



Peer Evaluation in CMC Learning Environment and Writing Skill

Morteza Mellati (Corresponding author)

Department of English, Islamic Azad University, Qom Branch, Qom, Iran
PO box 37185-364, Pardisan, Qom, Iran
E-mail: mellati.morteza@gmail.com

Marzieh Khademi

Department of English, Islamic Azad University, Qom Branch, Qom, Iran
PO box 37185-364, Pardisan, Qom, Iran
E-mail: marzieh.khademi2834@gamil.com

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Abstract

Peer evaluation and technology-based instruction as the various domains of language teaching perspectives might affect language development. Group work in a technology-based environment might be more successful when learners are involved in developing the assessment process particularly peer assessment. This study investigated the effectiveness of peer evaluation in technology-based language environment and its effects on English writing ability. To reach this goal, 70 Iranian learners were participated in English language writing context. They were divided into two groups, one group assigned to CMC (Computer-Mediated Communication) language learning context and the other assigned to a traditional learning environment. Both groups were encouraged to evaluate their classmates' writing tasks. In addition, interviews were conducted with two learners. Comparing these two groups provides comprehensive guidelines for teachers as well as curriculum designers to set adjusted writing language environment for more effective and creative language teaching and learning. E-collaboration classroom tasks have high intrinsic motivation as well as significant effects on learners' outcomes. Cooperative tasks specifically in technology-based environment lead learners to group working and consequently group learning. Computer-Mediated Communication is meaningful, especially in contexts in which teachers stimulate group work activities.

Keywords: Information communication technology (ICT), Computer-mediated communication (CMC), Technology-based environment, Writing skill, E-collaboration, Cooperative learning

1. Introduction

Recently, scholars have emphasized the role of computer technology in foreign language education. The scope of research in the field of technology-based environment, the development of online language tutors' competence (Guichon, 2009; Balaban et al., 2013), and blended learning (Brudermann, 2010) are wide (Grosbois, 2011). Lanham (1993) referred to the importance of incorporating computer technology into writing skill and claimed that most learners live in a world of electronic text and dedicate a large proportion of their time reading and writing on computers (as cited in Lin and Yang, 2011). With the emergence of innovative technologies, SLA teachers and researchers focused on how to implement new technology-based tasks into the L2 classrooms in a way that they have the most efficient effect on student language learning (Gleason and Suvorov, 2011; Dunn et al., 2013; Gillam and Wooden, 2013). Applying these technologies such as computer, email, Chat rooms, and many other computer-based activities, EFL and ESL teachers and researchers are in the hope of increasing students' language proficiency (Greenfield, 2003; Cress et al., 2013).

Individualization, interaction and student motivation are significant principles of learning and language acquisition in information and communication technology (ICT) (Mullamaa, 2010; Chang et al., 2013). Gee (2008) referred to the importance of learning of concepts in situated meanings and suggested that ICT and web-based learning solutions offer the learners the possibilities for making the learning process more interesting and challenging.

Recently, computer-assisted language learning (CALL) that integrates information technology and English writing has received more attention due to the rise in Internet-based learning (Lin and Yang, 2011; Miller-Cochran and Gierdowski, 2013). The most prominent technology-based project that received attention in the past two decades is Computer-mediated communication (CMC). Computer-mediated communication briefly refers to those technologies used for communication where the computer plays a major part. It includes Chat rooms, E-mail, and computer-mediated conferencing. CMC emphasizes interaction among learners, which is viewed as a fundamental component of second language acquisition (Hansen and Liu, 2005; Greenfield, 2003). Without protocols and training, these methods can be

problematic (Pauleen and Yoong, 2001). Chamberlin-Quinlisk (2012) defined media literacy as the development of skills to apply traditional and emerging media effectively.

Modern technologies as extrinsic tools increase learners' motivation. They help learners discover the importance of learning through implementing various instructional strategies and multiple authentic forms of assessments, maintaining high standards of student performance in learning environment, and encouraging learners to do their best. It should be acknowledged that managing classrooms by effective, nurturing teachers will help increase the motivational levels of all learners (Theobald, 2006; Killoran, 2013).

In a sociable learning environment, individual differences and individual learning are replaced by social and group learning. Socio-cultural perspectives are inclined to accentuate the magnificent role of social context in development with the focus on social interactions, group work activities and participation while overlooking the characteristics of the developing individual and their influence on learning (Hodkinson et al., 2007; Östman and Öhman, 2010; Slomp, 2012). In contrast, some researchers emphasized the role of self-beliefs and intrapersonal factors and their impact on language development. They highlighted the advantages of autonomy and self-regulation in language development (Pajares, 2003; Beaufort, 2007).

Peer feedback, peer assessment, or peer evaluation has become important pedagogical tools in English writing classrooms as they focused on teacher-learners and learner-learner interactions. Many theoretical frameworks, such as process writing, collaborative learning theory, and Vygotsky's concept of the Zone of Proximal Development (ZPD) support peer feedback, peer evaluation, and interaction in language contexts (Hansen and Liu, 2005; Zhou et al., 2004). Focusing on collaborative activities and team working, Kaufman et al. (2000) stated that peer assessment or peer evaluation is a process in which members assign individual grades for team assignments by asking team members to evaluate each team member. He illustrated that the advantage of peer evaluation in language learning classrooms is that it might aid in improving team performance or determining individual efforts and individual grades on team projects.

It is obvious that technology could be an effective help in language teaching context; however, what is not always obvious is how and to what degree technology-based tasks affect learner behaviour and learning and how teachers combine and modify one or more task variables in different ways. What are the effects, if the mode of interaction is modified from a synchronous to an asynchronous environment? (Yang and Chen, 2007) How does the contextual support of a task, such as the utilization of images or texts influence learner performance? How factors such as the linguistic and cognitive complexity of the content, the goal and outcome that learners are to achieve, the processing condition under which learners operate, and whether learners interact with one or multiple partners take into account in designing tasks? How teachers bring different design variables into alignment to optimize learner outcomes?

As technology performs manifold functions in classrooms, language learners could benefit from it in different ways. Employing technology in a teaching environment, teachers would be able to produce a communicative classroom by engaging learners in real and meaningful communication and to provide opportunities for learners to practice the language through mechanical activities that are not normally used in the classroom (Vries and Masclet, 2013). New technologies such as computer and internet offer excellent opportunities for adding value to teaching context in a variety of ways. Through on-line tasks and practices, learners have the opportunity to choose from a given set of alternatives or to construct their own answers, and texts, graphics, audio and video materials can be utilized as a medium for the presentation of questions and answers (Wu et al., 2007). It is significant that during the instructional process, learners are made aware of the fact that learning English through multimedia demands new learning strategies and self-directed learning and lead them to autonomy in language learning, individual learning or on the other hand, to group work abilities (Yang and Chen, 2007; Baturay et al., 2010). There are wide ranges of activities that teachers and researchers can focus on them in their research to optimize teaching and learning. So far, many studies have been held in this area; however, there are so many gaps that require more and more studies. Considering these points, this particular study investigated the effects of peer evaluation in the CMC learning environment on writing ability of the learners.

2. Review of literature

2.1 Computer Mediated Communication (CMC)

Modern technologies have significant effects on global communication and enlarge its intricate aspects. These kinds of technologies have dramatically altered how people communicate and consequently influenced how they learn. Internet as a modern technology creates a worldwide learning environment (Vries and Masclet, 2013; Loll and Pinkwart, 2013). Through integrative computer-assisted language learning (CALL) which involves authentic uses of the language and interactive multimedia, language skills can be easily integrated for learners to practice all language skills: listening, speaking, reading, and writing (Tsai, 2011; Romeo, 2008; Hsu Wang and Comac, 2008; Abraham, 2008; Whyte, 2011). Distance learning, especially through email and CMC technology, has received special attention in the eyes of stakeholders and researchers (Baturay et al., 2010). Leh (2000) stated that in this regard, two perspectives have emerged in the literature. In one aspect, researchers such as Rice (1984) explained that knowing adequate social interaction is prerequisite for e-learning and CMC. Some other researchers such as Hackman and Walker (1990) stated that CMC could be less friendly, emotional, personal, and more businesslike than other communication media; therefore, they believed that CMC is inappropriate for learning. On the other hand, many scholars such as Hiltz and Turoff (1978) and Kerr and Hiltz (1982) have described the advantages of using CMC in education. They noted that CMC users adapted to the medium and developed on-line communities that will be eager to learn.

There are many researches that explored the possibility of students' academic achievement development in computer and technology supported education settings (Camnalbur, 2008; Wong, 2001; Celik and Yesilyurt, 2013; Börner et al., 2013). Herring (2002) argued that computer-mediated communication (CMC) has seen incredible growth due to the fast spreading of the Internet. Text-based modes of CMC include e-mail, forums, chat, and the World Wide Web (as cited in Abbasi and Chen, 2008). The CMC modes have redefined the fabric of organizational culture and interaction (Abbasi and Chen, 2008; Theobald, 2006; Killoran, 2013). Experience of utilizing e-learning as a support to eye-to-eye classes has proved to be positive and stimulating for both learners and the teacher (Mullamaa, 2010; Hackman and Walker, 1990). Some of the advantages of integrating technology are accessing easily whenever and wherever someone wishes to dematerialize; contacting beyond our university, state, continent; developing the skills for using the e-environment and new technologies; and developing responsibility for the learning process (Mullamaa, 2010; Kaufman et al., 2000). In addition, computer-mediated communication (CMC) could facilitate communication (Greenfield, 2003; Cooper and Selfe, 1990; Burke, 2011). Kern (1995) argued CMC might reduce anxiety. Pratt and Sullivan (1994) stated that it could increase oral discussion in classrooms or any learning environment. Barker and Kemp (1990) illustrated that CMC facilitates social learning and finally Warschauer (1996) stated that it could enhance students' motivation. In all instructional contexts like distance education, there is an expectation that learning involves human interaction. Modern instructional applications of technology provide two distinct formats for such interactions that are asynchronous and synchronous (Johnson, 2008; Kern, 1995; Baturay et al., 2010; Wu et al., 2007).

Dehghanian and Azizi (2011) referred to advantages of applying CMC in language learning and stated that the use of CMC in language learning can not only develop language skills but also can enhance intercultural communicative competence, lifelong learning skills and digital literacy. In the definition of Dr. December, CMC is "the process by which people create, exchange, and perceive information using network telecommunications systems that facilitate encoding, transmitting, and decoding messages" (Dehghanian and Azizi, 2011, p. 310).

CMC emphasis was switched from teacher-centred to a more individualized and learner-centred work environment. This perspective creates a good chance for practicing language in open-ended linguistic situations, and the modes of more versatile writing. Besides, the characteristics of the Internet and a computer-mediated environment appear to make them ideal for problem-based learning (Uribe et al., 2003; Warschauer, 2007; Guichon, 2009; Mullamaa, 2010; Lin and Yang, 2011). Warschauer (2007) suggested that CMC covers a wide range of technologies of writing. These include various forms of synchronous or real-time communication such as instant messaging or via Internet relay chat; asynchronous communication such as email or Web-based bulletin boards; and hypermedia (multimedia, hypertextual) authoring, for example, through the creation and publication of World Wide Web pages. He added that each of these three types of CMC: synchronous, asynchronous, and hypermedia has a corresponding use that is most popular in the writing classroom.

2.2 Peer Evaluation

Peer evaluation has collaborative, social, and cognitive dimensions that might promote writing; that is, when writing is responded to, it can be revisited, evaluated and ultimately revised to enhance the message (Dix and Cawkwell, 2011; Hamalainen and Hakkinen, 2010). Online group activities provide important information about how people interact during self, peer, and group assessments. This information can be applied to the development of online support mechanisms that learners could use to improve the success of the collaborative learning activities (Roberts, 2006; Norton et al., 2012). New technological tools challenge teachers' pedagogical activities and professional development. In a collaborative learning environment, teachers are expected to support, structure, and coach students instead of transmitting knowledge to them (Hamalainen and Hakkinen, 2010; Wu et al., 2007). Rupley et al. (2009) stated that the key to instruction is the active effective communication and interaction between teacher and students.

Boud et al. (2006) effectively made an established link between teaching and assessment. They asserted that assessment may not be the first concern in any teaching context, but acceptance and development of peer learning by students, and its ultimate success, depends upon resolving the question of how learners can assess their peer in reliable ways. They emphasized the magnificent effects of assessment in formal courses and argued if it's not designed well, it can easily undermine the positive features of an important strategy in the repertoire of teaching and learning approaches.

Li (2006) claimed that in many studies, the quality of computer-written essays have been rated higher than comparable hand-written essays; therefore, this quasi-experimental study aims to shed light on the effect of peer evaluation in CMC language learning environment on writing proficiency of EFL learners by addressing the following major questions:

1. Does peer evaluation have any effect on writing proficiency of the EFL learners?
2. Is peer evaluation in CMC context more effective than face-to-face evaluation in writing proficiency?

3. Method

3.1 Participants

Seventy male learners out of 116, from an Iranian advanced EFL adult context were selected for the present study. They enrolled in a writing course. They all accepted to participate in the study; therefore, their participation was voluntary. They were informed about the study from the beginning, and that they could withdraw their contributions at any time without penalty. All participants were provided with written information about the nature and purpose of the research project and were insured that their identity to the survey would be held in strict confidence. The participants (N = 70), aged 18 to 30, attended two separated classes taught by the same teacher. One class (N = 35) was chosen as the control

group and the other (N = 35) as the experimental group. The results of TOEFL test at the onset of the study demonstrated that participants in each of the two experimental and control groups were similar on several variables, such as (1) language proficiency and (2) writing ability.

3.2 Instrumentations

To collect the required data, several instruments were employed in this study:

3.2.1 Diagnostic Test of Writing Proficiency

In order to make sure that all participants were homogeneous at the outset of the study, the researchers administered a diagnostic test of writing proficiency. This writing test was selected from the Longman Preparation Course for the TOEFL Test (Phillips, 2003). This test included 40 items and the participants had 30 minutes to complete it.

3.2.2 Information Technology Inventory

An information technology (IT) inventory was employed to identify participants' computer and internet literacy that were the requirements of electronic collaboration (e-collaboration). This Inventory consisted of 20 items and was developed by Paran, Furneaux and Sumner (2004).

3.2.3 Post-Test Writing

This instrument, consisting of 40 items, was a writing battery test developed by the researchers to measure the effects of the treatment. TOEFL of writing post-test included structure questions (13 items), and written expression questions (27 items).

3.2.4 Semi-Structured Interview

To diagnose the latent facets of the subject under study and verify the results, the researchers conducted interviews with two learners, one from the control group and one from the experimental group. In these semi-structured interviews, learners discussed their attitudes towards peer evaluation in an electronic learning environment. The instructors participated in these interviews voluntarily. Prior to the interview, they were informed of the purpose and the nature of the study.

3.3 Procedures

To be sure of the homogeneity of the participants in terms of writing proficiency at the outset of the study, a TOEFL Writing test (Diagnostic Test of Writing Proficiency) was administered. Out of 116 participants, 70 were found proficient enough to be included in this study. In addition, an information technology (IT) literacy inventory was employed to distinguish between IT literate and illiterate participants. Those who could not show the required literacy (N=35) were assigned as the members of the control group.

The treatment lasted 8 weeks, two sessions per week. In the control group, like an ordinary writing classroom, learners had a topic to write about and got teachers' written feedback on the next session. The experimental group had an access to the internet. These participants had the basic requirements of participating in an online or web-based course, such as sending e-mails, writing on the web, commenting on word office, searching the sites, and surfing the net. Before initiating the course, teachers delivered learners the required rules about how to assess each other, and provided feedback through clear examples. The entire control group had e-mail addresses and shared their e-mails to the group. Using internet and searching for the particular topic, the learners wrote an essay. A final draft of the essay was mailed to the teacher and classmates as well. Learners evaluated their classmates' writing in the due time based on the teacher's evaluation criteria and guidelines. They were allowed to check online sources such as online dictionaries and online grammar sources. As the final stage, the teacher came in and gave feedback to his students and completed their comments. In the experimental group, the participants sent their writing to their classmates via e-mail in an asynchronous learning environment. With practice, learners assessed each other consistently and fairly. They discussed about choosing the right word, grammar, or sentence structure.

The same writing assignments were presented to both experimental and control groups and the content and the teacher of both groups were the same. The teacher trained the principles of e-collaboration to the experimental group before the course. After the treatment, as the last phase of the study, a TOEFL of writing post-test was administered to determine the effect of this study's special treatment.

4. Results and Discussions

Having collected the required data based on the above mentioned data collection instruments and procedures, the researchers conducted the analysis of data and tested the hypothesis formulated for the present study.

To check the homogeneity of the participants (N=116), a TOEFL Writing Test (PBT version) was administered. Table 1 illustrates the descriptive statistics of participants' scores.

Table 1. Results of descriptive statistics for TOEFL writing test as homogenizing test

Test	Mean	SD	N
Diagnostic Test of Writing Proficiency	13.56	3.662	116

Learners with diverse writing abilities might eventuate in unreliable results. To control this variable and to reach valid results, the researchers administered TOEFL writing test as homogenizing test. As the results in Table 1 indicate, mean and the standard deviation are 13.56 and 3.662 respectively. Here, only the participants (N=70) whose scores fell one standard deviation below and above the mean were found valid to be included as the participants of this study. This test was administered before sampling.

An independent samples t-test was conducted to explore the homogeneity of two groups at the very beginning of the treatment. Table 5 shows the results of the independent samples t-test. Table 2 shows the results of this analysis.

Table 2. Results for independent samples t-test for writing scores in pre-test

Groups	N	M	SD	t	df	ρ
Control	35	12.32	3.024	-.044	.68	.965
Experimental	35	12.36	3.535			

An independent-samples T-Test was conducted to compare the results of the pre-test for the participants of both control and experimental group. There was no significant difference in scores of the control group ($M = 12.32$, $SD = 3.024$) and scores of the experimental group, $M = 12.36$, $SD = 3.535$; $t(68) = -.044$, $P = .965$. The results of Table 2 confirm the homogeneity of the participants at the outset of the study.

To investigate the effects of peer evaluation in CMC language learning environment on writing ability, the independent samples test was employed to test writing scores in post-test. Table 3 shows the results of the t-test analysis.

Table 3. Results for independent samples t-test for writing scores in pre-test

Groups	N	M	SD	t	df	ρ
Control	35	12.72	2.762	-4.597	.68	.000**
Experimental	35	15.84	1.972			

Note. ** is significant at the 0.05

An independent-samples t-test was conducted to compare the results of the post-test for the participants of both control and experimental group. There was a significant difference in scores of the control group ($M = 12.72$, $SD = 2.762$) and scores of the experimental group, $M = 15.84$, $SD = 1.972$; $t(68) = -4.597$, $P = .000$. As the results of Table 3 reveals, peer evaluation in CMC language learning environment has a significant effect on writing ability.

A learner who was familiar with technology stated “technology acts as an extrinsic motivation and provokes us to involve in learning tasks”. In addition to this motive, it is also being argued that cooperative learning suits some learners better. Individual differences and personality are factors that can influence the effectiveness of a course in a great extent. Peer web-based learning context accompanies peer feedback and peer evaluation values cooperation over competition. However, there are major group management and pedagogical challenges to be faced when groups are composed of learners from different ages, life experiences, language backgrounds, and cultures. The learner emphasized the role of teachers in such situations. Teachers need comprehensive knowledge in coping with computer or other electronic devices (requirements for CMC communication), creating group works, coping with cultural diversity, and employing peer evaluation task effectively. Examples of such peer learning tasks include student-led workshops, group studies, team projects, learner-learner centred relationships (promoted through CMC), and peer feedback sessions in class. These tasks need strong leadership, effective communication, proper decision-making and conflict management. These findings are in agreement with Dehghanian and Azizi (2011) findings that referred to advantages of applying CMC in language learning environments and stated that utilizing CMC in language learning context can develop not only language skills but also can enhance intercultural communicative competence, lifelong learning skills, and digital literacy. These skills might not come naturally to certain individuals and they need to be cultivated. Learners dedicated most of their time to the computer and writing in virtual environments.

Peer learning, feedback, and evaluation in an electronic learning environment (CMC) creates certain types of lifelong learning skills that are not accessible in traditional classes and teaching approaches. Peer learning involves students working together and developing skills of collaboration in an electronic setting (CMC). In such a setting, learners have access to more communicating practices in the subject area than in traditional settings. Peer feedback is a valuable source for learners to determine their weaknesses and strengths. Peer learning and cooperative tasks increase learners' responsibility and autonomy. There is also flexible instruction for teachers and learners in a peer learning approach.

A learner in control group who was not familiar with technology stated, “There is fear of spoil face in front of other learners due to the lack of technological devices knowledge. I personally do not know how to communicate in a CMC learning environment”. Employing technology-based instructions in a learning context that is not equipped whether with electronic devices, skilful teacher, or deliverance related knowledge for unfamiliar learners lead to learners' confusion. Technology in such circumstances, acts as an obstacle. It will add tension to learning context and impedes critical thinking.

This particular study has some results that are interesting to teachers, researchers, and curriculum designers. To connect

the present results to the previous studies in this field, the researchers made some links to recent studies. As recent evidence suggests CMC emphasizes interaction as a fundamental component of second language acquisition among learners (Hansen and Liu, 2005; Greenfield, 2003). The key to instruction even in electronic setting is the active effective communication and interaction between teacher and learners. They must cooperate to access to their ultimate goal that is learning subject matter (Rupley et al., 2009). The results emphasized that employing CMC to teaching writing skill could enhance student motivation (Warschauer, 1996), but under certain circumstances. Learners and teachers must be fully skilled to cope with CMC and to use it for classroom writing activities. The study highlighted that without protocols and required training such teaching approaches can be problematic (Pauleen and Yoong, 2001).

The finding of current study revealed that applying technologies such as computer, email, Chat rooms, and many other computer-based activities increase students' language proficiency (Greenfield, 2003; Cress et al., 2013; Lin and Yang, 2011). The findings of the current study are in consistent with those of Theobald (2006) and Killoran (2013) who found modern technologies as extrinsic tools for increasing learners' motivation. They help learners to discover the importance of learning through the implementing of various instructional strategies and multiple authentic forms of assessments, maintaining high standards of student performance in learning environment, and encouraging learners to do their best. Learners will access to huge sources of authentic materials that promote their self-study and autonomy. These findings associated with Mullamaa (2010) and Kaufman et al. (2000) who argued that some of the advantages of integrating technology, are easy access whenever and wherever someone wishes to dematerialize; contacts beyond the university, state, and continent; develops the skills for using the e-environment and new technologies; and develops responsibility for the learning process.

Teaching in CMC setting creates an effective social context that leads to the development of social interactions, group work activities, and participation (Hodkinson et al., 2007; Östman and Öhman, 2010; Slomp, 2012). Peer feedbacks and evaluation in writing courses such as this, provides valuable sources of trial and errors. Learners find their weaknesses and strengths without teacher surveillance that act as impedance and obstacle to learning in some learners (Hansen and Liu, 2005; Zhou et al., 2004). This finding corroborates the ideas of Wu et al. (2007) who suggested that through on-line tasks and practices, learners have the opportunity to select from a given set of options or to construct their own answers.

These findings further support the idea of Hamalainen and Hakkinen (2010) and Wu et al. (2007) that discussed in a collaborative learning environment, teachers are expected to support, structure, and coach students, instead of transmitting knowledge to them. The most significant and most interesting finding of this study is that employing CMC and other technology-based instruction in teaching writing provides self, peer, and teacher assessment opportunities that magnify learners' development of their skills. This also accords with Boud et al. (2006), which showed an established link between teaching and assessment. They emphasized the magnificent effects of assessment in formal courses and argued if it's not designed well, it can easily undermine the positive features of an important strategy in the repertoire of teaching and learning approaches.

The results of the interviews also revealed that in circumstances that teacher and learners do not have required skills to deal with technology (CMC) in writing classrooms, they would be complete failures. It is encouraging to compare this finding with that argued by Hackman and Walker (1990). They claimed that CMC could be less friendly, emotional, personal, and more businesslike than other communication media; therefore, they believed that in some situations CMC is inappropriate for learning.

5. Conclusion

The present study was designed to determine the effectiveness of peer evaluation in technology-based language environment (CMC) and its effects on English writing ability. The results of this investigation showed that peer learning accompanying peer evaluation in an electronic setting (CMC) values cooperation over competition (Burke 2011); applying CMC in language learning contexts can develop not only language skills but also can enhance intercultural communicative competence, lifelong learning skills, and digital literacy (Dehghanian and Azizi, 2011); employing CMC to teaching writing skill could enhance student motivation (Warschauer, 1996); and employing CMC and other technology-based instructions in teaching writing provide self, peer, and teacher assessments opportunities that magnify learners' development in their skills (Boud et al., 2006).

This study suggested that employing such teaching approach in any context requires related equipments and related knowledge to deal with them, on the part of both teachers and learners. Learners and teachers must be fully skilled to cope with CMC and to use it for classroom writing activities. It highlighted that without protocols and required training; such teaching approaches can be problematic (Pauleen and Yoong, 2001). Significant results of web-based language learning might provoke stakeholders and policy makers to adopt and adapt their learning contexts to cope with standards of technology-based instructions, especially in developing countries such as Iran. Availability and accessibility of technology-based applications are the prerequisites to persuade teachers and learners how to deal with them in language leaning contexts. Finally, it is recommended that further research be undertaken in the following areas: technology-based instruction has many perspectives and this study only focused on CMC. Investigating other aspects of technology might produce significant findings in this field. The same study can be duplicated in other language skills. As this study concentrated on writing skill, it would be interesting to investigate its results on other language skills.

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