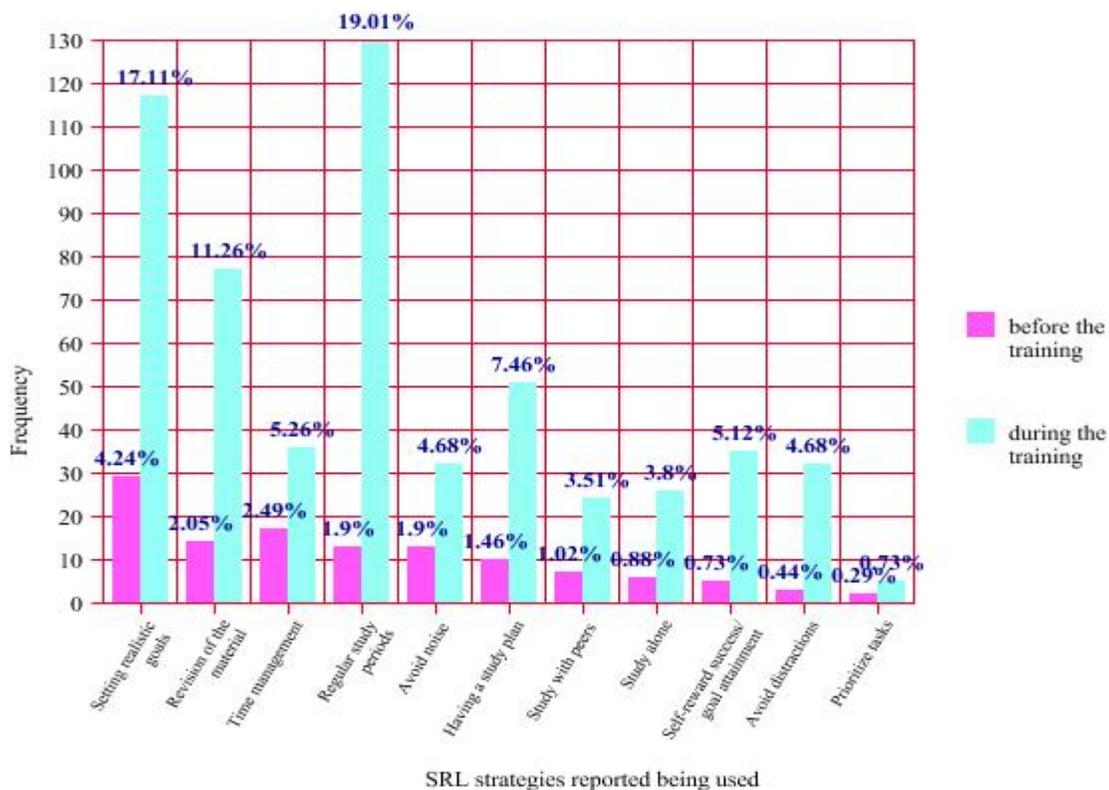


Figure 2: The Increase in Frequency of the SRL Being Used.

The results displayed in Table 4 indicate that the training increased each student’s awareness and the frequency of reported strategy use to a great extent. The frequencies before the training is much lower than the ones during the training. Starting from the fourth journal entry, which coincides with the first phase (i.e., self-evaluation and monitoring) of the training, the students started to use strategies more frequently. This is consistent with Schmitz and Wiese’s (2006) finding that SRL at home plays a considerable role within university learning. The comparison of the strategies reported being used before and during the training reveals similar results. Figure 2 displays the increase in the frequency of each strategy during the training and the percentage of each strategy within the category (i.e., before or during the training).

As an example, the training encouraged the students to set goals more frequently and systematically, which is a crucial SRL strategy. 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. This could be explained by the fact that these students were educated in traditional classrooms in which the teacher set the goals and students did what their teachers asked them to do. However, the training proved to increase the frequency of the reported use of goal-setting to a great extent (frequency: 117). The 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.

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”. The study habit of this student before the training (i.e. inefficient use of the study time) reflects 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 addition to the increase in the frequencies of strategy use, another major contribution of the training was students’ improvement of 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 have, set academic goals, implement strategies to achieve the goals and continuously monitored and self-evaluated 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. For example, P18 (283.3%) 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”.

## Conclusion

One aim of this study was to explore the self-regulatory strategies the students reported to use before the training. The results indicate that the students’ awareness and use of the strategies were rather limited in the initial phases of the training, which was probably a result of no explicit or implicit previous training on self-regulatory skills. The strategies most frequently reported being used were setting realistic goals, note-taking, time management, revision of the material, regular study periods, and avoiding noise. In addition, their study habits in terms of time management, having a study plan, and goal-setting were rather mixed- although some reported making use of these strategies, others stated that they did or could not.

The study also aimed to identify the strategies reportedly used during the training. The most popular strategies were studying in regular periods, setting realistic goals, revision of the material, having a study plan, and time management. The students reported managing their study time, by having regular study periods or increasing the study time when they needed more time to accomplish the task. In addition, they regulated their physical and social environment (e.g., going to the library and help seeking, such as studying with peers), and their ability to control their effort (e.g., delaying gratification) and attention (e.g., avoiding distractions or noise), which are all crucial aspects of SRL (Pintrich, 1995).

The final purpose of the study was to determine the extent to which the training influenced students’ awareness and reported SRL strategy use. The results revealed that the training was influential both in terms of the frequency and variety of the strategies. In addition to applying the strategies more frequently, the students also extended their strategy repertoire throughout the training. Last, but not the least, the students were provided with an opportunity to monitor and evaluate the learning process. Therefore, by following the cyclical steps of the SRL cycle, the 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. These findings were consistent with Zimmerman et al.’s (1994) findings, which indicated that training in time planning and management fostered more effective self-regulation of study time.

One limitation of this study is that it relies on students’ reflections rather than what they actually did. Because the students were regulating their study habits outside the classroom, how they went through the SRL process could not be observed. Additionally, interviews or think-aloud protocols could have yielded important data on the reasons for the students’ particular actions (e.g., the selection of a particular strategy) and how these actions affected the training

process. This would allow for a more in-depth exploration of students' experiences of regulating their learning process. Another significant limitation is time; because of time constraints, the training lasted for seven weeks. Undoubtedly, an extended training procedure would have helped the students internalize the strategies better, and the researchers would be able to monitor the students' development better, leading to more reliable results.

Therefore, 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 these limitations. Obviously, it is important to conduct longitudinal studies with a variety of participants to verify the consistency of the present findings. In addition, as time is 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. As effective self-regulation is intended to promote learning, studies focusing on which self-regulatory strategies students use and how those strategies relate to their learning and achievement would be fruitful for further educational practices. 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. More focus is also needed on younger students' use of self-regulation strategies to test the assumption that older learners are more suitable for self-regulatory training.

In summary, students who cannot plan their study time, set specific goals, and monitor their progress are at a disadvantage (Zimmerman et al., 1994). The unfortunate fact is that many students are either unaware of or do not have the skills to plan and manage their study time. Considering that effective study time management is a crucial factor for learning and performance in class, students, teachers, and researchers need to pay more attention to optimize effectiveness of study time. The good news is that time management skills can be taught (Zimmerman et al., 1994), and training of these strategies helps students to self-regulate their use of study time and in turn improves their learning (Zimmerman, 1994). 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 et al., 1996), teachers should train students to become self-regulated learners who are able to keep up with the requirements of lifelong learning. In that way, students can control their behaviors and affect in order to improve their academic learning and performance. In brief, SRL processes offer optimistic implications for teaching and learning.

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 time as a "crucial learning resource" (Zimmerman et al., 1996, p. 25) and realize that effective and efficient time management can boost learning and self-efficacy perceptions, while the opposite depresses them. Students should be allowed and given opportunities to manage and regulate their study time and environment based on their goals. One tool could be self-monitoring forms with which they could keep track of how much time they allocate to their academic tasks and other activities, and monitor and compare the time allocated for each activity for further reflection. Students might also be encouraged to use weekly/monthly planners to organize their time more efficiently. Self-regulated aspects of learning, such as choosing what, how, when, and how long to study have important implications for the effectiveness of the effort students make to learn as well as their achievement (Dunlosky & Theide, 1998). Therefore, training students for better regulation of their study time is expected to eventually increase their achievement levels.

In a broader sense, literature suggests that self-regulation is an influential topic in 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 incorporate self-regulation into the curriculum as a beneficial approach to increase success. This need was expressed by Zimmerman (1990) over two decades ago “instructional approaches that can offer direction and insight into the processes of self-regulated learning” (p. 14). The present study might serve the literature as a response to this call. In this regard, the study will provide the teachers and students with practical information regarding the procedure, which means that they can apply or adapt the procedure for their own needs and context.

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## References

- Alaszewski, A. (2006). *Using diaries for social research*. India: Gopsons Paper Ltd.
- Ariel, R., Dunlosky, J., & Bailey, H. (2009). Agenda-based regulation of study-time allocation: When agendas override item-based monitoring. *Journal of Experimental Psychology: General*, 138, 432-447.
- Arsal, Z. (2010). The effects of diaries on self-regulation strategies of pre-service science teachers. *International Journal of Environmental and Science Education*, 5(1), 85-103.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice- Hall, Inc.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 20, 248-287.
- Bembenutty, H. (2009). Academic delay of gratification, self-efficacy and time management among academically unprepared college students. *Psychological Reports*, 104, 613-623.
- Bembenutty, H. & Karabenick, S. A. (1998). Academic delay of gratification. *Learning and Individual Differences*, 10(4), 329-346.
- Bembenutty, H., & Karabenick, S. A. (2004). Inherent association between academic delay of gratification, future time perspective, and self-regulated learning: Effects of time perspective on student motivation. *Educational Psychology Review*, 16(1), 35-57.
- Boekaerts, M., & Corno, L. (2005). Self-regulation in the classroom: A Perspective on assessment and intervention. *Applied Psychology: An International Review*, 54(2), 199-231.
- Boekaerts, M., & Niemivirta, M. (2000). Self-regulated learning: Finding a balance between learning goals and ego-protective goals. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 417-450). San Diego: Academic Press.
- Boekaerts, M., Pintrich, P. R., & Zeidner, M. (2000). Self-regulation: An Introductory Overview. In M. Boekaerts, P. R., & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 1-9). San Diego: Academic Press.
- Britton, B. K., & Tesser, A. (1991). Effects of time management practices on college grades. *Journal of Educational Psychology*, 83(3), 405-410.
- Chen, C. S. (2002). Self-regulated learning strategies and achievement in an introduction to information systems course. *Information Technology, Learning, and Performance Journal*, 20(1), 11-25.

- Corno, L. (1986). The metacognitive control components of self-regulated learning. *Contemporary Educational Psychology, 11*, 333-346.
- Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition Learning, 3*, 231-264.
- Dignath, C., Büttner, G., & Langfeldt, H. P. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review, 3*, 101-129.
- Dunlosky, J., & Thiede, K. W. (1998). What makes people study more? An evaluation of factors that affect self-paced study. *Acta Psychologica, 98*, 37-56.
- Eilam, B., & Aharon, I. (2003). Students' planning in the process of self-regulated learning. *Contemporary Educational Psychology, 28*, 304-334.
- Forgas, J.P., Baumeister, R.F., & Tice, D.M. (2009). The psychology of self-regulation: An introductory review. In J. P. Forgas, R. F. Baumeister, & D. M. Tice (Eds), *Psychology of Self-Regulation: Cognitive, Affective and Motivational Processes*. Taylor and Francis Group: USA.
- Garcia-Ros, R., Perez-Gonzalez, F., & Hinojosa, E. (2004). Assessing time management skills as an important aspect of student learning. The construction and evaluation of a time management scale with Spanish high school students. *School Psychology International, 25*(2), 167-183.
- Guvenc, H. (2011). Effects of study diaries on sixth graders' self-regulated learning. *Hacettepe University Journal of Education, 41*, 206-218.
- Kadioglu, C., Uzuntiryaki E., & Capa Aydin, Y. (2011). Development of self-regulatory strategies scale (SRSS). *Education and Science, 36*(160), 11-23.
- Karabenick, S. A. (1998). Help seeking as a strategic resource. In S. A. Karabenick (Ed.), *Strategic help seeking: Implications for learning and teaching* (pp. 1-11). Mahwah, NJ: Erlbaum.
- Klug, J., Ogrin, S., Keller, S., Ihringer, A., & Schmitz, B. (2011). A plea for self-regulated learning as a process: Modelling, measuring and intervening. *Psychological Test and Assessment Modeling, 53*(1), 51-72.
- Lynch, R., & Dembo, M. (2004). The relationship between self-regulation and online learning in a blended learning context. *The International Review of Research in Open and Distance Learning, 5*(2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/189/271>.
- Maxwell, J.A. (2013). *Qualitative research design: An interactive approach, 3rd edition*. Thousand Oaks, CA: Sage.
- Morrison, M. (2002). Using diaries in research. In A. R. J. Briggs, & M. Coleman, (Eds.), *Research Methods in Educational Leadership and Management* (pp. 213-232). Cromwell Press: Great Britain.
- Ozturan-Sagirli, M., & Azapagasi, E. (2009). Üniversite öğrencilerinin öğrenmede öz-düzenleme becerilerinin incelenmesi. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 42*(2), 135-168.
- Perels, F., Gürtler, T., & Schmitz, B. (2005). Training of self-regulatory and problem-solving competence. *Learning and Instruction, 15*, 123-139.

- Perels, F., Dignath, C., & Schmitz, B. (2009). Is it possible to improve mathematical achievement by means of self-regulation strategies? Evaluation of an intervention in regular math classes. *European Journal of Psychology of Education, 24*(1), 17-31.
- Pintrich, P. R. (1995). Understanding self-regulated learning. In P. R. Pintrich (Ed.), *Understanding self-regulated learning* (pp. 3-12). San Francisco, CA: Jossey-Bass.
- Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451-502). San Diego: Academic Press.
- Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement, 53*, 801-813.
- Randi, J. (2004). Teachers as self-regulated learners. *Teachers College Record, 106*(9), 1825-1853.
- Schmitz, B. & Wiese, B.S. (2006). New perspectives for the evaluation of training sessions in self-regulated learning: Time-series analyses of diary data. *Contemporary Educational Psychology, 31*, 64-96.
- Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25*, 71-86.
- Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In B. J. Zimmerman, & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical Perspectives* (pp. 125-151). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Schunk, D. H. (2005). Commentary on self-regulation in school contexts. *Learning and Instruction, 15*, 173-177.
- Schunk, D. H., & Zimmerman, B. J. (1994). Self-regulation in education: Retrospect and prospect. In D. H. Schunk, & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and Educational Applications*. Hillsdale, NJ: Erlbaum.
- Souvignier, E., & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction, 16*, 57-71.
- Van den Hurk, M. (2006). The relation between self-regulated strategies and individual study time, prepared participation and achievement in a problem-based curriculum. *Active Learning in Higher Education, 7*(2), 155-169.
- Watling, R. (2002). The analysis of qualitative data. In A. R. J. Briggs, & M. Coleman, (Eds.), *Research Methods in Educational Leadership and Management* (pp. 262-278). Cromwell Press: Great Britain.
- Winne, P. H., & Perry, N. E. (2000). Measuring self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 531-566). San Diego, CA: Academic Press.
- Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology, 11*, 307-313.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339.
- Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17.

- Zimmerman, B. J. (1994). Dimensions of academic self-regulation: A conceptual framework for education. In D. H. Schunk, & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications*. (pp. 3-21). Hillsdale, N. J.: Erlbaum.
- Zimmerman, B. J. (2000). Attaining self-regulation. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation*. (pp. 13-39). San Diego: Academic Press.
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (pp. 1-38). Mahwah, NJ: Erlbaum.
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 64-72.
- Zimmerman, B. J., Bonner, S., & Kovach, R. (1996). *Developing self-regulated learners: Beyond achievement to self-efficacy*. Washington: APA.
- Zimmerman, B. J., Greenberg, D., & Weinstein, C. E. (1994). Self-regulating academic study time: A strategy approach. In D. H. Schunk, & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications*. (pp. 181-199). Hillsdale, NJ: Lawrence Erlbaum.
- Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal*, 23(4), 614-628.
- Zimmerman, B. J., & Martinez-Pons, M. (1988). Construct validation of a strategy model of student self-regulated learning. *Journal of Educational Psychology*, 80(3), 284-290.
- Zimmerman, B. J., & Risemberg, R. (1997). Becoming a self-regulated writer: A social cognitive perspective. *Contemporary Educational Psychology*, 22, 73-101.
- Zimmerman, B. J., & Schunk, D. H. (2011). Self-regulated learning and performance. In B. J. Zimmerman, & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance*. (pp. 1-12). New York: Routledge.