

**The Effectiveness of a Program Based on
Post-Constructivist Theory Using WizIQ
Applications to Develop Critical Reading
and Academic Writing Skills among Al-
Quds Open University Students**

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المستخلص:

هدفت الدراسة إلى فاعلية برنامج قائم على نظرية ما بعد البنائية باستخدام تطبيقات WizIQ لتطوير مهارتي القراءة الناقدة والكتابة الأكاديمية لدى طلاب جامعة القدس المفتوحة. تبدأ الدراسة بمراجعة الأدبيات والدراسات المرتبطة بنظرية ما بعد البنائية, تطبيقات WizIQ بالإضافة إلى مهارتي القراءة الناقدة والكتابة الأكاديمية المناسبة لطلاب المرحلة الجامعية. لقد قامت الباحثة بتصميم اختبار تواصل شفهي, مقياس متدرج لتقييم مهارات التواصل الشفهي والبرنامج المقترح . ثم قامت الباحثة باختيار مجموعة عشوائية من طلاب اللغة الانجليزية بجامعة القدس المفتوحة للمشاركة في الدراسة والانخراط في أنشطتها . ثم تقديم المشاركين للاختبار القبلي والبعدي. ثم تم تحليل النتائج من الناحيتين الكمية والكيفية . لقد أظهرت النتائج أن برنامج WizIQ كان فعالاً للغاية لتطوير القراءة الناقدة والكتابة الأكاديمية لدى طلاب جامعة القدس المفتوحة.

الكلمات المفتاحية: نظرية ما بعد البنائية , برنامج WizIQ , القراءة الناقدة , الكتابة الأكاديمية

Abstract

The purpose of this study was to assess the effectiveness of a program based on post-constructivist theory using WizIQ application to develop critical reading and academic writing skills among Al-Quds Open University Students in Palestine. In order to achieve the aim of the study the researcher adopted the experimental research design. The sample of this study consisted of (60) English-major students from Al-Quds Open University. The participants students were assigned randomly to a control and experimental group (30 and 30 students respectively) .

Data collection tools included: a critical reading and an academic writing test, a questionnaire and interviews. The results

of the study showed that there is a significant difference in the mean scores of the post-test between the control group and the experimental group in favor of the experimental group.

The results also indicated that students in the experimental group improved their critical reading and academic writing due to the use of web application WizIQ and increased their positive attitude toward learning through web application. In addition, the findings showed that students in the experimental group were more engaged and motivated to learn compared to their counterparts in the control group.

KeyWords: Post- Constructivist; (WizIQ) Applications; Critical Reading; Academic Writing.

1.1 Introduction

Since the beginning of the 21st century, the internet and computer-based technology have become a major part of daily life. Sharing views and ideas using the internet with other people has changed a lot in the way people work, study and spend their free time. Web applications enable students to learn at any time and any place. The it term that is used to describe online education and web-based training. The progress in the field of technology and e-learning has led to an abundance of knowledge in various scientific disciplines, the disappearance of the distance between information and the learner, and the use of new tools and applications based on

the web, which supported effective communication between learners with each other and between the learners and teachers.

Teaching and learning English in regular classrooms where students learn inside the classroom with regular methods is boring for a lot of learners, so the researcher is trying to find something exciting and more interesting for the learners to learn English well. Web applications in teaching are the order of the day. Thus, more and more educators are expressing interest in bringing the best of it inside the classrooms. Hoping that better outcomes will be achieved, the researcher thinks that one of the most important, useful technology and web applications is the WizIQ program.

English language proficiency is very important in teaching and learning English. Because of the importance of critical reading and academic writing in teaching and learning English well, they should be improved using web applications (WizIQ) not just inside the class, but also outside in which students can acquire and learn information via the WizIQ easily. A lot of previous studies indicate the importance of web application (WizIQ) in teaching and learning English, Ahmed and Osman (2020), indicated that WizIQ can improve not only the students' academic achievement but also their motivation.

E-learning is a term used to describe online education and training based on web applications. Use is associated with increased students' academic performance, and it has become a rapidly popular learning approach in higher educational

institutions due to the rapid growth of internet technology. So, it is a process of using information and communication technology to enhance and facilitate teaching and learning.

Students' proficiency in the English language to develop their skills early in their education is essential because mastering academic writing takes a long time to develop. To help students develop their writing skills, web applications and computer programs can be used to facilitate learning and academic teaching and to effectively encourage online reading (Ali, 2017).

Teaching students to read and academically write to develop their skills early in their education is essential because writing proficiency takes considerable time to develop. To help students develop academic writing skills web applications can be used to effectively facilitate the academic teaching process and critical reading. So, digital technologies are becoming essential instructional tools and are being used in universities by students. Today, there is a common focus on raising students' achievement while using technology as an educational tool. The usage of e-readers, tablet computers, and cell phones enables students to complete assignments while looking for information.

Critical reading is an essential daily life skill needed to develop our thoughts and abilities to understand nearly every aspect of human life. It is a dynamic global skill that requires proficiency development among non-English-speaking countries

to be able to communicate and transform human activities, values, meaningful ideas, and knowledge in support of global education.

An amount of information is accessible through the internet in digital form. Now readers can read any information without any cost and without going anywhere. So, technology changes the reading practice and reading behavior of people. According to Guthrie et al. (2007), "Reading is the act of getting meaning from printed or written words, which is the basis for learning and one of the most important skills in everyday life".

The development of students' critical reading skills is an important and urgent issue facing institutions of higher education today.

Critical reading requires a deep and active engagement with the text. It has been defined as "an approach where the reader uses higher-order cognitive skills such as the ability to analyze, synthesize, solve problems, and thinks meta-cognitively to negotiate meanings to construct new meanings from the text" (Hermida, 2009, p. 21). While most people agree that critical reading is essential for students to succeed in college, it is not easy to pinpoint what exactly people mean by critical reading, as the term can be considered a "catchall" term. "Critical reading could mean everything from knowing the definitions of the words to understanding the structure to understanding how the sentences are put together.

Critical reading is a mental process that requires concentration. On the internet, so many things are available which distract the attention of readers. It is challenging for readers to focus on their required information. However, the Internet enhances reading interest. Furthermore, Shahriza Abdul Karim and Hasan (2007) determine that the online format is most popular among young people because of the availability of an increasing amount of educational information and entertainment. Reading is a vibrant process that requires the interaction of different mental processes and the intentional use of the four basic skills in language learning and thinking during the process. Therefore, reading is needed not only as a language skill but also "as language learning input for other skills to develop" (Ling, 2011, p.1). Currently, there is a growing initiative to lead university students to acquire the 21st century skills that shape their competencies as conscious and critical readers to enhance their ability to actively use language in real-life situations, contribute as reflective practitioners, and further maximize their navigation for knowledge from various resources as strategic readers.

In every discipline, writing helps us learn to think critically about our ideas and the ideas of others. Academic writing is closely linked to reading- so we are rarely asked to write about something without first being expected to read some appropriate texts. In academic writing, learners always draw on the work of

others, so it is essential to learn to read critically and draw relevant material from other texts.

Developing adequate English as a Foreign Language (EFL) academic writing skill is of paramount importance for students' success in university education in Palestine. Arab learners of English need to improve their writing proficiency levels to meet the academic requirements of those universities. Palestinian EFL learners often encounter difficulties in organizing and planning for their writing when they start learning English. In addition, they may have negative attitudes towards writing because of the challenges they encounter with this specific skill.

Academic writing, which refers to the ability to write texts for academic and professional purposes, is a key to the success of students in school, in university courses, and on tests that they take to academically progress and transfer to the next part or phase. Academic writing to the researcher's knowledge has not been a focus in many adult education programs, and teachers receive limited professional development and instructional support in implementing it (Peyton& Schaezel, 2016). Writing is not an easy thing to do. Writing activity involves several things to be mastered, including lexical and grammatical knowledge, which can be very complex, coherence, cohesion, and mechanics. Writers need also to think about ideas as well as the logical organization of ideas.

Academic writing refers to all writing which is created for study (Chin et al. 2012). All university students will be especially evaluated based on their writing, so writing skills are essential for students' academic success. Chan (2013) strengthens this idea, saying that when we write argumentative essays, our goal is to persuade others to adopt our view. We do that not by twisting the audience's arms, absolutely, but by putting forward convincing evidence, sensible reasoning, and effective rebuttals.

Many students do not like academic writing because they think that it is very difficult. Writing in English is one of the most difficult language skills for English language beginners (Al Fadda, 2012). However, we like it or not, and whether we realize it or not, in our daily life, we are all involved in some form of persuasion, both routine and accidental. In academic writing, students will learn about the fundamentals of good arguments. One participant asserted that the weakness of English writing reflects the fact that "Students do not practice enough and students are not given a chance to practice enough," Several participants emphasized the importance of reading to enhance writing. "Huwari and Al-Kasawneh (2013) confirmed that EFL learners have many problems with writing English because they often do not have enough practice. Their background and previous knowledge impact how they can learn. Educators can use constructivist learning theory to help their students understand their previous knowledge.

Constructivist theory is considered a dynamic process of knowledge-building where a learner engages actively in meaning construction while interacting with the surrounding environment and collaborating with others. Moreover, Gul (2016) reviewed several studies and showed that constructivist ways of teaching English are better when compared to the traditional approach. For instance, he mentioned that Al Muhaimed (2013) found that using a constructivist technique helped students in schools in Saudi Arabia increase reading comprehension more than that of the regular teaching method of the English language.

In addition, that constructivist practice was a better way for English language teaching when compared to the regular teaching method of the English language, and stated that Nikitina (2010) also found noticeable evidence that when the students were allowed to do constructivist activities such as using visuals and preparing a video project with teamwork, they learned a foreign language better. According to the theory of social constructivism, social worlds develop out of individuals' interactions with their culture and society. Knowledge evolves through the process of social negotiation and evaluation of the viability of individual understanding. Social constructivism teaches that all knowledge develops as a result of social interaction and language use, and is a shared, rather than an individual, experience. Knowledge is additionally not a result of observing the world; it results from many social processes and interactions. Therefore, we find that

constructivist learning attaches as much meaning to the process of learning as it does to the acquisition of new knowledge.

This study aims to investigate the effectiveness of using a program based on post-constructivism theory using WizIQ applications to develop critical reading and academic writing skills language proficiency among Al- Quds Open University students. There are many studies and literature that supported the use of digital writing tools to support the writing process. Alyne (2019) explored the influence of digital writing on primary students. Zarei and Amani (2018) presented the effect of online learning tools on reading comprehension and vocabulary learning.

1- Context of the study

As an assistant lecturer at Al- Quds Open University, the researcher observed that students have difficulty reading critically and writing academically. Also, reviewing literature and related studies revealed that students at Al-Quds Open University encounter difficulties in the reading writing classes. Examples include. Mokhamar (2016), Farrah (2011), Hammad (2013).

1.1.1The Pilot Study

To confirm the need to conduct in-depth research regarding the poor performance of students while academic writing and critical reading at the university level, the researcher conducted a pilot study on a group of (23) students during the first semester of 2020 at Al-Quds Open University. Academic writing and critical

reading tests were administered to students in the reading and writing classes.

After performing a diagnostic test for academic writing and critical reading skills, the results showed lack of academic writing skills, analysis and critical thinking, using context clues, making connections to prior knowledge and understanding the text in a critical. The result, also showed several reasons for the weakness of academic writing among English – major students at Al-Quds Open University. The primary cause of weakness in academic writing and critical reading is a lack of practice and ineffective teaching methods. The students confirmed that they do not practice their writing and reading skills sufficiently either inside or outside of the classroom.

Based on the previous results of the pilot study, it becomes clear that there is a need to pursue the issue with further investigation and conduct a study to develop students writing and reading using e-learning applications. The researcher opted on e-learning program based on web applications (WizIQ) and the internet to help learners progress and develop academic writing and reading skills among learners at AL- Quds Open University Palestine.

1.2 Statement of the Problem

Based on the reviews of previous studies, the literature related to the study, the researcher's observations, and the pilot study, the research problem can be identified as follows:

Palestinian university students have poor reading performance and academic writing which hinder them from becoming active readers and academic writers. This weakness hinders their academic progress and the development of their skills. To overcome this menace and make students actively engaged in the teaching and learning process, and also, for meaningful and long-lasting learning to take place, the researcher investigated the effectiveness of a program based on post-constructivist theory using web applications to develop English language proficiency among Al- Quds Open University students in Palestine.

1.3 Questions of the Study

The problem of the study can be stated in the following major question:

What is the Effectiveness of a Program Based on Post-Constructivist Theory Using WizIQ Applications to Develop Critical Reading and Academic Writing Skills among Al-Quds Open University Students?

For achieving the aim of the study, the researcher addressed the following sub-questions:

- 1- What are the necessary skills that can be used to develop critical reading and academic writing skills among Al-Quds Open University students?
- 2- What are the characteristics of the proposed program in developing critical reading and academic writing among Al-Quds Open University students?
- 3- What are the appropriate applications that can be used to develop critical reading and academic writing skills among Al-Quds Open University students?
- 4- What is the effectiveness of the program based on post-constructivist theory for developing critical reading and academic writing skills among Al- Quds Open University students?
- 5- The degree of satisfaction of the participating students in the web-based program to develop critical reading and academic writing skills?

1.4Hypotheses of the Study

The following hypotheses were tested statistically to address the research questions

1. There is a statistically significant difference at ($\alpha \leq 0.05$) level between the experimental group students' mean scores on critical reading pre- post test in favor of the post-test.
2. There is a statistically significant difference at ($\alpha \leq 0.05$) level between the experimental group students' mean scores on academic writing pre- post test in favor of the post-test.
3. There is a statistically significant difference at ($\alpha \leq 0.05$) level between the control and the experimental groups' mean scores on the post –test in critical reading skills in favor of the experimental group.
4. There is a statistically significant difference at ($\alpha \leq 0.05$) level between the control and the experimental groups' mean scores on the post-test in academic writing in favor of the experimental group.

1.5 Purpose of the Study

The current study aims to investigate the effectiveness of a program based on post-constructivist theory using WizIQ applications in developing critical reading and academic writing skills among Al- Quds Open University students.

1.6 Significance of the Study

This current study might be of significance to a community of learners and practitioners of the English language, which includes students, teachers and researchers.

For students

- 1- Raising students' awareness of the importance of critical reading and academic writing skills for their future.
- 2- Improving students' performance in the skills of critical reading and academic writing through a web application-based WizIQ program and awareness of their importance.
- 3- Developing students' motivation toward the English language

For teachers

- 4- Increasing Al-Quds Open University teachers' awareness of the importance of using modern technology means teaching English as a foreign language.
- 5- Assisting English language teachers in adopting creative methods to develop English language proficiency.
- 6- Highlighting to teachers the importance of English language proficiency and how to teach it through an existing program via web applications.

For researchers

- 7- Encouraging new researchers to conduct more studies on modern strategies to develop English language skills.
- 8- Encouraging researchers to highlight the importance of proficiency for undergraduate students.

1.7 Delimitations of the Study

The current study was delimited to:

- 1- Study students from Al-Quds Open University, Palestine.
- 2- English language proficiency (academic writing and critical reading).
- 3- The semester of the academic years 2023/ 2024.

1.8 Definitions of the Study Terms:

- 1- **Post-Constructivist Theory:** Constructivism in the present study is an important learning theory that educators use to help their students learn. Constructivism is based on the idea that people actively construct or make their knowledge, and that reality is determined by teachers' experiences. Learners use their previous knowledge as a foundation and build on it with new things that they learn.
- 2- **Web Application (WizIQ):** The term is operationally defined as a Web Application in a computer program that utilizes web browsers and web technology to perform tasks over the Internet, to help Al-Quds Open University students develop their critical reading and academic writing
- 3- **English Language Proficiency:** Language proficiency is the ability of Al-Quds open university students to use the English language to communicate meaning and master critical reading and academic writing.

- 4- **Academic Writing**: The term is operationally defined as a formal style of writing used in universities and scholarly publications and in journals, articles and books on academic topics, for example, writing essays, research papers, and [dissertations](#) in academic style. Academic writing follows the same [writing process](#) as other types of texts, but it has specific conventions in terms of content, structure and style.
- 5- **Critical Reading**: The term is operationally defined as reading with the purpose of critical examination of the text and its implicit and explicit ideas, and it is a form of linguistic analysis that does not deal with the appearance of the text but involves an in-depth study of the text.

Review of literature and related studies Definitions :the first

2.1.2 Definitions of Post-Constructivist

Post- Constructivist theory is "an approach to learning that holds that people actively construct or make their knowledge and that reality is determined by the experiences of the learner" (Elliott et al., 2000, p. 256). In constructivism, learning is a mental process and people learn from previously-built knowledge by building on that knowledge in collaborative environments. Constructivism places the vast majority of the learning process on learners while constructionist puts much of the work's focus on teachers and instruction. In constructivism, learners are provided with minimal

instruction and are required to figure out the essential information to be acquired (Alanazi, 2019).

To elaborate constructivists' ideas, Arends (1998) stated that constructivism believes in the personal construction of meaning by the learner through experience and that meaning is influenced by the interaction of prior knowledge and new events. Latour argues that for "the critical mind to become relevant again", social scientist researchers need a new realist attitude (Latour 2004). This requires renewed empiricism for our studies. Although the researcher would rather not generalize such a statement for the entire field of sociology as Latour does, the researcher supports the call to move beyond the social construction–realism dichotomy when we study, for example, controversies in environmental governance. Outlining a post-constructivist approach gives the social scientist researcher a clue of how to do this, and why it is relevant.

"Post-constructivist" might be a confusing concept, partly because this is yet another "post-something" (post-structuralism, post-modernism, etc), and partly because it should not necessarily be seen as a reaction or response to social constructivism. It is something different, and it is applied to issues that are inherently different from the traditional sociological research objects. Constructivism refers to learning as the construction of new meanings (knowledge) by the learner him/herself. Social constructivism refers to learning as result of active participation in

a "community" where new meaning are co-constructed by the learner. Brown (2006). Constructivist approaches are now also growing to include social constructivism. Communities of practice (COPs) are evolving and beginning to play a significant role in teaching and learning environments.

In constructivist, students are encouraged to learn the main ideas on their own through discovery learning. Examples include learning about compound words by playing with word strips, learning about addition and subtraction through the use of manipulative, or learning about capacity through experimentation with different sizes of objects.

2.1.5 Importance of Post- Constructivist Theory:

Constructivism holds important lessons for how to interpret the results of learning and for how to design environments to support learning. According to the constructivist views of learning, as individuals bring different background knowledge, experience, and interests to the learning situation, they make unique connections in building their knowledge. Like other instructional theories, as Tam (2000) stated, constructivism cannot be the panacea for all instructional problems. It has its limitations and problems for learning situations that may mitigate against its application.

Constructivism is a meta-theoretical label that has been used in a wide variety of disciplines including philosophy, sociology, art, mathematics, and architecture, having different meanings in

each of these disciplines. Since constructivism can be considered as a label that is given to a variety of research approaches and philosophies about reality and truth, it is unhelpful to start with an all-embracing definition of the concept. What unites “constructivist” scholars, though, is that they have moved away from trying to explain an objective reality. Constructivism can rather be considered as a critique of naïve realism, emphasizing that reality is always constructed and contingent on the observer’s standpoint. Concerning science and scientific knowledge, social constructivists argue that science does not discover a given reality, but constructs subjective representations of reality, which are dependent on the observer’s interpretation and standpoint (Knol, 2011).

According to Knol (2001) social constructivist approaches have long had a liberating effect, in particular when studying the “traditional” objects that sociology is occupied with, such as race, gender, and culture. These works reminded us that ideas and meanings were not fixed and inevitable, but were the product of historical events, social forces and ideology. The social construction literature within sociology knows different variants, where some are more philosophical, while other works have a more political agenda. The 1980s saw a peak in the social construction literature with a more political agenda: to raise consciousness over issues. At the same time, there was an increase

in the number of social studies of scientific knowledge: science studies became a new area that social scientists entered into.

2.2 The Second Section: Web Applications

The web application differs from the website in that the latter is a site that contains many articles, topics or photos, while the former is an application that facilitates user's interaction with the site in a better way than the website. It is developed by a web application framework that is written in a certain programming language that facilitates programming the main issues of the web application. Instead of writing the main scripts of the application of classes, etc., these frameworks save the time spent in programming these issues because they are ready. Each programming language has a designframework of web applications (Elshaby, 2013).

2.2.2 Importance of WIZIQ Applications

Gazzawe, F (2017) according that the technology context synthesizes the experience of the participating students and the course instructor when engaging in the web application that supports the learning environment. The instructor felt that the majority of the participants could accept the use of the web applications in the class since the web applications have been widely used by them daily. Moreover, a significant benefit of web applications is that all of the web applications can support each other; therefore, users can easily apply each web application to support different activities based on their requirements.

Furthermore, the instructor indicated that the use of web applications in the class is very convenient to him because she could easily check the students' documents and projects anytime and anywhere through the Internet and various devices. In addition, she also observed that several students could use Google documents to edit their reflection notes after-school. This implies that the web applications were convenient and useful, and so most students actively used them, which motivated them to reflect on their learning after participating in the course.

Recent developments in distance learning technologies and associated pedagogical innovations have shown promising potential for synchronous instruction and live classroom interaction to remote students via live virtual classrooms (Falloon, 2011). These technologies, for example, can provide access to suites of interactive tools such as 'virtual whiteboards' and concurrent file sharing streamed video and audio attributes, and at the same time allow students to interact in real-time through text-based chat (Hrastinski, 2008). However, research on the attributes of virtual classrooms in e-learning is limited and inconclusive. This study aims to examine the effects of WizIQ as a virtual classroom on students' achievement, motivation and attitudes toward using virtual learning environments.

Web applications have been used in Al-Quds Open University since 2020 as an e-platform for a large number of courses at both undergraduate and postgraduate levels. WizIQ, on the other hand, is a Web 2.0 platform which can change the way that teachers and learners collaborate in either synchronous or asynchronous mode. This platform allows the participants to interact through text, audio, and video in a semi-live virtual classroom environment (Davis, 2005; Stevens, 2007). Course instructors, for example, can conduct online live classes and make use of various tools and features such as whiteboard, online PowerPoint, Word presentation, PDF, audio and video conferencing, and text chatting, and can also record their classes for later reference.

Figure (2.3) Virtual Classrooms



WizIQ is a learning platform that includes online teaching, from a virtual classroom to creating and delivering courses with assessment tools and content-sharing features. It also provides exclusive features that save time and enhance collaboration between students and teachers (WizIQ, 2017; <http://www.wiziq.com/features>). WizIQ cloud-based learning platform was founded in 2007 the United States enables its user to provide live real-time or self-paced training by helping to build, deliver and manage courses (WizIQ, 2017). It is affordable, easy to use and mobile ready features. Users can start teaching and learning activities within minutes, add and manage multiple teacher accounts, create online courses, and schedule live classes.

WizIQ is an online teaching platform that offers virtual classroom software for teachers, trainers, colleges and universities, high schools, and training and tutoring centers. To use WizIQ, there is no need to download any other software. After installation, using a web browser will successfully run an online class (Sherimon, 2013). With the WizIQ learning platform's features and range of useful tools, users can:

- (i) Increase student engagement with real-time audio-video communication, text chats, and advanced, interactive whiteboards
- (ii) Integrate smoothly with your existing website or LMS (e.g., Moodle, Blackboard, Sakai) using the APIs & plugins.

- (iii) Deliver live classes onthego from any mobile device using WizIQ Android and iOS apps.
- (iv) Manage your classes and students easily with handy features like Attendance Reporting, Recording, and Notifications.
- (v) Reuse lectures recorded using WizIQ's recording and secure content facility
- (vi) Access WizIQ from any internet browser, without downloading any software.

WizIQ Classroom has complete features for designing and delivering complete online course content such as real-time communication, interactive whiteboards, polling tools, breakout rooms, secure recording capabilities, text chatting, varied courseware file types, integrated media player, attendance reporting and notifications, teacher-managed control options.

2.2.3 WizIQ Features

Ahmed and Osman (2020) pointed out that WizIQ has good features to easily create online courses within a few minutes and lets teachers conduct live classes effortlessly. Such features are as follows:

1. **It provides face-to-face collaboration** for Teachers and Students with High definition video conferencing with enhanced audio-video quality
2. **It records the online classes** with Server-Side Recording (SSR) and capture lives team of a class directly on WizIQ

servers, thereby saving computing resources of devices used by the participants.

3. **It gives Interactive whiteboard for teachers** to illustrate diagrams, share presentations, or even play videos.
4. **It is easy-to-use administration dashboard** to manage live sessions, define roles and permissions for attendees, and automate class-related reports
5. **It integrates library access** that can use to store and organize content in the cloud, while also getting anytime-anywhere.

2.2.4WizIQ Applications

The WizIQ App for mobile/computer teaching and learning enables teachers and students to conduct and attend online classes, anytime, anywhere. It is an WizIQ is online education software that combines the capabilities of both the Learning Management System (LMS) for creation, delivery, and management of online courses along with Virtual Classroom to manage Students/Learners with capabilities such as Classroom Management, online Whiteboard, Assignments, Discussions and more. Figure (2.4) below <https://helpiewp.com/wiziq>.

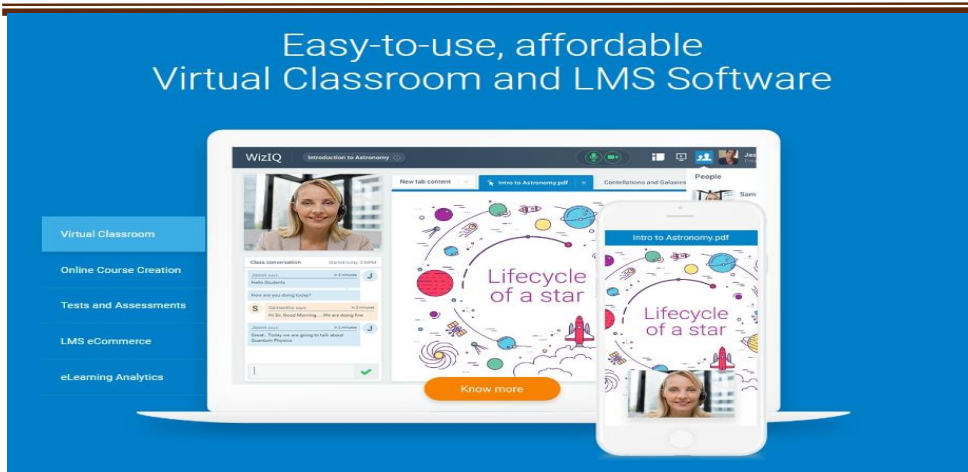


Figure (2.4). Virtual Classroom and LMS Software

2.2.5 Advantages of Using WizIQ Application

The advantages of using the web application in serving university education and the effect of web applications that promote the teaching and learning environment in the classroom can be summarized (Elshaby, 2013), as follows:

- 1) Decreasing the percentage of virus infection.
- 2) Facilitating the user's work of browsing and dealing with the site.
- 3) Application's accessibility from any device connected to the Internet.
- 4) Removing application updating plugins because in our techniques they are updated on the site.

2.3 The Third Section: English Language Proficiency

(Critical reading and Academic writing)

2.3.1 Critical reading

Reading is the key component of learning and is one of the most important skills in English and other languages to help the student to interact and communicate successfully with other cultures. And it helps all over the world to understand what is happening around them. In addition, reading skill is an essential process not only as an important skill that should be mastered but is also indispensable in dealing with information of technology, web applications, internet and academic search, dealing with tourists and developing oneself in various ways. Therefore, the teachers at Palestine University should focus on the EFL learners. This domain provides an overview of critical thinking, basic theories, importance, strategies and types of critical reading.

2.3.1.3 Nature of Critical Reading

Critical reading is an interactive process that involves different levels of thought that act together concurrently such as analyzing information into constituent parts, coherently synthesizing the relevant components; evaluating ideas, attitudes, and purposes by making judgments regarding standards that are established by the reader to detect its rationality (Areiza, 2014).

"Critical reading" refers to the reading that entails: (1) Acquisition of correct and clear understanding of the texts meaning; (2) Accurate perception of the expressed and implied relationships of the read text; (3) Careful evaluation of the content in terms of validity, accuracy, and usefulness according to the reader's intention. Similarly, Dale (1967, p. 23) proposed that critical reading is "reading beyond the lines" as a high level of thinking that includes interpreting intentions and viewpoints and differs from the two low levels of comprehension "reading the lines" (literal comprehension) and "reading between the lines" (inferential comprehension). According to Diyanni and Borst (2017, p.4), critical reading includes recognizing a writer's purpose, understanding his or her idea, identifying tone, evaluating evidence and reasoning, and recognizing a writer's perspective, position.

2.3.2. Academic Writing;

Academic writing at the university should be acquired by both new and senior students to succeed in their studies. Without this type of writing students would not be distinguished as academics (Kelley, 2008). Therefore, those students who can write well at university find that their path through academics is less burdensome and more enjoyable. So, this chapter provides an overview of how writing is perceived in a general sense from various perspectives. Further, it seeks to present several descriptions of academic writing; the definition of writing, and its

aspects as well as highlights its features, importance and types of academic writing.

2.3.2.1. Nature of Writing

Writing in the general sense is understood as translation to a combination of letters related to the sound's humans produce. Writing is to arrange the graphic symbols by certain conventions which are responsible for word formation, in the same way; words are arrayed in particular to produce a sequence of sentences linked to each other that result in the construction of coherent text. Vygotsky (2012) indicated that writing is conscious work that requires a high level of abstraction. Thus, we can deduce that writing is not simply a matter of putting together words and sentences; rather it is a complex process that demands a high level of thinking skills and effort to produce a good piece of writing.

2.3.2.2. What is Academic Writing (AW)?

AW is any writing given to fulfill a requirement in an academic setting, such as a college or university. It is also used for publications that are read by teachers and researchers or presented at conferences. Additionally, it is a kind of writing which has its own set of rules and practices. These rules and practices may be organized around a formal order or structure in which to present ideas, which should be supported by author citations in the literature. It is the style of writing the writer is expected to use for

academic work which is likely to be different from other styles one uses every day.

(AW) is the type of writing that is used to write dissertations, articles, essays, and research papers according to the academic requirement. “Most university writing assignments involve taking a stand on an issue” which requires the writers to seek persuasive arguments supported by evidence to convince the audience of what they believe and defend their position.

According to Hood (2010), academic writing is about how we position ourselves in interaction with knowledge. Where explicit guidance is given in the management of interpersonal meaning” that is to say AW is writing that diminishes to great extent subjectivity and praises objectivity. Academic writing differs from other types of writing such as journalistic or creative writing. In most forms of academic writing, a detached and objective approach is required. An academic argument appeals to logic and provides evidence in support of an intellectual position. It is important to present arguments in a logical order and arrive at conclusions. However, academic writing can take many forms such as writing an essay, a report, a review or a reflective article. In academic writing, writers always interact with each other’s texts and so there will be frequent references to the ideas, thinking or research of other authors writing in this field.

To conclude academic writing generally refers to all writing tasks assigned to students to study at the college level. It is a formal way of writing. It is different from creative writing and various other informal and fictional writings.

2.3.2.3. The Structure of Academic Writing

Academic writing has its distinct organization which differs from that of non-academic texts. It is normally divided into three parts, namely an introduction, body and conclusion. The introduction is the opening paragraph where the writer should introduce the topic and indicate the particular focus of the essay (Awelu, 2011). In addition, this is where the writer has a chance to create the first impression and tell the readers what the paper is about. Furthermore, it is the key part in which the writer gives an outline of the essay and sets the scene for the main body, as well as defines important concepts and terms (English for Academic Purposes Guide, 2013; Greetham, 2022; Jones, 2015; Whitaker, 2009).

The second part is the body which is the heart of an essay. This part is normally divided into developmental paragraphs that should flow smoothly from one to the next. These paragraphs should support the essay topic introduced in the opening paragraph. Additionally, each body paragraph begins with a topic sentence which is an effective link to the preceding paragraph, with logical reasoning and evidence. The minor supporting ideas

are smoothly linked within the paragraphs. Furthermore, the writer should use evidence and examples to develop an argument (Jones, 2015; Whitaker, 2009).

The conclusion is the last part which summarizes the main parts of the text by being careful not to repeat exactly what has been written before. It presents the results of the investigation which are the essay findings, and provides a solution to the problem that has been set; it also suggests further areas of investigation (Anderson & Poole, 2009; Awelu, 2014).

2.3.2.5. Importance of Academic Writing

Academic writing plays a central role in the field of higher education because a major part of a student's academic life is spent on writing academic papers (Fujii & Fukao, 2001; Zhu, 2004). It is the primary form of communication at university and plays a role both in students' understanding of course content and consequently in the assessment of student knowledge both contribute significantly to good grades and degrees. Academic writing is an essential requirement where university students develop the proper tone, technique and style for their academic assignments. Its importance extends to teaching the student how to think critically and objectively while conveying complex ideas in a well-structured, concise format (Altiwal, 2012). Therefore, it is very important to clearly state to students the requirements of how to write well academically and why they are writing academic texts at the university or college (Leibowitz, 2000; Mbirimi, 2012).

Academic writing tasks pose real difficulties to ELLs at all levels of education and in all school subjects, especially to those students with limited academic literacy skills in their native languages (Marulanda Angel & Martinez Garcia, 2017). Indeed, once students enter universities and become part of learning communities, writing becomes a more daunting task. As cognitive, content, and academic demands increase, the development of writing skills for ELLs becomes a multidimensional challenge not only for students but also for professors and institutions.

The teaching of writing in EFL programs needs to provide students with linguistic skills, writing skills, and tasks that can enable the learners to encounter, manage, and come to terms with new information and expand their knowledge base (Hinkel, 2004). The process approach has also encountered several opponents in terms of its validity as pedagogy. Nevertheless, its importance for composition studies is undeniable. The process approach sheds light on how writing occurs and what actions writers follow when composing texts. The process approach allows ELLs to complete their writing step by step, editing and revising as needed along the way.

3.1 Research Design

The researcher adopted the experimental design in which two groups assigned as the participants of the current study from Al-Quds Open University students major in English language; the

experimental group, and the control one. The researcher conducted a WizIQ program to find out the effect of WizIQ on developing critical reading and academic writing.

3.2 Participants of the Stud

The study population consists of Al- Quds Open University students, majoring in the English language in Palestine year 2023-2024. In the present study, the researcher chose Al-Quds Open University students Hebron Branch, where she works as an assistant lecturer of English. Two interact classes were chosen. The researcher divided them into two groups, an experimental group consisting of (30) students and the other control consisting of (30) students. **Table (3.1)** shows the distribution of the participants.

Table (3.1): The distribution of the participants of the study two groups

Group	Experimental	Control	Total
No. of Participants	30	30	60

The students in both groups were homogeneous in their general achievement and in the materials learned from English language specialty as revealed in the statistical treatment of their results. A pre-test was used by the researcher to check the homogeneity of achievement of the two groups.

3.3 Study Variables

To affirm the results the researcher classified the variables as the dependent and independent ones.

1. **Independent variable**: The independent variable was (WizIQ) program.
2. **Dependent variables**: The dependent variables are two: the development of the experimental group's performance in the critical reading and the academic writing.

3.4 Instruments of the Study

In this research, three types of instruments were used. the instruments were as follows:

- 1- A Pre- post critical reading and academic writing test
- 2- Interviews for instructors
- 3- Questionnaire for students

Following is more elaboration on these instruments:

3.4.1 The critical reading and academic writing test

The test was designed and prepared by the researcher, to measure the learners' achievement in English language proficiency (critical reading and academic writing) by adopting the post-constructivism social theory, which was used before implementing the experiment as a pre-test and it was applied after implementing the experiment as a post-test. (See Appendix B. p. 99)

3.4.1.1 Test Aim

The test was one of the study instruments, which aimed at measuring the effectiveness of a program based on post-constructivist theory using a web program called WizIQ to develop English language proficiency among Al-Quds Open University English- Major students.

3.4.1.2 The Sources of Designing the Academic Writing and Critical Reading the Achievement Test:

The researcher referred to a lot of resources in designing and preparing the test. The test included two domains, a critical reading and an academic writing test. She depended on Al-Quds Open University courses for the English language specialization. Such as writing II and reading II textbooks. Besides, her own experience helped greatly, in constructing the academic writing and critical reading test. And also, the researcher consulted with English supervisors and experienced teachers.

3.4.1.4The pre- post-test of critical reading and academic writing

The researcher conducted a pre-test *Table (3.3)*. Make sure that all the students of both (experimental and control) groups have homogeneous. The researcher administered the pre-test and analyzed the test statistically using an independent sample t-test.

Mean, standard deviation, and t-test value of the control and the experimental groups of the pre-test in critical reading skills were calculated as shown in **Table (3.3)**.

Table (3.3): T-Test results of pre-test of critical reading and academic writing between the experimental and control Groups.

		Application	N	Mean	Std. Deviation	t. value	Sig. Value
1.	Critical reading skills	Experimental	30	27.50	7.74	-0.136	0.892
		Control	30	27.80	9.26		
2.	Academic writing skills	Experimental	30	20.43	6.39	-0.058	0.954
		Control	30	20.53	6.89		
3.	Whole test	Experimental	30	48.37	8.99	-0.120	0.905
		Control	30	48.67	10.33		

Table (3.3) reveals the pre-test results of the critical reading and academic writing. There were no statistically significant differences between the experimental and control groups in overall pre-test scores since p-value (0.905) more than a significant level ($\alpha=0.05$).

This indicates that both the control and experimental groups are homogeneous. In addition, the result indicates that there were no statistically significant differences between the experimental

and control groups in the critical reading part (p-value=0.892>0.05) and academic writing (p-value=0.954<0.05).

3.4.2 The Interview:

Secondly, in-depth, semi-structured, face-to-face interviews with five lecturers and professors who teach the English language at Al-Quds Open University about the benefits of using technology in teaching were employed.

All the interviews incorporated open-ended questions that enabled the researcher to probe for more information at various intervals and to seek clarification. However, the researcher had to be alert at all times not to deviate from achieving the objectives of the study. The interview questions were formulated by the researcher according to the objectives of the study. (See Appendix H)

3. 4.3. The Students Questionnaire:

The questionnaire for students consisted of (30) items and it included both open-ended and closed questions. Closed questions mainly employed a five-point Likert scale. The first section of each questionnaire constituted demographic questions to gather information about students' gender and level of study. The questionnaire had content validity because it consisted of questions that were relevant to the subject under study and they were guided by the research questions of the study and the literature review.

4.1 Results

4.1.1 The Result of the First Hypothesis

The first hypothesis stated: **“There is a statistically significant difference at ($\alpha \leq 0.05$) level between the experimental group students' mean scores on critical reading pre- post test in favor of the post-test.”**

To test this hypothesis, the mean and standard deviation scores of the experimental group of the pre-post critical reading skills test were calculated, and Paired Sample t-test was used to test the hypothesis in Table (4.1).

Table 4.1: Differences between the Pre-test and Post-test in the critical reading skills of the experimental group

	Application	N	Mean	Std. Deviation	t. value	Sig. Value
Identifying the main and supporting idea	Pre-test	30	9.33	2.62	-4.782	0.000
	Post- test	30	12.08	1.75		
Identifying cause and effect relationships	Pre-test	30	5.08	2.41	-7.540	0.000
	Post- test	30	8.83	1.27		
Distinguish between facts and opinions	Pre-test	30	7.75	2.31	-8.530	0.000
	Post- test	30	12.42	1.91		

Making inferences	Pre-test	30	4.58	2.94	-7.264	0.000
	Post- test	30	8.92	1.42		
Total scores of critical reading skills	Pre-test	30	26.75	6.89	-	0.000
	Post- test	30	42.25	3.62		

According to Table (4.1), the p-value (0.000) for the differences between the mean critical reading skills scores of the students in the pre-test and post-test of the experimental group is less than the significant level ($\alpha=0.05$). So, there is a significant difference between the student's scores in pre-test and post-test of the experimental group, which consequently indicates that using for the web application (WizIQ) program on the post-constructivist theory enhancing the critical reading skills for the experimental group in favor of the post-test. Also, the result indicates that the mean score of students in the critical reading test was 42.25. There is a significant difference between the mean critical reading skills scores of students in the pre-test and post-test of the experimental group in all critical reading parts in favor of the post-test, and distinguish between facts and opinions has the highest mean difference between the pre-test and the post-test (4.67), while identifying the main and supporting idea has the lowest mean difference (2.75).

4.1.2 The Result of the Second Hypothesis

The second hypothesis stated: **“There is a statistically significant difference at ($\alpha \leq 0.05$) level between the**

experimental group of students' mean scores on academic writing pre- post test in favor of the post-test”.

To test this hypothesis, the mean and standard deviation scores of the experimental group of the pre-post academic writing skills test were calculated, and Paired Sample T-Test was used to test the hypothesis in Table (4.2).

Table 4.2: Differences between the Pre-test and Post-test in the academic writing skills of the experimental group.

	Application	N	Mean	Std. Deviation	t. value	Sig. Value
Topic development	Pre-test	30	2.30	0.95	-	0.000
	Post-test	30	6.57	0.63	20.505	
Organization	Pre-test	30	2.37	0.61	-	0.000
	Post-test	30	6.63	0.81	23.002	
Vocabulary	Pre-test	30	2.10	0.31	-	0.000
	Post-test	30	5.73	0.78	23.631	
Discourse control	Pre-test	30	2.03	0.18	-	0.000
	Post-test	30	6.13	0.78	28.167	
Sentence structure	Pre-test	30	2.27	0.64	-	0.000
	Post-test	30	5.20	0.71	16.755	
Mechanics	Pre-test	30	2.27	0.64		0.000

	Post-test	30	4.27	0.45	- 14.009	
Total scores of academic writing skills	Pre-test	30	13.33	2.06	- 31.905	0.000
	Post-test	30	34.53	3.00		

According to Table (4.2). p-value (0.000) for the differences between the mean scores academic writing skills in the pre-test and post-test of the experimental group is less than the significant level ($\alpha=0.05$). So there is a significant difference between the student’s scores in pre-test and post-test of the experimental group, which consequently indicates that using for the web application (WizIQ) program on the post-constructivist theory enhancing the academic writing skills for the experimental group in favor of the post-test. The result indicates the mean score of students on the academic writing test was 34.53. There is a significant difference between the mean academic writing skills scores of students in pre-test and post-test of the experimental group in all academic writing parts in favor of the post-test, and topic development and organization has the highest mean difference between the pre-test and the post-test (4.27), while mechanics has the lowest mean difference (2.00).

4.1.3 The Result of the Third Hypothesis

The third hypothesis stated: **“There is a statistically significant difference at ($\alpha \leq 0.05$) level between the control**

and the experimental groups' mean scores on the post-test in the critical reading skills in favor of the experimental group”.

To test this hypothesis, the mean and standard deviation scores of pre and post-test on critical reading skills were calculated in Table (4.3).

Table 4.3: Means and standard deviation for the pre and post-tests in the critical reading skills between the experimental and the control groups.

	Group	N	Pre-test		Post-test	
			Mean	Std. Deviation	Mean	Std. Deviation
Identifying the main and supporting idea	Experimental	30	9.33	2.62	12.08	1.75
	Control	30	9.08	3.31	10.25	2.31
Identifying cause and effect relationships	Experimental	30	5.08	2.41	8.83	1.27
	Control	30	5.33	2.34	6.75	2.38
Distinguish between facts and opinions	Experimental	30	7.75	2.31	12.42	1.91
	Control	30	7.67	3.14	9.83	3.07
Making inferences	Experimental	30	4.58	2.94	8.92	1.42
	Control	30	4.50	2.12	6.42	2.43

Total scores of critical reading skills	Experimental	30	26.75	6.89	42.25	3.62
	Control	30	26.58	8.52	33.25	7.55

According to the result in Table (4.3), it is clear that there are considerable clear differences between the mean score of the students of the study sample as to their achievement in critical reading skills using web applications (WizIQ) program on the post-constructivist theory, according to the pre and post-test.

To find out whether the apparent differences in the mean score of the sample members are statistically significant at the level of ($\alpha \leq 0.05$), an analysis of covariance (ANCOVA) test was applied to analyze the data.

Table 4.4: Result of ANCOVA test of critical reading skills related to the experimental and the control groups due to teaching method.

	Critical reading skills	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
1.	Identifying the main and supporting idea	Pre-test	35.749	1	35.749	9.836	0.003	0.147
		Group	46.784	1	46.784	12.872	0.001	0.184
		Error	207.168	57	3.635			
		Corrected total	293.333	59				
2.	Identifying cause and	Pre-test	50.911	1	50.911	18.122	0.000	0.241
		Group	71.205	1	71.205	25.346	0.000	0.308

	effect relationships	Error	160.13	57	2.809			
		Corrected total	276.146	59				
3.	Distinguish between facts and opinions	Pre-test	70.6	1	70.6	12.998	0.001	0.186
		Group	97.514	1	97.514	17.953	0.000	0.24
		Error	309.608	57	5.432			
		Corrected total	480.313	59				
4.	Making inferences	Pre-test	55.336	1	55.336	18.102	0	0.241
		Group	91.358	1	91.358	29.885	0	0.344
		Error	174.247	57	3.057			
		Corrected total	323.333	59				
	Total scores of critical reading skills	Pre-test	419.498	1	419.498	14.836	0	0.207
		Group	1199.289	1	1199.289	42.413	0	0.427
		Error	1611.752	57	28.276			
		Corrected total	3246.25	59				

Table (4.4) shows that F value is (1199,.289) for the differences between the mean scores critical reading skills in the two groups, and the p-value (0.000) which is less than the significant level ($\alpha=0.05$). So, there is a significant difference between students score in the two groups (experimental and control), which consequently indicates that there is a considerable

impact on using for the web application (WizIQ) program on the post-constructivist theory. In addition, the effect size technique by Eta squared coefficient was used to determine the effectiveness of the web application (WizIQ) program on the post-constructivist theory according to Afana (2000), the rule of thumb for effect size is 0.01 (small), 0.06 (medium), and greater than 0.14 (large). The result indicates that the effect size of the web application (WizIQ) program on the post-constructivist theory was large for the critical reading skills (0.427), which means that the students' performance changed in the post-test.

Furthermore, that result indicates that there is a difference of students' mean score in all critical reading sub skills between groups. Also, making inferences has the highest effect size with large effect (0.344), followed by identifying cause and effect relationships (0.308) while identifying the main and supporting idea has the lowest size effect (0.184).

To identify the sources of these differences, adjusted mean scores and standard error for the post-test were calculated, the adjusted mean scores of critical reading skills for the control group is (33.28), which is less than those of the experimental group (42.22). The differences in critical reading skills scores were in favor of the experimental group, which again shows the considerable effect of using the web application (WizIQ) program on the post-constructivist theory on student achievement. It is clear from Figure 4.3 that the adjusted mean score for the control group

is less than the adjusted mean score for the experimental group. Also, Figure 4.3 shows the adjusted mean score and standard error for the post-test in critical reading parts according to the group. It is clear that the adjusted mean score for the control group is less than the adjusted mean score for the experimental group in all critical reading parts, and the highest differences between groups were found in distinguishing between facts and opinions parts (2.55).

4.1.4 The Result of the Fourth Hypothesis

The Fourth hypothesis stated: **“There is a statistically significant difference at ($\alpha \leq 0.05$) level between the control and the experimental groups' mean scores on the post-test in academic writing skills in favor of the experimental group”.**

To test this hypothesis, the mean and standard deviation scores of pre and post-test on academic writing skills were calculated in Table (4.5).

Table 4.5: Means and standard deviation for the pre and post-tests in the academic writing skills between the experimental and the control groups.

	Group	N	Pre-test		Post-test	
			Mean	Std. Deviation	Mean	Std. Deviation
	Experimental	30	2.30	0.95	6.57	0.63

Topic development	Control	30	2.37	0.61	5.70	0.65
Organization	Experimental	30	2.37	0.61	6.63	0.81
	Control	30	2.40	0.72	5.77	0.50
Vocabulary	Experimental	30	2.10	0.31	5.73	0.78
	Control	30	2.20	0.55	4.67	0.80
Discourse control	Experimental	30	2.03	0.18	6.13	0.78
	Control	30	2.10	0.40	5.53	0.57
Sentence structure	Experimental	30	2.27	0.64	5.20	0.71
	Control	30	2.17	0.46	4.33	0.48
Mechanics	Experimental	30	2.27	0.64	4.27	0.45
	Control	30	2.30	0.79	3.43	0.57
Total scores of academic writing Skills	Experimental	30	13.33	2.06	34.53	3.00
	Control	30	13.53	1.94	29.43	1.72

According to the result in Table (4.5). It is clear that there are significant differences between the mean score of the experimental group as to their achievement in academic writing skills using web application (WizIQ) program on the post-constructivist theory, according to the pre and post-test.

To find out whether the apparent differences in the mean score of the experimental group are statistically significant at the

level of ($\alpha \leq 0.05$), an analysis of covariance (ANCOVA) test was using to analyze the data.

Table 4.6: Result of ANCOVA test of academic writing skills related to the experimental and the control groups due to teaching method.

	Academic writing Skills	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
1.	Topic development	Pre-test	0.387	1	0.387	0.949	0.334	0.016
		Group	11.071	1	11.071	27.107	0.000	0.322
		Error	23.279	57	0.408			
		Corrected total	34.933	59				
2.	Organization	Pre-test	0.179	1	0.179	0.391	0.534	0.007
		Group	11.188	1	11.188	24.383	0.000	0.3
		Error	26.154	57	0.459			
		Corrected total	37.6	59				
3.	Vocabulary	Pre-test	0.682	1	0.682	1.084	0.302	0.019
		Group	17.625	1	17.625	28.021	0.000	0.33
		Error	35.852	57	0.629			
		Corrected total	53.6	59				
4.	Discourse control	Pre-test	1.318	1	1.318	2.934	0.092	0.049
		Group	4.78	1	4.78	10.638	0.002	0.157

		Error	25.615	57	0.449			
		Corrected total	32.333	59				
5.	Sentence structure	Pre-test	1.009	1	1.009	2.813	0.099	0.047
		Group	11.792	1	11.792	32.857	0.000	0.366
		Error	20.457	57	0.359			
		Corrected total	32.733	59				
6.	Mechanics	Pre-test	0.292	1	0.292	1.113	0.296	0.019
		Group	10.493	1	10.493	40.029	0.000	0.413
		Error	14.942	57	0.262			
		Corrected total	25.65	59				
	Total scores of academic writing Skills	Pre-test	1.14	1	1.14	0.188	0.666	0.003
		Group	387.008	1	387.008	63.812	0.000	0.528
		Error	345.693	57	6.065			
		Corrected total	736.983	59				

Table (4.6) shows that F value is (63,812) for the differences between the mean scores of academic writing skills in the two groups, and the p-value (0.000) is less than the significant level ($\alpha=0.05$). So there is a significant difference between students score in the two groups (experimental and control), which consequently indicates that there is a considerable impact on using the web application (WiziQ) program on the post-constructivist

theory. In addition, the result of the effect size indicates that the effect size of the web application (WizIQ) program on the post-constructivist theory was large for the academic writing skills (0.528), which means that the students' performance changed in the post-test.

To identify the sources of these differences, adjusted mean scores and standard error for the post-test were calculated, the adjusted mean scores of academic writing skills for the control group is (29.44), which is less than those of the experimental group (34.53). The differences in academic writing skills score were in favor of the experimental group, which again shows the considerable effect of using web application (WizIQ) program on the post-constructivist theory on student achievement. Figure 4.4 shows the adjusted mean score and standard error for the post-test in academic writing according to the group. Also, Figure 4.4 shows the adjusted mean score and standard error for the post-test in academic writing parts according to the group. It is clear that the adjusted mean score for the control group is less than the adjusted mean score for the experimental group in all academic writing parts, and the highest differences between groups was found in discourse control parts (1.09).

5.2 Discussion of Findings

The experiment was designed to determine if the students would develop their English language proficiency and increase

their motivation for English as a result of the use of the web application WizIQ program. All students of the experimental group showed an increase in their performance on English language proficiency (critical reading and academic writing) posttest. The WizIQ program has a significant effect on improving students' English language proficiency. This is what (Falode et al., 2019) approved of their study. Furthermore, the experimental group also showed that the learners' motivation increased after the implementation of the web application WizIQ program (Ahmed & Osman, 2020). Such positive change was very clear in students' responses to the motivation scale. This means that using the WizIQ program in developing the learners' critical reading and academic writing and their motivation for English was very effective.

Using WizIQ is a very effective tool which not only helps students to improve their English language proficiency, but also benefits them in many aspects and skills:

- 1- It increased their vocabulary. This appeared in the post-test answers rather than the pre-test because they use the same vocabulary that they have learnt through the WizIQ program.
- 2- Clear and complete development of content; high level of fluency in expression.
- 3- They used the mastery of sentence patterns (simple, compound, complex) effectively. It appeared clearly in their written answers such as essays.

- 4- They have full control (logical coherence) and excellent use of cohesive (keywords, pronouns, references). This appeared in the post-test answers.
- 5- It helped them to organize fully appropriate and effective topics; a very strong introduction and conclusion. This appeared clearly when the researcher asked them to write an essay.
- 6- They used the correct form for text type, correct citations; spelling; capitalization, and punctuation. That showed where parts of ideas begin and end in the posttest rather than pre-test.

5.3 Conclusions

The purpose of this study was to examine the effectiveness of a program based on post-constructivist theory using WizIQ applications to develop Critical Reading and Academic Writing Skills among Al-Quds Open University Students. The findings of this study are in congruence with a large body of relevant literature. The results, in general indicated that WizIQ can not only improve English language proficiency (critical reading and academic writing), but also increase students' academic achievement. The results revealed that the learners liked learning via WizIQ application and promoted their motivation and attitudes toward online learning (Gedera et al. (2013).

Furthermore, the study showed that there is a significant difference between the experimental student's scores in pre-test and post-test of the experimental group, which consequently indicates that applying for the web applications (WizIQ) program on the post-constructivist theory enhancing the critical reading and academic writing skills for the experimental group in favor of the post-test. In addition, the study showed that there is a significant difference between students' score in the two groups (experimental and control), in critical reading and academic writing skills in favor of the experimental group. This shows the considerable effect of using web applications (WizIQ) program on student achievement. However, future research might be needed to further explore the effectiveness of the various tools and attributes of WizIQ as an interactive web-based environment in expanding the learning landscape for students in different learning settings.

Based on the current study results, the following conclusions were derived:

1. WizIQ is more effective and it may be superior to other regular instruction in teaching English language in general and English language proficiency in particular.
2. WizIQ provided students with a better learning environment, which affected their academic writing achievement and critical reading performance in English.

3. WizIQ tools allowed students to easily work in groups and learn from each other.
4. The simplicity of WizIQ as an e-learning tool contributed to enhancing student academic writing performance and critical reading.
5. Using the Web Application (WizIQ) program, helped the students feel relaxed, amused and comfortable and this led to easier learning and acquisition of the language.
6. WizIQ strengthened the relationship between the teacher and the learners and made the teacher like a close friend, which facilitated the process of teaching and learning.
7. WizIQ considers the individual differences among learners, in which every learner could take the time that suited his own ability for studying.
8. WizIQ changes students' roles from passive recipients into active participants.
9. Web application WizIQ provides students with enthusiasm and variation which are significant enough to affect their achievement positively.
10. Web application WizIQ provides participants with a sense of ownership and authority, which promotes participants' responsibility for their learning.

5.4 Recommendations

Based on the findings and conclusions of the current study, some practical suggestions are presented to meet the concerns of English language lecturers, supervisors, educators and parents. Relevant recommendations are also introduced for further studies as follows:

5.4.1 Recommendations to the Ministry of Education

The Ministry of Education is recommended:

It was therefore recommended based on the above findings that WizIQ application should be made as one of the major teaching strategies for educational technology courses in the universities since findings of this study ascertained that they are very effective.

1. To conduct workshops and training programs on web application such as WizIQ aimed at introducing lecturers to web application and using them in teaching all English language skills and areas (e.g. vocabulary, reading, writing structure, listening. phonology and functions).
2. To develop new application on the web such as WizIQ and Microsoft Teams to suit different courses.
3. To provide universities with high quality internet and access points.
4. Training programs for EFL teachers and in-service instructors on how to employ modern technology such as

WizIQ application in the classroom to teach English as a foreign language are needed.

5.4.2. Recommendations for the Instructors

Instructors are recommended:

1. To conduct workshops that aim at familiarizing teachers and lecturers with web application WizIQ.
2. To concentrate on the fact that students' centered activities are not time-wasting activities; instead, they are very important for teaching different aspects of the language.
3. To develop teachers' abilities to implement teaching processes using web application WizIQ by organizing training programs, workshops and short courses.
4. To emphasize the fact that web application WizIQ should be used with all English language skills and other school subjects.
5. To prepare and distribute instructional materials that increase teachers' awareness of the importance of web application such as WizIQ and the necessity of utilizing this kind of technology in teaching and learning English language proficiency.

5.4.3. Recommendations for the English Language Lecturers

English language lecturers are recommended:

1. To keep in touch with the latest trends in the field of TEFL and benefit from the findings of educational research. Teachers can adopt innovative methods and conduct action research to explore the effectiveness of such methods on the students in Palestine.
2. To select effective methods and techniques that activate students' motivation, participation and the degree of competition and challenge among students.
3. To change their role from instructors who dominate the class into educators whose role is to organize, help, guide, coordinate and support the students to communicate and acquire language. This can be achieved via the WizIQ application in which students can learn with their abilities and the teacher is just a facilitator and supporter.
4. To strengthen the relationship with the students, this creates a non-threatening classroom atmosphere and facilitates the learning-teaching process.
5. To consider students' differences and learning styles in selecting the material.
6. To encourage students to overcome hesitation and psychological factors those affect their competence.

5.4.4. Suggestions for Further Studies

The researcher suggested the following recommendations for further studies:

1. The effectiveness of using web application WizIQ program on other university courses.
2. Investigating the effectiveness of web application (WizIQ) on students' attitudes toward the English language.
3. Investigating the effectiveness of using the WizIQ program on other English language skills (listening and speaking).
4. Using other applications to enhance English language proficiency (critical reading and academic writing).

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