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AbdulRahman Awad Al Asmari (Assistant Professor, Director, English Language Center, Taif University, KSA)

Nasrah Mahmoud Ismail (Assistant Professor, English Language Center, Taif University, KSA)

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Author (s)

AbdulRahman Awad Al Asmari
Assistant Professor, Director, English Language Center, Taif University, KSA
Email: abdulrahman@gmail.com

Nasrah Mahmoud Ismail
Assistant Professor, English Language Center, Taif University, KSA
E-mail: nasrahme@yahoo.com

Abstract

This cross-sectional study investigates the self regulated learning strategies used as predictors of reading comprehension. Participants of the study were 248 EFL university students: 112 males and 136 females enrolled in the Faculty of Arts, Foreign Languages Department. The primary aims of the study were: (1) to examine whether there were positive relationships between the use of self regulated learning strategies and reading comprehension; (2) whether there were significant differences between males and females in use of self regulated learning strategies and reading comprehension; (3) and finally to gauge predictors of reading comprehension themselves through self regulated learning strategies towards learning English language. Students were asked to answer questions based on a 5-point Likert-scale self regulated learning Questionnaire and they were asked to read three different passages and answer the questions that followed each passage. The results of MANOVA also revealed that there were differences between males and females in the use of self regulated learning strategies in favour of females. However, there were differences between males and females in the reading comprehension test to the advantage of males. The results of MANOVA analysis revealed that there were differences between students across their different academic levels in self regulated learning strategies. There were also differences between students across different academic levels, in the reading comprehension test. The results of multiple regression reported that some of the self-regulated learning strategies were predictors of reading comprehension.

Keywords- self regulated learning strategies – reading comprehension – EFL students, gender differences –academic levels

Theoretical foundation

Self regulated learning (SRL)

Knowledge nowadays tends to become obsolete very quickly due to rapid technological changes, market changes, and continuous innovations in how work is organized to keep pace with our turbulent society (Onstenk, 1998). Consequently, schools emphasize that students should be equipped for self-regulated learning, which has been defined as a learning process in which self-generated thoughts, feelings, and actions are systematically oriented towards attainment of the student's own goals (Zimmerman & Schunk, 2008). Self-regulation is a broad construct that includes a monitoring and an action component that encompass a complex array of interacting cognitive and emotional processes aimed at goal attainment (Eisenberg, Champion, & Ma, 2004; Mischel & Ayduk, 2004). Self-regulation can refer to the degree to which individuals become metacognitively, motivationally, and behaviorally active participants in their own learning processes

(Zimmerman, 1986). Self-regulated learning is a construct that has developed during the last 30 years in order to meet these demands (Winne, 2005). Self-regulated learners manipulate the skills to learn effectively both in school and later in life. As such, self-regulated learning has been highly praised as the key competence to initiate and maintain lifelong learning (see e.g., Kauffman, 2004).

Self-regulation, while related to academic achievement and cognitive skills, is clearly not synonymous with cognitive competency alone. It brings into the arena success in schooling, and later on, professional development and complex cognitive and socioemotional processes that extend beyond language and mathematical competency (Evans & Rosenbaum, 2008). According to Schunk (2001), self-regulated learning is defined as, ''learning that results from students' self-generated thoughts and behaviours that are systematically oriented toward the attainment of their learning goals" (p. 125)**.** To become self-regulated learners, Boekaerts (1999) argued that students should learn to regulate the use of information-processing modes, the learning process, and the self. By recognising the importance of regulating the self, the focus of research into self-regulated learning is shifting from studying principally cognitive processes to studying cognition in interaction with motivation (Rozendaal, Minnaert, & Boekaerts, 2001). Self-regulated learning (SRL) is deemed as a multi-dimensional construct that has traditionally been difficult to operationalise (Boekaerts, 1996; Boekaerts & Corno, 2005).

In general, SRL involves activating and sustaining cognitions, behaviours, and emotions in a systematic way to attain learning goals (Pintrich, 2000). Accordingly, self-regulated learners are assumed to manage their behaviours and anxieties to facilitate learning, actively avoiding behaviours and cognitions detrimental to academic success (Byrnes, Miller, & Reynolds, 1999; Stallworth-Clark, Cochran, Nolen, Tuggle, & Scott, 2000). Also, it was found that self-regulated students understand the strategies and environments necessary for learning to occur, and feel capable of performing to their personal standards (Chemers, Hu, & Garcia, 2001; Pintrich & De Groot, 1990; Zimmerman & Schunk, 2008). When challenged, self-regulated learners manage to understand when and how to utilize strategies that increase persistence and performance, and they purposefully use meta-cognitive strategies that incorporate self-monitoring and evaluative components that allow for self-observation and self-reaction (Schunk & Zimmerman, 1994). Further, self-regulated students are supposed to monitor the efficacy of their learning strategies and replace inefficient strategies with different ones (Kolić-Vehovec, Rončević & Bajšanski, 2008). Kolić-Vehovec et al. conclude that groups with high mastery orientation had more adaptive motivational profile and more adequate reading strategy use than groups with high work-avoidance orientation. In a recent study, highly self-regulated group had a tendency to study more material and for a longer time than less self-regulated individuals (Abar & Loken, 2010).

From a relevant perspective, deficiencies in self-regulation skills, beginning in early childhood was found to contribute to the income-achievement gap. Evans and Rosenbaum (2008) contend that success in school depends upon more than cognitive skill attainment, including the maturation of self-regulation skills. To become self-regulated learners, the students must regulate not only their behaviour but also their underlying motives; i.e. their performance related cognition, beliefs, intentions, and emotions. This implies that students who develop effective self-regulated learning are mentally active in their own learning process and exert a significant degree of control over goal attainment instead of being a passive recipient of information (Schunk, 1994), which is assumed to lead to high performance.

SRL is constantly evolving, with students improving upon existing behaviors and strategies based on prior success and emerging challenges (Winne, 1995). Therefore, Corno and Mandinach (1983) stress that instruction in strategy use is an effective means of promoting self-regulation. In social cognitive theory, self-regulation is viewed as entailing at least four components: goal setting, self-observation,

self-judgment, and self-reaction (Bandura, 1986; Schunk, 1989). Goal setting is essential to self-regulation. Self-regulated learning processes involve goal-directed cognitive activities that students instigate, modify, and sustain (Zimmerman, 1986). Self-regulated performance differs from Self-regulated learning in that Self-regulated learning is based on both will and skill, while Self-regulated performance is based just on wills (McCombs & Marzano, 1990). Key line of research in this area has identified three major components for self-regulated learning: Cognitive, metacognitive, and resource management learning strategies.

Reading comprehension

Reading means different things to different people. For some it is perceived as recognizing written words, while for others, especially students, it can be an opportunity to learn pronunciation and practice speaking. However, reading always has a purpose. It is something that we do every day; it is an integral part of our daily lives, taken very much for granted and generally assumed to be something that everyone can do. The rationale for reading depends very much on the purpose for reading (Berardo, 2006). Good reading ability is the key to success in school and this is one reason why researchers are trying to find significant educational and psychological variables that can explain variations in reading ability and academic achievement. Reading comprehension, the construction of meaning from text, is generally considered one of the most central cognitive skills young students acquire during their school career (Mason, 2004). Reading comprehension lays the foundation for the acquisition of knowledge in different subject matters taught at elementary and secondary schools and constitutes an important prerequisite for lifelong learning in adulthood (Alvermann & Earle, 2003). The mastery of basic reading skills, such as word recognition and decoding, is integral to many higher-order processes involved in reading comprehension skills (e.g., Artelt, Schiefele, & Schneider, 2001; Cromley & Azevedo, 2007). First language (L1) studies have shown that good readers use strategies that assist them in building a global model of text content, such as identifying the most important information in the text that focuses their attention more on larger chunks of text, such as paragraphs which eventually help them regulate the reading process (Bimmel, 1999).

Research in the field of strategies has proposed that poor readers are not strategic due to the assumption that they use fewer and less complex strategies and use them in a maladaptive way (Botsas & Padeliadu, 2001). On the contrary, good readers possess a well developed repertoire of strategies that along, with their adaptive way of use, helps them to successfully comprehend texts (Botsas & Padeliadu, 2003). According to O`Malley and Chamot (1995, p.182-183), instructors exercise the reading comprehension strategies to encourage students to use inference in order to make logical guesses from context, elaborate prior knowledge, transfer cognates from the first language and use deduction, which lead to the application of grammar rules. Luke (2000) casts reading as a set of practices dependent on four reader resources which are code breaking, participating in text, using the text for one's own purposes, and analysing or critiquing the text. Luke's view of reading reflects the dialogic metaphor of readers as both listeners and responders. The reading process has been described as dynamic in that the reader's variables such as background knowledge, aptitude, and memory constraints interact with text variables; e.g. text structure, length, lexical and linguistic complexity, as readers attempt to construct a mental representation or comprehend a text (Leeser, 2007)

The relationship between self-regulated learning and reading comprehension strategies

According to Guthrie, Schafer, Wang, and AZerbach (1995), reading comprehension is likely to be facilitated by deliberate use of different strategies and this will add further to the explanation of children's frequency and amount of reading. These metacognitive strategies seem to be fundamental for the understanding of texts (Guthrie et al., 1995) and they are likely to predict achievement more accurately than cognitive strategies (Zimmerman, 1994). To understand the

meaning of a text the students need to monitor their comprehension (Pressley & Ghatala, 1990). As such, self-regulated learning is important for reading ability and achievement (Folkesson & Swalander, 2007).

The concept of self-regulated learning has been brought up as a synthesis between research on how learning functions – focusing on the learner's cognitive and motivational processes (e.g., Boekaerts, 1999; Pintrich, 1999), and research on how instruction functions—focusing on the interaction between learner and instructor in a social environment (e.g., Zimmerman, 1989; Schunk, 2001). Despite the lack of a simple definition of SRL, Artelt, Baumert, Julius-McElvany, and Peschar (2003) argue that some measurable characteristics of students are associated with a tendency to regulate learning, as well as with greater performance. These three main aspects of RL are: (a) academic self-concept, (b) motivation, and (c) learning strategies. Hence, this is a biased view of self-regulated learning. So to speak, it is centred on some positive characteristics that put students in a better position to regulate their learning (Artelt et al., 2003).

Subsequently, insights into the possible effects of self regulated learning strategies on reading comprehension are a little absent, especially in the Saudi Arabian context. In an effort to contribute to the line of research on how self-regulated learning strategies may affect the interplay of motivation and cognition, this study explores the influence of students' administration of self-regulated learning strategies on students' reading comprehension.

Self regulated learning and achievement

The effectiveness of self-regulated learning for academic achievement is a key area of research that cannot be ignored (e.g., Zimmerman, 1990; Zimmerman & Bandura, 1994; Winne, 1995; Zimmerman & Martinez-Pons, 1988; VanZile-Tamsen & Livingston, 1999; Chung, 2000; Paris & Paris, 2001; Dignath, Buettner, & Langfeld, 2008; Matuga, 2009), as well as on learning motivation (Pintrich, 1999). Based on a study by Zimmerman and Martinez-Pons (1986) that bears on the issue of the relationship between learning strategies and reading achievement, it was found that high achievement students reported using significantly more strategies than the low-achieving students. Zimmerman and Pons concluded that self- regulated learning scores were shown to be valid predictors of achievement, and confirmed that self-regulated learning strategies used have a meaningful relationship with learning outcomes in reading and math. Muis & Franco (2009) reported that the types of learning strategies that students self-reportedly used in their educational psychology course predicted their final grades. Specifically, metacognitive self-regulation, elaboration, critical thinking, and rehearsal strategies positively predicted achievement. The results of Zimmerman and Martinez-Pons (1988) also indicated that students who have trouble self-regulating, their academic studying achieve poorly in school.

Reading comprehension and gender differences

Several studies show that gender is a significant factor when attempting to explain reading comprehension. However the results of these studies have until been somewhat inconsistent (Hay, Ashman, & Van Kraayenoord, 1998; Yongqi, 2002). Other studies (e.g., Skaalvik & Rankin, 1990; Wagemaker, 1996: Pae, 2004; O'Reilly & McNamara, 2007) have found that girls achieve higher reading comprehension scores, whereas some studies have failed to show gender differences (e.g. Rowe, 1991). Gender differences revealed that girls read better on narrative and expository texts, had a more positive reading attitude, and more positive verbal self-concept (Swalander & Taube, 2007). On the other hand, other findings suggest that males and females perform differently on different items of reading comprehension Yazdanpanah (2007). For example, Yazdanpanah reported that females scored higher on identifying main idea, guessing meaning from context, and text coherence questions. Conversely, males outperformed females in reading for specific information, identifying referential information, and matching titles with paragraph. However, gender affected item performance in only two cases: guessing

meaning from context, and text coherence in favour of the females (Yazdanpanah, 2007).

Self-regulated learning strategies and gender differences

A student characteristic that has received scant attention in L2 strategy research is differential strategy use by males and females. In their interview of gender differences in language learning strategy use, Oxford and her associates found only four studies in which this question was addressed (Oxford, Nyikos, and Ehrman, 1988). Three were strategy identification studies, and all showed differences in strategy use favouring women. The other study provided strategy training and mixed results, favouring men for some skills tested and women for others (O`Malley & Chamot, 1995, p.164). Recently, Reeves & Stich (2010) observed that there are no differences between males and females in SLR strategies (i.e. gender was not observed). There was no significant difference in the SRL strategy use of male and female**.**

Statement of the problem

The theoretical foundation of the current study has established that self regulated learning strategies may be a potential determinant as predictors of reading comprehension. Yet little is known about the relationships between the variables of the study related to EFL students at the university level and how far self regulated learning is a practical predictor of reading comprehension. Students with high SRL skills do better than those who lack these skills (Azevedo, 2005; Pressley & Ghatala, 1990; Pressley & Harris, 2006; White & Frederiksen, 2005). Unfortunately, previous studies have also shown that the majority of students are poor regulators of their learning (e.g. Paris & Paris, 2001). These findings have triggered the urge to investigate how SRL skills can be taught and prompted in learning environments. While research has shed some light on the issue, it is unclear as to which specific SRL processes best position students to capitalise on.

Several researchers have investigated issues related to self regulated learning strategies (e.g., Onstenk, 1998; Zimmerman & Schunk, 1989; Boekaerts, 1999; Pintrich, 2000; Stallworth-Clark, Cochran, Nolen, Tuggle, & Scott, 2000; Rozendaal, Minnaert, & Boekaerts, 2001; Boekaerts, 1996; Boekaerts & Corno, 2005; Zimmerman & Schunk, 2008), and others have examined reading comprehension in different contexts in which English is taught as a second language/foreign language; e.g. Fecteau, (1999); Nassaji (2003); Taguchi, Gorsuch & Sasamoto (2006). However, a few studies have examined the relationship between self regulated learning and its effect on reading comprehension, especially in the Arab context. Having been EFL teachers for many years, the reserahcers have observed that some students in the English Dept. are poor readers and have unidentified goals toward learning, in general, and toward reading comprehension in particular. Accordingly, this study investigates the effects of self regulated learning strategies on reading comprehension among Saudi EFL learners at the university level in an attempt to canvass related issues through answering the following set of questions:

1. Are there any relationships between self regulated learning strategies and reading comprehension?
2. Are there any differences in reading comprehension and SRL between males and females?
3. Can we predict reading comprehension through self regulated learning strategies?
4. Are there any differences among the students in self regulated learning strategies and reading comprehension according to their levels?

Method

Study Sample

The participants of this multi-level study included 248 (112 males and 136 females) undergraduates across the 2nd, 4th, 6th, and 8th levels majoring in English at a Saudi Arabian University. Amongst those participants, 58 were at second academic level (23 males & 35 females), 60 were at forth academic level (29 males & 31 females), 76 were at sixth academic level students (29 males & 47 females), and 54 were at eighth

academic level (31 males & 23 females). The participants ranged in age between 18 and 29 years with a mean of 21.383 (SD = 1.515). It was thus assumed that the participants of this study would provide a homogeneous sample in terms of their cultural environment and instructional input.

Study Instruments

Self regulated learning Questionnaire

A questionnaire that assessed students` self regulated learning was administered in this study to suit the Saudi context based on Pintrich, Smith, Garcia & Mckeachie (1993) and other similar studies that urged for the adaptive use of this questionnaire in different contexts. The questionnaire designed was based on a 5-point Likert-scale that ranged from 1 indicating that the statement is very true of me through 5 indicating that the statement is not at all true of me. The Questionnaire included three dimensions: (1) cognitive strategies, (2) metacognitive strategies, and (3) different learning resources. The development of the questionnaire used in this study was guided by two points: (1) the need for a context-sensitive instrument; i.e. one which would tap self regulated language learning strategies most relevant to the learning of English in Saudi Arabia; and (2) the value of several stages of outside review of the questionnaire items and instructions.

Factor analyses: Self regulated learning strategies

Based on the principal-component analysis, eleven-factor solution was obtained for the scores in the ‘‘Self regulated learning strategies’’ data. The eleven extracted factors accounted below.

Table-1 Factor analyses: Self regulated learning strategies

The eleven extracted factors accounted for 58.599% of the total variance. Equamax with Kaiser Normalization was then used. Table 1 presents a summary of the results of the factor analysis of the ‘‘self regulated learning strategies’’ data. The factor loadings of each item in this section on the eleven rotated factors and means, and standard deviations of the items that loaded are provided in Appendix A.

The first factor obtained high loadings from items such as ‘‘If the information that is presented in any academic course is not satisfactory, I look up extra information in the library,’’ so, it seems to represent a dimension reflecting students` seeking information that helps the students to understand well their courses. The second factor obtained high loadings from items such as ‘‘when I succeed in doing any task, I reward myself,’’. Therefore, this factor seems to represent a dimension reflecting students` self reward for themselves when doing something good. For factor three the high loadings obtained from items such as" I make sure that the place where I study is convenient". Therefore it seems to represent a dimension reflecting students` environmental control. The forth factor got the high loadings from items such as" I work together with my friends to achieve a better understanding for what we are studying", hence it reflects the importance of peer learning for the students` achievement. For factor five the high loadings obtained from items such as " I summarize reading course in form of questions and answers and during revision I try answer questions first", therefore it seems to represent a dimension reflecting students` self evaluation. For factor six the high loadings gained from items such as "When the lecturer mentions a new concept, I repeat it many times not to forget it ` so, it seems obviously to represent a dimension reflecting students` rehearsal strategy for remembering new information.

For factor seven the high loadings obtained from items such as "When I get bored with studying, I change the place of studying", therefore this factor seems to represent a dimension reflecting students` motivational environmental control. For factor eight the high loadings gained from items such as "When I feel that I do not want to study, I remind myself by the importance of doing more effort to gain new information that I did not know before." Thus, this factor seems to generally represent a dimension reflecting students’ importance of self talk about efficiency. The ninth factor loaded highly on

items such as" I encourage myself by thinking about achieving high scores to impress the others" Thus, this factor obviously reflects a dimension representing the students' importance of self talk about performance. The tenth factor loaded highly on items such as" Before studying I set specific times breaks". It is obvious that this factor represents a dimension that reflects the students` managing of their time. Finally, the item that loaded highly on the eleventh factor is "I make clarified summaries to help me understand the difficult topics". It is obviously this factor represents a dimension that reflects students` elaboration.

Item validity and internal consistency for Self regulated learning Questionnaire

The corrected item-total correlations ranged from 0.260 to 0.571 ($p < 0.01$), suggesting adequate item validity. Correlation for item subscales ranged as follows: Subscale 1, from 0.714 to 0.863 ($p < 0.01$), Subscale 2 from 0.431 to 0.798 ($p < 0.01$), Subscale 3 from 0.258 to 0.633 ($p < 0.01$), Subscale 4 from 0.430 to 0.787 ($p < 0.01$), Subscale 5 from 0.305 to 0.676 ($p < 0.01$), Subscale 6 from 0.265 to 0.714 ($p < 0.01$), Subscale 7 from 0.208 to 0.603 ($p < 0.01$), Subscale 8 from 0.252 to 0.702 ($p < 0.01$), Subscale 9 from 0.242 to 0.738 ($p < 0.01$), Subscale 10 from 0.353 to 0.765 ($p < 0.01$), and Subscale 11 from 0.216 to 0.671 ($p < 0.01$). All of these figures suggest adequate item validity.

The internal consistency was high for the total scale (α =0.90). The mean Total Score was 151.201 (S.D. = 22.045). The means for Subscale 1(M= 11.774, S.D. = 4.212, α = 0.81) and for Subscale 2 (M= 13.915, S.D. = 2.359, α =0.79), for Subscale 3 (M= 15.669, S.D. = 3.373, α =0.72) and for Subscale 4 (M= 10.854, S.D = 2.874, α =0.74), for Subscale 5 (M= 14.020, S.D = 3.489, α =0.73), for Subscale 6 (M= 14.528, S.D = 3.185, α =0.65), for Subscale 7 (M= 14.290, S.D = 3.542, α =0.66), for Subscale 8 (M= 19.141. S.D = 3.843, α =0.74), for Subscale 9 (M= 15.645, S.D = 3.013, α =0.71), for Subscale 10 (M= 10.604, S.D = 2.700, α =0.64), and for Subscale 11 (M= 10.758, S.D = 2.359, α =0.54).

Table 2: Dimension-total correlations between dimensions and total score for SRL questionnaire subscales

There are positive correlations among SRL dimensions and total score for 11 subscales ranging from (0.503– 0.665) indicating that subscales of the SRL Questionnaire display high internal consistency in measuring students' SRL strategies. See Table 22 in Appendix B

Reading comprehension Test

Three reading comprehension passages with 21 multiple choice questions constituted the instructional materials for the intervention. They were selected from IGCSE English as Second Language (Lucantoni, 1996). These passages included three to four paragraphs in length and ranged from easy to moderate in difficulty. The students were instructed to answer the questions that followed each passage. The internal consistency reliability split half for reading comprehension Test is 0.7 for 80-person university sample. Reading total score validity with GPA is 0.367.

Results

Overview of results

The present study results are overviewed according to factors influencing SRL strategies (See Appendix A). Following that, descriptive data for Saudi students` Self Regulated Learning Strategies and Reading Comprehension Test according to their gender and their academic levels were analysed and presented (See Table 3 in Appendix B). Means and standard deviations are displayed for the composite of the two variables: Self Regulated Learning strategies and for Reading Comprehension Test total score. The results are thematically presented as follows: Level and gender-based differences, correlations between SRL strategies and reading comprehension, and a summary of the model.

Level and gende**r- based differences in SRL strategies**

Data analysis provides descriptive statistics for Saudi students` self regulated learning strategies across their academic levels. Means and standard deviations for the composite of the four academic levels (2, 4, 6, 8) were (M=262.5088, SD = 38.8712), (M=267.1833, SD =33.7988), (M=258.5921, SD =36.8565), and (M=247.9444, SD=42.8589), for the total was (M=259.2551, SD =38.3906), respectively. For reading comprehension test according to their academic levels, means and standard deviations for the composite of the four levels (2, 4, 6, 8) were (M=9.6140, SD = 3.9223), (M=9.0333, SD =3.0251), (M=10.8289, SD =3.3522), and (M=9.5741, SD=3.1955), for the total was (M=9.8381, SD =3.4367) respectively as shown in Appendix B. In Table 4 specifically, MANOVA test is used to reveal gender and level differences in Self Regulated Learning Strategies subscales and Reading Comprehension Test

Distinguishing the students at different academic levels, results reveal that there are differences between students` academic levels in the use of self regulated learning strategies, $F(3, 244)= 3.241$, $p < 0.05$). With an estimated $\eta 2= 0. .039$. In addition, there are differences among students in reading comprehension according to their academic levels F (3, 244) = 3.750, $p < 0.05$). With an estimated $\eta 2= 0. .045$. To determine the differences between the students` levels in reading comprehension, Scheffe Test was run indicating there are differences between level 4 (M= 9.033, SD=3.025) and level 6 (M=10.829, SD =3.352) in favour of level 6. To determine the differences between the student levels in SRL strategies, Scheffe Test was run indicating there are differences between level 4 (M= 157.416, SD=20.427) and level 8 (M=143.833, SD =23.364) in favour of level 4.

To examine gender differences in the aspects of self regulated learning strategies F (3, 244)= 30.303, $p < 0.01$) and reading comprehension test, $F(3, 244)= 26.88$, $p < 0.01$) was run using. Results show that there are differences in self regulated learning strategies in favour of females in which males scored M=143.261, SD=20.888 and females scored M=157.889, SD=20.757. However, there are differences between males and females in the favour of males in the reading comprehension test in which males scored M=10.828, SD=3.233 and females scored M=9.029, SD=3.397.

Further computational processes were used to explore potential relationships between SRL strategies and reading comprehension. Based on Pearson correlation, there are relationships between self regulated learning strategies sub-dimensions and reading comprehension. Entered multiple regression analysis was then performed to predict reading comprehension from self regulated learning strategies. See Table 5 in Appendix B.

Model Summary

Data analysis reports that the statistically significant predictors of the reading comprehension were SRL strategies sub-dimensions. The results also show that SRL strategies explain 12.8 per cent of the variance in reading comprehension, (F (11,233) = 3.106, $p< 0.001$) as shown in **Error! Reference source not found.** below. This result is consistent with many results of Zimmerman and Martinez -Pons (1986) that SRL scores were shown to be valid predictors of achievement.

Multiple regression tests were employed as the main analysis method. Entered multiple regression analysis was carried out with the data to see which aspects of SRL were significant in predicting reading comprehension. Table 6 below indicates that the contribution of some of self regulated learning strategies (rehearsal strategy, Self talk about efficiency and Elaboration) is significant on the students` reading comprehension.

Discussion

The present study has revealed several findings which can contribute to the body of research in the area of SRL, specifically in relation to reading comprehension in EFL learning. These findings can be discussed in three main perspectives: Gender differences in SRL and

reading comprehension, SRL and reading comprehension across academic levels, and SRL strategies as predictors of reading comprehension in EFL learning.

Gender differences between SRL and reading comprehension

To examine gender differences in the aspects of self regulated learning strategies $F(3, 244)= 30.303$, $p < 0.01$) and reading comprehension test, $F(3, 244)= 26.88$, $p < 0.01$) was run using. Results show that there are differences in self regulated learning strategies in favour of females in which males scored M=143.261, SD=20.888 and females scored M=157.889, SD=20.757. However, there are differences between males and females in favour of males in the reading comprehension test in which males scored M=10.828, SD=3.233 and females scored M=9.029, SD=3.397.

The findings of the current study confirm that there are differences in the use of SRL strategies between males and females. Females outscore males in the use of SRL strategies in all subscales. This finding is consistent with the results of several previous studies that detected differences in strategy use to the advantage of the female learners (Law, Chan & Sachs, 2008). However, reading comprehension test results reported that there are differences between males and females in the favour of males. While this finding is partially consistent with the finding of Yazdanpanah, (2007), it suggests that males outperform females in reading on different items of reading comprehension, such as specific information, identifying referential information, and matching titles with paragraph. On the other hand, other previous studies found that girls achieved higher reading comprehension scores (e.g., Skaalvik & Rankin, 1990; Wagemaker, 1996; Swalander & Taube, 2007). One possible explanation for the superiority of the male students in this study is that males and females may not have been equally matched in language ability. Although they were at the same instruction level, the male students seem to have been more proficient readers than their female counterparts. Language ability is an important factor that affects comprehension (Martino and Hoffman, 2002; Norris and Hoffman, 2002; Ridgway, 1997). It seems that they have enough linguistic knowledge to comprehend the reading passages without great difficulty. This possibility raises the question of the quality of instruction in the girls' department. It is suggested here that female departments need to reassess their classroom teaching and practices and to focus on reading activities to promote a higher level of reading skills. The implication drawn here is that students in general, and female students in particular, should be encouraged to read more informative texts, as these types of texts are very important for academic and professional activities.

SRL strategies and reading comprehension across academic levels

The findings of the current research show that there are differences between students in the use of SRL strategies according to their academic levels, $F(3, 244)= 3.241$, $p < 0.05$). There are also differences among students in reading comprehension according to their academic levels $F(3, 244) = 3.493$, $p < 0.05$). These differences were detected between level 4 (M= 9.033, SD=3.025) and level 6 (M=10.828, SD =3.352) in favour of level 6. This might be explained in terms of the students' experience and the development of their use of SRL strategies in reading comprehension as they progress in their academic levels. Though at different age levels, this result is contradicts the results of Law et al. (2008) which reported that grade 5 children displayed more self-regulated strategies than grade 6 children.

EFL learners` SRL strategies as predictors of reading comprehension

One of the main findings of this study is that some of the SRL strategies sub-scales were statistically significant predictors of the students` reading comprehension. This finding comes in line with the results of Zimmerman and Martinez -Pons (1986) in which SRL scores were shown to be valid predictors of achievement. It also aligns with results of several studies that assumed that academic

achievement is mediated by the use of SRL strategies such as organizing, goal-setting, planning, self-evaluating, information seeking, record keeping, self-reflecting, self-monitoring, and reviewing (e.g. Boekaerts & Corno, 2005; Winne, 2005; Zimmerman & Martinez-Pons, 1990). On the other hand, this may not be consistent with other study findings in which SRL strategies were generally deemed as inaccurate predictors of academic achievements. (Rotgans, & Henk, 2009; Wang, 2011) It is assumed that readers must use self-regulated strategies to fully employ their ability to interpret or make something of texts. Therefore, developing such self-regulated skill holds benefits for many educational tasks, not the least of which is increased test scores (Mason, et al., 2006; Pintrich & DeGroot, 1990). As such, this finding of measuring the use of SRL strategies may tentatively be adapted to predict the EFL learners' reading comprehension. This expected to assist the EFL instructors' endeavour to diagnose their learners' deficiencies in reading, and perhaps attempt to direct their students to use better SRL strategies. Thus, the importance of self-regulated learning strategies to academic achievement has been fairly well established (Kuo, 2010).

Conclusion

Findings of the present study were mainly consistent with most of the other previous studies conducted in other contexts. The findings could be used as evidence of the importance of SRL strategies in the EFL learning process. Based on that, further efforts need to be exerted to identify and help students, especially those with poor reading comprehension. This can be done by appropriate the use of SRL strategies as a way of analysing their needs and diagnosing their problematic issues in reading comprehension.

Another relevant key finding is that SRL strategies can be a demanding need for poor readers in the light of the significant relationship between SRL strategies and reading comprehension which were synthesized in this study. The results of the present study clearly indicate that some of the SRL strategies are significant predictors of reading comprehension, such as rehearsal strategy, self talk about efficiency and elaboration. This study also explored gender differences in reading comprehension. The male students performed better than their female counterparts in their comprehension of reading passages. These results suggest that language educators should take into consideration the differences between the two genders and promote equal learning opportunities in order to adjust the apparent differences between female and male students. Although the results were based on a large number of students at Taif university (N= 248), they need to be treated with caution. A first limitation pertains to the generalisability of the findings in this study to Saudi students at a college level. A second limitation is about using more than one predictor of reading comprehension was used in order to give more insight into gender differences and to strengthen the results by gathering evidence from more than one setting. Further directions for research in this area can include investigating efficient ways of developing SRL strategies in correlation with reading comprehension. As modelling can be an effective approach to learning, teachers themselves need to be trained on appropriate use of SRL strategies in their classroom which can be a potential direction for further research as well.

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Appendix A

Factor analyses: Self regulated learning strategies

	No.	Items	Mean	SD	Loading
	60	I look for any information in the library or in the internet to help me to understand the ambiguous academic topics.	3.2200	1.1532	.619
Factor 1	61	If the information that presented in any academic course is not satisfied, so I look up extra information in the library.	2.9000	1.3746	.790
	62	I fix specific times for the library and I try to read more in order to develop my academic and professional efficiencies.	2.7600	1.4222	.754
	63	I ask the teacher about useful references to help me understand the courses.	3.0600	1.2785	.682
Factor 2	23	When I read any subject and finish it, I reward myself by taking a break or doing any enjoyable activity.	3.5150	1.2680	.782
	24	When I succeed in doing any task, I reward myself.	3.5600	1.1589	.847
	25	I reward myself when I continue in reading a specific subject and understanding it well even if I feel bored.	3.2000	1.2278	.662
	26	I make a deal with myself: if I do the required task in a good way and in a suitable time, I will do some enjoyable things.	3.6100	1.1725	.621
Factor 3	47	I study in a quiet place free of distracters in order to concentrate.	4.2400	.9784	.559
	48	I have a favorite place to study.	3.9700	1.1942	.753
	49	I make sure that the place of studying is convenient.	3.9600	1.0314	.827
	50	I arrange the place where I study to help me to achieve better.	3.6500	1.2020	.671
c t o r	56	When we are asked to do a task, I collaborate with my friends to cover all the sides	3.7900	1.0203	.679

		of the topic.			
	57	I work together with friends to achieve better understanding for what we are studying.	3.9500	.9758	.735
	58	I prefer conversation and discussion with my friends related to the reading course.	3.3500	1.1152	.694
Factor 5	74	To prepare for the final examinations, I predict exam questions and attempt to answer them.	3.1500	1.4062	.643
	75	When I am studying, I stop every now and then to predict questions and to try to think about their answers in my mind.	4.2400	1.0333	.492
	76	I summarize reading course in form of questions and answers and during revision I try answer questions first.	3.7100	1.1100	.759
	77	When I am reading, I form some questions and I try to answer them at the end of my studying session to make sure that I understood the passage.	3.5550	1.1849	.659
Factor 6	1	I repeat the new information many times to memorize it.	3.3550	1.2192	.703
	2	When the lecturer mentions a new concept, I repeat it many times to not forget it.	3.3450	1.2545	.724
	3	When I read any topic, I repeat it twice in a loud voice.	3.8150	1.1651	.437
	4	When I prepare for the examination in the reading course, I try to repeat the information of the course more times.	3.9400	1.0304	.485
Factor 7	27	I change the way I sit during my studying when I have no desire to complete what I am doing.	3.9550	.9367	.550
	28	When I get bored with studying, I change the place of studying.	3.9000	1.0075	.720
	29	When I feel bored with studying, I stand or walk in the place during the studying.	4.1250	1.0072	.702
	30	When I get bored with studying, I try to change my desk that I use for studying.	3.5000	1.2400	.616

Factor 8	31	When I feel bored, I convince myself to continue to understand the subjects and develop my academic efficiencies.	3.6800	1.1198	.606
	32	When I feel that I do not want to study, I remind myself by the importance of doing more effort to gain new information that I did not know before.	3.7150	1.1621	.754
	33	When I have no desire to study, I try to convince myself that is necessary to complete what I am doing to achieve understanding and perfection.	3.4500	1.2227	.562
	34	I try to convince myself that I have good abilities.	4.2400	.9784	.373
	35	When I do not understand any academic topics, I do not give up quickly and talk myself to try again and again.	3.9700	1.1942	.343
Factor 9	37	I encourage myself by thinking about achieving high scores to impress the others.	3.9600	1.0314	.776
	38	When I lose the desire to complete the required tasks, I remind myself with the consequences related to my score in the subject.	3.6500	1.2020	.740
	39	When I encounter difficulties to complete the required task, I try to convince myself to complete because of its importance.	3.2850	1.1920	.392
	40	40. When my attention is distracted and gets busy away from studying, myself argues me to return to study to achieve success.	3.6250	1.1667	.362
Factor 10	71	I do the required tasks in time and I do not put them off.	3.7450	1.1386	.484
	72	Before studying I set specific times breaks.	3.9350	1.1346	.673
	73	I organize my time and distribute it according to the nature of the different subjects.	3.3850	1.1591	.596
c t o r	5	I make clarified summaries to help to me to understand the difficult topics.	3.7450	1.1346	.760

	6	I try to relate between the information in the reading course and similar information in other courses.	3.9350	1.1591	.361
	7	When I study any unclear reading topic, I do some modifications and additions to make it easy to understand.	3.6650	1.0670	.532

Appendix B

Table-1 Factor analyses: Self regulated learning strategies

Factor	Description	Eigen value	% of variance	Cumulative %
1	Seeking Information	2.936	6.673	6.673
2	Self reward	2.742	6.233	12.906
3	Environmental control	2.468	5.609	18.515
4	Peer learning	2.396	5.446	23.961
5	Self evaluation	2.391	5.434	29.395
6	Rehearsal strategy	2.336	5.310	34.705
7	Motivational Environmental control	2.268	5.154	39.858
8	Self talk about efficiency	2.243	5.099	44.957
9	Self talk about performance	2.113	4.802	49.759
10	Time management	2.057	4.676	54.435
11	Elaboration	1.832	4.164	58.599

Table 2: Dimension-total correlations between dimensions and total score for SRL questionnaire subscales

Sub factors	Factor1	Factor2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8

Correlations	0.634	0.587	0.484	0. 610	0.667	0.665	0.579	0.625
Sub factors	Factor 9	Factor10	Factor11					
Correlations	0.495	0.660	0.519					

Table 3: Descriptive data for Saudi students` Self Regulated Learning Strategies and Reading Comprehension Test according to their gender and their academic levels

	N	Level	Gender	Mean	SD
Total of reading comprehension	22	2.00	Male	12.5000	3.7257
	35		Female	7.8000	2.8263
	57		Total	9.6140	3.9223
	29	4.00	Male	11.0345	2.4854
	31		Female	7.1613	2.1771
	60		Total	9.0333	3.0251
	29	6.00	Male	10.7586	3.4086
	47		Female	10.8723	3.3532
	76		Total	10.8289	3.3522
	31	8.00	male	9.5161	2.8504

	23		female	9.6522	3.6756
	54		Total	9.5741	3.1955
	111	Total	male	10.8288	3.2330
	136		female	9.0294	3.3970
	247		Total	9.8381	3.4367
Total of SRL strategies	22	2.00	male	141.7727	22.1057
	35		female	158.1143	20.4490
	57		Total	151.8070	22.3953
	29	4.00	male	151.9310	20.0552
	31		female	162.5484	19.7211
	60		Total	157.4167	20.4270
	29	6.00	male	144.7241	17.5171
	47		female	155.5957	21.6791
	76		Total	151.4474	20.7624
	31	8.00	male	134.8387	21.1268
	23		female	155.9565	20.9469
	54		Total	143.8333	23.3640
	111	Total	male	143.2613	20.8883
	136		female	157.8897	20.7570
	247		Total	151.3158	22.0162

Table-4 MANOVA for gender and level differences in Self Regulated Learning Strategies subscales and Reading Comprehension Test

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	*F*	Sig.	Eta Squared
Intercept	Reading comprehension	23094.269	1	23094.269	2440.367	.000	.911
	Total score of SRL	5337444.148	1	5337444.148	12672.447	.000	.981
Level	Reading comprehension	106.457	3	35.486	3.750	.012	.045
	Total score of SRL	4095.598	3	1365.199	3.241	.023	.039
Gender	Reading comprehension	254.458	1	254.458	26.889	.000	.101
	Total score of SRL	12763.072	1	12763.072	30.303	.000	.113
Level * Gender	Reading comprehension	291.383	3	97.128	10.263	.000	.114
	Total score of SRL	1084.030	3	361.343	.858	.464	.011
Error	Reading comprehension	2261.763	239	9.463			
	Total score of SRL	100663.208	239	421.185			
Total	Reading comprehension	26812.000	247				
	Total score of SRL	5774667.000	247				
Corrected Total	Reading comprehension	2905.522	246				
	Total score of SRL	119239.368	246				

Table -5 Pearson correlation between SRL strategies sub- dimensions and reading comprehension

	R.C	SRF1	SRF2	SRF3	SRF4	SRF5	SRF6	SRF7	SRF8	SRF9	SRF10	SRF11
Reading comprehension	1.000											
SRL F1	-.021	1.000										
SRL F2	-.033	.370**	1.000	.								
SRL F3	.156*	.183**	.146*	1.000								
SRL F4	.108	.254**	.268**	.284	1.000							
SRL F5	-.053	.377**	.323**	.237	.398**	1.000						
SRL F6	.222**	.396**	.231**	.313	.384**	.410**	1.000					
SRL F7	.021	.322**	.289**	.178	.310**	.318**	.299**	1.000				
SRL F8	.149*	.246**	.314**	.226	.320**	.301**	.323**	.426**	1.000			
SRL F9	.067	.126*	.206**	.291	.208**	.258**	.322**	.237**	.452**	1.000		
SRL F10	.009	.501**	.386**	.282	.328**	.466**	.371**	.313**	.324**	.116	1.000	.
SRL F11	.180**	.271**	.217**	.255	.314**	.327**	.416**	.253**	.306**	.267**	.285**	1.000

Note: SRL refer to Self regulated Learning strategies, R.C refer to Reading comprehension

Table-6 The partial correlation of SRL strategies sub- dimensions and reading comprehension

Model	R	R^2	Adjusted R^2	Std. Error
1	0.358	0.128	0.087	11.552

Table -7 Multiple Regression Analysis (SRL strategies sub-dimensions and reading comprehension)

SRL sub-scales	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	Std. Error	Beta		
(Constant)	65.78	5.558		11.836	.000
Seeking Information	-.247	217	-.087	-1.140	.255
Self reward	.- 181	.220	-.058	-.823	.411
Environmental control	.372	.245	.103	1.520	.130
Peer learning	.250	.303	.049	.679	.498
Self evaluation	-.620	.263	-.179	-2.356	.019
Rehearsal Strategy	.910	.291	.241	3.122	.002
Motivational Environmental Control	-.175	.244	-.051	-.716	.475
Self talk about	.472	.241	.151	1.958	.051

Efficiency					
Self talk about Performance	-.264	.291	-.066	-.909	.364
Time Management	-.171	.355	-.038	-.482	.630
Elaboration	.660	.364	.128	1.811	.071