

## Research Article

# Comparing the Effectiveness of Massive Open Online Course (MOOC) and Flipped Instruction on EFL Learners' Reading Comprehension

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This study investigated the effects of massive open online course (MOOC) and flipped instruction on enhancing Iranian EFL learners' reading comprehension. For that purpose, the Oxford Quick Placement Test (OQPT) was given to 123 Iranian EFL students, 90 of whom were chosen and separated into different experimental groups (EGs)—MOOC ( $n = 30$ ) and flipped ( $n = 30$ )—and a control group (CG) ( $n = 30$ ). As a pretest, all chosen groups were given a reading test. The MOOC EG was then given the online-delivered treatment utilizing Skyroom, in which a reading text was taught to the experimental participants online for every session. At a specific time, the online class was held and one text was worked, and the teacher explained the text online and the students asked their questions and problems immediately. The instruction was implemented to the flipped EG through a flipped instruction. They were sent the messages over WhatsApp since they all had quick access to it. The students were asked to practice and learn the texts both individually and in pairs before participating in the face-to-face class. The CG, on the other hand, was not given the Internet-delivered intervention; instead, they were instructed in a traditional face-to-face classroom. When the students attended the class, the teacher provided some background knowledge for them and then he started reading and translating the text, provided the meanings and definitions of the new words. Twelve English texts were taught to each group, and after teaching all texts, the posttest of reading was carried out to all three groups to determine the usefulness of the treatment on their reading comprehension. The one-way ANOVA test findings revealed a significant difference between the posttests of the EGs and the CG. The results showed that the EGs considerably outperformed the CG in the reading posttest ( $p.05$ ). Furthermore, the findings revealed that there was no substantial difference between the posttests of the MOOC and the flipped groups.

## 1. Introduction

Technology has been used in English language teaching and learning since the early 1970s, and it has broadened quickly since then [1]. In the context of teaching EFL, technology is employed extensively [2]. It has become more important for learners to incorporate new instructional techniques into their education, and they may choose the time and location in which they study and the pace of their education [3, 4]. Learners and users of online language learning environments may now make use of a plethora of new and exciting features made possible by contemporary technological advancements.

Over the past years, different English teaching methods and various language learning procedures have been developed and popularized to facilitate and support language learning. However, recent approaches regard the role of the learners as the most central and particular feature in the procedure of language learning. As a result, learner factors such as enthusiasm, genius, age, gender, occupation preference, cultural background, cognitive style, and learning strategies have been explored widely [5, 6]. Developments in education have been brought about by extensive Internet usage, a larger variety of Web technologies, and an astronomical growth rate in the use of personal computers. When it comes to information and communication technology, new learning tools and innovative teaching techniques are needed to enhance cooperative learning and enable access to knowledge even before and after the class time [7, 8].

Massive open online courses (MOOCs), an innovative pedagogical phenomenon that has quickly permeated higher education, are one of the technologically advanced instructional methods. MOOCs are a collection of courses that actually happen online and are accessible to anyone who wishes to benefit from the best teaching quality of leading prestigious universities for nothing [9–11]. One of the most significant advantages of MOOCs is that they may be accessible by a large number of people free of charge. According to Altinpulluk and Kesima, a major advantage of MOOCs is that they are free to join and can be integrated with social media platforms. MOOCs, as described by Esposito [12], are a newly popular kind of distance education in which anybody, anywhere on the planet, may sign up for and participate in programs.

MOOCs combine social networking, open access to online materials, and the guidance of well-known experts in their fields in the development of a learning program [13]. Furthermore, MOOCs are most effective when students manage their involvement according to their own goals, past experience, and mutual interests [10, 14–16]. MOOCs can help students empower their communication skills outside the classroom and enhance community engagement and exchange of knowledge by opening up considerable opportunities for social interaction and learning experiences [17–19]. Note that “MOOCs can provide the best platform for learners to improve on their collaborative learning along with their communication skills” (p. 77).

According to Li [20], “MOOCs are open courses that are delivered over a network platform, therefore expanding the

scope of the conventional teaching approach” (p. 1273). MOOCs are very effective venues for remote education, particularly when it comes to merging teaching and learning activities with technology [10, 21–23]. MOOCs, in general, have three distinguishing characteristics: these courses have the following characteristics: (a) they are Internet-based courses with audiovisual teaching/learning materials that can be used entirely online, (b) they are free, and (c) they are massive, which means that a large number of people can learn online without the need for individualized teacher assistance [9, 24, 25].

Students may become active in the learning process via MOOCs, which facilitate interactions and networks of people through the appropriate use of shared resources, opened files, and linked users, who can design and construct their educational experiences [26]. According to Yasar [27], some specific characteristics of MOOCs, such as ease of access, affordability, openness, and comfortability, “allow a person’s message to travel around the world and ultimately end up back with the same person after being reacted to and made a comment on by an infinite number of participants across borders” (p. 9).

The other modern instructional method is flipped instruction. Brame [28] defined flipping the classroom as exposing students to new material outside of class through reading or lecture videos and then using class time to assimilate the knowledge obtained from new material through problem-solving, discussion, or debates. An educational approach in which classroom and homework are inverted is referred to as flipped teaching ([29], p. 16). As Merrill explains, “instructional delivery may occur outside of the class, most notably via video collected through Internet sites” (p. 16). According to AlJaser [30], the flipped classroom is a learner-centered teaching and learning model that involves flipping the classroom upside down “strive to replace traditional lectures with active collaborative tasks involving the Internet and computer technology to convey a video lecture that students can watch at home, followed by a discussion in pairs about what they have learned” (p. 69). Flipped learning is concerned with the idea that students should come to class more prepared than before [31]. The flipped classroom technique aims to motivate students and engage them interactively, through presenting new information outside of class and assigning class time to higher-level cognitive learning [10, 32, 33]. Using flipped learning enables students to communicate more in class and receive immediate feedback from the teacher [31]. According to Doman and Webb [34], the main motive behind flipping the classroom is reducing the teacher’s talking time in the classroom and providing students with opportunities to engage in discussions with peers. In other words, increasing students’ engagement is considered the main idea behind flipped classroom model [35, 36].

The flipped classroom technique, as per Harris et al. [37], “places the educational burden on the learner; teachers become the specialists who improve the skills of their learners and remove codependency.” (p. 331). In their early flipped classroom, Bergmann and Sams [38] mentioned that they mostly utilized movies. There are many ways students

may use technology in their learning activities, such as using the Internet to find information on a topic or to participate in a conversation on a blog or in a discussion forum [10, 39, 40].

Following the descriptions above, learners in a flipped classroom first use online materials outside of the classroom and then they engage in classroom discussions relying on those resources [41]. Flipped classrooms have been shown to boost student engagement, motivation, teamwork, and overall performance, according to a number of research studies [10, 42–44].

The MOOC and flipped teaching may be utilized to help English foreign language (EFL) students improve their comprehension of reading. Reading comprehension refers to one's capacity to fully comprehend and summarize the contents of a literary text. How well kids can summarize and comprehend what they have read is referred to as reading comprehension abilities. One of the primary purposes of reading for students is identifying the major concept of a sentence, paragraph, or discussion, as well as its key points, flow, and directions. They also want to discover how reading materials are organized, as well as their visual imagery. Other goals of reading are synthesizing the discourse read, predicting meaning and conclusion, identifying truths and perspectives, using multiple sources such as encyclopedias, guide books, and maps, and using digital annotation tools to gather information [45].

Teaching reading skill has a pivotal effect on learning and teaching English both as a second and foreign language. Learning English is must since the English language is a medium of international communications. Language is needed for performing several activities and tasks, such as educational, political, and socioeconomical activities [46]. Its significance is well identified in the EFL contexts. In the information era, curriculum developers should revise educational activities and processes to prepare the pupils for practical application. Education should focus on the enhancement of the four main skills in English learning. Carrell [47] regards reading comprehension as the most important skill in learning and mastering a second or a foreign language. Reading comprehension is the mother of other skills, it is a fundamental means that helps to learn other skills, and it is one of the most significant skills in our daily life. In fact, almost all children who start school have the hope of learning to read. Reading ability is one of the main needs of all students.

Alderson [48] considers reading skill as “a pleasurable task that makes the reader enjoy” (p. 28). By reading, pupils are exposed to novel vocabulary items, grammatical structures, and even novel cultures. Despite the significance and usefulness of reading comprehension, most Iranian EFL learners suffer from reading comprehension difficulties and challenges. Despite all efforts to teach reading, EFL students seem to lost interest in reading and get passive in reading comprehension.

The theoretical framework behind this research is the connectivism that is a net-based learning phenomenon. It allows students to learn through both technology and social networks. According to Siemans [49], learning should be

happened in networks to promote social network inter-connectivity, thereby connecting together a broad variety of target groups with the active engagement of social partners. This idea was further expanded by Siemans [49]. Siemans [49] described the connectivism theory as a prominent member of behaviorism, cognitivism, and constructivism, characterizing these social partners as a network of connections between entities and referring to these entities such as nodes, which he made reference to as groups, systems, individuals, communities, and social networks. Nevertheless, Siemens [49] critiqued the existing traditions for being “limited due to their intrapersonal view of learning, their failure to address the learning that is located within technology and organizations, and their lack of contribution to the value judgments that need to be made in knowledge-rich contexts” ([50], p. 1064).

To explore the effects of MOOC and flipped instructions, some studies were carried out. Ghemmour and Sarnou [9] sought to examine the possibilities of MOOCs at Abdelhamid Ibn Badis University Algeria, as well as the learners' and instructors' perspectives regarding their incorporation, in teaching and learning EFL. This study enabled the researchers to delve into a new dimension of EFL learning and teaching in the Algerian environment. The primary concern in this scenario was the adoption of MOOCs at Algerian universities. The research enrolled 42 EFL learners to collect as much data as possible in order to confirm or refute the study's primary premise. The data indicated that MOOCs boost student productivity and decreased instructor centeredness. In another study, Hashim and Yunus [19] studied MOOCs and their effects on English communication skills. Similarly, Yunus et al. [51] investigated the potential benefits of MOOCs for communication. Both studies revealed that a high degree of interaction and varied activities such as a good blend of teamwork, exercises, and discussions prove MOOCs to be one of the most effective digital tools in helping learners enhance their communication skills and critical thinking and problem-solving skills.

Yasar [27] aimed to scrutinize the effect of MOOC on the academic achievement of EFL learners regarding their English communication skills, and the study also aimed to explore EFL learners' perceptions on integrating a MOOC into their traditionally delivered course. The participants were 31 freshmen learners who took part in a compulsory course at a public university in Turkey. The results revealed that the use of MOOC significantly improved EFL learners' English communication skills. In another research, Hashemifardnia et al. [52] inspected the effect of utilizing flipped classrooms on helping EFL students develop their speaking skill. To achieve this purpose, 60 intermediate EFL learners were chosen and assigned to groups of flipped and non-flipped. Then, all participants were administered a speaking pretest. Later, the flipped participants received the treatment via a flipped-based instruction, but the non-flipped participants were trained traditionally. At the end of the treatment, an attitude questionnaire was given to the flipped participants to check their opinions about applying to the flipped classroom. The outcomes proved that the flipped group did better than the non-flipped group on the speaking posttest. In addition, the findings revealed that the

participants presented desirable attitudes toward using flipped instruction in English language learning.

Reflianto et al. [53] sought to determine the influence of Internet classroom learning on reading comprehension abilities via the use of Microsoft Team and WhatsApp, as well as the involvement of students. The study used a quasi-experimental design using a two-by-three factorial pre-posttest nonequivalent CG design. The sample for this research consisted of first-year students enrolled in a management economics study program. The two-way ANOVA test was used to analyze the data. The findings revealed that the online flipped learning strategy utilizing Microsoft Team outperformed WhatsApp in terms of increasing learners' engagement and reading comprehension abilities. Moreover, EFL learners' reading achievement and self-efficacy were researched by Fathi and Barkhoda in 2021. A total of 48 Iranian EFL students took part in the study and were divided into two groups at random: one experiment group and one CG. In three months of training, the EG got an education through electronic materials while the CG learned using traditional methods. Both L2 reading performance and reading self-efficacy were shown to be higher among students who had been taught using a flipped classroom model.

Fardin et al. [54] examined the effects of flipped teaching on the reading comprehension and grammar development of Iranian intermediate EFL students. Using convenience sampling in the form of two intact classes, the researchers selected 60 Iranian intermediate EFL learners from a language institution in Kerman, Iran, to participate in the research. Then, to ensure randomization, the two classes were divided into two groups, which were designated as the flipping group and the CG. Afterward, the two groups were subjected to 14 treatment sessions during which reading comprehension and grammar were delivered to the flipping group with explicit flipped teaching and to the CG via non-flipped mainstream education that was employed at the institution. In this research, the researchers discovered that flipped teaching was much more beneficial than traditional instruction in improving the reading comprehension and grammatical learning of Iranian intermediate EFL learners.

Reviewing the related literature, there have been some studies investigating the effects of the MOOC and flipped instructions on learning some skills and subskills of the English language including vocabulary, writing skill, and self-efficacy. Few numbers of studies in Iran, however, compared the influences of the MOOC and flipped instructions on Iranian EFL learners' reading comprehension; therefore, this study intended to investigate the effects of the MOOC and flipped instructions on developing Iranian EFL learners' reading comprehension. Accordingly, one comparative question was posed below:

RQ. Is there any significant difference between the effects of the MOOC instruction and the flipped instruction on EFL learners' reading comprehension?

## 2. Methodology

*2.1. Participants.* To do this research, 90 Iranian EFL learners were selected among 123 students through a convenience sampling method. They were selected from an

English Language Institute in Ahaz, Iran. Their English level was upper-intermediate, which was determined based on their band score on the OQPT. They have studied English since 2014. The selected participants were randomly assigned to two EGs (MOOC and flipped) and a CG. It should be mentioned that only males were included in this research because the researchers accessed them more easily. The main requirement that was necessary for English learners to be selected as the respondents of this research was their English proficiency level since we supposed that the upper-intermediate students were more familiar with technology to use the MOOC and flipped instructions more efficiently.

*2.2. Instruments.* To have homogeneous participants, the researchers used the OQPT as the first instrument in the current research. This tool was used to collect information on the learners' proficiency. The OQPT had two sections: one section included 40 items measuring knowledge of grammar and words. The other section had 20 items in the form of the cloze test. According to the OQPT rules, the students who scored between 40 and 47 were at the upper-intermediate level and were considered as the participants of this research.

The second tool applied in this research to gather the needed data was a researcher-designed reading pretest that was created according to the contents of the participants' course book. It was a reading comprehension test of 40 objective questions. It had true or false, fill in the blanks, and multiple-choice questions. The reliability of the mentioned instrument was .87, which was calculated using the KR-21 formula. In addition, the validity of the pretest was verified by four English experts.

The third instrument that was employed in this study was a researcher-designed reading posttest. The researchers made some subtle differences in the pretest and used it as the posttest. All characteristics of the reading posttest including the contents of the items and the number of the items were similar to the reading pretest. The researchers only changed the order of the items and the options to remove the participants' pretest reminding. The posttest was given to measure the effects of the treatment on the students' reading comprehension improvement. Using the KR-21 formula indicated that the reliability of the posttest was .84. The reading posttest was validated by four English instructors.

*2.3. Data Collection Procedure.* To do this study, first, the researchers attended one of the language institutes in Ahvaz, Iran, and gave the OQPT to 123 EFL learners. Then, according to their scores on the OQPT, 90 EFL learners (upper-intermediate level) were selected for the target participants of the research. After the participants' selection process, the researcher randomly assigned them to two EGs (MOOC and flipped) and a CG. After that, a pretest of reading comprehension was administered to all participants and then they received the treatment differently. One EG was instructed by applying an online-based instruction. Skyroom was used to teach twelve English texts to this group. At a specific time, the online class was held and one text was

TABLE 1: Descriptive statistics of reading comprehension pretest.

	N	Mean	Std. deviation	Std. error
Control	30	14.36	2.44	0.44
Flipped	30	14.26	2.74	0.50
MOOC	30	15.00	2.84	0.51
Total	90	14.54	2.71	0.28

TABLE 2: Inferential statistics of reading comprehension pretest.

	Sum of squares	Df	Mean square	F	Sig.
Between groups	31.48	2	15.74	2.18	0.11
Within groups	626.83	87	7.20		
Total	658.32	89			

TABLE 3: Descriptive statistics of reading comprehension posttest.

	N	Mean	Std. deviation	Std. error
Control	30	15.00	2.22	0.40
Flipped	30	17.60	1.37	0.25
MOOC	30	18.43	1.04	0.18
Total	90	17.01	2.18	0.22

TABLE 4: Inferential statistics of reading comprehension posttest.

	Sum of squares	Df	Mean square	F	Sig.
Between groups	192.42	2	96.21	36.30	0.00
Within groups	230.56	87	2.65		
Total	422.98	89			

worked, the teacher explained the text online, and the students asked their questions and problems immediately. The teacher provided the students with some feedback and helped them learn each text. The main idea of each text and the definitions and the synonyms of the new words were provided for the students in the Skyroom. The other EG was trained using a flipped-based instruction. Twelve reading texts were sent to the students via using the WhatsApp platform. It should be said that two or three days prior to holding the face-to-face session, one reading text was sent to participants via the WhatsApp application. The students were asked to practice and learn the text both individually and in pairs before participating in the face-to-face class. In fact, the students themselves were responsible for their own learning. The participants in the CG were taught in a traditional classroom, which was deprived of the Internet and the texts were instructed in a face-to-face classroom. When the students participated in the class, one text was instructed to them by the teacher. First, the teacher provided some background knowledge for the students, second, he started reading and translating the text, provided the meanings and definitions of the new words, and finally required the students to answer the reading questions.

The whole instruction will take 15 sessions, in which 55 minutes was allocated for each. The students were homogenized in session 1; the selected participants were pretested on reading in session 2, in 12 sessions, the researcher taught 12 reading texts to the three groups, and in

the last session, the researcher administered the reading posttest to find out the probable effects of the treatment on the students' reading comprehension.

The obtained data through the above-stated procedures received statistical analyses based on the objectives of the research. Therefore, the statistical tools including the one-way ANOVA *t*-test were run to measure the effects of the MOOC and flipped instructions on the reading comprehension of Iranian EFL learners.

### 3. Results

The collected data were analyzed in the following tables.

As seen in Table 1, the CG's mean score is 14.36, the flipped group's mean score is 14.26, and the MOOC group's mean score is 15.00. Based on the mean scores, we can conclude that the three groups were at almost the same reading comprehension level before conducting the treatment.

Table 2 shows the score differences in the three groups in the reading pretest. Because Sig (0.11) is higher than (0.50), the differences between the groups are not significant at ( $p < 0.05$ ). In fact, they had the same reading performances before receiving the treatment.

Table 3 depicts that the mean score of the control participants is 15.00, the mean of the flipped participants is 17.60, and the mean score of the MOOC group is 18.43. Seemingly, both EGs outperformed the CG on the reading posttest.

Table 4 indicates the scores of the three groups in the reading posttest. As Sig (0.00) is less than (0.50), the differences between the three groups are significantly remarkable at ( $p < 0.05$ ). It can be said that the EGs outflanked the CG in the posttests of reading.

In Table 5, a post hoc Scheffe test is run to compare the scores of all groups in the reading posttest. Based on the

TABLE 5: Post hoc Scheffe test, multiple comparisons (posttest of reading comprehension).

(I) groups	(J) groups	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					Lower bound	Upper bound
Control	Flipped	-2.60	0.42	0.00	-3.64	-1.55
	MOOC	-3.43	0.42	0.00	-4.48	-2.38
Flipped	Control	2.60	0.42	0.00	1.55	3.64
	MOOC	-0.83	0.42	0.14	-1.88	0.21
MOOC	Control	3.43	0.42	0.00	2.38	4.48
	Flipped	0.83	0.42	0.14	-0.21	1.88

above outcomes, there is a significant difference between the posttest scores of the CG and the posttest of both EGs ( $p < 0.05$ ), while there are no considerable differences between the reading posttests of the EGs ( $p < 0.05$ ).

#### 4. Discussion and Conclusion

The findings of the one-way ANOVA and post hoc Scheffe test revealed that those groups who received the treatment using the MOOC and flipped instructions conducted very better than those who had a traditional reading instruction. Based on the gained results, we can contribute the betterment of the EGs to the MOOC and flipped instructions.

The previous researchers proved the positive influences of using the MOOC and flipped instructions on boosting EFL learners' English language learning. For example, references [19, 51] investigated the potential benefits of MOOCs for communication and revealed that MOOCs helped learners enhance their communication skills and critical thinking and problem-solving skills.

In addition, our study is supported by [27] who investigated the effects of the MOOC instruction on the academic achievement of EFL learners regarding their English communication skills. The outcomes of his study revealed that the use of MOOC significantly developed EFL learners' English communication skills.

Furthermore, the outcomes of the present investigation are in line with [52] who inspected the effect of utilizing flipped classroom on helping EFL students develop their speaking skill. Their results proved that the flipped group did better than the non-flipped group on the speaking posttest. Also, the results of our study are in accordance with [55], who researched the impact of a flipped classroom on EFL learners' reading performance and self-efficacy, came up with the following findings: they discovered that the learners in the flipped group significantly outperformed those in the non-flipped group in terms of both L2 reading performance and self-efficacy in reading, according to the findings of their study.

Furthermore, the findings of this research provide credence to the findings of [54], who investigated the impact of flipped teaching on the reading comprehension and grammatical development of Iranian intermediate EFL learners. They discovered that flipped training was much more successful than traditional education in improving the reading comprehension and grammar skills of Iranian intermediate English language learners.

The success of the EGs in the present research might be attributed to the fact that they were given a variety of activities to do, such as communicating with other students, viewing films, and participating in group discussions. These arguments provide credence to [56], who discovered that learners enrolled in online courses were more open to collaborative learning as the course progressed. Thanks to greater relationships and discussion between many peers, the educational process in the MOOC-based and flipped teaching models can be likened to the positive outcomes of our research. The instructional design in the MOOC-based and flipped instruction models makes the course content more noteworthy for the students and assists them in internalizing the content of the lessons. According to [57, 58], more connections with peers, intriguing cooperative assignments, and prolonged in-class time for practicing all contributed to an improvement in participants' success in their learning process.

It is also important to note that in flipped classrooms, rather than dedicating a large amount of class time to teacher lectures, much time is spent on the interactional use of language, discussion and debate, and negotiations. This is important in validating the influence of MOOCs and flipped instruction on EFL learners' reading comprehension [59]. This tendency improves participants' agency in the classroom, which has been frequently shown in the literature to play a role in English language learning [60]. Another potential explanation for the findings is that the MOOC and flipped teaching can stimulate EFL students' teamwork and cooperation in learning language, as well as help them become self-directed learners with a high degree of autonomy and independence in their language learning [61].

The results obtained in this research revealed that the MOOC and flipped instructions could develop Iranian EFL learners' reading comprehension. Accordingly, we can conclude that incorporating online instruction such as the MOOC and the flipped in EFL contexts can contribute EFL learners to learn English language easier. Therefore, English teachers are highly suggested to implement the mentioned instructions in their classes.

In today's rapidly changing and interconnected world, which seems to be heavily dependent on communication technology, it has become necessary for all EFL learners to adapt to these rapidly changing global developments. It has become equally necessary for higher education institutions to incorporate global communication platforms in their curricula, which will enable EFL teachers to enhance their

learners' language communication skills by increasing their possibilities for intercultural exchange through active cooperation and social networking. The results from the present research revealed that the MOOC and flipped instructions can serve as the education platforms for EFL learners, who have so little language input and limited exposure to authentic language in their traditional classroom environments.

Some of the implications of this study may be found in the fact that MOOCs and flipped instructions can be beneficial to instructors, learners, and material makers who take these benefits into consideration. As a result, this research may inspire English instructors to implement technological-based methods into their lessons in order to attain higher educational outcomes. Also, the flipped classroom can encourage instructors and teachers to recommend a many-sided and appealing method to exchange learning content, while permitting students to monitor their own learning processes.

Students can be the other beneficiary of this study; students who cannot attend the class due to illness, too long distance, or any other problems can use the MOOC and flipped instructions to compensate for their absence. By supplying lectures online, teachers can pave the way for the students to learn the lessons at their own speed. The flipped classroom method is regarded as an innovation that permits students to increase the students' participation, motivation, critical thinking, and communication skills. Furthermore, the findings of this study may serve to urge material creators to carefully consider incorporating online instruction into EFL curricula.

Despite having effective results, this study has some limitations. First, the experiment time was only two months, and future research can be spread over longer terms to confirm the effectiveness of the MOOC and flipped instructions. Second, the participants are limited to the same local institute and are only made out of upper-intermediate EFL learners. Hence, implementing cross-cultural research to obtain a more global perspective, using a sampling of different levels, ages, and contexts could be the focus of future investigations. In addition, the findings of this study are primarily based on pre- and posttests. Next studies could use some qualitative tools such as classroom observation and face-to-face interviews to triangulate the results, or could use some statistical data from qualitative tools to boost the reliability of the research outcomes.

## Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## Conflicts of Interest

The authors declare that they have no conflicts of interest.

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