

A Program based on Connectivism Learning Theory to Develop Prep School Students' EFL Writing Performance, Vocabulary Use and Technology Acceptance

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Abstract

The current study aimed to investigate the effectiveness of a program based on Connectivism in developing EFL Writing performance, vocabulary use and technology acceptance for preparatory stage students. The Participants of the study were sixty students who were equally divided into experimental and control groups (N=30) from second year Hala preparatory school. 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 connectivism, while the control group received regular instruction. The experiment was carried out in the first term of the (2024- 2025) academic year. To achieve the purpose of the study, the researcher designed Writing Performances Test, Vocabulary Use Skills Test, and Technology Acceptance Scale to both groups. Results of the study indicated that the program based on Connectivism was effective in developing writing performance, vocabulary use, and technology acceptance. Finally, some recommendations and suggestions for further research were provided.

Keywords: Connectivism, Writing Performance, Vocabulary Use, Technology Acceptance.

1. Introduction:

Recently, there has been an increased emphasis on the importance of developing EFL students' writing skills. Writing is one of the most important skills that the learner needs to acquire in the 21st century. The writing process involves various mental activities, including organizing thoughts into sentences, transforming sentences into written text, reviewing written material, detecting errors, and rewriting. Therefore, writing is a method by which students can make meaning and communicate in various content areas and specific domains. For successful communication, one must write, understand others' speech, and read in English language properly. Among the four English language skills, writing is the most difficult for EFL students to master (Abri, 2021; Chen, 2021; Elboshi, 2021).

In the same context, Tompkins (2010) stated that it is important to teach the students the process of writing. Writing as a complex skill goes through different stages and processes such as prewriting, drafting, revising, and editing. In other words, writing is usually a step-by-step process. It begins with prewriting, during which students accumulate and generate ideas. In the second stage, outlining, students write and revise their paper several times. Finally, students edit and proofread. Editing involves checking their paper for mistakes in sentence structure. Proofreading involves checking the final copy of their paper for typing or handwriting mistakes. Through these stages, students are guided to write essays with clear organization of paragraphs' ideas, adequate and relevant content (development) and appropriate sentence fluency (style), and correct conventions.

As a result, writing skills have to be given much more interest to enable students produce good writings. Good writing requires complex skills such as the production of clear and organized paragraphs and ideas, developing relevant content, and acquiring linguistic abilities including sentence formation, grammatical competence, and lexical knowledge. In addition, writing requires aspects of language fluency and the coordination of many high metacognitive skills to generate specific details and information used to develop a topic of an essay. Therefore, it is necessary to teach those aspects and skills of writing and provide learners with meaningful contexts and authentic purposes for writing. (Troia & Graham, 2003; Papadopoulou, 2007; Graham, 2008; Aydin & Yildiz, 2014).

On the other hand, In EFL, Vocabulary learning is regarded as an essential element for improving the students' skills in listening, speaking, reading, and writing. In a similar vein, Bader (2017) stated that learning vocabulary alone is not enough to have a successful educational process. Vocabulary is an important skill that learners need to learn to become proficient in the language.

Nurmalasari (2014) stated that vocabulary will make the students practice life and will strengths belief that English can be used to express the same ideas or feeling they express in their native language. This is one of the reasons why teachers should have advanced knowledge on their teaching process. Wallace (1982:207) cited in Nurmalasari (2014) explains that teaching vocabulary should consider these following factors: 1) Aim, 2) Quantity, 3) Need, 4), Frequent Exposure and Repetition, 5) Meaningful Presentation, and 6) Situation and presentation.

Nagasubramani (2018) stated that the current social, economic, and political conditions have imposed that dealing with Technology and technology acceptance is obligatory for everyone who deals with these new technical resources. The contemporary visions revealed how learners tend to use Technology and how their learning influences when using Technology, it has been exposed that the use of digital technology and students' interactivity and learning is growing. Due to the numerous advantages of Technology and every field is now upgrading its infrastructure besides installing Technology where possible. The best example of this is the change in our educational institutes, where in the past, education was limited to physical contact between teachers and students in a class. Now every sector is computer-based, and people are inclined towards using technological systems to assist them. Classrooms across the globe have implemented many modes of Technology to boost student interest and accomplishment. Student participation and inquisitiveness also increased because of the perpetuation of Technology. Thus, it would not be wrong to say that we live in the era of science, engineering, and Technology. (Bindu, 2017).

Moreover, technology acceptance was widely used in various fields, e.g., education (Arpaci, 2017; Liu et al., 2009), business (Wang et al., 2021; Sejin & Leslie, 2009), and computer science (Raaij & Schepers, 2008). Under the circumstance of education, teachers incorporated the traditional classes with technologies to catch the trend of the informational era, which accelerated the research of TAM. Several variables were integrated into TAM constantly in the past decades to develop a comprehensive TAM.

Based on TAM and the published studies, some scholars examined many significant constructions in the experiment. Facilitating conditions and perceived usefulness significantly influenced teachers' positive attitude to use technology; behavioral intention to use the technology was also determined by perceived usefulness and users' attitude towards using technological systems. It confirmed that the above traditional factors were essential constructs of TAM to determine teachers' adoption of technology in EFL classes (Sun & Mei, 2020). In K12 education, an extended TAM including the two new constructs, technology anxiety and family support provided more power to predict children's behavioral intention to use tablet computers (Zheng & Li, 2020). Raza et al. (2020) added the social factor of social isolation to extend TAM in the case of the Learning Management System. In addition, (Malik et al., 2019) stated that classroom technologies help students and teachers in the practice of accomplishing and providing education systematically.

According to Goldie (2016), though several 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. In a similar vein, Corbett and 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 theory is a modern theory that calls for using and applying modern technology in learning and getting knowledge. (Ryberg, Buus & Georgsen, 2012) emphasized that those who are taking part in learning should be vigorous participants. Connectivism has many regular and traditional principles such as peer teaching, creativity, and teacher-pupil orientation. It does not prosper within traditional publication for many reasons. One reason is that the connective works, and papers are not taking a printed form on the contrary; they are shared through the networks. Another reason is that connective knowledge and learning do not query if a person's participation in the active conversations in his/her websites is required more than in one author chapter. It seems at first glance that learners who seek traditional scholarships will face difficulty as it encourages educators to share information online.

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 second-year preparatory stage students lack the Writing Performance, Vocabulary Use and Technology acceptance dimensions. Hence, the present study tries to help students overcome such problems through using a program based on connectivism. So, the main question of the study is:

How can a program based on connectivism theory on developing preparatory school students' EFL writing performance, vocabulary Use, and technology acceptance be designed? This main question could be divided into the following sub-questions:

- 1) What are the most important EFL writing performances required for the second-grade preparatory school students?
- 2) What are the most important EFL vocabulary use dimensions required for the second-grade preparatory school students?
- 3) What are the most important EFL technology acceptance dimensions required for the second-grade preparatory school students?
- 4) What is the picture of program based on connectivism theory on developing preparatory school students' EFL writing performance, vocabulary use and technology acceptance?
- 5) What is the effect of a program based on connectivism theory on developing EFL second grade preparatory school students' writing performance?
- 6) What is the effect of a program based on connectivism theory on developing EFL second grade preparatory school students' vocabulary use?
- 7) What is the effect of a program based on connectivism theory on developing EFL second grade preparatory school students' technology acceptance?

2.1. Writing performance

Writing skill as a process motivates the learners to think, manage, and then generate ideas in the shape of a writing composition for the interactional purposes between the reader and the writer. Thus, a text writer should be able to produce the language correctly, organize the created writing well, and deduct the errors to avoid misunderstanding by the reader (Bitchener & Ferris, 2002; Khadawardi, 2020).

Banaruee and Askari (2016) stated that there is no guarantee of the effectiveness of existing feedback strategies on the learners' skills. They believe that the available literature and findings are not conclusive. The precise point is that the written correction feedback has recently received attention from many scholars (Bitchener & Storch, 2016; Papi et al., 2020).

According to Fryedrychova (2014), writing is one of the most important skills since that time, acquisition involves practicing and knowing three other language skills, such as Listening, reading and speaking. In addition, writing requires proficiency in metacognitive skills such as planning, reflection and synthesis. It is one of the most valuable means of communication because it also allows expression.

2.2. Vocabulary use

According to Lon (2013), vocabulary is defined as all words contained in the language, words controlled by a person or words used by a group of people from the same environment, words used in science, and words used in linguistics. Although not all morphemes that exist in one particular language are vocabulary, the majority of the morpheme is subjected as vocabulary, and can be a number of words, phrases, and terms of an alphabetically constrained language with limits and captions. English vocabulary is a collection of words that are known to mean something and can be employed in a language. A person's vocabulary is defined as the collection of all words that person understands or that person uses to construct a new sentence.

Vocabulary is a single word or chunks; idioms or phrases used to build up a language since vocabulary mastery enables learners to read, write, listen, and speak (Pan & Xu, 2011). Clouston (2013) pointed out that vocabulary is all the words used to convey meaning in a language either it is single words and phrases or chunks of several words.

Vocabulary is the core of language, and it is believed that vocabulary is crucial to develop the four language skills: listening, speaking, reading, and writing (Hedge, 2000; Nation, 2005; Schmitt, 2004). Despite the variation in defining vocabulary, there is agreement that vocabulary is the total number of words that are needed to ensure successful communication.

2.3. Technology acceptance

Technology acceptance is a construct employed to predict people's intention to use and their subsequent actual use of technology through a set of distinct but closely related attitudes and beliefs (Scherer, Siddiq, & Tondeur, 2020) such as perceived usefulness (PU), perceived ease of use (PEU), and attitude towards behavior (ATT) (Davis et al., 1989).

Technology acceptance first attracted the attention of researchers in the field of computer and information technology who sought to understand why some people accepted computers while others did not (Davis et al., 1989), and since technology permeated into classrooms, it has also been extensively studied in educational contexts (Marangunić & Granić, 2015).

Davis (1989) introduced and developed the technology acceptance model (TAM) and provided a theoretical context that could explain the relationship of attitudes-intention-behavior. The TAM received empirical support for being robust and parsimonious in predicting technology acceptance and adoption. The TAM explains that individuals' performance of a specified behavior is determined by their behavioral intention to perform a certain task. There are two specific variables (perceived usefulness and perceived ease of use) which are hypothesized to be the fundamental determinants of user acceptance.

The TAM was created to predict the probability of an individual or organization adopting new technology. This model was grounded in the theory of reasoned action, which explained that behavior was determined by the intention to perform that behavior, the attitude towards the behavior, and the social pressure to perform the behavior (Sheldon 2016). The TAM asserted that future use of technology could be predicted by applying the model at the time the technology was first used (Turner et al. 2010).

2.4. Connectivism

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 connectivism 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 several 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 (2011) presented Connectivism as a model of learning that provides insight into learning competencies and tasks needed for learners to show in a digital era.

Principles of Connectivism Theory

Siemens (2005) stated eight principles of connectivism theory:

1. Learning and knowledge rest in diversity of opinions.
2. Learning may reside in non-human appliances.
3. Learning is a process of connecting specialized nodes or information sources.
4. The capacity to know more is more critical than what is currently known.
5. Nurturing and maintaining connections is needed to facilitate continual learning.
6. The ability to see connections between fields, ideas, and concepts is a core skill.
7. Currency (accurate, up-to-date knowledge) is the intent of all connectivism learning activities.
8. Decision-making is itself a learning process.

3.1. Study design:

- A quasi-experimental design.
- A descriptive design

3.2. Instruments of the study:

1. A writing performance test.
2. A vocabulary use test
3. A technology acceptance 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 and those of the control group in their performance of the post EFL writing test as a whole and its sub-skills, in favor of the experimental group.
- 2) There would be a statistically significant difference between the mean scores of the experimental group in the performance of pre and post administrations of the EFL writing test, in favor of the post administration.
- 3) The suggested program would have a positive effect on developing EFL writing performance.
- 4) There would be a statistically significant difference between the mean scores of the experimental group and those of the control group in their performance of the post EFL vocabulary use test as a whole and its sub-skills, in favor of the experimental group.
- 5) There would be a statistically significant difference between the mean scores of the experimental group in the performance of pre and post administrations of the EFL vocabulary use test, in favor of the post administration.

- 6) The suggested program would have a positive effect on developing EFL vocabulary use.
- 7) There would be a statistically significant difference between the mean scores of the experimental group and those of the control group in their performance of the post administration of the technology acceptance scale as a whole and its sub-dimensions, in favor of the experimental group.
- 8) There would be a statistically significant difference between the mean scores of the experimental group in the performance of pre and post administrations of the technology acceptance scale, in favor of the post administration.
- 9) The suggested program would have a positive effect on enhancing EFL technology acceptance.

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 (η^2)) was used to calculate the effect size of the program based on connectivism on developing the experimental group students' writing performance, vocabulary use and technology acceptance. The 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 writing performance test, vocabulary use test and technology acceptance. 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 writing performance test, vocabulary use test and technology acceptance.

Verifying the Study Hypotheses:

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

• The First Hypotheses:

It has been hypothesized that " There is a statistically significant difference between the mean scores of the experimental group in the pre and the post EFL Writing Performance test administration, in favor of the posttest administration.

A paired samples t-test was used as shown in (table 1)

Table (1): test results of comparing the pre- and post-measurements of the EFL Writing Performances Test.

Dimension	Test	N	Mean	Stander deviation	df	t. value	sig
Content	Pre	30	2.5	1.07	29	16.5	0.05
	Post	30	6.4	1.1			
Organization	Pre	30	5.1	1.6	29	11.4	0.05
	Post	30	9.3	1.3			
Language Use	Pre	30	3.4	1.5	29	12.5	0.05
	Post	30	7.4	1.2			
Vocabulary	Pre	30	1.9	0.82	29	11.5	0.05
	Post	30	5	0.83			
Mechanics	Pre	30	1.5	0.51	29	15.6	0.05
	Post	30	3.5	0.50			
Total	Pre	30	13.8	2.8	29	25	0.05
	Post	30	30.3	2.3			

*Significant at (0.05)

Table (1) indicates that there is a statistically significant difference between the pre and the post of the experimental group in favor of the latter in the EFL Writing Performance Test, t-value being (23.6). It is significant at (0,05) level. So, the first hypothesis was validated.

Figure (1): The mean scores of the pre- and post-measurements of the EFL Writing Performances Test.

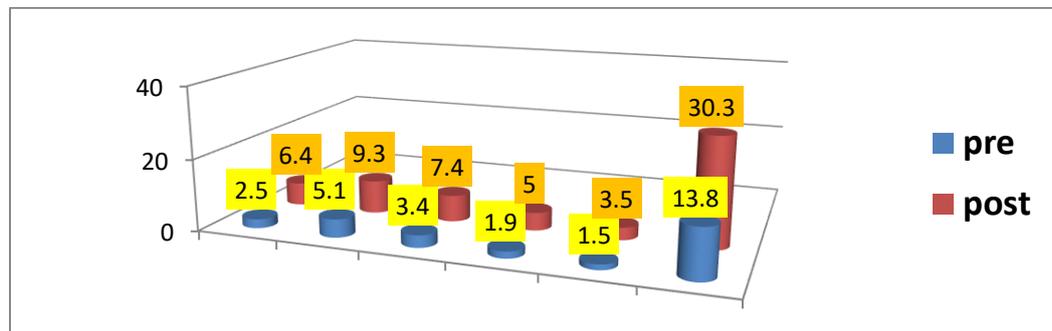


Figure (1) above shows the mean scores of the pre and posttest of the experimental group measurements in the EFL Writing Performance Test as well as a comparison between them. As shown, the mean score of the post measurement is higher than the mean score of the premeasurement in the EFL Writing Performance Test. Such findings have proved that A Program Based on Connectivism learning Theory has a positive effect on developing Prep School Students’ EFL Writing Performance.

• The second Hypothesis:

It has been hypothesized that" There is a statistically significant difference between the mean scores of the experimental and the control groups in the post EFL Writing Performance test, in favor of the experimental group “ .

A one sample t-test was used to verify this hypothesis as shown in (table 2).

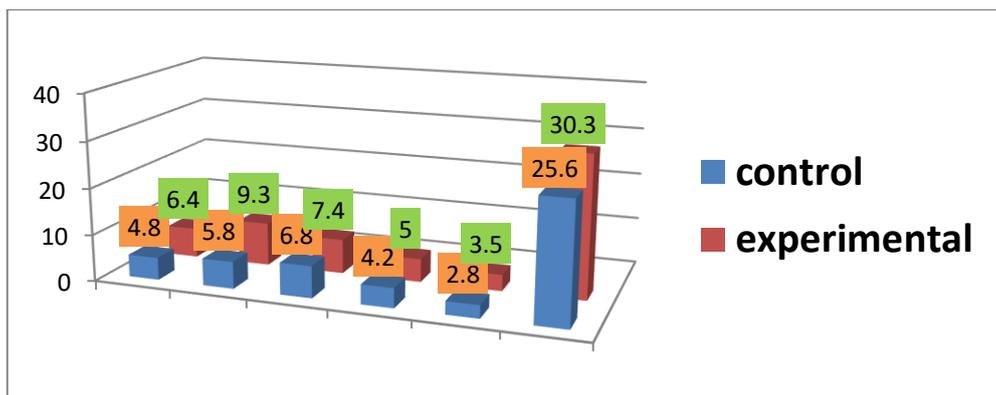
Table (2): t-test of the mean scores of the post-measurement of the control group and the experimental group.

Dimension	Group	N	Mean	Standard deviation	df	t.value	Sig
Content	control	30	4.8	1.2	58	14	0.05
	experimental	30	6.4	1.1			
Organization	control	30	8.5	1.2	58	10.3	0.05
	experimental		9.3	1.3			
Language Use	control	30	6.8	1.1	58	11.2	0.05
	experimental		7.4	1.2			
Vocabulary	control	30	4.2	0.87	58	10.7	0.05
	experimental		5	0.83			
Mechanics	control	30	2.8	0.56	58	14.8	0.05
	experimental		3.5	0.50			
Total	control	30	25.6	2	58	23	0.05
	experimental	30	30.3	2.3			

***Significant at (0.05)**

Table (2) indicates that there is a statistically significant difference between the control and the experimental groups in favor of the later in the post administration of EFL Writing Performance test. t. value being (18.5) and significant at (0,05). So, the second hypothesis was validated.

Figure (2) : The mean scores of the post- measurement of the two groups (control and experimental) for Writing Performance test



• The Third Hypothesis

It has been hypothesized that " There is a statistically significant difference between the mean scores of the experimental group in the pre / post Vocabulary use test results, in favor of the posttest administration.

A paired samples t-test was used to verify this hypothesis as shown in (table 3)

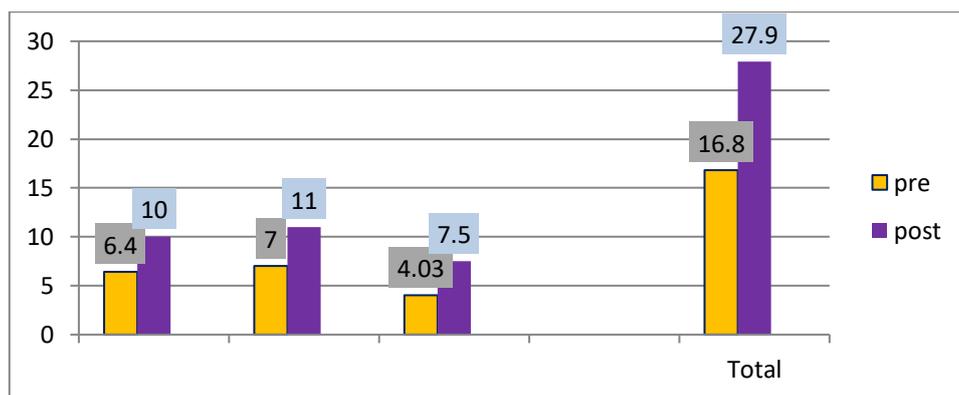
Table (3): t - test results of comparing the pre -post administration of the experimental group vocabulary Use test.

Dimension	Test	N	Mean	Standard deviation	df	t. value	Sig
Form	Pre	30	6.4	1.1	30	10.6	0.05
	Post	30	10	1.4			
Meaning	Pre	30	7	1.4	30	12	0.05
	Post	30	11	1.6			
Usage	Pre	30	4.03	0.89	30	15.9	0.05
	Post	30	7.5	1.1			
Total	Pre	30	16.8	2.7	30	18.8	0.05
	Post	30	27.9	2.9			

*Significant at (0.05)

From table (3), it can be inferred that the obtained t value is (18.8) significant at, (0,05). So, the third hypothesis was validated.

Figure (3): The mean scores of the pre- and post-measurements for Vocabulary test



• The Fourth Hypothesis

It has been hypothesized that " There is a statistically significant difference between the mean scores of the experimental and the control groups in the post administrations of Vocabulary Use test in favor of the experimental group.

t-test was used to verify this hypothesis as shown in (table 4)

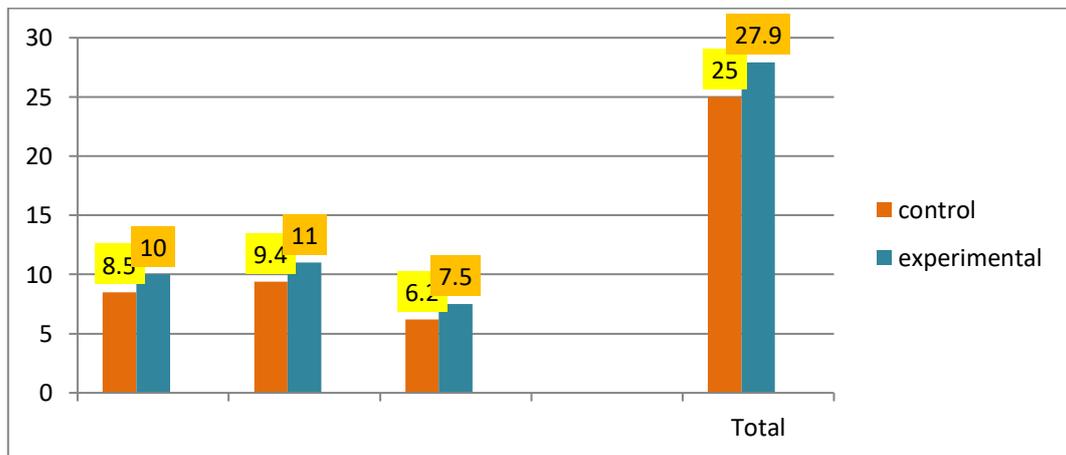
Table (4): t- test results of comparing the control and the experimental group in the Vocabulary Use.

Dimension	Group	N	Mean	Standard deviation	df	t.value	Sig
Form	Control	30	8.5	1.2	58	9.8	0.05
	Experimental	30	10	1.4			
Meaning	Control	30	9.4	1.5	58	11.7	0.05
	experimental	30	11	1.6			
Usage	Control	30	6.2	1.3	58	15.3	0.05
	Experimental	30	7.5	1.1			
Total	Control	30	25	2.6	58	17.6	0.05
	experimental	30	27.9	2.9			

*Significant at (0.05)

From table (4), it can be inferred that the obtained t value is (17.6) significant at (0, 05) level. So, the fourth hypothesis was validated.

Figure(4): The mean scores of the control- and the experimental group of Vocabulary Use.



•The fifth Hypothesis:

It has been hypothesized that " There is a statistically significant difference between the mean scores of the experimental group in the pre and the post Technology Acceptance Scale administration, in favor of the posttest administration.

A paired samples t-test was used as shown in (table 5)

Table (5): t- test results of comparing the pre- and post-measurements of Technology Acceptance Scale

Dimension	Test	N	Mean	Stander deviation	df	t. value	sig
Perceived Usefulness	Pre	30	22.5	7.9	29	8.4	0.05
	Post	30	36.4	4.3			
Perceived Ease of use	Pre	30	21.8	6.2	29	25.5	0.05
	Post	30	50.8	2.9			

Attitude towards using	Pre	30	17.3	3.4	29	7.8	0.05
		30	27.7	5.7			
Behavioral intention to use	Pre	30	12.7	2.2	29	22	0.05
		30	37.5	5.4			
Actual use	Pre	30	10.5	1.9	29	8.4	0.05
		30	14.3	1.7			
Total	Pre	30	83.2	15.6	29	26.9	0.05
	Post	30	154	8.5			

*Significant at (0.05)

Table (5) indicates that there is a statistically significant difference between the pre and the post of the experimental group in favor of the latter in the Technology Acceptance Scale, t-value being (26.9). It is significant at (0,05) level. So, the first hypothesis was validated

Figure (5): The mean scores of the pre- and post-measurements of the Technology Acceptance Scale

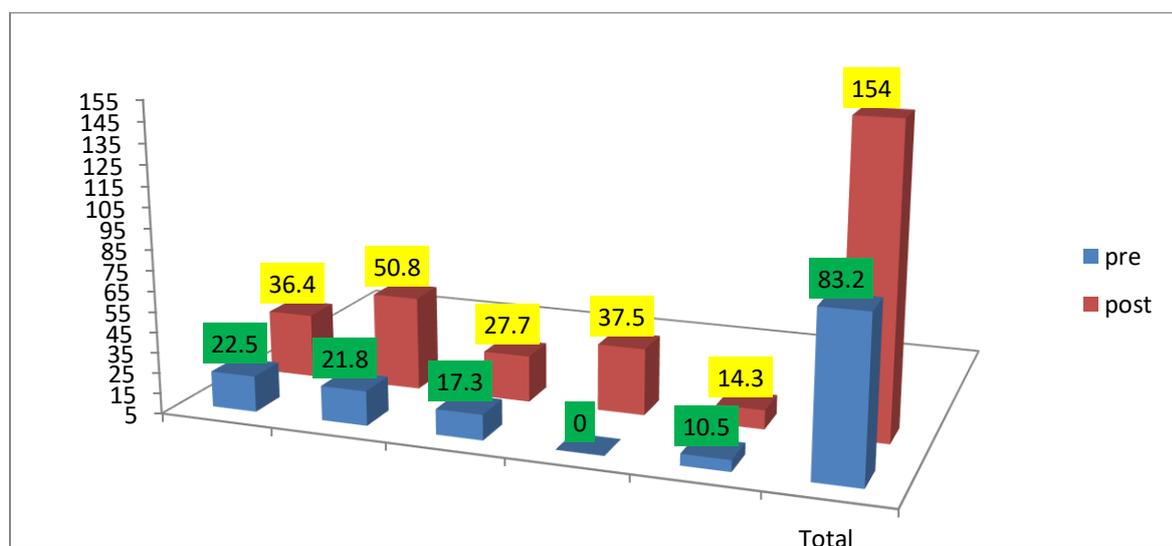


Figure (5) above shows the mean scores of the pre and posttest of the experimental group measurements in the Technology Acceptance Scale as well as a comparison between them. As shown, the mean score of the premeasurement is higher than the mean score of the post measurement in the Technology Acceptance Scale. Such findings have proved that A Program Based on Connectivism Learning Theory has a positive effect on developing Prep School Students' Technology Acceptance.

•The sixth Hypothesis

It has been hypothesized that" There is a statistically significant difference between the mean scores of the experimental and the control groups in the post Technology Acceptance Scale, in favor of the experimental group."

Table (6): t-test of the mean scores of the post-measurement of the control group and the experimental group.

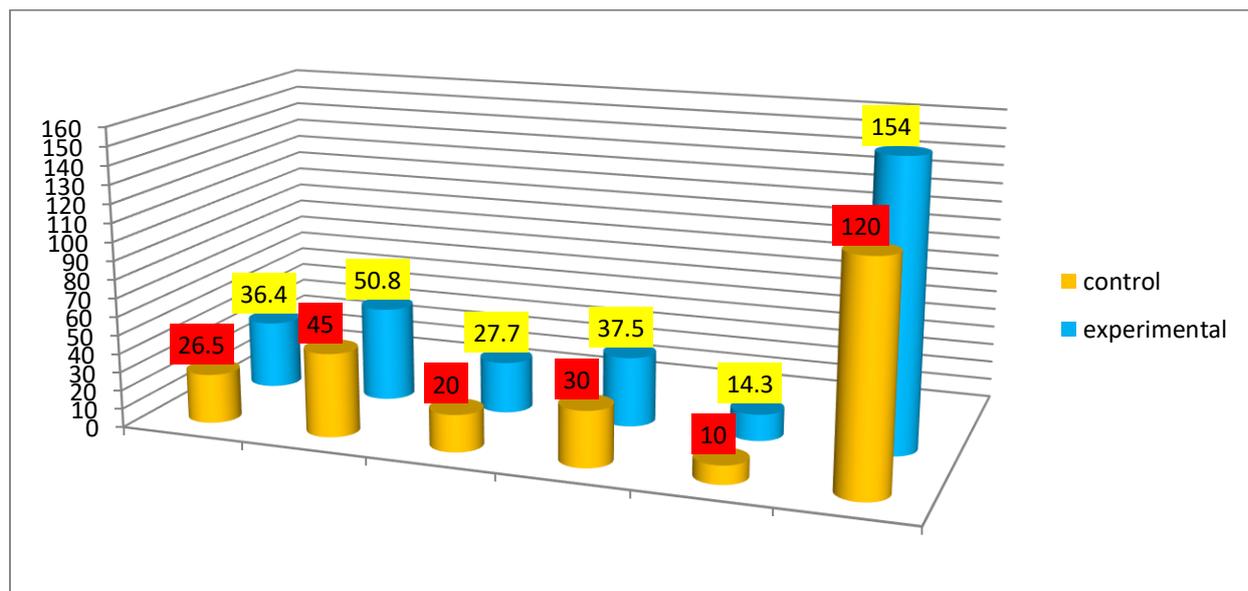
Dimension	Group	N	Mean	Standard deviation	df	t.value	Sig
Perceived Usefulness	control	30	26.5	3.6	58	7.5	0.05
	experimental	30	36.4	4.3			

Perceived Ease of use	control	30	45	2.3	58	24	0.05
	experimental	30	50.8	2.9			
Attitude towards using	control	30	20	5	58	6.4	0.05
	experimental	30	27.7	5.7			
Behavioral intention to use	control	30	30	4.8	58	20.6	0.05
	experimental	30	37.5	5.4			
Actual use	control	30	10	1.3	58	7.6	0.05
	experimental	30	14.3	1.7			
Total	control	30	120	7.8	58	23.5	0.05
	experimental	30	154	8.5			

*Significant at (0.05)

Table (6) indicates that there is a statistically significant difference between the control and the experimental groups in favor of the later in the post administration on Technology Acceptance Scale. t. value being (23.5) and significant at (0,05). So, the second hypothesis was validated

Figure (6): The mean scores of the post- measurement of the two groups (control and experimental) for Technology Acceptance Scale



• The seventh Hypothesis

It has been hypothesized that "A Program Based on Connectivism Learning Theory has a positive effect on developing Prep School Students' EFL Writing Performance ". Cohen's (1988) equation was used to verify this hypothesis as shown in (table 7).

Table (7): Results of Cohen's Equation comparing the pre-to-post administrations of the experimental group in Writing Performances Test

Dimension	Test	N	Mean	Standard deviation	t.value	Effect size	value
Content	Pre	30	2.5	1.07	16.5	0.80	Large
	Post	30	6.4	1.1			
Organization	Pre	30	5.1	1.6	11.4	0.78	large
	Post	30	9.3	1.3			
Language Use	Pre	30	3.4	1.5	12.5	0.79	large
	Post	30	7.4	1.2			
Vocabulary	Pre	30	1.9	0.82	11.5	0.80	Large
	Post	30	5	0.83			
Mechanics	Pre	30	1.5	0.51	15.6	0.76	large
	Post	30	3.5	0.50			
Total	Pre	30	13.8	2.8	25	0.83	large
	Post	30	30.3	2.3			

*Significant at (0.05)

The impact is measured through Cohen's equation.

As indicated in table (15), the final value of Cohen's equation for the experimental group, comparing its pre to the post administrations in the EFL Writing Performance Skills Test is (0.83). Based on that, it has been concluded that the impact of A Program Based on Connectivism Learning Theory has a positive effect on developing Prep School Students' EFL Writing Performance ". Cohen's (1988) equation was used to verify this hypothesis as shown in (table 7).

•The eighth Hypothesis:

It has been hypothesized that " A Program Based on Connectivism Learning Theory has a positive effect on Students' Vocabulary Use ". Cohen's equation was used to verify this hypothesis as shown in (table 8).

Table (8): Results of Cohen's Equation comparing the pre-to-post administrations of the experimental group in Vocabulary Use Skills Test

Dimension	Test	N	Mean	Standard deviation	t.value	Effect size	value
Form	Pre	30	6.4	1.1	10.6	0.78	Large
	Post	30	10	1.4			

Meaning	Pre	30	7	1.4	12	0.77	Large
	Post	30	11	1.6			
Usage	Pre	30	4.03	0.89	15.9	0.75	Large
	Post	30	7.5	1.1			
Total	Pre	30	16.8	2.7	18.8	0.81	Large
	Post	30	6.4	1.1			

*Significant at (0.05)

The impact is measured through Cohen's equation.

As indicated in table (8), the final value of Cohen's equation for the experimental group, comparing its pre to the post administrations in the Vocabulary Use Skills Test is (0.81). Based on that, it has been concluded that there are impacts of A Program Based on Connectivism learning Theory on the students' Vocabulary Use skills.

•The ninth Hypothesis

It has been hypothesized that " A Program Based on Connectivism Learning Theory Program has a positive effect on Students' Technology Acceptance Scale ". Cohen's equation was used to verify this hypothesis as shown in (table 9).

Table (9): Results of Cohen's equation comparing the pre to post administrations of the experimental group in Technology Acceptance Scale.

Dimension	Test	N	Mean	Standard Deviation	t. value	Effect size	value
<i>Perceived Usefulness</i>	Pre	30	22.5	7.9	8.4	0.79	Large
	Post	30	36.4	4.3			
<i>Perceived Ease of use</i>	Pre	30	21.8	6.2	25.5	0.81	Large
	Post	30	50.8	2.9			
<i>Attitude towards using</i>	Pre	30	17.3	3.4	7.8	0.83	Large
	Post	30	27.7	5.7			
<i>Behavioral intention to use</i>	pre	30	12.7	2.2	22	0.84	Large
	post	30	37.5	5.4			
<i>Actual use</i>	Pre	30	10.5	1.9	8.4	0.86	Large
	post	30	14.3	1.7			
<i>Total</i>	Pre	30	83.2	15.6	26.9	0.89	Large

	Post	30	154	8.5			
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*Significant at (0.05)

Cohen's equation was used to verify the impact of the strategies. The impact of A Program Based on Connectivism Learning Theory Program was measured through Cohen's equation

As indicated in table (9), it is obvious that the final value of Cohen's equation for the experimental group, comparing its pre to the post administrations in is (0.89) significant at (0.05). Based on that, it has been concluded that there is a positive effect on Students' Technology Acceptance Scale.

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 connectivism 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 connectivism 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 connectivism 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 impact of using a program based on connectivism and its applications on other language skills such as listening, speaking and writing.
- The effectiveness of using the program based on connectivism and its applications in English language learning among students at university level.
- The effectiveness of using program based on connectivism 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 writing performance, vocabulary use and technology acceptance.

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