



**استخدام استراتيجيات التعلم الذاتي المنظم عبر  
الانترنت في تحسين مهارات الفهم القرائي لدى طلاب  
مدارس المرحلة الثانوية**

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## المخلص

### استخدام استراتيجيات التعلم الذاتي المنظم عبر الانترنت في تحسين مهارات الفهم القرائي لدى طلاب مدارس المرحلة الثانوية

إعداد

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الغرض من الدراسة الحالية هو التحقق من أثر استخدام إستراتيجيات التعلم الذاتي المنظم عبر الويب في تنمية مهارات الفهم القرائي لدى طالبات المرحلة الثانوية. لتحقيق الغرض من الدراسة الحالية تم استخدام هذه الأدوات: (١) استبيان قبلي بعدي مكون من ٢٥ فقرة لقياس استخدام الطالبات لإستراتيجيات التعلم الذاتي المنظم أثناء قراءة موضوعات على الإنترنت، (٢) واختبار تحصيلي قبلي بعدي لمهارات القراءة لقياس مستوى القراءة والفهم لدى الطالبات. تم التحقق من صدق وثبات الأدوات قبل استخدامها في الدراسة. اعتنقت الدراسة التصميم شبه التجريبي المكون من مجموعتين تجريبية وضابطة، حيث تكونت العينة من ٦٠ ستين طالبة تم اختيارهن بطريقة عشوائية من طالبات الصف الثانوي بمدرسة حسين حماد الثانوية بنات بمدينة دكرنس. وتكونت المجموعة التجريبية من ثلاثين ٣٠ طالبة؛ بينما احتوت المجموعة الضابطة على ثلاثين طالبة. تعرضت المجموعة التجريبية للتدريب القائم على الانترنت باستخدام إستراتيجيات التعلم الذاتي المنظم أثناء القراءة لمدة ستة أسابيع، في حين تلقت المجموعة الضابطة طرق التدريس التقليدية حسب الإجراءات المنصوص عليها في كتاب دليل المعلم. أظهرت نتائج الدراسة أن الطالبات اللاتي تدرين على استخدام إستراتيجيات التعلم الذاتي المنظم أثناء قراءة موضوعات عبر الإنترنت حققن نتائج أفضل في كل من الاختبار والاستبيان مقارنة بقريباتهن في المجموعة الضابطة. وبذلك ثبت أن استخدام إستراتيجيات التعلم الذاتي المنظم عبر الانترنت له أثره في تحسين مهارات الفهم القرائي لدى طلاب المرحلة الثانوية. وقد قدمت الدراسة بعض التوصيات المتعلقة باستخدام استراتيجيات التعلم الذاتي المنظم عبر الإنترنت وتدريب القراءة للطلاب بمختلف المراحل الدراسية.

**Abstract****Using Web-Based Self-Regulated Learning Strategies to Enhance Secondary School Students' Reading Comprehension Skills***By***Ahmed Ibrahim Saber Gouda**

The purpose of this study was to investigate the impact using web-based self-regulated learning strategies to enhance secondary school female students' reading comprehension skills. To fulfill the purpose of the study, two instruments were designed and administered by the researcher ;(1) a pre-post questionnaire (25) items of self-regulated learning strategies to measure students' utilizing of self-regulated learning strategies while reading comprehension online, and (2) a pre-post reading comprehension skills achievement test to measure the students' reading comprehension. The validity and reliability of both instruments were established before their use. The study adopted the quasi-experimental design. The participants consisted of 60 female students randomly selected from second year of Hussein Hammad secondary school, in Dikirnis city, where 30 students represented the experimental group, and 30 students represented the control group. The web-based self-regulated learning strategies training was administered to the experimental group for six weeks whereas the control group received the conventional teaching prescribed by Teacher's Guide. Results of the study revealed that there were

statistically significant differences between control and experimental groups on both questionnaire and test scores in favor of the experimental group. In addition, the proposed training in web-based self-regulated learning strategies led to significant improvement in students' reading comprehension skills. A number of recommendations concerning the use of web-based self-regulated learning strategies and reading teaching in different stages was postulated.

**Keywords:** Self-Regulated Learning, Reading Comprehension, Web-Based Learning

### Introduction

Learning English has become a requirement nowadays. English is the most commonly used language in the world. Learning English requires students' perception of the importance of the four language skills, listening, speaking, reading and writing. Reading is considered as one of the most important skills that a foreign language learner must acquire, primarily because one must learn to read.

The role of reading in secondary schools is very important because it helps students to know information about different cultures and customs. In addition, students who have a strong foundation in reading and receive inducement at home can only excel in school (Yubune, Kanda & Tabuchi, 2007). Likewise, Nasr (2011) stated that reading skill is considered as the most important skill of the four skills especially in the countries where English is used as a foreign or a second language.

Many students still experience troubles in mastering the reading skill. Engaging these students in active reading activities can assist them becoming more involved in their reading (Glencoe, 2003). On the other side, good readers are active or strategic readers who apply different comprehension strategies before, during, and after reading. Good readers use comprehension strategies to make the construction of meaning easier. These strategies include previewing, self-questioning, making connections, visualizing, knowing how words work, monitoring, summarizing, and evaluating. Researchers

mentioned that applying and using such strategies assist students become more metacognitive readers (McLaughlin & Allen, 2002).

Levine, Ferenz and Reves, (2000) agreed that the use of the web for improving students' reading comprehension was specially widely accepted. Web-based learning differs from traditional classroom instruction. In the traditional classroom, teacher's activities often exceed student participation. The teacher in general determines and defines the use of class time and concentrates almost all student attention on the textbook. In contrast, activities on the web demand a large amount of student activity, and the teacher often just instructs students, presents feedback to them, and helps them to find appropriate solutions to the existing problems. (Brandl, 2002).

Training students on how to apply and use self-regulated learning strategies while learning English as a foreign language may help them enhancing their learning. Research suggested that students who intentionally and reflectively self-regulated are more likely to be successful (Zimmerman & Schunk, 2001). Zimmerman (2002) viewed self-regulation as a process used by self-directed learners to proactively transform mental abilities to accomplish academic tasks. Moreover, Zimmerman (2008) stated that self-regulated learning includes such processes as setting goals, planning strategically, selecting and using strategies, self-monitoring of one's effectiveness and self-evaluation while learning and remembering knowledge and academic skills.

### *Review of literature*

#### *Computer Assisted Language Learning (CALL)*

English has become the common international language in the 21<sup>st</sup> Century. It is the language most frequently used to communicate by people who are not native speakers of the same language. Consequently, learning and using English is of a great importance nowadays (Wu and Marek, 2010). Language is still taught in a traditional way, similar to math or geography in countries where there no English native speakers. Technology, however, offers opportunities for people from other cultures to interact with each other. It can be beneficial to language learners if technology is incorporated into the classroom (Chang & Lehman, 2002). Thus, the most successful EFL/ESL pedagogies enhance the quality of learning and teaching by applying technology-assisted teaching (Lapkin et al., 1990).

#### *Types of CALL Programs*

Davies, Hewer, Rendall & Walker, (2004) identified CALL programs and materials as the following: CALL specific software such as applications designed to develop and facilitate language learning, such as CD-ROMs, web-based interactive language learning exercises/quizzes (see CD-ROM examples for language learning). Generic software such as applications designed for general purposes, such as word processors (*Word*), presentation software (*PowerPoint*, see an e-book made by students "Many Moons"), and

spreadsheet (*Excel*), that can be used to support language learning (see examples of using *Excel* for language learning & teaching). Web-based learning programs such as online dictionaries, online encyclopedias, online concordancers, news/magazine sites, e-texts, web-quests, web publishing, blog, wiki, etc. Computer-mediated communication (CMC) programs such as synchronous - online chat; asynchronous - email, discussion forum, message board.

### *Web-based Learning*

Web-based learning is considered a superior tool to the extent that it offers a mas of instructional methods (e.g., text, audio, graphics, synchronous and asynchronous communication) that can be structured to meet students' needs. Arbaugh (2005) detailed clusters of web-based learning features that may lead to greater instructional impact including media variety, facilitation of Web exploration, learner ease, and flexibility of use.

Through web-based learning or web-based instruction, content is delivered using Web portals such as learning management systems or websites. Using such portals, teachers can interact with students and vice versa, but there are few, if any, chances for students to interact with each other or the wider world. However, due to the emergence of Web 2.0 technologies, Web-based courses can now be designed to give learners more chances not only to consume, but also to produce content that can be shared via the World Wide Web, that way moving from Web-based learning islands to Web-based learning environments (Ehlers, 2009).



According to Alessi and Trollip (2001), web-based learning has some advantages of as it helps student motivation, creativity, thinking, reflection, and active participation in the knowledge building process. Moreover, Teachers can manage the activity of many learners who have easy access to a variety of learning materials accessible at school, home, or work. Also learning materials can be made available worldwide. Educators can supplement their own curriculum with tons of databases and websites. Web-Based multi-media is updated by the developer not the learner.

As Hashemi and Aziznezhad (2011) mentioned, one of the best advantages of CALL is that it helps to breed autonomous learners. Another merit is that it has a new vital role in teaching material. In other words, using CALL in a learning education reinforces current practices and promotes curriculum renewal. Nowadays computers play a paramount role in the area of language instruction (Montazeri & Hamidi,2013). CALL is now an integral part of EFL classrooms and is likely to assume increasing importance as technology improves.

#### *CALL and Self-regulation*

Dettori and Persico (2011) claimed that technologically enhanced learning environments provide a chance for students to construct their ability to self-regulate, and for some, impact their ability to apply self-regulated learning to get knowledge. It is

important to note that environments differ in the extent to which students are expected to be self-regulated in order to be successful. If a learning environment is highly organized, engaging, and focused on the acquisition of a simple (non-demanding) skill or task, students are not required be self-regulated in order to be successful in that environment.

Fard & Nabifar (2011) examined the effect of CALL on reading comprehension in an EFL context. It was hypothesized that CALL has positive effect on reading comprehension. Forty male learners of English at an intermediate level of linguistic proficiency after a proficiency test were randomly selected as the participant of this study and were assigned into two groups of experimental and control on the base of their performance in reading comprehension. The experimental group treatment was by computer and control group had same materials on the printed texts. T-test was utilized as the means of statistical analysis. The result of T-test supported out hypothesis that there was a significant difference between experimental and control groups.

Ghonsooly& Seyyedrezaie (2014) conducted a study to investigate language learning strategies used by EFL web-based learners and face-to-face learners. It also examined the difference between pre-test and post-test reading comprehension scores of EFL students who were exposed to web-based and face-to-face instruction. The participants of the study were 200 Iranian EFL

university students. 100 students in one group taking web-based instruction and 100 students in the other group taking face-to-face instruction. The students took a 50-item translated version of Strategy Inventory for Language Learning and a test of reading comprehension. This scale and the reading comprehension test were given as the pre-test and post-test to all students. During the treatment, summarization strategy training was used to promote the learning process. the results revealed that there was no significant difference between pre-test and post-test reading comprehension scores of EFL students who were exposed to web-based instruction.

#### *Self-Regulated Learning Strategies*

Pintrich (2000) considered self-regulated learning as “an active and constructive process whereby students set goals for their learning, and then try to monitor, regulate, and control their cognition, motivation, and behavior guided and constrained by their goals, and the contextual features in the environment” (p. 453). According to Zimmerman & Schunk (2001), self-regulated learning (SRL) refers to students’ self-generated thoughts, feeling, and actions, which are systematically oriented toward attainment of their goals. Self-regulated learning is carried out with skills and strategies that can include but are not limited to: goal setting, environment structuring, self-monitoring, help seeking, and task strategies.

Based on a combination of commonly used taxonomies and classifications (e.g. Boekaerts, 1997; Mayer, 2008; Pressley, 2002) the following three main categories of strategies have been identified:

*Cognitive Strategies.*

These are strategies on a lower level than the metacognitive methods. The application of cognitive strategies is domain- and sometimes-even task-specific. There are three main types of cognitive strategies: first, elaboration strategies, by which connections are established between new material and what is an already known or restating important concepts in one's own words. Second, rehearsal strategies, which help store information in the memory by repeating the material, and third, organization strategies to visualize the material to facilitate learning (Mayer, 2008).

*Metacognitive strategies.*

Metacognitive strategies are used in the various phases of the learning process as described by Zimmerman (2002). There are self-regulatory thought processes beyond cognition, termed "metacognition." Metacognition refers to strategies students use to plan, monitor, and regulate the cognitive strategies mentioned above (Pintrich et al., 1991). Pintrich (2002) mentioned that metacognitive awareness and metacognitive strategy use refer to the notion that strategies should be planned, monitored, self-evaluated and self-controlled.

*Management Strategies.*

Management strategies focus on the learning environment and are used to create the optimal learning conditions. They can be aimed at the learner him/herself (effort management; strategies that help one persist in case of difficulties), at others (help-seeking). What sets self-regulated learners apart from their peers is that these students not only seek advice from others, but they do so with the goal of making themselves more autonomous (Ryan et al., 2001).

*Reading comprehension*

Cline, Johnstone and King (2006) provided three different definitions for reading. The first stresses the two major skills of reading, i.e., decoding and giving meaning. The second considers decoding and understanding two important skills which students use to understand the text through constructive process. While the third clarifies that reading is a process in which the student derives the meaning from the text.

*Processes of reading*

Grabe (2006) stated that reading is a complex and long lasting process. In which readers and writers interact through a text. That means students need to guess the meaning from the text and reconstruct it by combining information from the text and their background knowledge. There are three factors of reading process: writers, students and text. It implies that comprehension is the main goal of reading process. Tompkins (2007) represented the process of reading through five stages. prereading, reading, responding, exploring and applying.

### *Reading Comprehension Skills*

According to Urquhart & Weir (1998) reading skills are text-oriented and explain the cognitive abilities that the reader uses when interacting with a text, such as the ability to see and read linguistic or textual information. Likewise, Mikulecky, (2008) claimed that reading skills are the cognitive processes that a student uses in making meaning of a text. For fluent readers, most of the reading skills are employed unconsciously and automatically. When confronted with a challenging text, fluent readers apply these skills consciously and strategically in order to comprehend.

Chen, Wang and Chen (2014) proposed a self-regulated learning mechanism combined with a digital reading annotation system (DRAS) to enhance Grade 7 students to generate rich and high-quality annotations for promoting English-language reading performance. the study adopted a quasi-experimental design to assess an experimental group and control group learners who respectively used the proposed DRAS with and without the SLR mechanisms when reading English-language texts online. Compared with the control group learners, experimental results demonstrate that the reading comprehension and reading annotation abilities of the experimental group learners were significantly improved. Analytical results also confirm that gender differences in reading comprehension and annotation ability existed when using the proposed DRAS with and without the SRL mechanisms to read English-language texts online. Experimental results also show that significant differences existed in the reading comprehension and annotation abilities of learners with good and poor SRL abilities in

the experimental group. Additionally, the reading annotation ability of learners in the experimental group was significantly correlated with reading comprehension.

Maftoon & Tasnimi (2014) investigated the effect of self-regulation on EFL learners' reading comprehension. To fulfill the purpose of this study, 149 Iranian EFL language learners studying at Islamic Azad Universities of Qazvin and Tehran (North, and Science and Research branches) were selected from a total number of 200 based on their performance on TOEFL PBT test and randomly put into two experimental and control groups. The experimental group received direct teaching along with task-based instruction on self-regulation in reading in ten sessions. The results showed the rejection of the null hypothesis, thus concluding that self-regulation has a significant effect on reading comprehension of Iranian EFL learners.

#### *Definition of terms*

For the purpose of the study the following terms are defined: -

#### *Reading comprehension:*

*Reading comprehension refers to the ability to understand the text, analyze the information and interpret correctly what the writer is stating.*

#### *Self-Regulated Learning*

*Self-regulated learning is an active learning strategy in which students set goals for their learning tasks, monitor their learning improvement and self-evaluate their learning performance to become more independent learners.*

### *Web-Based learning*

*Web-based learning is an online learning which includes online course content, discussion forums via email, videoconferencing, and live lectures.*

### *Statement of the problem*

Based on the literature review, researcher's observations and the results of the pilot study, the problem of this study can be stated as: second year secondary stage students seem to have many reading difficulties. They don't comprehend their reading passages correctly so; they need to be trained in using strategies that enable them to understand what they read. Out of the pilot study findings students need to guess the difficult words, recognize the main idea and answer comprehension questions without facing many obstacles. The researcher found that equipping students on training with web-based self-regulated learning strategies may help them read and comprehend better.

### *Purpose of the study*

The present study aimed at investigating the impact of using some web-based self-regulated learning strategies (planning, elaboration, rehearsal, organization, self-monitoring, self-reward, help seeking, time management and self-evaluation) to enhance the EFL secondary school students' reading comprehension skills (main idea, recalling details, inferring cause and effect relationships, reading for specific information, identifying word meaning,



identifying writer's attitudes, inferring sequences, identifying the topic sentence, identifying parts of speech and drawing conclusions)

### Questions

The main question of the study can be stated as:

*How far can using web-based self-regulated learning strategies enhance secondary school students' reading comprehension skills?*

This question can be divided into the following sub questions?

- 1- What are the reading comprehension skills necessary for 2<sup>nd</sup> year secondary school students?
- 2- What are the web-based self-regulated learning strategies that may help improve secondary school students' reading comprehension?
- 3- What is the impact of the proposed program on students' reading comprehension?
- 4- What are the features of a proposed training program in web-based self-regulated strategies to enhance secondary school students' reading comprehension?

### Hypotheses

The study would test the following hypotheses:

1. There is no statistically significant difference between the mean score of the experimental and the control groups in the pre-administration of the reading comprehension skills test in total score and in the test subskills.

2. There is a statistically significant difference between the mean score of the experimental and the control groups in the post-administration of the RCST in total score and in its subskills in favor of the experimental group.
3. There is a statistically significant difference in the total mean score of the experimental group in the pre-post administration of the RCST in total score and in its subskills in favor of the post test.
4. There is no statistically significant difference between the mean score of the experimental and the control groups in the pre-application of the SRLSQ in total and in its strategies.
5. There is a statistically significant difference between the mean score of the experimental and the control groups in the post-application of the SRLSQ in total score and in its strategies in favor of the experimental group.
6. There is a statistically significant difference in the total mean score of the experimental group in the pre-post application of the SRLSQ in favor of the post application.

### Significance

The present study was significant in a number of ways:

- 1- Establishing a relationship between web-based learning and using self-regulated learning strategies in reading comprehension.
- 2- Investigating the impact of training in web-based SRL strategies on improving second year secondary school students' reading

comprehension skills.

- 3- Enriching the field of study on web-based SRL strategies of the secondary stage students.

### Methodology

#### Participants and setting

The participants of the study consisted of two second year classes from Hussein Hammad secondary school for girls, Dikirnis, Dakahlia Governorate. One class of thirty students comprised the experimental group and received web-based self-regulated learning strategies training. The other class of thirty students served as a control group and received only the traditional teaching methods. Both groups are from the same region, of the same age and have the same teacher.

#### Design

A quasi-experimental study was adopted. A pre/post reading test is administered to both control and experimental groups to measure their level of reading comprehension skills. A pre/post questionnaire of using web-based self-regulated learning strategies also administered to both control and experimental groups. The experimental group was taught using web-based self-regulated learning strategies training to develop their reading comprehension skills, while the other one represented the control group which was taught using the regular teaching methods.

### Instruments

The following instruments was developed by the researcher and validated by the jurors:

1. A reading skills checklist to determine the most important reading comprehension skills needed at the second year secondary stage.
2. A pre/post reading comprehension skills test intended to measure the level of second year secondary stage students' reading comprehension skills (main idea, recalling details, inferring cause and effect relationships, reading for specific information, identifying word meaning, identifying writer's attitudes, inferring sequences, identifying the topic sentence, identifying parts of speech and drawing conclusions)
3. Self-regulated learning strategies checklist to determine the most suitable self-regulated learning strategies for the sample of the study.
4. A pre/post self-regulated learning strategies questionnaires to assess second year secondary school students' use these strategies (planning, elaboration, rehearsal, organization, self-monitoring, self-reward, help seeking, time management and self-evaluation) while reading comprehension passages on the web.

## Results

*Results below are reported in terms of the hypotheses of the study*

### *Testing the first hypothesis*

For the purpose of testing the first hypothesis a t-test for two dependent groups was used for calculating the differences between the mean score of the experimental group and the control group on the reading pretest. Test. Results are shown in appendix (1).

It is evident from table (1) that mean score and standard deviation for the two groups were very close which demonstrated that there was no statistically significant difference between the experimental group and the control group in all reading comprehension test skills in the pre-test and the total score of the test. T value in table (1) is  $<2.01$ , this means there was no statistical significant differences between the two group in the pre-application of the RCST. This means that the two groups are almost equivalent before administrating the training program. This reflects the existing homogeneity between the two groups in the pre-application.

### *Testing the second hypothesis*

T. test for independent samples was used to test the second hypothesis which handled the difference between the mean score of the control group and those of the experimental group in the post administration of the reading test in the total score and in the sub skills. Results are shown table (2) in Appendix (2).

Table (2) indicates that T-value for total test score was (-9.770) So, it can be concluded that there was a statistically significant difference at 0.001 level between the mean score of the experimental group and those of control group in the ten reading skills on the post reading test in favor of the experimental group as the mean score of the control group was (M= 9.80) and that of the experimental group was (M= 16.30). These results reflected the improvement of the experimental group students' level in the reading comprehension skills included in the test.

*Testing the third hypothesis:*

T-test for paired samples for the reading skills pre-posttest of the experimental group was used to verify the third hypothesis. Results in table (3) in Appendix (3).

Table (3) shows that the mean score in the post application of RCST was greater than that of the pre-application in total score and in all test subskills. This means that there were statistically significant differences in the total mean score of the experimental group in the pre-post application of the RCST subskills and its total score in favor of the post-test (high mean score). All T- values also were statistically significant at (0.01) and degree freedom = (29). These all results confirm the trustiness of the third hypothesis. So the researcher reflexes these mean scores differences to the impact of the training program. In turn, these results answer the study question:

What is the impact of the proposed program on students' reading comprehension?

*Estimate the effect size*

To get the effect size of the application of the web-based self-regulated learning strategies on the post reading test between the experimental and the control group, the square of eta ( $\eta^2$ ) was calculated. See table (4) in Appendix (4)

Results in Table (4) shows the strong effect size of the training program on the RCST total score and its subskills. All ( $\eta^2$ ) values for each test subskill and the total test score ranged from (0.20- 0.95). This indicates the impact of the training program on improving the experimental group's reading comprehension skills.

*Interpretation of  $\eta^2$  values in the above table:*

With regard to distinguishing the main idea, the value of eta square was (.45) which indicated a high effect, and it also indicated that 45% of the variance in student' distinguishing main idea skill can be attributed to the experimental treatment. As for recalling facts and details, the value of eta square was (.36) which indicated a high effect, and it also indicated that 36% of the variance in student' recalling facts and details can be attributed to the experimental treatment. Concerning inferring cause and effect relationships, the value of eta square was (.36) which indicated a high effect, and it also indicated that 36% of the variance in student' inferring cause and effect relationships can be attributed to the experimental treatment.

In reading for specific information, the value of eta square was (.34) which indicated a high effect, and it also indicated that 34% of the variance in student' reading for specific information can be attributed to the experimental treatment. In identifying word meaning from the text, the value of eta square was (.24) which indicated a high effect, and it also indicated that 24% of the variance in student' identifying word meaning can be attributed to the experimental treatment.

In identifying writer's attitude, the value of eta square was (.53) which indicated a high effect, and it also indicated that 53% of the variance in student' identifying writer's attitude can be attributed to the experimental treatment. In inferring sequences, the value of eta square was (.57) which reflected a high effect, and it also indicated that 57% of the variance in student' inferring sequences can be attributed to the experimental treatment. In drawing conclusions, ( $\eta^2$ ) value was (.46) which indicated a high effect, and it also indicated that 46% of the variance in student' drawing conclusions can be attributed to the experimental treatment. In identifying topic sentence, ( $\eta^2$ ) value was (.20) which indicated a high effect, and it also indicated that 20% of the variance in student' identifying topic sentence can be attributed to the experimental treatment.

In identifying parts of speech, ( $\eta^2$ ) value was (.63) which indicated a high effect, and it also indicated that 63% of the variance in student' identifying parts of speech can be attributed to the



experimental treatment. In the total of all the ten reading comprehension skills, the value of Eta square was (.95) which indicated a high effect, and it also indicated that 95% of the variance in students' reading comprehension skills can be attributed to the experimental treatment.

#### *Testing the fourth hypothesis*

T-test for independent samples was calculated for the self-regulated learning strategies questionnaire (SRLSQ) pre-application of control and experimental group. Results are shown in Appendix (5).

Table (5) manifests that mean score and standard deviation for the two groups are very close which indicates that there is no statistically significance between the experimental group and the control group in all SRLSQ skills in the pre-application of the questionnaire and the total score of the questionnaire where all (T) values are not statistically significant. This means that the two groups are almost equivalence before administrating the training program and reflects the existing homogeneity between the two groups in SRLSQ pre-application.

In turn, results on table (5) answer the study question: What are the web-based self-regulated learning strategies that may help improve secondary school students' reading comprehension?

*Testing the fifth hypothesis*

A t-test for independent samples was used to test the fifth hypothesis which handled the difference between the mean score of the control group and those of the experimental group in the post administration of the SRLSQ in the total score and in the sub skills. Results are shown table (6) in Appendix (6).

Table (6) indicates that T-value on the sub skills (-13.883, =-20.462, -14.994, -10.385, 29.920, -11.921, -13.627, 15.872 and -22.905) and the T-value for total questionnaire (-41.448) were all significant at 0.001 level. So, it can be concluded that there is a statistically significant difference between the mean score of the experimental group and those of control group in questionnaire strategies on the post SRLSQ in favor of the experimental group.

*Testing the sixth hypothesis*

T. test for paired samples was used to verify this hypothesis which handled the difference between the mean score of the experimental group in the pre-post application of the SRLSQ in favor of the post application. Results are shown in table (7) in Appendix (7).

Table (7) indicates that the mean score in the post application of SRLSQ was greater than that of the pre-application in all questionnaire subskills and in the total score. This means that there were statistically significant differences in the total mean score of the

experimental group in the pre-post application of the SRLSQ subskills and its total score in favor of the post-test (high mean score). All T- values also were statistically significant at (0.01) and degree freedom = (29). In turn, these results answer the study question: What are the features of a proposed training program in web-based self-regulated strategies to enhance secondary school students' reading comprehension?

*Estimate the effect size*

To get the effect size of the application of the training in web-based self-regulated learning strategies on the post questionnaire between the experimental and the control group, the square of eta ( $\eta^2$ ) was calculated. See appendix (8).

Table (8) displays that the effect size of the training program on the total score of the SRLSQ and its subskills was high because all ( $\eta^2$ ) values of questionnaire subskills and total score ranged from (0.45,0.98), this demonstrates the impact of the training program on increasing the experimental group's employment and use of self-regulated learning strategies while reading comprehension online.

With regard to goal setting strategy, the value of eta square was (.89) which indicated a high effect, and it also indicated that 89% of the variance in students' use of goal setting can be attributed to the experimental treatment. This shows the great significant impact of the proposed program. As for elaboration strategy, the value of eta square was (.96) which indicated a high effect, and it also indicated

that 96% of the variance in students' use of elaboration strategy can be attributed to the experimental treatment. this shows the great significant impact of the proposed program. Concerning rehearsal strategy, the value of eta square was (.88) which indicated a high effect, and it also indicated that 88% of the variance in students' use of rehearsal strategy can be attributed to the experimental treatment. In organization strategy, the value of eta square was (.63) which indicated a high effect, and it also indicated that 63% of the variance in students' use of organization strategy can be attributed to the experimental treatment.

In self-monitoring strategy,  $\eta^2$  value was (.97) which indicated a high effect, and it also indicated that 97% of the variance in students' use of self-monitoring strategy can be attributed to the experimental treatment. In self-reward strategy,  $\eta^2$  value was (.45) which indicated a high effect, and it also indicated that 45% of the variance in students' use of self-reward strategy can be attributed to the experimental treatment. In help-seeking strategy,  $\eta^2$  value was (.62) which indicated a high effect, and it also indicated that 62% of the variance in students' use of help-seeking strategy can be attributed to the experimental treatment.  $\eta^2$  value of time management strategy was (.91) which indicated a high effect, and it also indicated that 91% of the variance in students' use of help-seeking strategy can be attributed to the experimental treatment. This shows the great significant impact of the proposed program. In self-evaluation strategy,  $\eta^2$  value was (.82) which indicated a high

effect, and it also indicated that 82% of the variance in students' use of self-evaluation strategy can be attributed to the experimental treatment. In the total of all the nine strategies, the value of Eta square was (.98) which indicated a high effect, and it also indicated that 97% of the variance in students' use of these strategies can be attributed to the experimental treatment. this shows the great significant impact of the proposed program.

#### *Discussion of Results*

Results illustrated above indicated that, there was a statistically significant difference between the mean score of the control group and the experimental group in favor of the experimental and also indicated an obvious improvement in the experimental group students' reading comprehension skills on the post administration of the reading comprehension skills test. This improvement may be due to applying the proposed training which was based on using nine web-based self-regulated learning strategies (goal-setting, elaboration, rehearsal, organization, self-monitoring, self-reward, help-seeking, time management, self-evaluation) as those improved students' (distinguishing main idea, recalling details, inferring cause and effect relationships, reading for specific information, identifying word meaning, identifying writer's attitudes, inferring sequences, drawing conclusions, identifying the topic sentence, identifying parts of speech).

## **Conclusion**

With reference to the results mentioned above, it was concluded that the present study provided evidence to the impact of training in web-based self-regulated learning strategies on improving reading comprehension skills. This results adds to the validity of other studies investigating similar aspects such as Fard & Nabifar (2011); Ghonsooly& Seyyedrezaie (2014) Chen, Wang and Chen (2014) ; Maftoon & Tasnimi (2014).

## ***Recommendations***

In the light of the results and conclusions of this study, the following recommendations were suggested:

1. Ministry of Education should train EFL teachers with respect to the use of Self-Regulated Learning Strategies in order to help their students to read online comprehension texts efficiently.
2. EFL teachers should train their students in the use of the various types of SRLSs i.e. cognitive, metacognitive, motivational and management strategies.
3. EFL teachers should hold workshops and conferences to share their experience and views on employing SRLS while reading online comprehension texts.
4. EFL teachers need to plan reading activities that encourage students to use different SRLS and provide practice opportunities.

5. Course designer should consider the inclusion of self-regulated learning strategies when developing EFL courses particularly at secondary school level.
6. New techniques, methods and strategies for improving reading comprehension skills should be explored and exploited by EFL researchers.

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