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Effects of Massive Open Online Course (MOOC) on Iranian EFL Learners' Speaking Complexity, Accuracy, and Fluency

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Abstract

This research examined the effects of Massive Open Online Course (MOOC) on Iranian EFL learners' speaking complexity, accuracy, and fluency (CAF). To this end, the Oxford Quick Placement Test (OQPT) was administered to 130 Iranian EFL learners, of whom 60 intermediate learners were selected and assigned to an experimental group (n = 30) and a control group (n = 30). Both selected groups were then given a speaking test as the pretest. Subsequently, the experimental group received the online-delivered treatment through Skype: in each session, a conversation (followed by controlled and free practice plus teacher feedback) was taught to the experimental participants online. On the other hand, the control group was deprived of the Internet-delivered treatment, yet was taught in a like fashion in the classroom through face-to-face training. This procedure continued till the last session. After the treatment, a questionnaire was given to the experimental group to check their general attitudes towards using MOOC instruction. The results of the One-way ANCOVA test indicated that there was a significant difference between the posttests of the experimental and the control groups. The findings revealed that the experimental group significantly outflanked the control group ($p < .05$) on the posttest. In addition, the results of the one-sample t-test showed that Iranian EFL learners held significantly positive attitudes towards using MOOC instruction for speaking classes.

Keywords: CALL, MOOC, Speaking, Complexity, Accuracy, Fluency

Introduction

To improve teaching and learning quality, using new methods can be a useful solution. One such method is Computer-Assisted Language Learning (CALL) which refers to the application of computers in learning and teaching English. As Levy (1997) stated, CALL is the study of applications of the computer in language teaching and

learning process. Moreover, Davies (2002) defined CALL as an approach to language teaching and learning in which the computer is used as an aid to the presentation, reinforcement, and assessment of material to be learned, usually including a substantial interactive element. CALL can provide teachers with individualized instructions permitting students to work at their own pace (Nachoua, 2012). In addition, CALL can promote language interaction between teacher and learners (Tatiana Dina & Ciornei, 2013). CALL can help to apply experiential learning and practice in a variety of modes, provide useful feedback for students, encourage pair and group work, develop exploratory and global learning, boost student's achievement, pave the way for accessing authentic materials, facilitate better interaction, individualize instruction, and motivate students (Lee, 2000).

CALL has different kinds of modes; one of which is Massive Open Online Course (MOOC), which is an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes. MOOCs integrate social networking, accessible online resources, and are facilitated by leading teachers in the field of study (McAuley et al., 2010). More importantly, MOOCs build on the engagement of learners who self-organize their participation according to learning objectives, prior knowledge and skills, and common interests (McAuley et al., 2010).

The use of MOOCs as a learning device permits a rich and varied learning environment characterized by the interaction of students from different areas. Its participatory, open, and innovative technology provides the students with new ways to learn in virtual learning settings (Navío-Marco & Solórzano-García, 2019). It is a learning network enriched by the interactions among students working on-line which makes use of the new capabilities and peculiarities of digital learning settings (Navío-Marco & Solórzano-García, 2019).

MOOC instruction can be applied through using Skype which is a free computer program we can use to make telephone calls over the internet and that we can also use to make conference calls and video calls, to chat, and to transfer files (Sheppard, 2006). Skype is an online source of social media which EFL learners can use for speaking skills proficiency both through audio and video call with their friends, colleagues, class-fellows, and teachers (Thomas, 2009). Abdulezer et al. (2007) affirm that "Skype can dramatically alter how you exchange information, how you meet new people, and how you interact with friends, family, and colleagues" (p. 9).

In the current study, the effect of MOOC instruction (Skype) was examined on Iranian EFL learners' speaking complexity, accuracy, and fluency (CAF). Fluency is defined as how fast and how much a learner speaks without dysfluency markers (e.g., functionless repetitions, self-corrections, and false starts) in "coping with real-time processing" (Wolfe-Quintero et al., 1998, p. 14). Accuracy refers to how much a learner speaks without errors in real-time communication (Wolfe-Quintero et al., 1998). Complexity is defined as the degree to which a learner uses varied and sophisticated structures and vocabulary in speaking (Wolfe-Quintero et al., 1998) and is divided into syntactic complexity (also called grammatical complexity, syntactic maturity, and linguistic complexity) and lexical complexity (often separated into lexical variation, lexical density, lexical sophistication, lexical richness, and others) (Koizumi, 2005).

Though all skills are vital for communication and interaction with other speakers, the focus of this study is on speaking skill since speaking skill is usually considered as the core skill in language learning (Al-Temimi, 2016). Richards (2008) states that "the

mastery of the speaking skill in English is a priority for many second language (L2) or foreign language (FL) learners" (p. 20). As a result, students often measure their success in language learning based on how much they have enhanced their spoken language proficiency. Regarding the importance of speaking skills, the current study intends to examine the effects of MOOC instruction on Iranian EFL learners' speaking CAF.

Statement of the Problem

Based on the researchers' best knowledge, English teaching and learning in Iran is accompanied by some challenges especially when learners try to improve their speaking skills. One of these challenges refers to few opportunities that students have in EFL contexts to use the target language behind the classroom context (Ali, 2007). The purpose of teaching English in Iran is to develop students' reading comprehension, grammar, and vocabulary to prepare them for Konkor Exam (Iranian University Entrance Exam). Consequently, most of the EFL learners' English level is still in the stage of "Mute English", which means that students can read and write, but cannot listen and speak well. Besides, speaking English classrooms suffer from a number of limitations including lack of proficient teachers, lack of sufficient time, lack of technology, insufficient sources and materials, and anxiety in the learning environment for learners.

Aleksandrzak (2011) holds that the source of speaking problems of EFL learners is the insufficient speaking varieties and opportunities in the EFL classrooms compared to numerous varieties and genres in real-life contexts. Hojati and Afghari (2013) state that speaking skill is affected by a number of linguistic and non-linguistic factors including grammar, vocabulary, pragmatic variables, affective factors, and so forth, which, when combined, compound the problems of speaking skill. Therefore, EFL learners not only need to equip themselves with adequate vocabulary and grammar knowledge but also need to pay heed to both fluency and accuracy to establish successful communication (Hinkel, 2006). The mentioned problems may prevent students to develop their oral skills; therefore, it is crucially necessary to remove these obstacles and make speaking as interesting and pleasant as possible.

The other problem that is frequently touched is that using e-learning in Iranian EFL contexts is not common as Mellati and Khademi (2018) state that only very few universities support e-learning in Iranian language learning contexts. Due to the high cost of electronic tools, lack of accessibility and availability of the Internet in Iranian contexts, and lack of skilled teachers, distance-learning or e-learning environments cannot be established in Iran generally. MOOC- based instruction as a kind of e-learning is an unknown teaching mode in Iran and most English classes are held in a face-to-face environment rather than through on-line instruction. Regarding the lack of attention to this new instruction (MOOC- based instruction) in the Iranian EFL context, this study aimed to investigate the effects of this teaching mode on Iranian EFL learners' speaking CAF.

Review of the Literature

Theoretical Background

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Computer-Assisted Language Learning

Today, computers play an important role in any educational system. Prensky (2000) asserts that nowadays, a world without computers, digital media, or the Internet is meaningless for students. Computers can contribute students to personalize education as Vahdat and Eidipour (2016) confirm that CALL can help enormously to the personalization of education. CALL can promote the motivation of students through personalizing information, making use of animate objects on the screen, and providing practice activities that incorporate challenges and curiosity within a certain situation. In addition, CALL is the student-oriented nature of the learning process: the students who manage the speed of learning and decide about what should be learned and how they should learn it, which, in turn, makes them feel more proficient in their learning (Vahdat & Eidipour, 2016).

CALL can be a useful tool for increasing the quality of language teaching and learning. This is can be due to the following points:

- A computer may be a suitable tool for providing useful classroom activities that aid students to learn four language skills.
- CALL can assist students to learn both inside and outside the classroom.
- CALL can also cater to individualized, continuous, and authentic activities for the students.
- CALL decreases students' apathy and lack of involvement in the learning process, so, CALL is a learner-centered approach.
- CALL can integrate four skills of the language.
- A computer can provide students with immediate feedback (Bani Hani, 2014).

Educators and researchers have always mentioned the merits of CALL; however, CALL instruction has its drawbacks. First, computers cannot effectively assess students' verbal communication with others, and what is pronounced by the machine is completely different from that of humans (Bas, 2010). Second, the stability and quality of CALL software are debatable. The commercial sources that some teachers rely on may not pedagogically bring about the right results. Third, some teachers and students are lacking in sufficient computer knowledge which can limit the learning process (Bas, 2010).

Considering the disadvantages listed above for implementing CALL, Al-Kahtani and Al-Haider (2010) stated that teachers avoid using technologies in their classrooms for the following reasons:

- Lack of teaching experience with CALL
- Lack of onsite support for teachers using technology
- Lack of help observing students while using technology
- Lack of CALL expert teachers to teach students computer skills
- Lack of computer availability
- Lack of financial support
- The high cost of technology equipment and the rapid change of technology

In addition, Levy (1997) enumerated some disadvantages for applying CALL in the language classroom: (1) "material produced by inexperience teachers (software), (2)

insufficient development of natural language processing techniques, (3) poor linguistic modeling, and (4) false starts and incomplete realizations of CALL. Computer's limit ability in handling natural language" (p. 2).

All in all, CALL has both advantages and disadvantages, but its advantages are more. It can be concluded that CALL can facilitate language teaching and learning and the use of the computer can have a beneficial effect on enhancing students' achievement (Bani Hani, 2009). The researchers conclude that the application of CALL does not remove the role of the teacher, since teachers can assist students to concentrate on the primary goals of communicating and learning the language (Bani Hani, 2014). Therefore, teachers should not be overlooked or replaced by a computer.

MOOC Instruction

One sub-category of CALL is MOOC. MOOC - an online course aimed at unlimited participation and open access via the web- is a kind of learning mode. MOOC is a popular mode of learning (MacLeod et al., 2015). As its name speaks for itself, MOOC is a model for presenting learning content online to those who want to take a course online, with no limit on attendance. MOOC refers to the free access to online courses that are presented through deferent media including videos, forums, and resources to numerous participants wanting to educate in elite universities (Baturay, 2014). "MOOC as a new form of online learning first was used to describe an online open course which was developed at the University of Manitoba by George Siemens and Stephen Downes" (Mellati & Khademi, 2018, p. 3). Historically, 'Connectivism' was the first online course suggested by Siemens and Downes in 2008. They believed that "knowledge is connected by a network, and learning is a process to connect specialized nodes and information sources" (Li, 2015, p. 11). The theory behind MOOC is 'Connectivism' based on which connectivity makes the exchange of knowledge easier and all students can assist to knowledge imparting (Waks, 2016).

Based on Connectivism, learning takes place as the student feeds their knowledge by establishing connections with the collective knowledge of the community (Anderson & Dron, 2011). These connections are made in a biological/neural, conceptual, and social/external context (Siemens, 2008). Connectivists held that knowledge is not only transferred from the teachers to the students and learning does not take place in a single place, instead, they believed that knowledge is transferred through individuals' interactions, especially in a web environment (Kop, 2011). According to, Connectivism theory, students are responsible for their learning. In MOOCs, students structure and monitor their learning (Kesima & Altınpulluka, 2015).

MOOCs are one of the newest models of online instruction and indeed an increasingly popular one (Dhawal, 2013). One of their main merits is how they emphasized social interactions and the flexible learning materials which permit learners to make development at their own pace, while simultaneously feeling part of a community (Ventura, & Martín-Monje, 2016). The other merit of MOOC is allowing many students from different nations to participate in it.

Li (2017) stated that "MOOCs are open courses based on the network platform, which extend the scope of the traditional teaching mode" (p. 1273). MOOCs are powerful platforms for distance instruction, especially in integrating teaching and learning activities with technology (Khalid, 2017). In general, MOOCs possess three special

features: (a) they are Internet-based courses having audiovisual teaching/learning materials to be utilized completely online, (b) they are free, (c) they are massive, meaning that, a large number of users can study online without the need of personalized teacher assistance (Chacón-Beltrán, 2017).

Notwithstanding the advantages for MOOCs, on the other hand, some criticisms are levelled at MOOCs. The strongest criticism is that these classes have very low completion rates in comparison to conventional education even conventional online education (Zhong et al., 2016). It is often estimated that 90% of individuals who participate in these courses drop out of the courses and do not continue them to the end. Though completion rate may not be the best measure to assess learning outcomes in MOOCs (Jordan, 2014), the low rates can pose questions respecting their usefulness (Chafkin, 2013). Another criticism refers to the quality of MOOCS; the weak structure of MOOCs decreases instruction quality and even makes measuring obtainable learning objectives difficult (Dagmar, 2014). In addition, Bing (2017) criticized MOOCs for giving the test to the students. Since the test is taken on the Internet without teachers' supervision, the person who takes the test may not be the real person who is learning the materials. That means the students can require cleverer students to take the test for them. Therefore, students who are not good at English can get high scores on the test. The other problem in using online instruction refers to the poor computer skills of both teachers and students, a certain level of technological anxiety, and low motivation, and being unable to work independently (Holcomb et al., 2004).

To sum up, MOOC is one of the most recent online instruction models which is grounded in the theory of Connectivism. In MOOC, students learn the materials online cooperatively by making connections. MOOC can provide a suitable condition for its users to manage their learning. Considering the strengths of MOOC, this research examined its effectiveness on Iranian EFL learners speaking CAF.

Using MOOC for Second-Language Development

To determine the effectiveness of MOOC instruction as a mode of CALL on language learning improvement, some research studies have been conducted. For example, Joseph and Nath (2013) researched in India regarding the students' attitudes towards integrating MOOCs within classrooms. They utilized pre- and post-surveys to collect the needed data. The findings of the pre-survey illustrated that 66% of the participants did not plan to take MOOCs courses in their learning. However, in the post-survey, their attitudes changed. The results of the post-survey indicated that 60% of the subjects did plan to take up MOOCs courses in their education. In addition, 66% of participants strongly suggested that their university must implement MOOCs courses on the college campus. In another research, Ullah Khan, Ayaz, and khan (2016) determined the effectiveness of skype as a kind of MOOC on improving English learners' speaking skill motivation. The obtained results of this research indicated that the use of skype increased EFL learners speaking skill motivation.

Ventura and Martín-Monje (2016) investigated the effects of Facebook in a MOOC context on learning specialized vocabulary. A mixed-method approach including quantitative techniques, such as student tracking in the MOOC, and also qualitative ones such as questionnaires were used for the data collection. The findings showed that the

Facebook network had a positive effect on the motivation of students to learn specialized vocabulary and an improvement in their progress in the MOOC.

Padilla Rodriguez and Armellini (2017) conducted a study on developing self-efficacy through a MOOC on study skills. To collect the data to carry out this research, 32 participants from two countries of Mexico and Colombia were selected. At the outset and the end of the MOOC, the participants were asked to answer a survey that included the General Self-Efficacy Scale, items on specific study skills, and space for optional comments. The obtained outcomes indicated a significant increase in general self-efficacy after the end of the MOOC, as well as in the perceived self-efficacy pertinent to five out of six study skills. The results also showed that MOOCs can represent low-risk, formative opportunities to develop the participants' knowledge, and boost their self-efficacy.

Mellati and Khademi (2018) examined the impact of MOOC-based educational program on Iranian EFL learners' proficiency and used mixed methods and explanatory sequential design study in Baqer al-Olum University, Iran. To this end, 38 students were selected as the participants of the study. Twenty of the selected students participated in the MOOC-based educational program and the rest (18) of the students participated in a traditional English language class. To collect the needed data, pretest/posttest and interview were used. The obtained results showed that the participants in the experimental groups outperformed the participants in the control group. The results of qualitative data demonstrated that the major challenges of MOOC can be categorized into two main categories: technical challenges (e.g., "technical infrastructures, technology literacy, control over learning materials, availability of the teaching materials, and criteria for assessment) and emotional challenges (e.g., emotional challenges are about learners' motivation and engagement, cultural differences, individual difference, affective factors, and behaviors, learning and teaching strategies in MOOC)" (Mellati & Khademi, 2018, p. 11).

Sahli and Bouhass Benaissi (2018) examined integrating MOOCs in teaching writing skills. To do so, the researchers required 15 students at the University of Ibn Khaldoun –Tiaret-, Algeria to participate in an online course on FutureLearn. After that, an attitudinal questionnaire was given to the selected participants to check their expectations and experiences throughout the course. The results of the study revealed that the participants held positive attitudes towards online instruction in teaching writing skills.

Alanazi and Walker-Gleaves (2019) tried to identify students' attitudes towards using Hybrid MOOCs with Flipped classrooms, as compared to traditional methods during teaching the 'Educational Technology and Communication Skills' module. To achieve this purpose, this study used a mixed-method approach including survey and semi-structured interview instruments. The findings depicted that students presented positive attitudes toward using Hybrid MOOCs with Flipped Classrooms. Also, participants stated that Hybrid MOOCs with Flipped Classrooms can significantly help them learn English both inside and outside of the classroom.

Alhazzani (2020) inspected the effects of MOOCs on Higher Education in the Kingdom of Saudi Arabia (KSA). The participants of this study were all professors teaching at King Saud University. A descriptive and analytical approach was used in this research. A quantitative survey was adopted to gather the needed data. The findings indicated that MOOCs had a significant direct effect on the higher education of KSA. Also, MOOCs accounted for a 65% improvement in education outcomes.

Sallam, Martín-Monje, and Li (2020) explored the published researches on Language Massive Open Online Courses (LMOOCs), outlining the sorts of papers, contexts where studies were done and institutions devoted to this field. Also, they aimed to classify the reviewed literature following a general categorization of MOOCs, and to identify the main trends and topics of interest for LMOOC researchers. The findings revealed that there is still a lack of LMOOC-related articles in CALL journals since most of the publications in the period reviewed (2012-18) are conference papers. The country in which most studies have been conducted so far is Spain and Universidad Nacional de Educaciona Distancia (UNED) is currently the most active institution in this area. Within the taxonomy established, the most popular categories of studies focused on LMOOC participants or providers and case studies. A systematic review of the published literature indicated that research trends in LMOOCs studies comprise: 1)conceptualization of LMOOCs and their distinctive features;2) attempts to find the most suitable model for language teaching and learning beyond the xMOOC/ cMOOC dichotomy; 3) suitability of LMOOCs for languages for specific purposes (LSP) courses; 4) focus on the learners and their motivation and experience throughout the course; 5) reflection on the new role of the teacher; 6) instructional design and how it affects participants' learning and possible attrition, and 7) the importance of social learning in LMOOCs.

Reviewing the related literature, there have been some researches examining the impacts of MOOC instruction on learning some skills and sub-skills of the English language including vocabulary, writing skill, and self-efficacy. Few numbers of studies in Iran, however, investigated the effects of MOOC instruction on Iranian EFL learners' speaking CAF, in other words, there are rare experimental studies on the effects of MOOC instruction on Iranian EFL learners' learners' speaking CAF; consequently, this study intended to investigate the effects of MOOC instruction on promoting Iranian EFL learners' speaking CAF. Therefore, the following research questions were posed in this study:

RQ1. Does using MOOC instruction have any significant effect on Iranian EFL learners' speaking CAF?
RQ2. What are Iranian EFL learners' attitudes towards using MOOC instruction?

Speaking Complexity, Accuracy, and Fluency

In this section, an overview of the speaking CAF triad is presented. It is said that second/foreign language performance could be explained by three dimensions of CAF (Ellis, 2008; Larsen-Freeman, 2009). This CAF triad has been applied in examining students' oral and written language performance. As for the origin of the three components, in the 1980s, a distinction was made between the fluency and the accuracy of language use (Brumfit, 1984). Skehan (1989) added complexity as the third component to the triad. Complexity refers to the degree to which English learners' output is elaborate and varied, and the degree to which learners tend to take a risk using their interlanguage structures that are "cutting edge, elaborate and structured" (Ellis, 2003, p. 113). Michel (2017) defined complexity as the size, elaborateness, richness, and diversity of the learners' performance.

Accuracy is, on the other hand, defined as the degree to which English learners' production is based on the rule system of the target language (Ellis & Barkhuizen, 2005).

According to Michel (2017), accuracy is a measure for the target-like and error-free use of language. It refers to language learners' ability to control their interlanguage complexity to stop committing erroneous structures (Ahmadian, 2011). Ellis and Barkhuizen (2005) stated that language learners who give priority to accuracy attempt to handle the elements they have already internalized and are cautious and conservative toward L2 use. Finally, fluency is characterized as language learners' ability to produce the target language at a natural speed the same as native speakers without redundant pauses. It takes place when language learners give primacy to meaning over form (Yousefi, 2016). Fluency refers to the smoothness, ease, and eloquence of speech production with a few pauses, hesitations, or reformulations (Michel, 2017).

All taken together, speaking is one of the main elements of communication among nations. In EFL contexts, it requires high attention and special instruction. The same as other non-native speakers, Iranian English learners might face certain problems and challenges while trying to develop their speaking skills, which can hinder them from communicating orally when they are required to do so.

Method

Design of the Study

In this research, a quasi-experimental design was used since the random selection was absent. Accordingly, this study used pre- and post-tests and attitude questionnaire to collect the needed quantitative data to answer the questions raised in this study. This study consisted of one control group and one experimental group while focusing on the variable of MOOC as the independent variable and speaking CAF as the dependent variable. The control variables of the study were gender, age, and proficiency level of the participants.

Participants

To carry out this research, the Oxford Quick Placement Test (OQPT) was given to 130 Iranian EFL learners and 60 of them were selected for the sample of the study. The participants were selected from two English Language Institutes, namely, Parsian and Kianfarda, Ahvaz, Iran, and their level of general English proficiency were intermediate. Their age range was between 16 and 21 years old and they were males since the researchers had access only to males. Indeed, the participants were selected based on a convenience non-random sampling method. The selected participants were then randomly divided into two equal groups; one experimental group and one control group. The students of Parsian institute were regarded as the experimental group and the students of Kianfarda institute were considered as the control group. The experimental group was taught based on MOOC instruction, while the control group was taught based on traditional instruction. It is worth noting that informed consent was obtained from all individual participants included in the study.

Instruments

The first instrument used in the current study was OQPT. It was administered to help the researchers select homogenous participants. According to this test, the learners who obtained a score between 30 and 47 (out of 60) were determined as the intermediate and were considered as the target sample of the study. This test consists of 60 objective items (vocabulary, grammar, and reading comprehension), developed by Oxford University Press and University of Cambridge Local Examinations Syndicate. The test has been validated in 20 countries by more than 6,000 students and its reliability has reached 0.90 (Geranpayeh, 2003).

The second instrument of this study was a researcher-made speaking pretest. The pretest included several questions concerning the learners' textbook (i.e., *American Headway 3*). The participants were required to talk about the topics of the units for about 2 to 3 minutes and their speech was recorded for analysis by the first (the first researcher of the current study) and the second-raters (the second researcher of the current study). To ascertain the validity of the speaking test (which was held in the form of an interview), several steps were taken. First, the topics (for speaking) were selected from the topics which were covered in the book participants studied as part of their regular institute course. Second, the topics/questions were given to a panel of English experts to check their suitability for use with the target participants. Besides, the reliability of the speaking test was confirmed by conducting inter-rater reliability via Pearson correlation analysis (r = .87).

The third instrument of this study was the posttest of speaking. The topics of this test were selected from the mentioned textbook. Similar to the pretest, the reliability of the posttest was computed through inter-rater reliability utilizing Pearson correlation analysis (r = .83), and its validity was checked by a panel of English experts.

The fourth instrument used in the current research study was a questionnaire which was given to the subjects of the experimental group to investigate their attitudes towards using MOOC-based instruction. The questionnaire was designed by Alanazi and Walker-Gleaves (2019) and included 20-point Likert-type items investigating the attitudes of the participants towards using MOOC-based instruction. Likert scale was used in the mentioned questionnaire to indicate the degree of disagreement and agreement from 1-5 which were: strongly disagree, disagree, neutral, agree, and strongly agree. The numerical values were assigned to the participants' responses for each questionnaire item. Therefore, if a learner marked *strongly agree*, he received 5 for that item. For *agree*, a numerical value of 4, for neutral, 3, for *disagree*, 2, and for *strongly disagree*, 1 were assigned. The reliability of this questionnaire was calculated using Cronbach's alpha (r = .80).

It is worth pointing out that the above-stated instruments including speaking pretest and posttest and questionnaire were piloted on another group of students whose characteristics (language proficiency, age, and gender) were the same as the target group to check the feasibility of the instruments that were going to be administered to the target population.

MOOC Course

To start teaching speaking CAF, both teacher and students downloaded Skype and installed it on their computers or tablets. Next, all users made an account and selected a username and password for themselves. After installing Skype, we made a few test calls to measure voice clarity, background noise, and other essentials to our students' virtual

classroom experience. Moreover, we called some friends to make sure everything was working well. Now, it was time to teach the target participants on Skype. To do this, the teacher selected one student from the contacts. Then, he chose the "add person" icon on the top right of the screen to add more contacts to the group before beginning the video call. Once all students were added, the teacher started teaching a conversation. First, the teacher asked some simple questions as warm-up activities. While the students could see the conversation on the screen, the teacher read it and required the students to repeat it. Then, they were allowed to chat and discuss the materials in an online context. The students could take part in a role-play activity to practice the conversation. This process went on till all the conversations were covered.

Procedure

To do this study, first, the researchers selected 60 homogenous participants and then they assigned them to two equal groups of 30; one experimental and one control. Second, the researchers administered the pretest of speaking to check the speaking level of the participants before performing the treatment. Third, they taught the experimental group how to work with the online program since familiarity with the online program could affect their performance during the treatment (Mellati & Khademi, 2018). Fourth, the treatment was carried out; the experimental group received the treatment only online by using Skype program- a free computer program that we can use to make telephone calls over the internet and that we can also use to make conference calls and video calls, to chat, and to transfer files. In each session, one conversation was taught to the participants online. In the MOOC-based class, both teacher and learners worked in a simultaneous learning setting. They could chat and discuss the materials in an online context. Everything was carried out on an online platform.

On the other hand, the control group was taught in the traditional classroom. The traditional classroom was deprived of the Internet and the students were taught in the classroom. Before teaching each conversation, the researchers provided some information about the target topic for the students and then played the audio file of the conversation, and after teaching each conversation, the students were required to practice it with their partners and perform it in front of the class. This procedure continued till the last session; the intervention lasted 13 sessions. It should be noted that after the treatment, the experimental group was given a questionnaire to explore their general attitudes towards using MOOC instruction.

The whole treatment lasted 17 sessions of 50 minutes. In the first and the second sessions, the OQPT and the pretest of speaking were administered, respectively. During 13 sessions, the treatment was carried out; in the 16th session, both groups took the posttest of speaking; in the last session, the questionnaire was administered to the experimental group.

Data Analysis

In this study, the CAF measure which was previously used by a host of researchers like Ahmadian (2011), Ahmadian and Tavakoli (2011), and Yousefi (2016) was used to measure the speaking complexity, accuracy, and fluency of the participants. The model used by them is as follows:

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Complexity measures:

Syntactic complexity: the amount of subordination which is the ratio of AS (Analysis Speech) units to clauses. An AS unit is defined as an utterance consisting of an independent clause accompanied by any subordinate clause(s) associated with it (Foster et al., 2000). Czwenar (2014) stated that an AS unit refers to an utterance that contains:

1) an independent clause including a finite verb …, 2) the main clause together with its subordinate clause(s)…, 3) an independent sub-clausal unit including one or more phrases which can be elaborated to a full clause…, 4) a minor utterance, defined otherwise as an irregular sentence…, 5) a coordinated clause…, or 6) two or more coordinated clauses if they have the same subject, and are separated by a pause of less than .5 s … (p. 89).

2) Syntactic variety: the total number of different grammatical verb forms used in language learners' performance. The grammatical verb forms taken for analysis in the present study were tense (e.g., simple present, present continuous, and present perfect) and modality (e.g., can, should, must, and may) (Yousefi, 2016).

3) Overall complexity: the mean length of AS-units in language learners' speech which was obtained by counting the mean number of words per AS-unit.

For example, if the students stated the sentences with one independent and at least one dependent clause like “While it was raining, we went for a walk” and “I eat diner before I watch my favorite movie”, the researcher regarded these sentence as complex and gave one score to them.

Accuracy measures:

1) Error-free clauses: the number of error-free clauses, i.e., the number of clauses that were not deviant from standard norms concerning syntax, morphology, and/or lexicon (Yousefi, 2016). For example, the sentence “We try to protect the nature” received one score since it was an error-free sentence, whereas, the sentence “In the past, the hunter defeat the cheetahs” received no score since it was an erroneous sentence. It should be noted the correct form was as follows:

“In the past, the hunters killed the cheetahs”

2) Correct verb forms: the number of all verbs that are used correctly in terms of tense, aspect, modality, and subject-verb agreement.

Fluency measures:

1) Rate A: the number of syllables produced per minute of oral performance; it is measured by counting the number of syllables within each narrative divided by the articulation time used to complete the task and multiplied by 60 (Yousefi, 2016).

For example, the sentence “We will make movies about animals and take care of their homes” was produced without pauses, received one score, but when accompanied by two or three pauses, received no score.

2) Rate B: the number of meaningful syllables per minute of speech; it is measured by the use of the procedures used in Rate A, but all syllables, words, and phrases that are repeated, reformulated, or replaced should be excluded (Ahmadian & Tavakoli, 2011).

After measuring and scoring the participants' performances on speaking pre and post-tests, the collected data were analyzed using SPSS software, version 22. Firstly, an independent sample t-test was used to compare the pretests of both control and experimental groups. Secondly, the One-way ANCOVA test was used to compare the posttests of the experimental and control groups. Thirdly, a one-sample *t*-test was used to analyze the data gathered through administering the questionnaire.

Results

After collecting the needed data, the researchers analyzed them to get the final findings. Before conducting any analysis on the pretest, the posttest, and the attitude questionnaire, the Kolmogorov-Smirnov test was used to check the normality distribution of the data. The results indicated that the distribution of the data was normal since the *Sig.* values were greater than 0.05. After assuring that the data were normal, parametric statistics like One-way ANCOVA and one-sample *t* test were used to get the final results. The details of the results are presented in the following tables:

Table 1
Descriptive Statistics of Both Groups on the Fluency Posttests

Dependent Variable: Fluency posttest			
Groups	Mean	Std. Deviation	*N*
EG	18.2000	1.54026	30
CG	16.0667	2.94704	30
Total	17.1333	2.56751	60

As Table 1 shows, the experimental group's mean score is 18.20 and the control group's mean score is 16.06. It seems that the experimental group got better scores than the control group on the fluency posttest. To discover if the difference between the fluency posttest of both groups was significant, One-way Ancova test was used in the following table:

Table 2
Inferential Statistics of Both Groups on the Fluency Posttests

Dependent Variable: Fluency posttest						
Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	246.028[a]	2	123.014	49.066	.000	.633
Intercept	206.728	1	206.728	82.456	.000	.591
Fluency Pre	177.761	1	177.761	70.903	.000	.554
Groups	70.576	1	70.576	28.150	.000	.331

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Error	142.905	57	2.507
Total	18002.000	60	
Corrected Total	388.933	59	

a. R Squared = .633 (Adjusted R Squared = .620)

Based on Table 2, *Sig* is .000 which is less than 0.05, so the difference between the fluency posttests of both groups was significant. The experimental group outperformed the control group on the fluency posttests.

Table 3

Descriptive Statistics of Both Groups on the Accuracy Posttests

Dependent Variable: Accuracy posttest

Groups	Mean	Std. Deviation	*N*
EG	18.3333	1.51620	30
CG	15.8667	3.00268	30
Total	17.1000	2.66617	60

Table 3 displays the descriptive statistics of both groups on the accuracy post-tests. The means of the experimental group and the control group are 18.33 and 15.86, respectively. Seemingly, the experimental group outperformed the control group on the accuracy post-test. This claim can be accepted or rejected by running a One-way ANCOVA test in the following table:

Table 4

Inferential Statistics of Both Groups on the Accuracy Posttests

Dependent Variable: Accuracy posttest

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	304.871[a]	2	152.436	75.866	.000	.727
Intercept	107.162	1	107.162	53.334	.000	.483
Accuracy pre	213.605	1	213.605	106.309	.000	.651
Groups	83.440	1	83.440	41.527	.000	.421
Error	114.529	57	2.009			
Total	17964.000	60				
Corrected Total	419.400	59				

a. R Squared = .727 (Adjusted R Squared = .717)

Table 4 indicates that *Sig* (.001) is less than 0.05, this means that the difference between both groups is significant at ($p<0.05$). Indeed, the experimental group outperformed the control group on the accuracy posttest thanks to the MOOC instruction.

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Table 5

Descriptive Statistics of Both Groups on the Complexity Posttests

Dependent Variable: Complexity posttest			
Groups	Mean	Std. Deviation	*N*
EG	16.9333	3.37264	30
CG	15.4000	3.08053	30
Total	15.1667	3.21103	60

As Table 5 indicates, the experimental group's mean score is 16.93 and the control group's mean score is 15.40. It seems that the experimental group outflanked the control group on the complexity post-test. To see if the difference between the complexity posttests of both groups was significant, a One-way ANCOVA test was used in the following table:

Table 6

Inferential Statistics of Both Groups on the Complexity Posttests

Dependent Variable: Complexity posttest						
Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	320.805[a]	2	160.403	31.798	.000	.527
Intercept	.178	1	.178	.035	.852	.001
Complexity pre	317.538	1	317.538	62.949	.000	.525
Groups	84.491	1	84.491	16.750	.000	.227
Error	287.528	57	5.044			
Total	14410.000	60				
Corrected Total	608.333	59				

a. R Squared = .527 (Adjusted R Squared = .511)

According to Table 6, *Sig* is .000 which is less than 0.05, so the difference between the complexity posttest of both groups was significant. As displayed in the table, the experimental group outperformed the control group on the complexity posttest.

Table 7

Participants Attitudes Toward Using MOOC Instruction

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Mean**
1. This method of teaching gives me more room to express myself.	0	0	0	19	11	**4.36**

2. I would like other subjects to be taught by this method.	1	1	3	12	13	**3.83**
3. Using this method of teaching at the school level is very helpful.	0	0	5	10	15	**4.33**
4. Using this method of teaching contributes to my personal development.	2	0	7	11	10	**3.90**
5. This method of teaching was interesting.	0	0	1	21	8	**4.23**
6. This method of teaching motivates me to succeed.	0	0	0	8	22	**4.73**
7. I would like to use this method of teaching when I become a teacher.	0	0	2	17	11	**4.30**
8. I think this method makes learning easy.	0	0	3	13	14	**4.36**
9. I think using this method is a positive idea.	0	1	5	12	12	**4.16**
10. I would recommend other students to use this method in their studies.	0	0	1	12	17	**4.53**
11. I enjoy learning through the skype program.	3	0	2	10	15	**4.13**
12. I prefer online learning to traditional learning.	0	0	3	11	16	**3.90**
13. I think working within groups online is really useful.	0	0	1	10	19	**4.60**
14. I can learn whenever I want.	0	2	5	11	12	**4.10**
15. I am satisfied in using this method for my learning.	0	0	1	11	18	**4.56**
16. This method develops self-study.	1	3	5	7	14	**4.00**

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17. This method can be used at any time.	2	2	3	12	11	**3.93**
18. This method is useful for teaching all skills.	0	0	0	12	18	**4.60**
19. This method is less boring than the traditional method.	0	0	0	10	20	**4.66**
20. This method is good for shy students.	0	0	2	12	16	**4.46**

Taking a look at the mean scores of the questionnaire items in Table 7, it could be seen that all mean scores are greater than 3.00. This would indicate that the participants showed positive attitudes toward using MOOC instruction. All items in the above questionnaire received mean scores above 3.00, which means that the participants concurred with all statements in the questionnaire. On the whole, as it went above, the participants tended to agree with the majority of the questionnaire items. To see if the extent to which the participants had positive attitudes toward MOOC instruction was of statistical significance or not, a one-sample *t*-test was employed in the following table:

Table 8

One-Sample Test of the Questionnaire

	Test Value = 0					
	t	*df*	*Sig*. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
VAR00001	68.077	19	.000	4.28350	4.1518	4.4152

As revealed in Table 8, the amount of statistic *T*-value is 68.077 (*t*=68.077), *df*=19 (*df*=19) and the significance level is 0.000 (*sig*=0.000) which is less than 0.05. This shows that Iranian EFL learners had positive attitudes towards MOOC instruction.

Discussion

Respecting the question of the study “Does using MOOC instruction have any significant effect on Iranian EFL learners' speaking CAF?” the findings indicated that the participants of the experimental group who had received MOOC instruction outperformed the participants of the control group who had been deprived of MOOC instruction. We can attribute this improvement and betterment to the MOOC instruction. The results proved that MOOC instruction fostered the speaking CAF of Iranian EFL learners. MOOC instruction can be enjoyable, easy, and have many benefits such as saving time and effort. MOOC instruction is open to everyone and can give students more room to express themselves.

MOOC instruction can provide the opportunity for sharing ideas and knowledge and also help to improve lifelong learning skills by providing easy access to global resources**.** Also, it can improve cross-cultural relationships which result in collaboration between institution educators and learners locally and internationally. MOOC-based instruction can provide comfortable settings for students to interact and communicate with their classmates and teachers. Moreover, in a MOOC-based instruction environment students can have access to the materials and feedbacks even long after the course (Richter & McPherson, 2012). MOOC-based instruction environment brings about a more learner-centered class which can help the students learn English more independently.

The results of this research reflect the results gained by Mellati and Khademi (2018) investigating the impact of MOOC-based educational program on Iranian EFL learners' proficiency. The obtained findings revealed that the MOOC-based educational group outperformed the control group. In addition, this study is supported by the findings of Ventura and Martín-Monje (2016) who confirmed the positive effects of Facebook in a MOOC context on the motivation of the students to develop their specialized vocabulary knowledge. Furthermore, this study is advocated by Padilla Rodriguez and Armellini (2017) who figured out that their participants' self-efficacy increased significantly after the end of the MOOC instruction. The findings of this study are espoused by the Connectivism theory which says that knowledge sharing, social networks, and open educational resources can facilitate language learning (Siemens, 2005).

Using MOOC-based educational environments has some advantages for learners; permitting them to communicate with other students whenever they want, allowing them to learn English at any time and place, providing them the chance to access plenty of materials even after the class, giving them control over their learning, improving their independence, reducing students' stress and anxiety (Tatiana Dina & Ciornei 2013), offering them the chance to actively participate in activities beyond classroom and course books, providing them the chance to exchange messages with native speakers and interacting in the target language.

The advantages reported for MOOC-based educational environments can be the reasons for the experimental group to outperform the control group. One more reason why the experimental group outperformed the control group can be attributed to the opportunity of the experimental group to interact electronically to a greater degree with the teacher and other students. The other reason can be ascribed to the MOOC environment which allowed the experimental group to help in the personal developments of each other by discussing and sharing their ideas, experiences, and knowledge and adding different views and perspectives.

Despite the numerous advantages that a MOOC-based educational environment has, it has some limitations and disadvantages; for example, learners with disabilities and a poor Internet connection cannot use MOOCs. The other problem refers to the high cost of the technology-based class for some students especially the rural ones. Some students are from poor families and their families cannot afford to buy tablets, smartphones, computers, etc. for them. Therefore, these poor students cannot participate in online classes. The other challenge refers to technology literacy; though both teachers and learners need technology literacy for participating and performing in MOOC environments some of them do not have this literacy. Lacking in technology literacy can cause some problems for teachers and students as Mellati and Khademi (2018) stated "if learners and teachers do not acquire the required knowledge of how to cope with

technology it would be a great source of anxiety and stress which can lead into self-destruction instead of self-confidence (p. 10)". Novice teachers might face drastic problems with MOOC instruction if they do not fully understand the new teaching environment.

Regarding the second research question "What are Iranian EFL learners' attitudes towards using MOOC instruction?", the results of the one-sample test showed that Iranian EFL learners presented positive attitudes towards using MOOC instruction. MOOC instruction can significantly help students learn English both inside and outside of the classroom. Not only students but also many other people all around the world use MOOCs to learn for a variety of reasons, including: "career development, changing careers, college preparations, supplemental learning, lifelong learning, corporate eLearning and training, and more (Devi, 2020, p. 1)". The mentioned statements may be the reasons that the students showed positive attitudes towards using MOOC instruction in the Iranian EFL context.

The results of this study endorse the results gained by Joseph and Nath (2013) who examined Indian students' attitudes towards integrating MOOCs within classrooms. They discovered that 66% of the participants strongly recommended that MOOC courses must be implemented in their university. Also, this study is in line with Alanazi and Walker-Gleaves (2019) who figured out that students had positive attitudes toward using Hybrid MOOCs with Flipped Classrooms. Furthermore, the results of this study lend support to the results of Sahli and Bouhass Benaissi (2018) who indicated that the participants of their research had favorable attitudes towards online instruction in teaching writing skills.

The positive attitudes of Iranian students towards using MOOC instruction might be due to the possibility that they feel more comfortable expressing themselves online. In addition, the availability of MOOC instruction and easy access to online course materials might have been a helpful factor in forming positive attitudes towards MOOC instruction. The other possible reason for showing positive attitudes towards MOOCs may refer to the students' more contact with their instructors and classmates at any time in MOOC instruction compared to students in the traditional classroom.

Implications of the Study

The results of this research can be highly invaluable for teachers, material developers, and learners to regard the use of MOOC instruction and other online instructions. The findings of this study may persuade English teachers to integrate and exploit technological tools including mobiles, tablets, the Internet, etc. in their classrooms to facilitate language learning. In addition, the findings of this study can help teachers consider the use of technology as a basic part of daily foreign language teaching and learning. Material developers can be the other beneficiary of this study; the findings of this study can encourage material developers to invest more in designing and applying online materials. Also, the results of this research can help English learners improve their self-study out of the classroom by using online instructions.

Conclusion

Regarding the statistical results, it can be concluded that using MOOC instruction significantly developed Iranian EFL learners' speaking CAF. The conclusion to be drawn from this study is that incorporation of technology into education is beneficial to EFL learners to learn the English language since the participants in the experimental group made a greater advancement on the post-test in comparison to their scores on the pre-test due to using MOOC instruction. Therefore, it seems that the MOOC instruction mode is more efficient than the traditional mode in the improvement of students' speaking CAF.

Although the effectiveness of using an online course became obvious in this study, the role of the teacher in the face-to-face classroom should not be overlooked. It is the teachers that can provide valuable feedback and recommend rich information for their students, teach them how to correctly select the right and genuine sources of information on the Internet, and also be creative (Tatiana Dina & Ciornei, 2013). So, we can conclude that both human factor-teachers- and technological factor- Internet- are complementary and the presence of both is crucial in the classrooms.

We did our best to conduct this research perfectly, but limitations are inevitable in any research study. The sample of this research was limited only to 60 Iranian intermediate EFL learners, so the results should be generalized to other populations cautiously. In other words, given the sample size in this study, care should be exercised if one aspires to generalize the findings to similar situations. Hence, the next studies are offered to include more participants from different kinds of English levels to have a larger perspective on this subject. This study was a quasi-experimental one; only quantitative data were collected to answer the research questions, so to boost the validity of the results, the next studies are required to use mixed or triangulation methods. Due to some restrictions, only males were included as the participants of this study, upcoming researches are advised to include females, too. Also, future studies are recommended to determine if using MOOC instruction is effective on other skills and sub-skills of the English language.

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