Self-regulated learning (SRL): Emergence of the RSRLM model

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This paper claims that the current theories of Self-regulated learning (SRL) are short-sighted. The author provides a comprehensive, but brief, overview of SRL which addresses such issues as (a) SRL processes, (b) SRL strategies, (c) compartments of SRL, (d) theories of SRL, (e) agency in SRL, and (f) models of SRL. He then presents a new model for SRL (namely, the Revised Self-Regulated Learning Model (RSRLM)), and focuses on the role of dyadic agency in SRL. The paper concludes that SRL models need to take into account the roles played by social support systems.

Keywords: Self-Regulated Learning; Self-Oriented Feedback Loop; Intrinsic Task Interest; Self-Efficacy; Self Agent; Social Support System

1. Introduction

Zimmerman and Schunk (1989) defined self-regulated learning as students' becoming "masters of their own learning" (cited in Zimmerman, 1990, p. 4). The idea of self-regulated learning, however, is most probably older than the late 1980s. Perhaps the first person to introduce the idea of self-regulated learning in education was Gardner (1963) who "recognized the importance of *personal initiative* in learning" (Zimmerman, 1990, p. 3; italics mine). For Gardner, the ultimate goal of the education system was to "shift to the individual the burden of pursuing his own education" (1963, p. 21). Later in the 1970, people like Rosenthal an Zimmerman introduced the terms 'arrangement of thoughts' and 'improvement of memory' in what they called observational learning (Rosenthal & Zimmerman, 1978; Zimmerman & Rosenthal, 1974). Since then, self-regulated learning has been the topic of a wealth of research projects in different fields of education.

Although self-regulated learning has been extensively researched in different fields of education, it has not been the focus of attention by language researchers and educators. This paper, therefore, aims at showing the importance of self-regulated learning in language achievement in academic settings.

2. SRL: A review of the literature

In addition to its distinctive impacts on the learner, self-regulated learning has profound implications for teacher-learner interaction as well as school

organization. Self-regulated learners are not passive; rather, they are active in the sense that they know their own strengths and weaknesses, and when needed, they are able to seek and access information which is conducive to learning (Zimmerman, 1990). A nonstandard learning condition—be it due to abstruse course-books, confusing instructors, below-average study conditions and school facilities—cannot create any crippling obstacles for them. They manage to use failure as a bridge to success. For them, the process of the acquisition of knowledge is both systematic and controllable (Borkowski, Carr, Rellinger, & Pressley, 1990). Self-regulated learners are individuals who are claimed to possess such qualities as resilience, confidence, diligence, resourcefulness, and the like (Zimmerman & Martinez-Pons, 1986, 1990); they see themselves as motivated, hard-working, appropriately strategic, and academically competent. (Meltzer, Katzir-Cohen, Miller, & Roditi, 2001). They sharply differ from their non-self-regulated counterparts in terms of emotional resiliency, stress levels, and need for achievement; they show a strong goal-directed approach and problem-solving initiative in their academic learning environments. (Hall, Spruill, & Webster, 2002).

2.1. SRL processes

The description of self-regulated learners presented above points to their characteristics and qualities; however, the need for an operational definition of 'self-regulated learning' is of paramount importance. Zimmerman (1986) defines a self-regulated learners as individuals who are "metacognitively, motivationally, and behaviorally active . . . in their own learning" (Cited in Zimmerman, 1990). As such, self-regulation is compartmentalized into three major components: (a) Metacognitive Processes, (b) Motivational Processes, and (c) Behavioral Processes. The role of these processes is clearly stated by Zimmerman (2001) who argues that "students are self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 5). It should be noted that within each of these processes, certain strategies have been identified.

As for metacognition, Corno (1986, 1989) argues that self-regulated learners plan their own learning process, set goals for themselves, organize their own learning tasks, monitor themselves closely in the process of learning, and continually evaluate their own learning process; these have come to be known as 'metacognition' (Ghatala, 1986; Pressley, Borkowski, & Schneider, 1987). Metacognition is the drive behind learners' being decisive, self-aware, and knowledgeable in the process of learning (Zimmerman, 1990). Besides metacognition, self-regulated learning also requires a high level of motivation. According to Borkowski et al., self-efficacy, self-attributions, and intrinsic task interest comprise the motivational process (Borkowski et al., 1990). A

motivated learner is one who is a real self-starter in the process of learning. Motivated learners display exemplary effort, persistence, and perseverance in the learning process (Schunk, 1986). The third component of self-regulated learning is action, or what Zimmerman (1990) has called 'behavioral process'. Wang and Peverly (1986) and Henderson (1986) defined the behavioral process as the process whereby self-regulated learners "select, structure, and create environments" that are conducive and facilitative to optimized learning (cited in Zimmerman, 1990, p. 5). They seek out advice, search for information, and show extreme effort to find places where they can learn better. They self-instruct themselves in the process of learning (Diaz, Neal & Amaya-Williams, 1992), and do not fail to reinforce what they have learnt during their performance enactments (Rohrkemper, 1989). Moreover, self-regulated learners differ from their non-self-regulated counterparts in that (a) they are aware of the connection between self-regulatory strategies and learning outcomes, (b) they know that self-regulation is conducive to learning, and (c) they use self-regulatory strategies to attain their learning goals and outcomes (Zimmerman, 1990).

2.2. SRL strategies

The discussion presented hitherto implies a distinction between self-regulated strategies and self-regulated processes. Perhaps Zimmerman (1989) was the first to distinguish between the two. As mentioned earlier, self-regulated processes include metacognitive (i.e., planning, goal setting, organization, self-monitoring, self-evaluation), motivational (i.e., self-efficacy, self-consequencing, internal task interest, efforts and endurance), and behavioral processes (i.e., seeking assistance, seeking information, seeking for appropriate learning environment, self instruction, and self reinforcement, etc.). By way of contrast, self-regulated strategies are actions and processes that eventually lead to learning or skill. Perceptions of self-efficacy is an example of self-regulated processes; intermediate goal-setting is an example of self-regulated strategies (Henderson, 1986; Paris, Lipson, & Wixson, 1983; Pintrich & De Groot, 1990). Although the list of self-regulated strategies is still open for more additions, most scholars and researchers in the field agree on at least fourteen strategies: (1) self-evaluation, (2) organization, (3) transformation, (4) goal setting, (5) planning, (6) information seeking, (7) record keeping, (8) self-monitoring, (9) environmental structuring, (10) giving self-consequences, (11) rehearsing, (12) memorizing, (13) seeking social assistance, and (14) reviewing.

2.3. Compartments of SRL

In addition to the systematic implementation of metacognitive, motivational,

and behavioral processes, self-regulated learners also benefit from what Carver and Scheier (1981) called "self-oriented feedback" loop (cited in Zimmerman, 1990, p. 5). Although Zimmerman (1990) uses the term "cyclical" to describe the nature of this feedback loop, the current author prefer the term "spiral" since cyclical connotes turning back to the initial position in a cycle whereas spiral takes you one level up (See *Figure 1* below). The self-oriented feedback loop begins with implementation and use of a certain self-regulated learning strategy or method with the simultaneous monitoring of its effectiveness by self-regulated learners. Based on the feedback provided by the monitoring, self-regulated learners decide to react in a variety of ways; learners may covertly change their self-perceptions (e.g., self-esteem or self-concept), or they may overtly change their strategies (e.g., changing the strategy for the better) (Zimmerman, 1990). The feedback thus obtained can be either positive (i.e., learners may seek to raise their learning goals based on observed outcomes) or negative (i.e., learners may alternatively decide to lower their goals to match the observed outcomes).

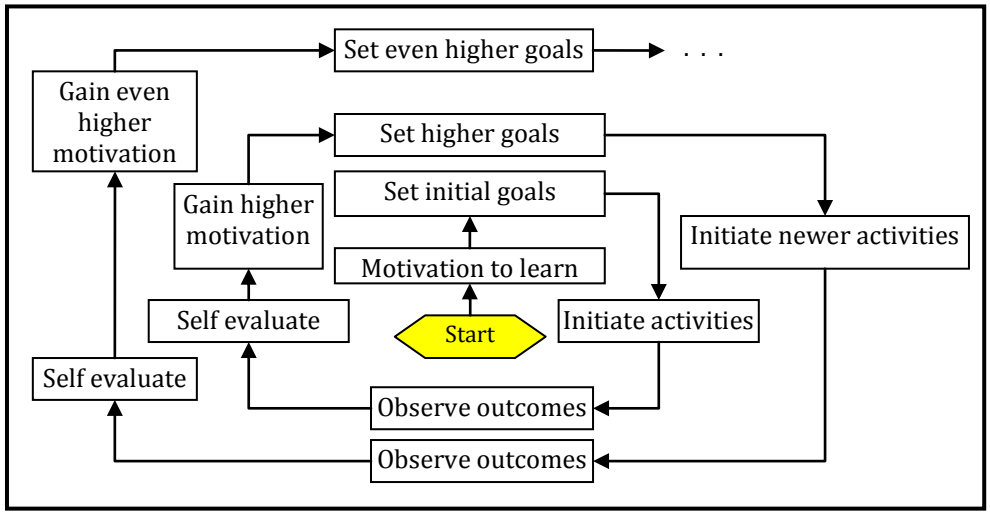

Figure 1. The spiral nature of self-regulated learning.

The implication of the spiral process displayed in *Figure 1* is that motivation is the drive behind starting the process of self-regulated learning which, in turn, results in higher motivation (i.e., self motivation), and the process goes on. Self-regulated learning is analogous to a snowball; it gathers momentum and size as it moves in its path. As such, as Zimmerman argued: ". . . definitions of students' self-regulated learning involve three features: their use of self-regulated learning strategies, their responsiveness to self-oriented

feedback about learning effectiveness, and their interdependent motivational process" (1990, p. 6). Other researchers, too, argue that strategic action, metacognition, and motivation (especially intrinsic motivation) comprise the construct of self-regulated learning (Boekaerts, 1999; Moschner, 2007; Winne & Perry, 2000). However, Wernke, Wagener, Anschuetz and Moschner (2011) argued that, no simple consensual definition of the construct has been suggested yet.

2.4. Theories of SRL

In a discussion of the nature of self-oriented feedback loop, Zimmerman (1990) came up with a classification of theories of self-regulated learning:

- *Phenomenological Theories* (e.g., McCombs, 1986, 1989): These theories delineate self-oriented feedback loop in terms of covert perceptual processes. These theories claim that self-regulated learning is informed by a universal sense of self-actualization and self-esteem.

- *Operant Theories* (e.g., Mace, Belfiore, & Shea, 1989): These theories depict and favor overt descriptions such as self-instruction, self-recording, self-reinforcement, etc. Operant theories maintain that external reward/punishment (e.g., social approval, enhanced status, material gain, promotion, etc.) determine self-regulated learning responses.

- *Social Cognitive Theories* (e.g., Bandura, 1989): Unlike the previous theories, these focus on the positive aspects of feedback. These theories claim that such factors as self-efficacy, achievement success, cognitive equilibrium, and the like are the actual drive behind self-regulation.

Zimmerman (1990) also noticed that, in addition to self-regulated learning processes and self-oriented feedback loop, there is a third dimension to self-regulated learning; this third dimension is the question of 'how' and 'why' learners choose a certain strategy or response. Self-regulation is not merely determined by the learners' "reactive responses" to learning outcomes; it is informed by learners' proactive engagement in the process of seeking information and creating learning opportunities (Zimmerman, 1990).

2.5. Agency in SRL

In their cognitivist and phenomenological discussions of self-regulated learning, McCombs and Marzano (1990) give more value to what they refer to as a 'system of self-structures' which they take to be composed of three elements: (a) self-beliefs, (b) self-goals, and (c) self-evaluations. This entails

that self-efficacy is perhaps the most important factor in determining learners' inclination towards self-regulated learning and guaranteeing quality outcomes. Self-efficient learners view themselves as active agents in the learning process rather than passive receivers of knowledge from outside; three valuable outcomes will emerge when 'self' is viewed as an 'agent': (a) a sense of self-efficacy, (b) internalized goals for learning, and (c) an experience of competency (Zimmerman, 1990). This 'agentive' view of self is the source of internal motivation which, in turn, is the ignition for self-regulated learning.

It is important to notice that this 'agentive' view of self stands in sharp contrast to that of Vygotsky (Vygotsky, 1981; Wertsch, Tulviste, & Hagstrom, 1993). Whereas here agency is considered to be a personal property of the individual learner, in Vygotsky's socio-cultural perspective, agency is shared by the individual learner and the society (i.e., agency is dyadic or mediated). In his general genetic law of cultural development, Vygotsky tacitly claims that agency exists at two levels: (a) the inter-mental level (i.e., among people on the social plane), and the intra-mental level (i.e., within the self on the psychological plane) (Yetkin Ozdemir, 2011). From a sociocultural perspective, agency (a) is shared by dyads and small groups and (b) involves mediational means (Wertsch, et al., 1993; Yetkin Ozdemir, 2011). The example of a father and his child engaging in conversation to 'remember' the location of a lost toy (Tharp & Gallimore, 1988) clearly shows the role the 'dyad' plays as a system to carry out the function of 'remembering' (Yetkin Ozdemir, 2011). As such, in dyadic remembering, the social distribution of cognition is much greater than its intra-mental distribution within each individual. Therefore, agency can be attributed to the dyad rather than to any of the individuals involved in the conversation.

It should further be noted that the dyad is more than the sum of individuals involved. It is more on a par with what can be called the social milieu. In the father-child example, the individuals draw on certain tools and signs (i.e., mediational means which are part of the dyad) to achieve the function of remembering. As such, the appropriate designation of agency involves the individuals as well as the mediational means; hence, dyadic or mediated agency (Wertsch, 1998). This means that although individuals continue to take the major responsibility for carrying out the action, their actions are shaped by the mediational means they employ (Yetkin Ozdemir, 2011). It is on these grounds that Vygotsky (1981) Vygotsky suggests that the acquisition of self-regulatory capacities by children is not possible unless it is mediated through the use of signs (e.g., speech) and tools (e.g., objects).

In fact, to attain an agentive view of self, learners need to enhance their

metacognitive self-awareness which can lead to learners' realization of their innate mechanisms of self-development and self-determination; these internal self mechanisms, in turn, guarantee a continued experience of motivation (Zimmerman, 1990). Bandura (1986) and Schunk (1989) had earlier presented a social-cognitive account of self-regulated learning by claiming that self-efficacy, rather than self structure systems, is the ultimate source of motivation. They defined self-efficacy as "personal ratings of performance success in task domains" based on "mastery criteria (i.e., a percentage scale) rather than comparative criteria (i.e., the performance of other students)" (Zimmerman, 1990, p. 11).

Thoresen and Mahoney (1974) argued that, to achieve a sense of self-efficacy, learners need to adequately desirous of a particular educational or learning outcome. Most often, if not always, engaging one's self in a particular learning task asks for sacrificing certain other alternatives. For instance, students may frequently need to ignore pass-time activities for the sake of staying home to prepare for class assignments. Making these kinds of sacrifice requires the students' self-confidence in their own potentials and abilities as well as personal determination to postpone gratification (Mischel & Mischel, 1983; Zimmerman, 1990). Facing a situation of this kind, students often ask the question: Is it worth my while? This is where discrepancies occur in the process of self-regulation. Bandura and Schunk (1981) proposed 'self-instruction' and 'self-evaluation' as strategies which can resolve such discrepancies; Thoresen and Mahoney (1974) had earlier suggested the use of intermediate goal-setting (i.e., bahavioristic interresponse) as a resolving strategy.

2.6. Models of SRL

To date, several models of self-regulated learning have been presented to date. In one case, Weinstein and Mayer (1986) suggested a very general model which distinguished between cognitive, metacognitive, and motivational/affective strategies. For Weinstein and Mayer (1986), cognitive strategies included rehearsal, elaboration, and organization; Metacognitive strategies, on the other hand, included strategies for monitoring comprehension; finally, motivational strategies had to do with learners' affect and motivation system. Another three-layered general model of self-regulated learning was proposed by Boekaerts (1999). Boekaerts' model aimed at capturing the different areas of regulation. The first layer of the model had to do with the regulation of processing modes (i.e., choice and application of cognitive strategies). The second layer drew on the role metacognitive knowledge and metacognitive skills play in the regulation of learning processes. The last layer focused on the regulation of self and had to do with

such general aspects of learning as goals and resources (Wernke, Wagener, Anschuetz, & Moschner, 2011). A third model was suggested by Winne and Hadwin (1998) and later expanded by Winne and Perry (2000). This model presented a more detailed elaboration of the metacognitive as well as the cognitive processes involved in self-regulated learning.

Information processing models were also proposed which identify cognitive processes and complex feedback loops as the building blocks of self-regulated learning (Zimmerman, 2001). In these models, learning is considered as information processing and is broken down into episodes within each of which certain chronologically-ordered processes are distinguished and described. One such model suggested by Winne and Hadwin (1998) included four phases: (1) defining learning task, (2) setting goals and planning how to reach them, (3) enacting tactics, and (4) adapting metacognition. Each of these phases draws on relevant metacognitive monitoring and metacognitive control (Wernke, Wagener, Anschuetz, & Moschner, 2011). In another model proposed by Zimmerman (2000, 2001), self-regulated learning was viewed as a three-phase process: (a) the forethought phase or task analysis phase, (b) the performance or volitional control phase, and (c) the self-reflection phase. The first phase had to do with goal setting and strategic planning; the second phase focused on self-control and task-related strategies; the last phase involved self-reflection and self-evaluation (Zimmerman, 2000, 2001).

Another four-phase model was suggested by Pintrich (2000). This model, which has come to be known as temporal model of self-regulation, includes the following phases:

(a) Forethought: includes planning, goal-setting and activation;
(b) Monitoring: includes monitoring of the learning process;
(c) Management: includes use of regulation and control strategies; and
(d) Reflection: includes evaluations, judgments, and attributions (after the learning episode).

The model is considered to be temporal in the sense that, in theory, the phases in the model are chronologically sequenced. However, Pintrich (2000) noticed that the four phases do not necessarily take place in every self-regulated learning process, and that they do not always happen in the suggested sequential order. Pintrich (2000) went further to identify four areas for self-regulated learning: (1) cognition, (2) motivation, (3) behavior, and (4) context. This conception of self-regulated learning is more comprehensive in that Vygotsky's mediated and dyadic agency has also been tacitly incorporated into the model. Pintrich also claimed that all the four phases of forethought, monitoring, management, and reflection may occur in

all the four areas of self-regulated learning. Moreover, Pintrich argued that the four areas of self-regulation do not need to be in linear arrangement; the phases may "overlap, occur simultaneously with multiple interactions among the different processes and components" (2000, p. 456). A last property of this model is that metacognitive strategies of planning, monitoring, and evaluating as well as cognitive strategies of dealing with learning content are relevant in all the four phases of this model of self-regulated learning (Wernke, Wagener, Anschuetz, & Moschner, 2011).

3. The Revise Self-Regulated Learning Model (RSRLM)

My model of SRL which I would like to call the "Revised Self-Regulated Learning Model (RSRLM)" is based on the literature I have reviewed above and also several other sources of information (See Figure 2 below).

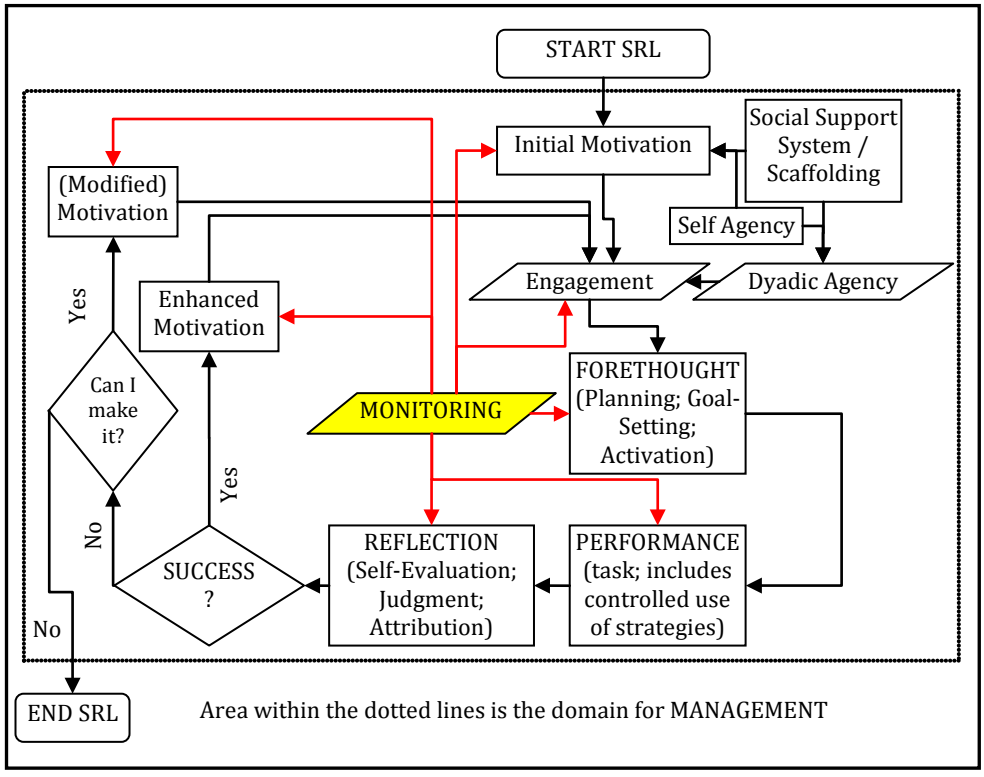

Figure 2. Revise Self-Regulated Learning Model (RSRLM).

This model draws on seven elements: (a) motivation, (b) agency, (c) forethought, (d) performance, (e) reflection, (f) monitoring, and (g) management. As the model implies, self-regulated learning has a macroscopic

aspect (which consists of monitoring and management) as well as a microscopic aspect (which is comprised of all the other steps and phases illustrated in the RSRLM). In other words, the macroscopic aspect of SRL is its overall organization, ideology, and evaluation. The microscopic aspect, on the other hand, consists of the individual elements that are the ingredients of the whole system. In this model, the onset of self-regulated learning is marked by the learners' initial (operant) motivation to learn. If motivated to learn, learners will engage themselves in the process of self-regulated learning. This component of the model has been referred to as "engagement." Engagement is informed by dyadic agency (i.e., social support system, self agency, and social milieu) and leads to the next step or phase in SRL which is "forethought." The forethought phase includes such activities as planning, goal-setting, activation of the learning process, and the like. After the forethought phase, learners start to use the self-regulated learning strategies; in other words, they start the action process. For example, they seek advice, go to find information sources, etc.

The next phase is the reflection phase. In this phase, learners reflect on their learning; they self-evaluate and judge their own success or failure. It should be noted that reflection is in essence a kind of monitoring. Although reflection, as the RSRLM model suggests, seems to be a post-action process, there is no reason not to assume that it can also be an on-task or through-task process. That is, the learner does not have to wait until the performance phase has come to an end to start the reflection phase; it can be done at the same time as the performance phase is going on. As such, reflection can be both a through-task as well as a post-task process.

Reflection is done by learners as one of the strategies which will help them to decide if they have succeeded or not. The outcome of the reflection phase provides the learner with the answer to the question, "Did I succeed?" If the answer is yes, the learner will experience an enhanced level of motivation to get re-engaged in the process at a higher level. If the answer is no, the learner will then ask the next question, "Can I make it?" Here is where 'attribution' comes into play; learners may decide that the source of failure is inside themselves or outside of their reach. If the learner is self-efficient (or possesses an internal locus of control), the answer to this will be yes, and the learner will return to the engagement phase with the initial or modified motivation. If the answer is no, the learner will end the SRL process.

Monitoring and management function in a wide range of domains in this model of SRL. They permeate all steps, stages, and aspects of the model. Learners monitor their initial motivation, forethought, performance, self-evaluation, success, and enhanced/modified motivation. They monitor their motivation (perhaps subconsciously) to see if they are motivated enough to

engage in the SRL process. They also monitor their performance to see if they are performing as expected or not. Moreover, they monitor the outcomes of their performance to see if they had been successful or not. They also monitor their new motivational levels to see if their motivation has been enhanced or modified. As such, monitoring works in several phases and on several planes of SRL.

Management, too, has the strongest regulatory function in this model. Management is that component of the model which determines what learners do to make self-regulated learning optimally happen. Through management, learners work to make sure that they do all the learning and learning activities in such a way as to make sure that the best results will ensue when they engage in self-regulated learning. It is through management that learners control and manage their initial motivation, choose appropriate agency, plan to receive the best kind of scaffolding which is conducive to learning, monitor their activities, evaluate the outcomes of learning, and so on. In fact, management permeates all the phases and components of the model. Its role is so important that it can be safely claimed that management is the matrix within which SRL takes place. It lies at the bas of self-regulated learning and is the pedestal on which the whole model is based. It is the foundation on which the totality of the components of self-regulated learning stand. In other words, management regulates the whole process; it also controls learners' use of SRL strategies. Moreover, it controls learners' access to the social support system, tools, signs, and virtually all the other aspects of SRL.

To me, the social support system (i.e., also called scaffolding) is of prime importance in this model. To me it seems that social support system plays its crucial roles on two planes: (a) on the objective plane, and (b) on the subjective plane. By objective plane I mean all the non-human objective elements (or tools/agents) that are part of the educational setting and, therefore, part of the educational process. Examples of objective agents include white-boards, overhead projectors, classroom seating order, quality of the paper used for printing course books, and so forth. By subjective plane, on the other hand, I mean the human side of the social support system, and all the other elements that directly or indirectly relate to this side of the system. Examples of subjective agents in the social support system include educators' ideology, societies' aims and priorities, families' aspirations, governments' provision of budget for education, and so on.

It is vital to notice that the subjective plane determines the fate of the objective plane in the social support system. For instance, in some Islamic countries, governments do not allow co-educational schools simply because of some Islamic ideology that preaches the separation of opposite sexes. There is little, if any, academic scientific research to see if this decision is

conducive or aversive to learning, nor is there enough aspiration or motivation for such research. In some countries like Iran and Pakistan, the topic is considered a religious taboo and only a few scientists or researchers may dare to approach the topic; there is the threat that those who do, may find themselves between a rock and a hard place, and they may turn into inmates. As such, the effects of the decisions made by the social support system can be constructive or detrimental.

4. Conclusion

The description of self-regulated learning and the review of the literature presented above indicate that, to be self-regulated, learners need to be active and goal-directed; they also need to regulate their motivation, cognition, and behavior in the process of learning. Self-regulated learners regulate their cognition by such strategies as planning, organizing, monitoring and evaluating their learning processes. They show control over their motivation by viewing themselves as self-efficacious and competent. Moreover, they regulate their behaviors by selecting, structuring, and creating environments that are conducive to effective learning (Pintrich, 1995; Yetkin Ozdemir, 2011). To guarantee self-regulated learning, they set learning goals and then generate thoughts, feelings, and behaviors to attain those learning goals (Schunk, 2001). Self-regulation requires learners to fully understand and appreciate (a) what motivates them to self-regulate, (b) what processes can make them self-aware, (c) how their self-regulation is affected by their socio-cultural milieu, (d) what cognitive, affective, and motivational processes play which roles in their self-regulation, and (e) how they can develop the ability to self-regulate (Yetkin Ozdemir, 2011; Zimmerman, 2001).

It was argued in this paper that the phases in the process self-regulated learning take place in the matrix of monitoring and management. It can, therefore, be concluded that self-regulated learning has a macroscopic aspect (which consists of monitoring and management) as well as a microscopic aspect (which is comprised of all the other steps and phases illustrated in the RSRLM). It can also be concluded that the subjective plane of the social support system can determine the fate of self-regulated learning and modulate its final outcome.

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