

5E-Based Online Activities and English Language Students' Reading and Listening Performances

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Received: June 04, 2022

Accepted: September 27, 2022

Abstract

Reading and listening skills are regarded as two out of four significant skills in the field of language teaching. However, no valid research was carried out to study the role of the 5E Learning Cycle Model in developing these two receptive skills. Drawing on insight from the 5E Learning Cycle Model, this study aimed to examine the effect of 5E-based online activities on English language students' reading and listening performances. A sample of 60 adult EFL learners studying in a pre-IELTS course at a private language school participated in the study. The study utilized an experimental method approach to achieve this. Two real samples of listening and reading IELTS tests were used as pre-and post-tests to gather quantitative data. Two sessions before the start of a 12-session pre-IELTS course, learners became familiar with their electronic classroom called Easy class and also received their pre-tests on listening and reading of IELTS. Next, 5E-based online activities were presented to the experimental group participants while the learners in the control group received conventional or non-5E-based instruction. At the end of the semester, learners participated in one extra session to take their post-tests. The independent sample t-test analysis of the quantitative data demonstrated that the employment of 5E-based online activities culminated in the improvement of EFL learners' listening and reading performances. The findings imply that language teachers, teacher trainers, and material developers can benefit from 5E-based activities to improve language skills among learners.

Keywords: Listening performance; Reading performance; Easyclass; 5E Learning Cycle Model

INTRODUCTION

There are a variety of models on which English class activities can be based in the rich history of language teaching and learning.

The 5E Learning Cycle Model is based on experiential learning developed by Bybee (2006) happens through five phases starting with the alphabet 'E' and is student-centered.

It has the notion of inquiry at its heart. Inquiry-based teaching seeks to develop skills

such as hands-on, minds-on so that it can enhance engagement among peers. Some of the subcategories of hands-on, minds-on skills are communication, collaboration, and also critical thinking which are vital in the 21st century learning (Partnership for 21st Century Skills, 2015). The mentioned approach regards and values learning, process complexities, students' prior knowledge and experiences, active problem solving, exchange of findings via communication, and creativity in groups.

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Similar to other learning models, 5E Learning Cycle Model also presents its procedures to be applied in the teaching and learning process (Bybee, 2015) as follows:

1. Engagement phase: The instructor or the curriculum deals with the assessment of the students' previous knowledge and aids them engage in a novel concept via doing certain short activities that enhance curiosity and extract knowledge that they have already achieved. The activity is about to connect previous and current learning experiences, and organize learners' thoughts toward the learning results of present activities (Bybee, 2015).

2. Exploration phase: Exploration experiences are designed to provide learners with a common type of activities through which prior concepts (such as misconceptions), skills and processes are recognized and conceptual alterations is facilitated. Students may implement lab activities that assist them utilize previous knowledge to develop new opinions, seek the answers of possibilities and questions, and develop and run a preliminary sort of investigation (Bybee, 2015).

3. Explanation phase: The explanation phase takes learners' attention into a special aspect of their learning such as making them engaged to have exploration experiences and creates them some opportunities to depict their conceptual intake, process skills, and as a result their behaviors. This phase also provides teachers with opportunities so that they can directly be able to introduce concepts, resulted processes, or achieved skills. Students describe their intake of the concept. An additional explanation on the side of the teacher or the current curriculum might be resulted into a much deeper understanding that is considered as a vital section of this phase (Bybee, 2015).

4. Elaboration phase: Teachers, in this phase, initiate challenging and extending learners' conceptual achievements and skills. Through novel experiences, the learners develop much deeper and also broader understanding, more data, and as a result, adequate skills. Learners reveal their conceptual understanding by implementing additional activities (Bybee, 2015).

5. Evaluation phase: The evaluation phase

motivates learners to have a self-assessment of their understanding besides their achieved abilities and provides teachers with opportunities so that they can evaluate learners' progress toward gaining the educational goals (Bybee, 2015).

To figure out how the 5E-based Learning Cycle Model can have a significant role in reading and listening performances, it is vital to deal with these two items at the same time. According to Brownell (2015), listening is considered as the process of meaning construction from as well as meaning reaction to messages either verbally or non-verbally. Meanwhile, Helgesen (2003) believed that listening is nothing except a purposeful active process of making sense out of whatever is heard. According to Scarcella and Oxford (1992), listening is an essential language skill that can be developed quicker than speaking and mostly has a huge effect on skills of reading and writing emergence and development in second language learning. Language students are required to have linguistic input via listening before they initiate responding in written or oral form. According to Brown (2001), listening is a significant skill by which linguistic data is internalized by language learners and language will not be produced without those internalized linguistic data.

Meanwhile, reading is defined as a process that is interactive as well as bottom-up (Alderson & Alderson, 2000; Koda, 2005). The bottom-up process encompasses the recognition of the written word throughout the text as well as that of grammatical information. This process paves the way for recognizing words automatically, which is considered the basic stage for higher-level processing. The higher-level process revolves around creating meaning interactively. While the text is being read, the reader's language and content knowledge are being applied and his processing skills and strategies will be used. Proficient readers encountering an obvious inconsistency existing during a text or even in their content understanding can resort to metacognitive monitoring which refers to the understanding monitoring ability throughout the text and mending comprehension via using knowledge of content or linguistics. It can be taken for

granted as one of the fundamental features to distinguish between a poor and a good reader (Alderson & Alderson, 2000).

Inquiry contains involvement within its process that ultimately ends up in students' comprehension. Learning involvement implies skills and attitudes to be processed for question resolutions while new knowledge is constructed. Lots of understanding is developed by students via the inquiry process. Investigation in the inquiry process is nothing except emphasizing on development of inquiry skills while students have a huge amount of curiosity to know (Cleverly, 2003). According to Kuhne (2005), inquiry-based learning includes instructive strategies which meet students' questions while they are experiencing and observing the process of creating knowledge. Kuhne (2005) mentioned 6 steps for activities available in inquiry-based learning strategies such as to plan, retrieve, process, create, share and evaluate.

This question goal was to figure out how the 5E Learning Cycle Model could promote inquiry-based learning which was both active and also collaborative. The lessons available in this module were at the service of promoting active learning since learning could not be achieved via passive absorption. According to Uno (1999), inquiry was defined as a technique motivating learners to explore or construct data by themselves rather than obliging teachers to reveal the data directly. Learners, specifically English language learners, were supposed to deal with more than listening and reading. They were assumed to develop skills, go through evidence analysis and evaluation, start experiencing, discussing, and speaking with their peers about their understanding. Problems were solved collaboratively and investigations were planned. Better learning would happen in collaborative environments than competitive ones. This model enabled students to raise questions, observe, go through analysis, start explanation, come to conclusions and ask new questions.

Scrutinizing the details achieved by the studies conducted in the past proves that though the 5E Instructional Model roots in Biological Sciences, this model can be adopted into research about the second language

(Ermawati, 2018; McElvain & Smith, 2016; Moses, Busetti-Frevert & Pritchard, 2015; Wale & Bishaw, 2020). The studies depicted positive effects both in cognitive development and consequently, verbal progress of bilingual kids such as 1) how to make previous knowledge active, 2) how to monitor comprehension, 3) how to predict results, and 4) how to plan (McElvain & Smith, 2016). It also manifests that inquiry-based contexts can boost not only content knowledge alongside critical thinking but also creativity and language development creativity (Moses et al., 2015; Wale & Bishaw, 2020). Moreover, the investigation by Ermawati (2018) also led to positive findings not only in reading comprehension proficiency development and students' engagements with challenging texts but also in activating their background knowledge, and increasing teamwork among them while speeding the learning process.

The above-mentioned literature emphasizes the significance relevant to inquiry-based manner of instruction in ESL contexts. Such supposition has considerably been considered as the philosophical base to adopt inquiry-based instruction which is vital in meeting the needs of present EFL students. As inquiries pave the way for the knowledge to be developed, so it is assumed to be in line with the modern discourse which is to prepare students for the current globalization era. As a result, inquiry-based learning has turned into the most appealing advocacy in education (McElvain & Smith, 2016).

This model adoption can aid in sequencing the reciprocal teaching process and strategies more systematically, hence; the progress obstruction in listening and reading performance and also comprehension is minimized. If an inquiry technique is effective, it will lead to meaning construction via self-discovery, then cognitive and also metacognitive skill ignition, and consequently, autonomous learning establishment (McElvain & Smith, 2016). Although rooted in science literature, both the concept and also mechanism are proved to be well-fit to ESL settings because the question formulations will lead to the formation of prediction and hypotheses so that the new

information can be evaluated. As peers start negotiation of the meanings and concepts with their prior knowledge, students' most recent understandings relevant to the current contexts are discussed with their peers (Van der Graaf, Segers & de Jong, 2020).

Limited numbers of causal-effect studies have been carried out to foster reading and listening skills among English language learners studying for IELTS by online activities taken out from 5E Learning Cycle Model. Available researches have concentrated on the model positive effects on cognitive development and consequently, verbal progress of bilingual kids (McElvain & Smith, 2016), content knowledge alongside critical thinking but also creativity and language development creativity (Moses et al., 2015; Wale & Bishaw, 2020), and students' engagements with challenging texts but also in activating their background knowledge, and increasing teamwork among them (Ermawati, 2018). No causal studies have done to examine the effect of the 5E-based online activities on listening and reading skills of IELTS students.

The findings of the current investigation **could make policymakers and educators** pay significant attention to 5E-based online activities extracted out of the 5E-Cycle Model as instructional activities in the format of a mixed-method study. Results might present 5E-based activities and practices which are proper and efficient for **professional learning** in all English academies. The results of this study could be summed up as practical knowledge to conduct 5E-based online activities within **an existing English curriculum**. This practical knowledge might shed a light, specifically, on **the IELTS curriculum** for both **professional learning programmers and English Instructors**.

Hence, the study drew upon inquiry-based learning to investigate the effect of 5E-based online activities on English language students' listening and reading performances. To achieve the aims of this study, the following research questions were presented:

1. Do 5E-based online activities significantly develop the English language students' listening performances?

2. Do 5E-based online activities significantly develop the English language students' reading performances?

METHODS

Participants

The participants were selected among Iranian English language learners who were studying at Islamic Azad University, Karaj branch and had not taken part in any IELTS courses in the past. They were selected among 21 to 24 year-old male and also female learners who were eager in taking part in pre-IELTS preparation courses.

A word-of-mouth snowball sampling was used for the participants to be identified so that learners could invite their peer classmates or friends who were interested to participate in such preparation class. The population was made up of 121 participants although 40 language learners were willing to take part in this preparation class and it is worth mentioning that 20 learners participated in the study via snowball sampling procedure.

After the pre-IELTS proficiency test was administered, the outcomes revealed that they were at pre-intermediate grade via the official band score depicted by IELTS. In other words, regarding the sampling procedure of the current study 60 students were considered as participants who took part in all phases of this investigation. In the next step, the researcher assigned 30 students randomly to the experimental group and the next 30 students to the control group.

Materials and Instruments

Two types of materials and one type of instrument were utilized to collect data: the applied materials were virtual classroom environment and Nearpod 5E-Based Online activities. Both pre-and post-IELTS reading and listening language proficiency tests which will be discussed under one title below were the instruments.

Virtual Classroom Environment: Easyclass

The virtual environment which was applied for conducting the study was called Easyclass at <https://www.easyclass.com/>. Students in both groups (experimental and control) signed up

there and left their assignments there. It was the location where students in the experimental group received and left their twelve 5E-based online activities (treatment).

Easyclass has been developed to provide teachers and learners a free digital class based on a system which is called Learning Management System (LMS). The LMS-based technology can be applied in education (Mayyas & Bataineh, 2019). Easyclass team has been made by Italian, Hungarian, and Romanian experts.

The sound, safe, easy-to-use and also, time-saving atmosphere of Easyclass makes teachers able to make up their electronic classes, restore their materials related to the online course, manage their class discussions, leave assignments for their learners, run tests and exams, assess and leave their feedback for their students (Mayyas & Bataineh, 2019). On the other hand, the classroom is not horizontal but vertical, as a result, Easyclass is in huge demand of sufficient convenience as an interactive virtual environment and it creates difficulties for participants to access Easyclass. Consequently; resource structure needs to be optimized (Lin, 2017).

5E-Based Online Activities

5E-based online activities were based on the 5E-phase referred to in 5E Learning Cycle Model (Engage, Explore, Explain, Extend and Evaluate) and had already been available on Nearpod at Nearpod.com. It was the site 5E-based activities were available. To know more about 5E-based activities, you can visit the link at <https://nearpod.com/t/english-language-arts/3rd/what-are-climate-and-climate-change-L42561263> (Note: the 5E-based lesson plan is given on slide 5, and the activities are only visible on laptop). The first researcher decided to transfer the mentioned activities to Easyclass since they were not free of charge.

Nearpod provides 5E-based content in English Language Arts (ELA), Social Studies, and Science. These ready-to-run assignments provide the instructors with the required 5E-based resources for a lesson that is entirely literacy-infused. Each lesson is planned around the 5E Learning Cycle Model so that

each lesson can be an inquiry-based learning experience.

The twelve present study assignments which contained 5E-based online activities had been categorized into 5 phases (Engage, Explore, Explain, Extend and Evaluate). These parts each had been composed of the following parts:

Engage phase: It contained examining some statistics on the given topic, prior knowledge which contained 1 question requesting students to manifest their personal information, field trip (a 3-dimensional photo of the topic in addition to one question), watching a short video in addition to some questions and findings part in which students concluded by answering some questions (Nearpod, 2022).

Explore phase: It contained introducing new related vocabularies, matching these words with their definitions, reading an article on the given topic to know more in addition to some relevant questions, think-pair-share in which there are 3 questions and students have to select one of them and discuss it in the discussion section of Easyclass (Nearpod, 2022).

Explain phase: It contained an open-ended question which is a request to explain the definition of the given topic or a related question, a slide explaining the answer to the previous question by Nearpod, another open-ended question, and again an open-ended question (Nearpod, 2022)..

Elaborate/Extend phase: It contained a relevant question, a slide presenting more data, another related question, and again a slide presenting more data. All these questions and slides aided learners to extend their knowledge via learning about the presented topic in the question and its relevant slides (Nearpod, 2022).

Evaluate phase: It contained a quiz containing 5 multiple-choice questions and a poll. The quiz and the poll created a chance for the learner to have reflection which was about to be evaluated (Nearpod, 2022).

Twelve of these inquiry-based activities were applied as assignments for students in the experimental group.

Pre- and Post- IELTS Reading and Listening Language Proficiency Tests

Two quantitative instruments were applied in this study. The quantitative instruments were two sets of real IELTS language tests which were taken from Cambridge IELTS General Training 14. Each test of pre-and post-IELTS reading and listening tests comprised 80 items, including two subsections: 40 reading questions, and 40 listening questions.

To choose a homogenous sample of participants for the study, the first researcher administered an IELTS reading and listening proficiency test and divided the sample into two groups. Meanwhile, it is worth mentioning that the number of participants in both the experimental and control groups was equal. The participants had 60 minutes for reading and 40 minutes for listening to answer all sections of the test. The internal consistency of the listening pre-and post-tests and also reading pre-and post-tests were estimated using Cronbach Alpha analysis which showed a satisfactory reliability coefficient ($r=.72$, $r=.75$, $r=.79$ & $r=.83$, respectively) (Hulin, Netemeyer, & Cudeck, 2001).

To ensure the reliability and validity of the IELTS test, the researchers referred to the IELTS booklet. According to the IELTS official booklet, this international test is validated and is considered an established and reliable test worldwide. Moreover, there is an ample number of studies in the literature that investigated the reliability and validity of this test (e.g., Hashemi & Daneshfar, 2018; Marina, 2018).

Procedure

The pre-IELTS course which was held in Karaj lasted for 12 classes. The duration of the course was 12 weeks: There was one class each week which lasted about 2 hours.

To conduct this research, the first researcher had the role of the teacher for both control and experimental groups. That was to reduce the impact of external variables that could decrease the internal validity of this study. Moreover, the implementation of 5E-based online activities sought teachers' familiarity with the core concepts and also theoretical issues followed

by practical issues. Hence, if another teacher were assigned, there possibly would be unequal performances endangering the research project validity.

The study treatment was conducted for 12 weeks; however, there were two extra sessions for students before and one extra session after the treatment period. Before starting the treatment period, there were two extra sessions: the first session was considered as an introduction class to educate students about Easyclass and Nearpod. The second extra session was allocated for the administration of two pre-tests in reading and at the same time, in listening. In this session, the participants in both experimental and control groups were required to take their IELTS reading and listening pre-tests which took long about 100 minutes: 60 minutes for their reading test and 40 minutes for their listening exam. The session was face-to-face and all participants were present. All the students in both groups received the same questions.

The twelve 5E-based online activities were utilized as treatment and uploaded them on Easyclass as assignments for the experimental group. These assignments were each allocated a one-week time limit to be done on Easyclass by students: they received one of these assignments each week. Therefore, students in the experimental group received consecutively 12 assignments in 12 weeks. It is worth mentioning that each new assignment was automatically removed from the class at the end of its allocated week; however, the students who hadn't sent their assignments on time were given more time to assign and leave them on Easyclass.

Furthermore, six IELTS reading and also six IELTS listening tasks which were not 5E-based were assigned for the students in the control group to be picked up, and left on Easy class. Consequently, the students in the control group received 12 tasks as their assignments: one-week reading task and the next week listening task and the same trend to the last week of the course. The researcher uploaded them on Easyclass for the control group and allocated each a one-week time limit as one week. Each assignment became visible for students in its due time and meanwhile, it became removed

from Easyclass when its time limit was over, however, the students were given time to send their delayed assignments later.

The teacher-researcher started teaching the pre-IELTS course to both 30 students in the control group and 30 students in the experimental group into separate blended class classrooms. Students in the control group received conventional teaching usually given to the students in pre-IELTS courses and they were supposed to pick up their pre-defined assignments on Easyclass and consequently, assign and leave them again there in their appropriate allocated time. They received one IELTS task each week: either Reading or listening.

Students in the experimental group had the same period as the control group for their pre-IELTS course. They also received the conventional teaching usually given to students in the same course and they were required to download their assignments (5E-based online activities/ treatment) which had already been set for them on Easyclass and consequently, assign and upload them on Easyclass in its appropriate allocated time. They received one assignment each week. Some parts in the 5E-based online activities demanded them to discuss the question (often open-ended) with other partners. Easyclass gave them the chance to utilize its discussion section online and discuss the issues with other classmates which were welcomed by most of them. Meanwhile, Easyclass provided them the chance to even communicate with the teacher in the same discussion section or the inbox section of the online class. Some activities that existed in the treatment were very challenging; therefore, the students were allowed to have a partner to collaborate with them if it was required.

Assignments for both experimental and control groups could be uploaded on Easyclass in three possible manners: in an image, or files (PDF/word documents or voice). And students preferred uploading their assignments in word or PDF more than the 2 others.

In the last phase, students in both experimental and control groups took their IELTS reading and listening final tests which were looked upon as their post-reading and listening

IELTS test to examine the reading and listening performances during the course. This session was another extra session allocated for the final test and took about 100 minutes: 60 minutes for their reading and 40 minutes for their listening tests. It was not held online, and all the students in both groups received the same questions and were present.

Data Analyses

To ensure that the data analysis procedure was done clearly and the results meet robustness and precision, the researcher considered all assumptions needed for an independent sample t-test before running the data analyses. According to Cohen (2013) and Hancock, Mueller & Stapleton (2010), the assumptions of normality, independent observation, homogeneity of variances and linearity should be observed in a two independent sample t-test scenario. Consequently, all the above-mentioned assumptions were observed before running the data analysis.

Inferential data analyses were conducted to analyze the effect of 5E-based online activities on English language students' reading and listening performances. To do so, listening and reading pre-test and post-test gain scores of both groups were computed respectively. Consequently, an independent sample t-test was conducted on the gain scores of the two groups. The effect size was computed to calculate the magnitude of the impact.

RESULTS

To investigate the extent to which 5E-based online activities significantly developed the English language students listening performances, the listening gain scores for the pre-test and post-test of the two groups were computed. Then, an independent samples t-test was run on the gain scores of the two groups. As was mentioned earlier, all the assumptions related to running an independent sample t-test were observed. The resulting Skewness/Kurtosis ratios fell within the range of +/-1.96 indicating that the two sets of data were normally distributed. Therefore, running an independent sample t-test was warranted (see Table 1).

Table 1
Results of Independent Samples T-Test between the Listening Gain Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gain Listening Both Groups	Equal variances assumed	10.07	.122	-14.89	58	.0001	-2.700	.181	-3.06	-2.33
	Equal variances not assumed			-14.89	45.3	.0001	-2.700	.181	-3.06	-2.33

To verify the equality of the variances of the two groups, a Levene's test was performed. With $P=0.122>0.05$, it was concluded that the two groups enjoyed homogeneous variances. The significant value equaled .0001 which was lower than the confidence level of 0.01 indicating that the two groups were significantly different in terms of their listening gain scores. Moreover, the mean of listening gain scores for the experimental group was bigger than that of the control group ($2.88>0.18$). Thus, it was inferred that the administration of 5E had a positive and significant effect on the listening performance. To compute the magnitude of the impact, the effect size was calculated. The effect

size was estimated to be 3.84 which was a large effect size (Cohen, 2013).

Furthermore, to investigate the extent 5E-based online activities significantly developed the English language students' reading performances, the gain scores for the pretest and posttest of the two groups were computed. Then, an independent samples t-test was run on the reading gain scores of the two groups. The resulting Skewness/Kurtosis ratios fell within the range of ± 1.96 indicating that the two sets of reading data were normally distributed. Therefore, running an independent sample t-test was guaranteed (see Table 2).

Table 2
Results of Independent Samples T-Test on the Reading Gain Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gain Listening Both Groups	Equal variances assumed	8.62	.125	-21.20	58	.0005	-2.53	.11947	-2.77	-2.29
	Equal variances not assumed			-21.20	38.80	.0005	-2.53	.11947	-2.77	-2.29

To verify the equality of the variances of the two groups, a Levene's test was performed. With $P=0.125>0.05$, it was concluded that the two groups enjoyed homogeneous variances. The significant value equaled .0005 which was lower than the confidence level of 0.01 indicating that the two groups were significantly different in terms of their reading gain scores. Moreover, the mean reading gain scores for the experimental group were bigger than that of the control group ($2.65>0.11$). Therefore, it could be concluded that the administration of 5E had a positive and significant effect on reading performance. To compute the magnitude of the impact, the effect size was calculated. The effect size turned out to be 5.47 which was a large effect size (Cohen, 2013).

DISCUSSION

This study examined the effect of 5E-based online activities on Iranian EFL learners' listening and reading performances. The main focus of the investigation was relevant to specifying how the 5E Learning Cycle Model, which is based on inquiry learning and constructivism, was related to learning language and listening and reading performances. Interpreting the 5E Learning Cycle Model and the Inquiry-based Learning (IBL), a vital outlook on the relevant literature backs up the claim put forward by Lee (2014) about the ambiguity existing in the application of the inquiry-based techniques and activities in ESL classrooms. Its transfer and application within ESL settings are not only conspicuously glaring but also scarce.

According to Bybee (2006), the application of 5E Learning Cycle Model is capable of activating students as much as possible via group discussion since students can feel much more confident and convenient to convey their opinions. It is in the line with Bybee's claim as 5E Learning Cycle Model has been composed of a series of phases containing activities that will lead into students' mastery over competencies. The mentioned competencies in learning will be gained via being actively engaged in the process of learning. It will make learners capable of understanding the topic while it creates a distinct learning experience for

students in the classroom. It is also in accordance with Tuna and Kacar (2013)'s study findings, indicating the 5E Model aims at the process of making discoveries and association with the pre-built knowledge of newly-presented concepts by students.

For the last decade, studies about the application of inquiry-based learning into teaching and learning English as the second language were highly implemented overseas the same as those done by Moses et al. (2015) from the United States of America, McElvain and Smith (2016) from Northern California, Ermawati (2018) from Indonesia, Van der Graaf et al., (2020) from the Netherlands and Wale and Bishaw (2020) from Africa. All of the mentioned studies were in line with the positive role of 5E Learning Cycle Model activities and consequently, verbal progress of bilingual kids such as how to make background knowledge active, how to monitor comprehension, how to predict results, and how to plan. It also manifests that inquiry-based contexts can boost not only content knowledge alongside critical thinking but also and creativity and language development.

The outcomes indicated that implementing 5E-based online activities can enhance EFL learners' reading and listening performances. The findings confirm those of previous studies (Ermawati, 2018; McElvain & Smith, 2016; Moses et al., 2015; Wale & Bishaw, 2020) implying that 5E-based online activities lead to better performances in L2 settings. The outcomes are also in agreement with an investigation by Ermawati (2018) which demonstrated the significance of 5E-based activities in EFL learners' reading performances.

The findings of this study, however, ought to be taken into consideration and applied cautiously since there were restrictions to the current investigation which are worthwhile to be cited since they presented implications for further studies. First, future studies are demanded to utilize non-online survey platforms so that much better generalizable results can be achieved as the most fundamental restriction of this investigation was relevant to an online survey platform which was not responding if a huge amount of students tended to upload their done assignments. Unfortunately, online

survey platforms create an opportunity for participants in both groups to refrain from answering some questions since they suppose that they are not as visible as they should be and this fact could potentially lead to random measurement errors and it possibly can obstruct generalizability of the data, although there was an attempt to impede this restriction by enhancing the population of participants from 20 to 30 in each experimental and control group. Thus, future research papers are demanded to utilize non-online survey platforms to gain much better generalizable outcomes.

Furthermore, setting and time could be other elements that restricted this study. This study was restricted to only one IELTS academy in Karaj and the duration of research conduct was limited to 12 classes. Meanwhile, later studies are invited to seek larger samples and much more time for the matter of validity.

CONCLUSION

The study was carried out in reaction to the scarcity of this study on the effect of 5E-based online activities on English language students' reading and listening performances. The central goal of this research was to achieve more insights into the experiences of IELTS learners to inform syllabus designers and lesson planners about the significance of the activities which can be extracted from the 5E Learning Cycle Model.

The current study put forward empirical evidence for the role of 5E-based online activities in Iranian EFL students' reading and listening performances while no reading and listening study has been carried out to investigate the role of the mentioned activities in reading and listening performances. The findings resulting from inferential data analyses suggested that 5E-based online activities play significant roles to enhance the listening and reading performances of IELTS students. This result highlights that low levels of listening and reading performances may be much more associated with a lack of attention to students learning styles and also to their personal experiences. Inquiry-based learning can enhance reading and listening skills among language learners (Ermawati, 2018; Lee, 2014). 5E-

based online activities based on 5E Learning Cycle Model are learner-centered and are based on the self-regulated learning principle achieved by inquiry-based learning. This research supports the findings of Mohseni and Satariyan (2017). They believed that student-centered educational contexts are just outcomes of the self-regulated learning principle. This study is in line with the study done by Rahmanpanah and Mohseni (2017). According to them, it is essential to highlight the role of students' engagement in the learning environment for all practitioners since positive learning outcomes from the students can be created.

This study has also some limitations in terms of online survey platforms and the low capacity of Easyclass, especially; when the majority of students tried to enter the virtual classroom at the same time. Delimitations also lie in context, sample, and data treatment period. The scope of the study was limited to 60 English students. Therefore; the results may not fully reflect that of the whole population. Despite the above-mentioned limitations and delimitations, it is believed that the result of this research could play a springboard role for much more studies on the effect of 5E-based online activities on language skills.

This study can have fruitful outcomes for teacher development courses as well. It can make teachers aware how the activities and tasks based on the 5E Learning Cycle Model can Foster language learning. To do so, teacher trainers are required to educate teachers not only about the relevant model but also about the online environments and platforms working based on such kinds of activities, and also teachers should be involved in reflection. Having such knowledge, inquiry-based learning can occur more effectively in a classroom environment among language learners.

The findings of this study can aid language and IELTS curriculum developers to know the value of applying 5E-based activities not only to save students time but to foster their language. The achieved outcomes of the research can equip higher education authorities, particularly; policymakers with the recent perspectives regarding English language learning and motivate them to consider more effective

online platforms for students' better performances in language four main skills.

Moreover, the current investigation has suggested some further insights into our conceptualization of the 5E Learning Cycle Model and its role in second language performance. It is worthwhile mentioning that this paper serves as one of the few empirical investigations that explored how 5E-based online activities were related to the International English Language Testing System (IELTS) and in other words to Teaching and Learning English as the Second Language (TEFL).

The results of the present study encompassed theoretical and practical implications. Regarding the theoretical implications of the research, the findings revealed that the 5E-based online activities led to the enhancement of EFL learners' reading and listening performances. Application of learning-teaching activities which are planned will assist the students to acquire by themselves their knowledge regarding a specific concept. Utilizing 5E Learning Cycle provides to be engaged in a topic through multiple learning phases: to have their exploration about a subject, to support their experience by defining the topic, to achieve much more detailed data about their learning, and to evaluate it.

Regarding the practical implications of the research, the outcomes were persuasive enough to remind the educational society to pay more attention to empowering and training teachers. A plethora of studies, including the current investigation, depicted that language teaching was not defined merely as delivering some data to learners, but it was to deal with considering a variety of personal social cognitive and also affective factors. Teacher training must encompass the fact that each teacher is instructing the whole person (Rogers, 1951).

History has been hidden behind each face alongside a bunch of personal feelings, experiences, hopes, and concerns. Consequently, any attempt to impact learners' dispositions, perceptions, or even feelings ought to be carried out to target at central-self. To put the above-mentioned points into practice, all the teachers need to create a fascinating learning environment that is not only pleasant but also engaging so that learners have access to the most tangible motivating tasks and activities to keep working.

It is desired that language learners will find the culmination of all the activities, tasks, and syllabi alongside other items enough relevant and meaningful to their ultimate achievements. This study could also be carried out to examine the other two productive language skills: speaking and writing. Since the study participants showed lots of interest in the parts and phases of the treatment, the effect of the 5E-based activities can also be studied on students' perception for further research.

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