The Effectiveness of a Program Based On Connectivisim in Developing EFL Critical and Creative Reading Skills and Self-Regulation for Secondary Stage Students

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Abstract

The current study aimed to investigate the effectiveness of a program based on Connectivisim in developing EFL critical and creative Reading skills and Self-Regulation for secondary stage students. The Participants of the study were sixty four female students who were equally divided into experimental and control groups (N=32) from second year El-Hossaineia Secondary school for Girls. The participants of the study were tested before and after the treatment. The study followed the pre- post quasi experimental design. The experimental group was taught a program based on connectivisim, while the control group received regular instruction. The experiment was carried out in the second term of the (2021-2022) academic year. To achieve the purpose of the study, the researcher designed Critical Reading Skills Test, Creative Reading Skills Test, and Self- Regulation Scale to both groups. Results of the study indicated that the program based on Connectivisim was effective in developing critical reading skills, creative reading skills, and self-regulation. Finally, some recommendations and suggestion for further research were provided.

Keywords: Connectivisim, Critical Reading Skills, Creative Reading Skills, Self- Regulation.

1. Introduction:

During the 21st century, the rapidly changing life demanded new skills for readers and new characteristics of reading materials in schools. Reading is fundamentally important in any language, therefore it requires more attention. Critical Reading has been variously defined as the application of higher order thinking skills such as analysis, synthesis, inference, and evaluation to reading in which the reader participates in an inner dialogue with the writer to interpret written text accurately through analyzing and evaluating assumptions, key concepts and ideas, reasons and justifications, supporting examples, parallel experiences, implications and consequences (Pourghasemian et al., 2017).

Güneş and Güneş (2014) described critical reading as the process of involving individuals to think about what they read, evaluate what they read and making it a habit to use their own value judgments while reading.

According to Hudson (2007), critical reading skills are an important category of reading. These skills enable students to analyze, synthesize, and evaluate what is read.

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When students are exposed to critical reading skills, students can easily see the cause and effect or comparing contrasting relationships in a text. In other words, students become critical thinkers.

Creative reading acts as an effective method that improves learners' attitudes towards reading, decreases reading anxieties, improves comprehension during the reading process, teaches multidimensional thinking, develops imagination, and creates a culture of reading(Yurdakal, 2019).

Ebrahim (2017) clarified that creative reading is the ability to personalize natural phenomena by using as many personal qualities as possible , mention all the characteristics of someone to express opinions , suggest different titles for a story, produce various questions about information that is not directly mentioned in the text , thinking reflectively to generate more ideas for interest or clarity.

According to Incik (2012), creative reading provides readers with various activities in the comprehension process, and enables yielding creative ideas and products related to the topic of a text. Creative reading supports the development of creativity as an approach that guides readers in using their imagination.

Zimmerman (2008) concerned self-regulation as, "the degree to which   students are metacognitively, motivationally, and behaviorally active participants in their own learning process". It is self-control that helps keep learners engaged in a task and motivates them to improve the performance (Schunk & Usher, 2013).

In addition, Pintrich & Zusho (2002) viwed self-regulated learning as a process that assists students in managing the thoughts, behaviors, and emotions in order to successfully navigate the learning experiences. This process occurs when a student's purposeful actions and processes are directed towards the acquisition of information or skills. Also, Magno (2009) mentioned that a person who is self-regulated is characterized to be an active problem solver and aims to improve the performance given their abilities. Magno also added that Individuals who self-regulate achieve tasks successfully because they make attempts to close the gap between their current status and goals.

Spinello (2020) emphasized that "from its early development, connectivism was positioned as an alternative learning theory more consistent with the changing environment and technological shifts affecting learning and the nature of knowledge and its sources".

Connectivism, a theory of learning for the digital age as George (Siemens, 2004) one of its authors has named it, together with Stephen Downes, aspires to postulate itself as the innovation in the evolution of behavioral, cognitive, and constructivist theories describing as adaptable to technological reality and the accelerated rate of knowledge development.

Connectivism as a theoretical perspective that offers an ideal understanding of this type of learning, where the student forms the learning through an interconnected digital world, being learning influenced by the environment, being self-shaping of the learning in the digital age which live in (Sánchez et al., 2019).

Statement of the problem:

According to the results of the previous studies and the pilot study, It could be concluded that a great number of the second year secondary stage students lack the critical reading skills, creative reading skills and self-regulation dimensions. Hence, the present study tries to help students overcome such problems through using a program based on connectivisim. So, the main question of the study is:

What is the effectiveness of implementing a program based on connectivisim on developing EFL secondary stage students' critical and creative reading skills, and self-regulation? This main question could be divided into the following sub-questions:

1. What is the critical reading skills needed for second year secondary stage students?

.2 What is the creative reading skills needed for second year secondary stage students?

3. What is the self-regulation dimensions needed for second year secondary stage students?

4. How far can implement connectivisim based program enhance the secondary stage students' critical reading skills, creative reading and self-regulation?

5. What are the features of connectivisim based program that may develop the secondary stage students' critical reading skills, creative reading skills and self-regulation?

6. What is the effectiveness of connectivisim based program on developing critical reading skills, creative reading skills and self-regulation of secondary stage students?

2.1. Critical reading

Abdelrasoul (2014) stated that critical reading skills refer to differentiating between fact and opinion, using reference, anticipating, showing word knowledge, summarizing, visualizing and connecting reading with previous knowledge.

Wallace (2003) indicated that Critical reading is the ability to evaluate the credibility of a piece of writing. All writers have a purpose during writing, and usually, a writer will choose to emphasize facts or details which support the purpose. critical readers are active readers. Critical readers question, confirm, and judge what is red throughout the reading process.

Mendelman (2007) assured that high school English teachers should teach the students how to become critical readers: readers who can infer, analyze, predict, and use any other higher-order thinking with different kinds and mediums of texts.

2.2. Creative reading

Creative reading is the highest form and seems to be the most neglected of all the reading skills. The creative reader should be capable of more than this. The creative reader possesses the ability to examine relationships among facts and interpretations. The creative reader will, however, need guidance to achieve full use of this ability. (Labuda, 1974).

Harris and Smith (1986) mentioned that creative reading occurs when the reader attempt to extend a passage beyond the limits set by the author. The reader develops

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new ideas and feelings that can be traced directly to reading and can describe the relationships between the selection read and the extention that has been applied.

As such, Harris and Smith (1986) showed that creative reading as "a unique personal expression stimulated by the reading material whether this expression is a thought, a composition, a dramatic presentation, or a work of art.

The images, dialouges, sounds, speculations, and other creations arising in the mind of a reader as spin offs from an author's words can do much to enhance the understanding and enjoyment of selections that lend themselves to create thinking.

According to Russell (1960), creative reading includes reading for implied and inferred meanings, appreciative reactions, and critical evaluations. The act of creative reading goes beyond literal comprehension to demand that the reader produce fresh, original ideas not explicitly stated in the reading material.

2.3. Self-Regulation

The term self-regulation is the regulation of one's thinking and actions (Zimmerman & Schunk, 2011). A self-regulated learner uses metacognitive, motivational, and behavioral processes to achieve a specific learning and performance goal (Zimmerman, 2008; Zimmerman, 2011). Examples of such processes include goal setting, metacognitive monitoring, help-seeking, and self-evaluation.

A self-regulated learner engages in metacognitive processes when consciously thinking about and evaluating the regulatory cognitive processes they are using (McCormick, 2003). Self-regulatory behavioral processes include the physical actions beneficial towards the completion of a task at a desired level (Zimmerman, 2011).

Actually, Zeidner, Boekarts, and Pintrich (2000) defined a self-regulated learner as a student who deliberately generates the own thoughts, feelings, and actions to achieve the learning goals.

2.4. Connectivisim

George Siemens and Stephen Downes (Siemans & Downes, 2009) developed a theory for the digital age, called connectivism.
Spinello (2020) emphasized that "from its early development, Connectivism was positioned   as   an   alternative learning theory more consistent with the changing environment and technological shifts affecting learning and the nature of knowledge and its sources" (p.2).

Napal et al. (2020) explained the effect of connectivisim when referring to the increasing relevance of using technology in teaching and learning settings. They created new responsibilities for teachers such as designing new learning situations using digital resources appropriately.

According to Goldie (2016), though a number of learning theories have been introduced as explanatory frameworks for learning in the digital age, Connectivism is considered one of the most prominent of these theories. Siemens (2017) presented Connectivism as a model of learning that provides insight into learning competencies and tasks needed for learners to show in a digital era.

The trends of connectivism

Tschofen and Mackness (2012), writing on the trends of connectivism research, noted that the focus on many studies has been on evaluating the levels of autonomy (desire for self-directed learning), connectedness (ability to connect with others), diversity (types of resources being used), and openness (ability-willingness to share information). Downes (2010) provided definitions of these criteria in Half an Hour blog: *Autonomy*: Learners should be guided and able to guide themselves according to their own goals, purposes, objectives or values. *Diversity*: A system of educational resources structured so that each person in a society represents a unique perspective based on personal experience and insight, constituting a valuable contribution to the whole. *Openness*: The ability to freely put in and out of the system while allowing a free flow of ideas and artifacts within the system. *Interactivity (Connectedness):-* The level of individual immersion in a community or society resulting in knowledge development or transfer.

3.1. Study design:

-A quasi experimental design.

- A descriptive design.

3.2. Instruments of the study:

1. A critical reading skills test.
2. A creative reading skills test
3. A self-regulation scale.

3.3.Hypotheses of the Study

The study verified the following hypotheses:

1. There would be a statistically significant difference between the mean scores of the experimental group students and those of the control group students in favor of the experimental group in the post administration of reading comprehension skills test.
2. There would be a statistically significant difference between the mean scores of experimental group, in the pre and the post administrations of reading comprehension skills test favoring the post administration.
3. A program based on scaffolding and metacognition would be effective in improving the experimental group students' reading comprehension skills.
4. There would be significant difference between the mean scores of the experimental group students and those of the control group students in favor of the experimental group in the post administration of the metacognitive reading awareness scale.
5. There would be a statistically significant difference between the experimental group students mean scores, on the pre and the post scale of metacognitive reading awareness favoring the post administration.

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6. The program based on scaffolding and metacognition would be effective in improving the experimental group students' metacognitive reading awareness.
7. There would be a statistically significant difference between the mean scores of the experimental group students and those of the control group students in favor of the experimental group in the post administration of the integrative motivation scale.
8. There would be a statistically significant difference between the experimental group students mean scores, on the pre and the post scale of integrative motivation scale favoring the post administration.
9. The program based on scaffolding and metacognition would be effective in improving the experimental group students' integrative motivation scale.

Results and discussion
4.1. Results of the study

Statistical analysis:

The program of statistical package for social science (SPSS) was used to apply the following statistical techniques: Cohen's formula (Eta squared value**) (**$\eta^{2)}$ was used to calculate the effect size of the program based on connectivisim on developing the experimental group students' critical reading, creative reading and self-regulation. Paired samples t-test was used to test the differences between the mean score of the experimental group students in pre and post administrations of the critical reading skills test, creative reading skills test and self-regulation. Independent samples t-test was used to test the differences between the mean score of the experimental and control group students in the post administrations of the critical reading skills test, creative reading skills test and self-regulation.

Verifying the Study Hypotheses:

Based on the data statistical analysis of the current study, the hypotheses were verified as follows:

- **The First Hypotheses:**

The first hypothesis of the study stated that "There was a statistically significant difference between the mean score of the experimental and control group students in the post administration of the overall critical reading skills test and its sub-skills in favor of the experimental group. Independent samples t-test was used to test whether there was any significant difference: The results are presents in table (1). The mean score of the experimental group (48,031) is higher than (18,187) of the control group in the post administration of the overall EFL critical reading skills. The calculated t-value (21,232) is higher than the tabular (t) value (2). This proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental and control group students in the post adminisration of the overall critical reading skills test and its sub-skills in favor of the experimental group. These differences can be attributed to the

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program based on Connectivisim. Cosequently, the first hypothesis was verified. By comparing the value of d with the proposed table (1) showed, this indicated that the effect size is significant in each of the critical reading skills **(Table 1)**.

According to **figure (1)**, the experimental group's mean scores on the post-critical reading test and the main levels of the test was higher than those of the control group. Thus, it can be inferred that the first hypothesis was accepted.

Table (1) Results of both experimental and control groups post –administration of EFL critical reading skills test

| Skill	control group n = 32		experimental group n = 32		t-value	Total variance value) (η^2	Effect size value (d)	Statistial level
	Mean	Std. Deviation	Mean	Std. Deviaton				
Analyzing	3,062	0,618	7,156	1,393	15,185	0,788	3,855	Very large
Problem solving	4,812	1,99	12,406	1,603	16,803	0,819	4,254	Very large
Summarizing	4,718	2,098	12,125	1,581	15,947	0,804	4,051	Very large
Evaluation	5,593	2,55	16,343	1,658	19,988	0,865	5,0625	Very large
total	18,187	5,602	48,031	5,642	21,232	0,879	5,391	Very large

Significant at (0.05)
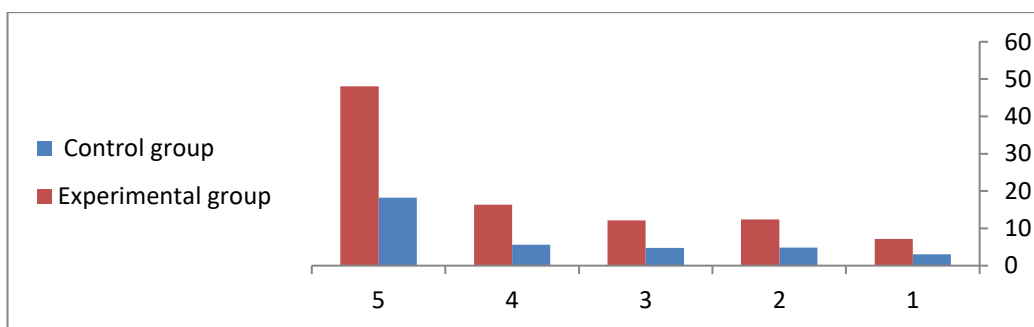
Figure (1): The total means of scores of both experimental and control groups in posttest of critical reading test.

- **The second Hypothesis:**

The second hypothesis of the study stated that "There was a statistically significant difference between the mean score of the experimental group in the post-administrations of the overall critical reading skills test results and its sub-skills in favor of the post administration". Paired samples t-test was used to examine this hypothesis whether there was any significant difference: The results are presents in table (2). The mean score of the experimental group in the post-administration of the overall critical reading skills test (48,031) is higher than that of the control group (10,968) of the pre-administration. The calculated t-value (36,375) is higher than the tabular (t) value

(2.042 this proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental group students in the pre and post adminisration of the EFL critical reading skills test in favor of the post- adminisration. These differences can be attributed to the program based on Connectivisim. Cosequently, the second hypothesis was confirmed **(Table 2)**.

According the **figure (2)**, the experimental group's mean scores on the post-critical reading test and the main levels of the test was higher than those of the control group. Thus, it can be inferred that the second hypothesis was confirmed.

Table (2) Results of the experimental group pre and post –administration of EFL critical reading skills test

| Skill	Pre-administration N=32		Post-administration N=32		t-value	Total variance value) $(\eta^2$	(d)	Effect size
	Mean	SD	Mean	SD				
analyzing	1,656	0,545	7,156	1,393	19,871	0,927	7,127	Large
Problem solving	2,968	1,092	12,406	1,603	27,378	0,960	9,797	Large
sammarizing	2,75	0,842	12,125	1,581	28,748	0,964	10,349	Large
evaluation	3,593	1,042	16,343	1,658	45,469	0,985	16,206	Large
total	10,968	1,975	48,031	5,642	36,375	0,977	13,035	Large

Significant at 0.05
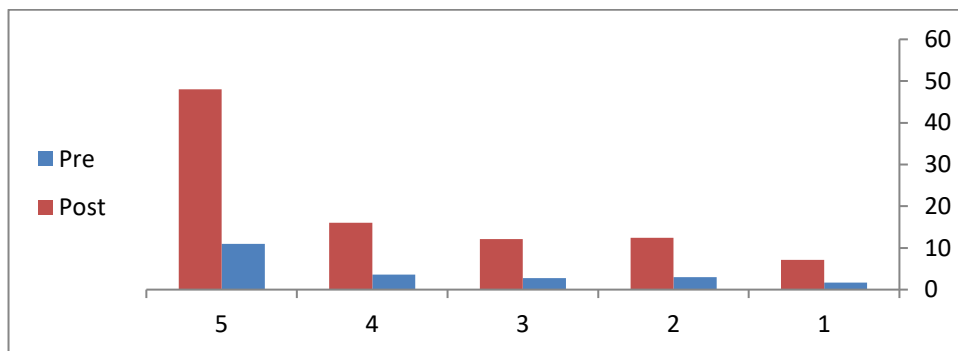
Figure (2): The total means of scores of both experimental and control groups in posttest of critical reading test.

- **The Third Hypothesis**

The third hypothesis stated that "The program based on connectivisim had a positive effect on developing EFL critical reading skills and each sup-skill". To test this hypothesis, the effect size of the program on the experimental group students' overall critical reading skills and each sub-skill was calculated using Cohen's formula. **Table(3)** identifies the referential framework for the effect size as follows: *The referential framework for the effect size*

Impact	small	medium	Large
Effect size D	0.2 to less than 0.5	0.5 to 0.8	greater than 0.8

The effect size value (0,953) of the program on the experimental group student's overall critical reading skills is large. This proves that the program had a positive effect on developing the experimental group students' overall critical reading skills and each sub-skill. Consequently the third hypothesis was verified. And to verify the validity of the third hypothesis, which states: "There is the effectiveness of a the program based on connectivisim in improving critical reading skills for the students of the experimental group as a whole and in each skill separately among the students of the experimental group" **(Table 3,a)**.

The researcher used Black's Adjusted Earning Ratio equation to show the effectiveness of a the program based on connectivisim in improving critical reading skills as a whole and in each skill separately for the experimental group students **(Table 3,b)**.

It is clear from tables (3) that the value of the adjusted percentage gain for the critical reading skills test as a whole was (1.4), which is a high value, this indicates the effectiveness of the program based on connectivisim in improving critical reading skills of the experimental group students as a whole. Between (1.2-1.4), this value indicates the effectiveness of the program based on connectivisim in improving critical reading skills, of the experimental group students.

Table (3,a): The effect size of the program on the experimental group overall critical reading skills and each sub-skill.

Level	t-value	T^2 value	value w2	Effect size
Analyzing	19,871	394,856641	0,86	Large
Problem solving	27,378	749,554884	0,921	Large
summarizing	28,748	826,447504	0,928	Large
Evaluation	45,469	2067,429961	0,969	Large
Total	36,375	1323,140625	0,953	Large

Significant at 0.05

Table (3,b): Black's adjusted earning percentage

Skill	total degree	the mean in the pre-application	the mean in the post - application	Black's Adjusted Earning Ratio equation	Effectiveness
Fluency	10	2.25	7.937	1.3	Large
Flexibility	15	2.5	12.343	1.4	Large

Originality	15	2.375	12.187	1.4	Large
Elaboration	10	1.968	7.343	1.2	Large
The test as a whole	50	9.093	39.812	1.4	Large

- **The Fourth Hypothesis**

The fourth hypothesis of the study stated that "There was a statistically significant difference between the mean score of the experimental and control group in the post administration of the overall creative reading skills test and its sub-skills in favor of the experimental group. Independent samples t-test was used to test whether there was any significant difference. The mean score of the experimental group (48,031) is higher than that (18,187) of the control group in the post-administration of the overall EFL creative reading skills test. The calculated t-value (21,232) is high this proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental and control group students in the post adminisration of the EFL critical reading skills test in favor of the post- adminisration. These differences can be attributed to the program based on Connectivisim. Cosequently, the fourth hypothesis was confirmed (**Table 4**).

According the **figure (3)**, the experimental group's mean scores on the post-creative reading test and the main levels of the test was higher than those of the control group. Thus, it can be inferred that the fourth hypothesis was confirmed.

Table (4) Results of both groups post-Administration of EFL creative reading skills test

| Skill	Control group N=32		Expermental group N=32		t-value	Total variance value) (η^2)	(d)	Effect size
	mean	SD	mean	SD				
Fluency	4	0,879	7,937	1,293	14,247	0,766	3,618	Large
Flexibility	4,62	2,254	12,343	1,696	15,478	0,789	3,867	Large
Originality	4,906	1,67	12,187	1,821	16,655	0,812	4,156	Large
Elaboration	3,625	1,237	7,343	1,310	11,671	0,687	2,963	Large
Total	17,156	3,681	39,812	5,450	19,486	0,859	4,936	Large

Significant at 0.05
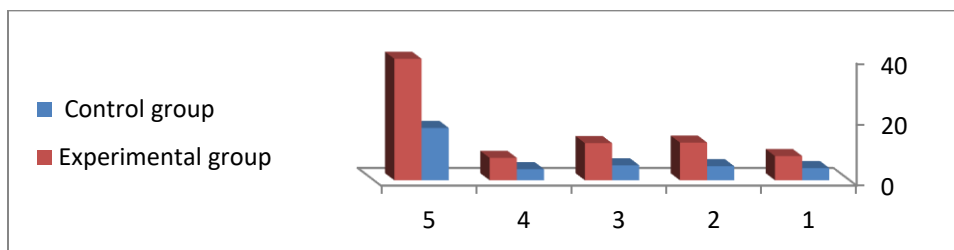
Figure (3): The total means of scores of both experimental and control groups in posttest of creative reading test.

- **The fifth Hypothesis:**

The fifth hypothesis of the study stated that "There was a statistically significant difference between the mean scores of the experimental group in the pre and post administrations of the overall creative reading skills test and its sub-skills in favor of the post- administration. Paired samples t-test was used to examine this hypothesis whether there was any significant difference. The mean score of the experimental group in the post-administration of the overall EFL creative reading skills test (39,812) is higher than that (9,093) of the control group in the post-administration of the overall EFL creative reading skills test in the pre- administration . The calculated t-value (32,386) is high this proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental group students in the pre and post adminisrations of the EFL creative reading skills test in favor of the post- adminisration. These differences can be attributed to the program based on Connectivisim. Cosequently, the fifth hypothesis was confirmed **(Table 5)**.

Table (5) Results of the experimental group pre and post –administration of EFL creative reading skills test

Skill	Pre-Administration N=32		Pre-Administration N=32		t-value	Total variance value (η^2)	D	Size
	mean	SD	mean	SD				
Fluency	2,25	0,803	7,937	1,293	23,753	0,90	6	Large
Flexibility	2,5	0,762	12,343	1,696	31,284	0,94	7,939	Large
Originality	2,375	0,832	12,187	1,821	30,471	0,937	7,713	Large
Elaboration	1,968	0,594	7,343	1,310	21,587	0,882	5,467	Large
total	9,093	2,021	39,812	5,450	32,386	0,944	8,211	Large

Significant at 0.05

- **The sixth Hypothesis**

The sixth hypothesis stated that "The program based on connectivisim had a positive effect on developing EFL second year secondary stage students' creative reading skills and each sup-skill". To test this hypothesis, the effect size of the program on the experimental group students' overall creative reading skills and each sub-skill was calculated using Cohen's formula **(Table 6)**.

Table (6): The effect size of the program on the experimental group overall creative reading skills and each sub-skill.

Skill	t-value	T^2 value	value w2	Effect size
Fluency	23,753	564,205009	0,897	large
Flexibility	31,284	978,688656	0,938	Large
Originality	30,471	928,481841	0,935	Large
Elaboration	21,587	465,998569	0,879	Large
Total	32,386	1048,852996	0,942	Large

- **The seventh Hypothesis**

The seventh hypothesis of the study stated that "There was a statistically significant difference between the mean score of the experimental and control group students in the post administration of the of the overall self-regulation scale and its sub-dimensions in favor of the experimental group. Independent samples t-test was used to test whether there was any significant difference. The mean score of the experimental group (60,718) is higher than that (41,562) of the control group in the post-administration of the overall EFL creative reading skills test. The calculated t-value (9,205) is high this proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental and control group students in the post adminisration of the EFL critical reading skills test in favor of the post- adminisration. These differences can be attributed to the program based on Connectivisim. Cosequently, the seventh hypothesis was confirmed (**Table 7**).

According the **figure (4)**, the experimental group's mean scores on the post- self-regulation scale, and the dimensions of the scale was higher than those of the control group. Thus, it can be inferred that the seventh hypothesis was confirmed.

Table (7): The post administration of the of the overall self-regulation scale

| Skill	Control group N=32		Experimental group N=32		t-value	Total variance value (η^2)	D	Size
	Mean	SD	mean	SD				
Dimension 1	9,937	1,564	12,656	1,927	6,194	0,382	1,236	Large
Dimension 2	7,812	1,378	11,812	2,494	7,94	0,504	2,016	Large
Dimension 3	8,25	2,747	12,718	1,853	7,628	0,484	1,936	Large
Dimension 4	7,375	1,755	11,468	2,627	7,329	0,464	1,861	Large
Dimension 5	8,187	1,654	12,062	1,916	8,657	0,547	2,197	Large
Total	41,562	7,799	60,718	8,818	9,205	0,577	2,335	Large

Significant at 0.05
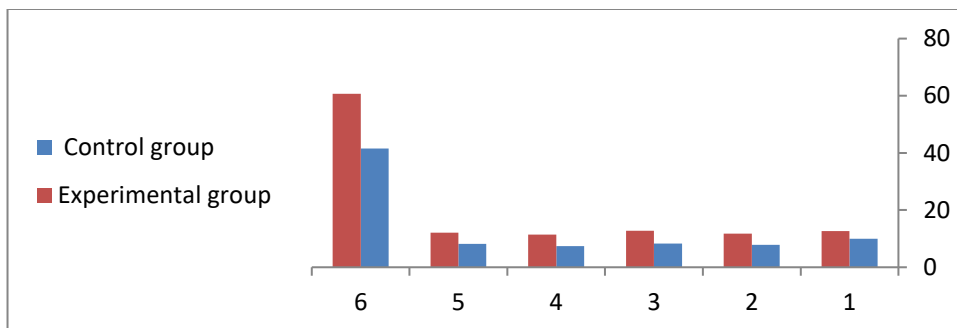
Figure (4) : The total means of scores of both experimental and control groups in post scale of self-regulation scale.

- **The eighth Hypothesis:**

The eighth hypothesis stated that "There was a statistically significant difference between the mean scores of the experimental group in the pre and post administration of the overall self-regulation scale and its sub-dimensions in favor of the post-administration. Paired samples t-test was used to examine this hypothesis whether there was any significant difference. The mean score of the experimental group in the post-administration of the overall EFL self- regulation scale. (60,718) is higher than (16,781) of the pre- administration. The calculated t-value (22,420) is high this proves that there is a statistically significant difference at (0.05) between the mean scores of the experimental group students in the pre and post adminisrations of the EFL self-regulation scale in favor of the post- adminisration. These differences can be attributed to the program based on Connectivisim. Cosequently, the eighth hypothesis was confirmed **(Table 8)**.

Table (8): Results of the experimental group's pre and post administration of self-regulation scale.

dimension	Pre-Administration N=32		Post-Administration N=32		t-value	Total variance value (η^2)	D	Size
	Mean	SD	mean	SD				
Dimension 1	3,406	1,16	12,656	1,927	20,299	0,93	7,289	Large
Dimension 2	3,343	1,181	11,812	2,494	16,115	0,893	5,777	large
Dimension 3	3,593	1,141	12,718	1,853	22,34	0,942	8,06	Large
Dimension 4	3,156	1,167	11,468	2,627	14,481	0,871	5,196	Large
Dimension 5	2,281	1,054	12,062	1,916	20,761	0,932	7,404	Large
total	16,781	3,461	60,718	8,818	22,420	0,942	8,06	Large

Significant at 0.05

- **The ninth Hypothesis**

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The ninth hypothesis stated that "The program based on connectivisim had a positive effect on developing EFL self-regulation scale and each sup-dimension". To test this hypothesis, the effect size of the program on the experimental group students' overall self- regulation scale and its sup-dimensions was calculated using Cohen's formula. the effect size value (0,887) of the program on the experimental group student's overall self-regulation scale is large. This proves that the program had a positive effect on developing the experimental group students' overall self-regulation scale and its sub-dimensions. Consequently the ninth hypothesis was verified **(Table 9)**.

Table (9): The effect size of the program on the experimental group overall self-regulation scale and its sup-dimensions.

Dimension	t-value	T^2 value	value w2	Effect size
Dimension 1	20,299	412,049401	0,865	Large
Dimension 2	16,115	259,693225	0,802	Large
Dimension 3	22,34	499,0756	0,886	Large
Dimension 4	14,481	209,699361	0,765	Large
Dimension 5	20,761	431,019121	0,87	Large
Total	22,420	502,6564	0,887	Large

And to verify the validity of this hypothesis, which states: "There is the effectiveness of a the program based on connectivisim in improving self regulation dimensions for the the experimental group students as a whole and in each dimension separately ". The researcher used Black's Adjusted Earning Ratio equation to show the effectiveness of a the program based on connectivisim in improving self regulation dimensions as a whole and each dimension separately for the experimental group students .

Dimensions	total degree	the mean in the pre-application	the mean in the post - application	Black's Adjusted Earning Ratio equation	Effective ness
Dimension 1	15	3,406	12,656	1,414	Large
Dimension 1	15	3,343	11,812	1,3	Large
Dimension 1	15	3,593	12,718	1,41	Large
Dimension 1	15	3,156	11,468	1,25	Large
Dimension 1	15	2,281	12,062	1,42	Large
Total	75	16,781	60,718	1,34	Large

Recommendations
In the light of the results and conclusions of the study, the following recommendations might be useful
Recommendations for Teachers

English language teachers should be trained on using the program based on connectivisim and its applications while teaching English to their students in different educational stages.

Recommendations for Supervisors

EFL Supervisors should help activate the role of the program based on connectivisim in changing the role of EFL teachers from instructors into organizers for learning in class online learning.

Recommendations for designers:

Designers should make use of the program based on connectivisim and its applications in designing English language courses and overcoming any teaching or learning problems.

Suggestions for Further research

In the light of the study conclusion and recommendations and the findings of the present study, the following implications for further research are suggested:-

The effectiveness of using the program based on connectivisim and its applications in English language learning among students at university level.
-The impact of using program based on connectivisim and its applications on other language skills such as listening, speaking and writing.
-The effectiveness of using program based on connectivisim and its applications in enhancing students' critical thinking skills and motivation towards English language.
-The effect of using other programs on developing secondary stage students EFL critical and creative reading skills and self- regulation.

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Díaz , Hernández de Frutos (2018) assert that, "Connectivism refers to the knowledge that emerges in the network from the interaction within a group"

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