A Review of Relationship between Self-regulation and Reading Comprehension

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Abstract—Over the past three decades, researchers have found that motivational variables have an effective role in language skills and in academic achievement and success (Khajavi & Abbasian, 2013). An attempt was made in the present research to review the relationship between self-regulation as one of the motivational variables and reading comprehension. Moreover, the present paper is organized in the way that some of the significant notions of self-regulation and cyclical phases, and some models of self-regulated learning Pintrich’s model and characteristics of self-regulated learners will be explained. Then, the notion of reading comprehension and different purposes of reading will be defined. Finally, some empirical studies on the relationship between self-regulation and reading comprehension will be elaborated.

Index Terms—self-regulation, reading comprehension, learner’s motivational variables

I. INTRODUCTION

Research studies have shown an increased interest in the importance of reading for EFL/ESL students (Grabe & Stoller, 2001). Reading is seen as a self-discovery process in which the reader interacts with the texts by employing cognitive as well as metacognitive information (Tung-hsien He, 2001). Kucer (2005) states that reading is a complicated and determined sociocultural, cognitive, and linguistic process in which individuals utilize their information about the topic and also culture at the same time to create the meaning of the text.

With regard to effective ways for improving reading comprehension, a set of recent studies have found that motivational variables are related to accomplishment and success of learners’ academic life and especially reading comprehension (e.g., Khajavi & Abbasian, 2013). Therefore, recognizing ways which contribute to achieving learners’ motivational variables seems helpful in improving reading comprehension.

Self-regulation is one of motivational factors which has recently drawn more attention. According to Zimmerman (2000), self-regulation is ones’ ability to formulate thought, feeling and actions that result in gaining one’s goals utilizing some information that an individual has acquired from previous performances; this is a cyclical process. Self-regulated learners are good in performing the learning materials because they possess a set of learning and metacognitive strategies. Moreover, self-regulated learners are famous as good decision makers having a large number of aims to pursue (De Bilde, Vansteenkiste & Lens, 2011).

Therefore, considering the importance of self-regulation as facilitative factor in reading skill, the purpose of this paper is to review recent research into the relationship between self-regulation and reading comprehension.

II. SELF-REGULATION AND CYCLICAL PHASES

Studies on academic self-regulation emerged in the middle of 1980s from an interest in answering the question of how learners become the director of their own learning process (Zimmerman, 1989). According to Zimmerman (2000, 2002), self-regulation is ones’ ability to formulate thought, feeling and actions that result in gaining one’s goals utilizing some information that an individual has acquired from previous performances. Self-regulated learners believe academic learning is a proactive activity, needs self-beginning motivational and behavioral processes in addition to metacognitive ones (Zimmerman, 1986). These self-initiated processes make it possible for students to become director or manager instead of the victims of their difficult learning experiences. For instance, self-regulated learners are much better in their aims, more precise in their behavioral self-controlling, and being innovative in strategic thoughts (Schunck & Zimmerman, 1994). Zimmerman and Schunk (2008, p.1) point put that in comparison to poor self-regulators, good self-regulators “set better learning goals, implement more effective learning strategies, monitor and assess their goal progress better, establish a more productive environment for learning, seek assistance more often when it is needed, expend effort and persist better, adjust strategies better and set more effective new goals when present ones are completed”.

Academic self-regulation that is not an intellectual capability like intelligence or academic skills such as reading competency is defined as a self-directed process by which students convert their intellectual capabilities into academic
skills. This idea views learning as an activity that students do for themselves in a proactive way, instead of converting an event that occurs to them reactively as a result of teaching experiences. In this regard, numerous self-regulation theorists believe that learning is a multidimensional processes that include individual (cognitive and emotional), behavioral, and environmental aspects (Zimmerman, 1986, 1989). To become competent in academic skill, learners must use these three factors simultaneously. Furthermore, this process needs cyclical attempts to learn, because self-directory is engaged in correlating personal, behavioral, and contextual factors, each of which is individually dynamic and interactive implying that each cognitive learning strategy does not work well in solitarily.

Therefore, learning is supposed to be a dynamic, cognitive, productive, important, moderate, and self-regulated process (Beltran, 1996) and academic learning can aid learners to be conscious about their own thoughts, to be strategic and to manage their emotions toward significant goals. There are several studies in this field and great deal of study on self-regulated learning is published (Schunk & Zimmerman, 1994; Zimmerman & Schunk, 1989; Zeidner, Boekaerts, Pintrich, 2000; Zimmerman & Schunk, 2001). What the self-regulation process is and how students can become self-regulated will be discussed in the following cyclical phases which is classified and explained in different self-regulation models.

A. Models of Self-regulated Learning

A large number of self-regulated learning models have been developed, most of which suppose that the self-regulation of an individual’s learning activities is functioned in cycles of three or four phases. Winne and Hadwin (1998), for instance, suggested a model of self-regulated learning involving four phases: (1) describing the task, (2) goal setting or planning, (3) enacting study tactics and strategies, and (4) metacognitively adjusting studying for the future. Zimmerman (1998, 2000) also proposed a social cognitive model of self-regulated learning. According to this model, self-regulation is developed in three cyclical aspects: (1) forethought, (2) performance or volitional control, and (3) self-reflection (see figure 1).

![Academic learning cycle phase](image)

Forethought phase have five elements in studies on academic self-regulation learning (table 1). The first element is goal-setting which depends on making decision in specific goals of learning (Locke & Latham, 1990). The second element of forethought is strategic planning which is related to the selection of learning strategies or methods planned for acquiring specific aims (Zimmerman & Martinez-Pons, 1992).

<table>
<thead>
<tr>
<th>Cyclical self-regulatory phases</th>
<th>Forethought</th>
<th>Performance / Volitional control</th>
<th>Self-reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal setting</td>
<td>Attention</td>
<td>Self-instruction/ imagery</td>
<td>Self-evaluation</td>
</tr>
<tr>
<td>Strategic planning</td>
<td>Self-monitoring</td>
<td></td>
<td>Attribution</td>
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<td>Self-efficacy beliefs</td>
<td></td>
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<td>Self-reactions</td>
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<tr>
<td>Goal orientation</td>
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<td></td>
<td>adaptivity</td>
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<tr>
<td>Intrinsic interest</td>
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</table>

These two processes are affected by some individual beliefs, like the student’s self-efficacy, goal orientations, and intrinsic interest in or value of the task. The third element of forethought phase is self-efficacy. Self-efficacy is defined as individual’s belief about one’s ability to learn or function at specific designated levels (Bandura, 1986). For instance, students with self-efficacy beliefs set many aims for themselves (Zimmerman, Bandura, & Martinez-Pons, 1992) and utilize effective learning strategies more than students who have lower level of self-efficacy (Zimmerman & Bandura, 1994). Self-efficacious students reveal a learning goal orientation inclined to focus attention on learning process instead of competitive results and inclined to learn more impressively than learners with implementation aims (Ames, 1992). The fourth element is goal orientation. Mirhassani, Akbari and Dehghan (2007, p. 119) asserted that “achievement goal orientation as constructs that address the issue of the purpose or reason students are pursuing an achievement task”. Moreover, those learners with the intrinsic interest in doing task will go on learning attempts, even in the lack of actual rewards (Deci, 1975).

The second phase of self-regulation is performance or volitional control including three processes (see table 1). These processes help students concentrate on the task and improve their performance. The first category of volitional control is attention. Harnishferger (1995) defines attention as a cognitive process which needs self-monitoring. Frequently this process involves clearing the mind from distractors, as well as searching the appropriate environment for learning such as quiet place for study (Winne, 1995). In this regard, volition theorists like Kuhl (1985), Heckhausen (1991), and
Corno (1993) insist on the necessity for students to support their goals to learn from distractions and from challenging goals. The next category which has an influence on increasing students learning is self-instructions or imagery (Schunk, 1982), and describes how individual precedes a learning task like problem solving. The third type of performance control is self-monitoring. It is the process of observing and evaluating students’ behavior in relation to their aims. Self-regulated students self-monitor their improvement, and also set their learning aims and plans; moreover, they are motivated to encounter with their goals and they utilize learning strategies to make understanding material easier (Zimmerman, 2004). Many theoreticians suggest students don’t need to monitor their performance all the time as the learning process get into routine, but Carver and Scheier (1981) assumed students change their self-monitoring to a more total stage. For instance, writer doesn’t have a long time worrying about closely monitoring his/her grammar and can change attention to metaphorical qualities of created text.

The third phase is self-reflection which involves processes that emerge after learning attempt and have effects on learners reactions to the tasks by which learners attempt to measure the outcome of their efforts. It includes four elements and cyclically affects forethought aspect. Self-evaluating is the initial element of self-reflection. It involves comparing self-monitored knowledge with some aims, like evaluating feedback regarding the students’ evaluation of their performance on the learning task. Self-regulated students need to know about how well they are doing promptly and correctly, and learners will compare their performance with other students when there are not any formal standards available (Festinger, 1954).

The second phase of self-reflection is attribution. In attribution phase learners manage their feeling about the outcomes of the task. Self-evaluation usually leads to attributions about the meaning of the outcomes, like whether weak performance is relevant to one’s weak ability or inadequate attempt (Weiner, 1979). These attribution processes are very important for self-reflection because attribution of mistakes to capability compel students to respond negatively and stop attempting to progress. attributions are influenced by a diversity of personal and environmental aspects, for example, individuals’ goal orientation, following task conditions, and how well other did the task. Self-regulated students are inclined to attribute shortcomings to correctable reasons, and attribute success to individual capabilities.

However, strategic attributions not only leads to increasing self-reactions (self-reaction is the third phase during which students are engage in measuring responses to judgment of their function such as good/bad – acceptable/not acceptable), but also helps to classify the source of learning errors and adjust individuals’ performance (Zimmerman & Martínez-Pons, 1992). Strategic attributions strengthen systematic variations in approach till students find the best strategy to be utilized. Finally, the fourth phase of self-reflection is adaptive decision, that is, students are willing to perform the tasks again but whether they are inclined to use previous or new strategies to get better results. Self-regulated students evaluate their acting suitably because they are so adaptive. Suitable self-reactions sequentially increase positive forethought about oneself since students pursue high self-efficacy about finally mastering the academic skill (Dweck, 1988), and more intrinsic interest in the task (Zimmerman & Kinstantas, 1997). Self-regulatory phase cycle is completed by connection of self-reflection and forethought processes. Because utilizing of self-regulation process is naturally reciprocal, the phases inclined to be self-sustaining in the sense that each phase produce inertia that makes learning easier during cyclical phases.

In conclusion, in the forethought aspect of self-regulation, students get ready before learning activities; it has an influence on the performance or volitional control aspect in which students have focus attention on the tasks to improve their performance. This phase also has an effect on self-reflection aspect in which students make a judgment about their performance and goals. Finally, the self-reflective processes have cyclical influence on forethought and makes students ready for further learning attempts and efforts to achieve mastery over learnt material.

B. The Pintrich’s Model

Pintrich (2000), based on social cognitive theory, asserted the theoretical framework of self-regulation the purpose of which is to categorize and analyze diverse process that take apart in self-regulation learning. In this model, self-regulation process includes four stages: planning, self-monitoring, control and evaluation. Within every stage, self-regulation activities are sequentially structured into four domains: cognitive, emotional, behavioral, and contextual. For Pintrich, these four stages are cyclical that students perform the task step by step, but these sequences are not hierarchically or linearly structured. The stages can be presented synchronically and dynamically, developing several interactions between diverse processes and constituents. Moreover, Pintrich asserted that all academic tasks do not involve self-regulation; occasionally, the implementation of a particular tasks doesn’t need the learner’s plan, control and evaluation of what they are going to do. That is, the implementation can be done automatically.
C. What Is the Characteristic of Self-regulated Students?

According to Zimmerman (2001, 2002), self-regulated learners are active participants in the learning process from the metacognitive, motivational and behavioral perspective. They are students with high-ability and high-performance. Though, with sufficient practicing in this area, students can progress their degree of self-monitor on activities and learning, lots of learning disabilities that is found in low performance learner can be reduced. Generally, the following characteristics show the differences between self-regulated students in their learning process than those students who are not (Corno, 2001; Weinstein, Husman & Dierking, 2000; Winne, 1995; Zimmerman, 1998, 2000, 2001, 2002).

1) They are aware of how they are able to utilize of cognitive strategies such as repetition, elaboration, and arranging background knowledge about the material and metacognitive information, for example, students identify the problems or difficulties when they are engaged with diverse tasks, classify information and skills required for applying them, and gather some information about sources and strategies that are useful for doing tasks, and so on.

2) They are aware of how to prepare, manage and guide intellectual process for achieving goals (meta-cognitive).

3) They reveal a group of motivational beliefs and adaptive feelings, for instance, having high level of self-efficacy, selecting the appropriate learning goals, increasing the positive feeling for doing tasks such as an enjoyment, satisfaction and enthusiasm, and also having ability to control and classify them, and adapting them to necessity of the tasks in particular learning context.

4) They set and control the time and attempt to utilize them on the tasks, they are aware of how they can innovate and construct the enjoyable learning context, like providing appropriate place to study, getting help from teacher and other students when they are encountered with problems or difficulties.

<table>
<thead>
<tr>
<th>Phases</th>
<th>Cognition</th>
<th>Motivation/Affect</th>
<th>Behavior</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Forthought Planning, and Activation</td>
<td>Target goal setting prior content knowledge activation Metacognitive</td>
<td>Goal orientation adoption Efficacy judgments Ease of learning judgments (EOJs); perceptions of task difficulty Task value activation Interest activation</td>
<td>(Time and effort planning) (planning for self-observations of behavior)</td>
<td>perceptions of task (perceptions of context)</td>
</tr>
<tr>
<td>2-Monitoring</td>
<td>Metacognitive awareness and monitoring of cognition (FOKs, JOLs)</td>
<td>Awareness and monitoring of motivation and affect</td>
<td>Awareness and monitoring of effort, time, need for help Self-observation of behavior</td>
<td>Monitoring changing task and context conditions</td>
</tr>
<tr>
<td>3-Control</td>
<td>Selection and adaptation of cognitive strategies for learning, thinking</td>
<td>Selection and adaptation of strategies for managing motivation and affect</td>
<td>Increase/decrease effort Persist, give up Help-seeking Behavior</td>
<td>Change or re-negotiate task Change or leave context</td>
</tr>
<tr>
<td>4-Reaction And Reflection</td>
<td>Cognitive judgments attributions</td>
<td>Affective reactions Attributions</td>
<td>Behavior choice</td>
<td>Evaluation of task Evaluation of Context</td>
</tr>
</tbody>
</table>

The first stage in Pintrich’s model is planning. In this phase there are some essential strategies like goal setting, utilizing background knowledge about the material and metacognitive information, for example, students identify the problems or difficulties when they are engaged with diverse tasks, classify information and skills required for applying them, and gather some information about sources and strategies that are useful for doing tasks, and so on.

The second phase is self-monitoring which helps learners become aware of their cognition, motivation, emotion, and individual learning strategy to utilize not only the time and effort but also situation of the tasks and environments. In this phase students get involved with metacognitive awareness.

The third phase introduce self-control that involves the collection and usage of thought control strategies and control of different tasks in different situation, (using cognitive and metacognitive strategies), using motivational strategies and control their feeling, control the time and performance and control different activities and tasks, control the context and structure of the class. At this phase, it is complicated to distinguish between the stages of self-observation from the cognitive control, as it is in some self-regulation models (Butler & Winne, 1995), while both of them realized the discrete processes. Though at a notional level make it possible to differentiate those processes engage in self-observation and in cognition control, usually both processes happen synchronically.

Reflection or evaluation is fourth phase. Students can evaluate their tasks and compare it with previous tasks and decide whether they are successful or failed, so they choose their good behavior and follow it in the future tasks, as well they have total assessment about their tasks and class context. Pintrich (2000) stated that phases two and three are most important result in the term of schooling. All four phases represent a global time sequence that learners should pass when perform a task.

In conclusion, the Pintrich model is suggested as a global, understandable framework that analyzes the diverse cognitive, motivational, behavioral and contextual processes in detail.
5) They have shown more attempts to participate in managing and monitoring the academic tasks, classroom setting and structure.

6) They can select a set of strategies, avoid intrinsic and extrinsic distractions in order to continue their attention, and have enough motivation and effort for performing tasks.

In conclusion, if we consider such students' characteristics, self-regulated students are performer of their behavior, they believe that learning is an active process; they are self-motivated and utilize different strategies for achieving to their goals.

III. READING COMPREHENSION

Reading skill is one of the key factors for EFL learners' success not only in educational area, but also in their social lives and it is also considered as the most essential skill in their academic life (Sajadi & Oghabi, 2011). Chastain (1988, p. 216) defines “reading is a process involving the activation of relevant knowledge and related language skills to accomplish an exchange of information from one person to another. Reading requires that the reader focus attention on the reading materials and integrate previously acquired knowledge and skills to comprehend what someone else has written”. As a matter of fact, reading can be seen as an interaction between the text and the reader or the reader and the writer.

The second or foreign language readers have different purposes for reading. A number of researchers such as Alderson (2000) and Urquhart and Weir (1999) state the purpose for reading can include the following: a) reading for finding information such as scanning and skimming. It is covering a large amount of materials with the purpose of locating a particular fact or information quickly. In this case, readers scan the text for a particular word, name, date, phrase, form, or number. In skimming skill reader rapidly moves the eyes over the text in order to find the main idea. b) reading to learn: not only it needs to be aware of the main idea but also it requires to know about the details of the text and organization framework in which the diverse meanings of the text are related. c) reading to critique and evaluate, d) reflection and expansion relations to previous knowledge and an integration with previous information, containing the readers attitudes, feelings, motivations for reading the text, and level of topic-specific previous information. Reading speed is slow for this purpose. The most general, and most essential, reading goal is reading for general comprehension, it contains the readers' expectations for understanding the main idea and a group of supporting ideas. While it is well known as 'basic' and 'general', it isn't easy to accomplish fluently. Reading for understanding with normal processing speed, needs great deal of recognition vocabulary, “automaticity of word recognition for the most of words in the text, a reasonably rapid overall reading speed for text-information integration, and the ability to build overall text comprehension under some times pressure” (Alderson, as cited in Grabe, 2002, p. 50).

IV. SOME EMPIRICAL STUDIES ON THE RELATIONSHIP BETWEEN SELF-REGULATION AND READING COMPREHENSION

Improving reading skills needs some motivational variables such as self-regulation that work as facilitative factors. Zimmerman (2002) defines self-regulation as ones' ability to formulate thought, feelings and actions that result in gaining one's goals. Those who are extremely regulatory can be adapted to different occasions and come up with an answer while approaching a task in a confident tenacious purposeful manner (Zimmerman, 2002). Self-regulated learners are good in performing the learning materials because they possess a set of learning and metacognitive strategies. Moreover, self-regulated learners are famous as good decision makers having a large number of aims to pursue (De Bilde, Vansteen Kiste & Lens, 2011). With regard to effective ways for improving reading comprehension, a set of recent studies have found that motivational variables are related to accomplishment and success of learners' academic life and especially reading comprehension (e.g., Khajavi & Abbasian, 2013).

However, in a recent study, (Nabavi, Ekhlas & Shangarffiam, 2012), investigated the relationship between determinant factors of self-regulation strategies, main skills and overall proficiency. Participants were 150 candidates of IELTS examination-Academic Module. The finding of the study showed that reading is solitary skill can be anticipated by behavioral self-regulation strategies. Behavioral self-regulation related to “students' proactive use of self-evaluation strategies which help them to provide information about themselves which will provide information about accuracy and whether checking must continue through enactive feedback”, (Zimmerman, 1989, p. 331). It was also found that the motivational factors are precisely related to the improvement and success of student in educational life.

In another study, Turan and Demirel (2010) studied the relationship between self-regulated learning skills and achievement. The results indicated that if learners' self-regulated learning skills are enhanced, their awareness of subject area and efficiency of learning will be increased. In addition, Mirhassani, Akbari and Dehghan (2007) examined the relationship between Iranian EFL learners' goal-oriented and self-regulated learning and their language proficiency. Based on their findings, those self-regulated language learners in learning process got better scores in language proficiency tests; therefore, they concluded that self-regulated learning is a wide structure that involves a broad variety of elements like cognitive strategies, metacognition, motivational beliefs and so on. Also, those language students who understand the advantages of self-regulated characteristics are more successful than who don't understand those features. Khajavi and Abbasian (2013) studied on the improvement of EFL students' self-regulation in reading English using the cognitive tool of concept mapping. The finding of the study showed that the learners' self-regulation in reading have
been significantly developed as the result of the concept mapping strategy direction. There are a number studies in this regard, all indicating that the motivational factors have an influence on learning language skills. Nami, Enayati, Ashouri (2010), for example, examined the relationship between self-regulation approaches and learning approaches in English writing tasks on English language students. The results of the study revealed that learning approaches have a significant relationship with self-regulation aspects, such as memory strategy, goal-setting, self-evaluation, seeking assistance, environmental structure, responsibility organizing.

Moreover, Nejadihassan (2015) investigated the relationship between self-efficacy, self-regulation and reading comprehension of Iranian EFL learners. The participants of the study were 99 male and female pre-intermediate university students. Their age ranged was from 18 to 47 years. Furthermore, they were homogenized through Quick placement test. In order to evaluate self-regulation of students, the researcher employed the Academic Self-Regulated Learning Scale recently developed by Magno (2010). In order to decrease the participants’ misunderstanding about the meaning of the items, the researcher translated the items into Persian. This questionnaire consisted of 54 items which students answered on a four point Likert scale (strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1). In addition, the reading comprehension test consisted of four texts from pre-intermediate level of Select Reading Book (Lee & Gundersen, 2002). The result of the study showed that there was no significant relationship between self-regulation with reading comprehension. These findings with regard to previous studies were unexpected and the researcher thought it might be the result of; students are unique and different in their way of thinking and feeling.

V. CONCLUSION

In this review article, the relationship between self-regulation as a motivational variable and reading comprehension was described. In other words, the aim was to understand whether students with high self-regulation have high level of reading comprehension or not. A quick review of literature demonstrated that learners can improve such motivational variables by using some strategies, and also through these can improve their reading comprehension. That is, self-regulation is one of the essential determinant factors of learners’ learning outcomes.

Providing the chance for learners to be a self-regulated through teaching self-regulation strategies and explaining why it is useful, teachers can demonstrate the way that self-regulation strategies use, give learners practice by applying these strategies in the learning occasion, make them understand how they can measure themselves, and also what they do when it doesn’t work.

It seems that in the EFL/ESL contexts, teachers don’t pay attention to the learners’ motivational variables in teaching reading comprehension and they use traditional ways in the academic studies. However, they can encourage learners to pay attention to the teaching self-regulation strategies through helping students with establishing a suitable to be good readers. In general, English as second or foreign language requires more researches in Iran, because the populations of EFL/ESL learners are growing and the study is not keeping up.

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