Improving Iranian High School Students' Writing Skills through Online Dialogic Interactions: A Microgenetic Analysis

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Abstract

Though a mass of studies has documented the efficacy of teaching approaches, rooted in Sociocultural theory (SCT), in L2 learning, the effects of online dialogic interactions on improving high school students' writing skills have been rarely explored in the Iranian EFL context. Thus, the present study aims to disclose how online dialogic interactions lead to the development of high school students' writing skills. For this purpose, an intact grade 12 class was selected randomly at a state high school in Borujerd City, Iran. The students received online instruction in 11 sessions held two times a week. The interactions between the teacher and students were recorded carefully and were subjected to the microgenetic analysis approach. The findings revealed how through the dialogic interactions, the teachers offered congruent mediations tailored to the students' needs and lacks, resulting in the improvement of their writing skills. Based on the tenets of SCT, a range of implications is presented.

Keywords: Sociocultural theory; Online dialogic interactions; Microgenetic Analysis; Writing Skill; Iranian High School Students

Introduction

In recent years, online courses have gained huge attention around the world. Their rapid development and extension are closely related to the popularity of modern social technologies (Schroeder et al., 2010). Modern social technologies are easy to use, interesting to use, and available for free. (Boonmoh et al., 2021; Hamid et al., 2015; McShane, 2004). Concerning education in general, and second language (L2) education, in particular, previous studies (Brown, 2010; Glazier et al., 2019; Jopp & Cohen, 2020; Ngui et al., 2020) evidenced some remarkable advantages of online courses, including ease of use, great flexibility, high functionality, and ubiquitous access.

In the modern world, the importance of learning English is increasingly recognized, most especially the writing skills. This is largely due to the rise of English as the major language of communication among people of different cultures and nationalities (Naghdipour, 2021; Rahimi et al., 2021). Additionally, the quick growth of globalization and the increasing popularity of online discourse communities synergized the significance of developing English writing. Further, as Hyland (2013) stresses, writing skills play a crucial role in shaping students' expertise in a profession. Despite this paramount importance, the significance of writing skills has been left disregarded in the EFL contexts (Casanave, 2009; Naghdipour, 2021). As Naghdipour (2016) notes, in the EFL context of Iran, outdated pedagogical practices are implemented, causing students not to cultivate their writing skills. This long-lasting problem calls for new approaches and pedagogical practices. One of the approaches that may be used to cultivate students' writing skills is dialogic interactions, rooted in Sociocultural theory (SCT), in online classes.

In SCT, Vygotsky (1987) claims that knowledge is created inter-psychologically, that is, the source of consciousness resides outside the head in social interactions. He believes that through social interactions genetically endowed capacities are modified and reorganized into higher-order forms and the co-construction of knowledge is always mediated by physical or psychological tools. It means that a person can use the assistance of both physical and symbolic signs to mediate and regulate their relationship with others and also with themselves. Under the premise of SCT, learning is constructed and reconstructed through social interactions. As Vygotsky (1978) notes, social interactions mediate the human mind when an individual interacts with self or others. In other words, the proponents of SCT argue that higher levels of thinking are accessible through interactions in interactive contexts wherein the learning moves from a social level to an individual level (Poehner & Wang, 2020; Vygotsky, 1978). According to Poehner and Lantolf (2010), this dynamic process of growth and development occurs within the Zone of Proximal Development (ZPD). As a metaphoric space, ZPD is defined as "the distance between the actual developmental level (i.e., what an individual can do without others' support) and the potential developmental level (i.e., what an individual can perform under the guidance and support of others)" (Vygotsky, 1978, p. 24). In a sense, the ZPD is the space in which an individual whose current abilities are not sufficient to handle a task at hand but is capable of forging a close relationship with a more competent individual who can perform the task independently. In this relationship, the competent individual acts as a scaffolder assisting the incapable individual to co-construct the required knowledge with the help of congruent, contingent mediations (Lantolf et al., 2021; Saad et al, 2014). Through dialogic interactions, the competent individual (teacher or peer) offers the incapable individual (student) calibrated aids such that the incapable individual can diagnose the lack in their competence and take up the essential actions to amend it (Aljaafreh & Lantolf, 1994; Poehner & van Compernolle, 2020; Susilawati et al., 2021).

It is crystal clear that L2 learning is a complex enterprise. Its complexity is associated with its nature interwoven with change and variation. The study of this complex developmental process requires comprehensive descriptions that help us observe these changes directly as they occur. An adequate description of this complex developmental process may not be provided by macro-developmental approaches with traditional designs, such as cross-sectional and longitudinal methods (Lee & Karmiloff-Smith, 2002; Siegler & Crowley, 1991). In contrast, the microgenetic method can track changes in abilities and knowledge during short time spans through dense observations (Granott & Parziale, 2002; Pang, 2021; Üstün & Aksu Ataç, 2022).

The microgenetic method was, at first, formulated by Hienz Werner, in the mid-1920s and then Vygotsky (1978) expanded it into the area of developmental psychology. For Vygotsky, the mind is a functional system consisting of both natural/biological functions and cultural/higher mental functions. He is primarily interested in the study of the higher mental functions, such as voluntary attention, problem-solving capacity, planning learning, and intentional memory. To this end, he proposed four genetic domains; *Phylogenetic* domain, dealing with the evolution of the human mind through culturally mediated tools, *Socio-cultural* domain, referring to mediation and the adaptation of various meditational means by the community, *Ontogenetic* domain concerned with the integration of mediated tools into cognitive activity through individual mental development, and *Microgenetic* domain, treating the overt instances of learning during an inter-psychological activity (Robbins, 2001) over short periods (Akdeniz & Bangir Alpan, 2020; Gánem Gutiérrez, 2007).

Some potential advantages of microgenetic analysis have been verified in the domain of L2 education. For example, Parziale (2002) underlines that microgenetic analysis yields rich data deepening our understanding of the psycholinguistic, dynamic, and self-construction processes of change. Similarly, Kuhn (1995) postulates that the microgenetic analysis accelerates the natural process of change such that it provides learners with instances of a stimulus. This, accordingly, drives cognitive development to help researchers observe the changing processes as it transpires.

The microgenetic analysis includes observations spanning a period from the beginning of a process of change to the achievement of a relatively stable state (Granott & Paziale, 2002; Siegler, 2006). So, through this method "researchers can identify when interventions may work and when teaching may become beneficial; [and thus] they can provide more accurate predictions and contribute to improving teaching" (Granott & Parziale, 2002, p. 14). Lavelli and Pantoja (2005) advocate the use of the microgenetic analysis for two reasons; first, the acquisition of micro-genetic details of learners' activities in particular contexts could be considered the only approach to gaining rich data essential for the understanding of change processes. Second, the observation and understanding of micro-level changes in real-time are necessary for researchers to apprehend macro-level changes in developmental periods.

In the microgenetic analysis, dialogic interactions are investigated to identify all language-related episodes (LREs) throughout the data. LREs are defined as "any part of the dialogue where the students talk about the language they are producing, question their language use or correct themselves or others" (Swain & Lapkin, 1998, p. 326). Recently, many researchers have examined learner-learner interaction focusing on LREs and found that learners were often able to solve their language-related problems and co-constructed new language knowledge correctly (e.g., Leeser, 2004; Miri et al., 2017; Moradian et al., 2021; Storch, 2007; Swain & Lapkin, 1998, 2002). Then, the LREs, which are overt signs of language development and are called as instances of microgenesis (Gánem Gutiérrez, 2007), are analyzed to gain nuanced insight into learning processes as they occur directly.

As major practices in L2 classrooms, pair or group activities are theoretically supported by both psycholinguistic and sociocultural perspectives (Doboa, 2012). Collaborative writing tasks such as composition tasks, jigsaw, and dictoglosss, can be defined as tasks in which L2 learners work together throughout the writing process and co-construct the final product. Swain (2000, p. 112) argues that these kinds of tasks "encourage students to reflect on language form while still being oriented to meaning-making". As a result, *in dialogue interactions* teachers and learners are engaged in scaffolding each other to achieve a level of competence beyond their current individual level (Ohta, 2001; Swain, 2000).

In the past, some studies have investigated the effects of dialogic and collaborative interactions on L2 learning. Here, we critically review some of them to set the scene for the current study. In research by Storch (1999), the effects of collaborative dialogue on grammatical accuracy in close texts, text reconstruction tasks, and composition tasks were investigated. The findings evidenced that due to the effects of collaborative dialogue, the participants generated more complex, accurate compositions. Additionally, Storch (2005) examined the short compositions produced by pairs and individuals for describing some pictures. The results indicated that the compositions produced by pairs were more complex in terms of accuracy compared to the ones generated by the individuals. Furthermore, Storch and Wigglesworth (2007) compared paired and individual performances in essay writing. Their findings documented that the pairs interacted dialogically to do the writing tasks though spent more time accomplishing the writing tasks, their productions were more accurate than individually written ones. Besides, Nassaji and Tian (210) explored the relationship between collaboration and L2 acquisition in terms of past forms of verbs and vocabulary learning. Their results supported the potential of collaborative dialogues to promote L2 learning. Moreover, Merkel (2018) scrutinized the role of dialogic interactions and feedback in the improvement of English writing. The results documented the positive effects of dialogic interactions to facilitate the learners' linguistic revisions and provide a channel to increase the awareness of audiences. Finally, Moradian et al. (2021) explored the impacts of collaborative assessment on EFL writing processes from SCT perspectives. Their findings revealed that the learners benefited from the collaborative dialogue to gain better

insights into their writing lacks and increased their awareness of the features of well-organized writing.

As can be implied from the above-alluded studies, the effects of online dialogic interactions on improving Iranian high school students' writing skills have gone unnoticed. In particular, there has been a scarcity of research using a microgenetic analysis to reveal how teachers' moment-to-moment mediations in online classes lead to Iranian high school students' writing skills. To fill up this lacuna, the present study purports to disclose how online dialogic interactions lead to the development of high school students' writing skills. To meet this aim, the following research question was put forward:

1. How do online dialogic interactions lead to the improvement of Iranian high school students' writing skills?

Method

Research Design

The present study used a qualitative design to meet the objectives. In line with Fahim et al. (2014), a microgenetic development design was implemented to disclose the effects of online dialogic interactions on improving Iranian high school students' writing ability. In particular, the present study attempts to show how the online dialogic interactions between an EFL teacher and high school students lead to the improvement of their writing performance.

Setting and Participants

The present study was run in Ayatollah Taleghani High School in Borujerd City, Iran in the autumn Semester of 2021. An intact class of grade 12 was randomly selected. The class comprised 18 female students aged 17-19. The primary reason to select the participants was their ease of accessibility to the researchers. The English course is compulsory in the Iranian high school curriculum and the students attend English two-hour classes twice a week. The students were learning English in the high school and they did not have any opportunity to practice English outside the walls of the high school. Further, the participants declared they did not have already any learning experience with online dialogic interactions. It should be noted that the first researcher who has a comprehensive understanding of SCT and has written extensively in this field runs the treatment.

To access the participants, the first researcher met the high school principal's office. After a warm greeting, she detailed the present the objectives of the study and

asked if it was possible to conduct the study in the setting of their schools. Fortunately, the high school principal made allowance for running the study in their setting and directed the first researcher to grade 12 classes. The first researcher randomly selected one of the grade 12 classes and with the permission of the teacher, she was led to the class. She explained the purposes of the present study to the class. She distributed written consent and announced that the participants who were willing to participate in the study could sign and turn it back to her. A total of 18 students agreed to participate in the study in an extracurricular program. The first researcher informed that the participation was voluntary and that they could withdraw from the study as they wished. Additionally, she ensured that the students' names would be kept confidential and they would be informed about the final results.

Instruments

The researchers used three instruments to run the present study. The first instrument was the students' coursebooks, named Vision 3. They entailed a student book and a workbook. The student book includes three units covering a range of parts, including Get Ready, Conversation, New Words and Expressions, Reading, Grammar, Listening and Speaking, and Writing. About the writing parts of the book, the writing part of Unit 1 deals with the development of compound sentences. It is in Units 2 and 3 that paragraph writing is introduced and exercised. It seems that the primary objective is to enable grade 12 students to write short description paragraphs in a principled way. The workbook includes three units encompassing a range of activities consistent with the content of the student book. The second instrument included 10 writing tasks selected from the students' Coursebooks. Selecting writing tasks was based on three criteria. First, the researchers assumed that the writing task difficulty level was consistent with the student's writing abilities. Second, choosing the writing tasks of the students' Coursebooks met the ecological validity. According to Gardner (1992), it allowed involving the students "in situations which more closely resemble actual working conditions" (p. 91). Third, it encouraged the students to take the writing tasks seriously. The third instrument was WhatsApp. As an online sharing network app, it is easily installed on cell phones and PCs. It is primarily used to send instant messages, share files, pictures, videos, and audios, and have real-time conversations. Due to some outstanding advantages, such as promoting relationships among students, boosting students' motivation, offering individualized syllabus materials, and creating constructive collaboration among students (Bouhnik & Deshen, 2014), it is widely used for educational purposes. It should be noted that the researchers asked the participant to install WhatsApp on their cell phones.

Data Collection Procedures

The researchers went through some steps to conduct the present study. At first, the first researcher invited the students to join a WhatsApp group. Next, the treatment was offered to the class. The treatment phase lasted 11 sessions. They were held for 60 minutes once a week. In the first session, the first researcher briefly introduced in Persian the tenets of SCT. She continued how and why the class would be run through dialogic interactions in the upcoming sessions. To run the class, she implemented the framework presented by Grower et al. (1995, pp. 115-116). The first step was the *introduction* (5 minutes). She provoked the students' interest and activated their background knowledge. In the second stage, *working with ideas* (10 minutes), she used the brainstorming strategy to extract the required ideas from the students and posted them. In the third step, *planning to write* (10 minutes), she draw a model of the desired paragraph and highlighted its typical components, including a topic sentence, supporting sentences, and concluding sentences. In the fourth step, *drafting* (10 minutes), she encouraged the students to write the first draft in pairs from their notes by consulting dictionaries and grammar reference books. In the fifth stage, *reviewing and drafting* (about 15 minutes), the students were encouraged to edit and improve their first draft in terms of the content, organization, language, and task requirements. In the last stage, *reviewing* (about 10 minutes), she had the students write out the final version and share it with the WhatsApp group. During the instruction, once students made a mistake or raised a question, the teacher offered contingent congruent mediation. In an interactive environment, she presented the mediations in such a way that they were tied with the student's ZPD. In other words, she used Davin's framework in an interactionist way; that is, "by providing contingent and graduated support, called mediation, in the form of question, hints, and prompts" (Aljaaffreh & Lantolf, 1994). In exact words, she used some prompts in order: 1) Pause with a skeptical look; 2) Repletion of entire phrase by a student; 3) Repletion of a specific site of the error; 4) Force choice option, and 5) Correct response and explanation are provided. The process of graduated feedback, from implicit to explicit, continued until all problems with different aspects of writing aspects were rectified and corrected. In line with Davin (2013), the dialogic interaction were both in L1 and L2 to avoid misunderstanding and they included both written texts and oral podcasts.

Data Analysis Procedures

The researchers used the microgenetic analysis approach to analyze the collected data. Vygotsky (1986) introduced microgenesis as one of the major genetic models. According to Gutierrez (2008), it is defined as "the moment-to-moment co-construction of language and language learning" (p. 2). The underlying assumption of the genetic models, as Vygotsky (1978) notes, is that to gain accurate insights into the higher, more complex human mental functioning, we need to concentrate on the processes than the products of development. The proponents of microgentic analysis argue that focusing on products may deprive us of the higher levels of mental functioning and cannot provide us

with insights into the inner nature of mental development (Aljaafreh & Lantolf, 1994; Poehner & van Compernolle, 2013). One of the often-cited advantages of microgenetic analysis is that it opens teachers' eyes to subtle changes in students' learning (Siegler & Crowley, 1991). This advantage, in turn, enables teachers to diagnose and monitor their students' needs and lacks, and, consequently, tailor their ways of teaching to them. Given the above points, the researchers used the microgenetic analysis to disclose how the dialogic interactions in an online course lead to the improvement of Iranian high school students' writing skills.

Results and Discussion

The research question investigated how online dialogic interactions lead to the improvement of high school students' writing ability. For this purpose, the interactions between the teacher and students in the online classes were recorded and subjected to microgenetic analysis. Due to the space limitations, three episodes are presented below and, then, they will be discussed in line with the tenets of SCT. The participants' dialogues in Persian are given first followed by their English equivalents.

In Episode 1, the teacher interacted with a student to write the correct preposition for the verb "get". They cooperated to write the sentence "We got to the museum at 10: 30".

Episode 1

1 S: man fekr mikonam ke, eh.... bayad ba "got".... eh.... harfe ezafe "to" bekar
   bebarim, doroste?
   (I think that... we should use the preposition "to" with "got". That's right?)

2 T: harfe ezafe?
   (The preposition?)

3 S: Yani, ma mikhaim begim residan be....
   (I mean! I want to say "arrive at... ")

4 T: (saying nothing and sending a like sticker)

5 S: ....eh..... residan be jaee
   (Arriving at a place)

6 T: mhm! (Sending a like sticker)

7 S: Ok?

8 T: Right.

9 S: "Got to the museum"

10 T: "Got to the museum". (Writing)

In turn 1, S raises a question to start a dialogue. In response to S's question, in turn 2, T pauses and sends this signal that S needs to think more about the point. In turn 3, S tries more to reach the answer. However, in turn 4, T remains silent and sends a like

sticker to confirm that S is building the correct knowledge. In turn 5, S generates the correct structure. In turn 6, T sends a like sticker to show that S is doing well. In turn 7, S asks if she is right. In turn 8, T confirms her. In turn 9, S produces the right structure. In turn 10, T affirms S's structure. Episode 1, reveals how the student could benefit from the teacher's congruent mediations to rectify and correct her needs and lacks.

In Episode 2, the teacher and two students made a joint attempt to generate the sentence "We're searching for a local custom section of the museum".

Episode 2

1 S1: "Search for?" motmaenid? eh... fekr nakonam "search"...eh...be harfe ezafe niaz dashtebashe.
("Search for?" Are you sure? I don't think "search".... needs any preposition.)

2 T: rast mige.........ah? (Looking at others)
(She's right.....ah?)

3 S2: vali man migam "for" lazeme!!!
(But I say "for" is necessary!!!)

4 S1: mage "search" khodesh be manaye ....jostejo......eh.... baraye chizi nist?
(Doesn't "search" itself mean....... 'looking.... for something'?)

5 T: are, (nodding her head and looking at her students)
(Yeah,)

6 S2: Doroste, vali....uh.... ba "for" ham bekar mire.
(That's right, but....uh... it's used with "for", too).

7 S1: yani manish avaz nemishe?
(It means that the meaning doesn't change?)

8   T: shayad! vali ma darim.... donbale jaye..... eh... khasi migardim.
(Wondering)
(Maybe! but, we're..... looking for..... a special place).

9 S2: daghighan! Uum..... nokte hamin jast....(Laughing)
(Exactly! Uum... that's the point...)

10 S1: pas, yani..... "Search" ba....eh... "Search for" manishon fargh mikone?
(So, it means that..... "Search" differs from "search for"?)

11 T: search or search for? (All laughing)

12 S2: are, uum... avali kolie... vali dovomi yani ye jostejoye...eh.....chi besh migim?
 (Yeah, uum... the first has a general meaning...but the second means "looking for something"...eh...what do we call it?)

14 T: daghigh
("Carefully")

15 S2: afarin, hamine.... daghigh
(Bravo, that's it... "carefully")

16 S1: Daghigh!

(Carefully)
17 T: are, daghigh
   (Yeah, carefully)
18 S2: Looking for something carefully or "search for".

In turn 1, S1 raises a question. In response to the question, T looks at others to seek more interactions from them. In turn 3, S2 joins the dialogue and claims the intended structure. In turn 4, S1 continues with one more question to show that she needs more prompts. In turn 5, T confirms implicitly S1. In turn 6, S2 offers a more explicit prompt. In turn 7, by raising another question, S1 shows that the structure is not within her ZPD yet. In turn 8, T tries to encourage the students to think more about the point at hand. As can be seen, the dialogue continues among T and S1, and S2 so much so that the intended grammatical structure comes into their ZPDs. With the help of the given congruent mediations, the students could co-construct the needed knowledge to handle the structure.

In Episode 3, the dialogue revolves around the reconstruction of the sentence "We saw a number of foreign visitors there."

Episode 3
1 S1: A.....number of visitors
2 T: chanta bazdidkonande
   (A few visitors)
3 S2: are, chanta
   (Yeah, a few)
4 S1: pas "the number" inja dorost nist?
   (So, "the number" is not true here?)
5 T: na, oon mofrade
   (No, that's singular)
6 S2: Uum.....doroste
   (Uum...that's right)
7 S1: are, mofrade
   (Yeah, it's singular)
8 T: va, ba esme mofrad bekar mire (Sending a like sticker)
   (And, it's used with the singular noun)
9 S2: A number of visitors (reading aloud and writing "A")

As can be seen in Episode 3, in turn 1, S1 produces a structure that she is not sure about, In turn 2, by providing S1 with a prompt, T helps S1 to reach the correct answer. In turn 3, S2 attends the dialogue and offers a prompt in agreement with T's prompt. In turn 4, S1 continues the dialogue by making a hypothesis to show that she is getting the correct structure. In turn 5, T offers a more explicit prompt to show that the S1 hypothesis was not correct. In turn 6, S2 confirms that the S1 hypothesis needs to be rebuilt. In turn

7, S1 recreates her hypothesis. In turn 8, along with confirming S1, T makes her hypothesis more complete. In turn 9, S2 produces the complete form of the intended structure.

As can be inferred from the episodes above, with the help of the given congruent contingent prompts, the students could co-construct the intended knowledge to handle the structures. There were apparent benefits with the dialogic interactions in which the students could rectify and correct the writing problems. The prompts tailored to the students' ZPDs, could help the students handle their language-related problems and go beyond their current level of competence. In general, the findings of the study lend credence to the previous studies (Latifi et al., 2021; Merkel, 2018; Moradian et al., 20201; Nassaji & Tian, 210; Storch & Wigglesworth, 2007), reporting that dialogic interactions and collaborative dialogues are potentially useful to promote L2 learning significantly.

The findings of the study may be discussed from an SCT perspective where it is claimed that cognitive development and learning are co-shaped in interactions with more capable peers. Particularly, with the help of the given continent mediations, the students might have been able to transfer the knowledge from the social level to the individual level. Aligned with Merkel (2018), it may be argued that through the moment-to-moment interactions with the teacher, the students might have co-constructed the required knowledge to handle the writing tasks. Another line of discussion of the findings of the study is that the dialogic interactions might have helped the learners to become more self-regulated and take more reasonability for their writing. This was due to the dialogic interactions which allowed the students to co-build and internalize the knowledge and raise their metalinguistic knowledge about the features of a well-written paragraph.

Additionally, the results of the study may be attributed to this view that according to their needs and lacks, the learners might have been scaffolded (Miri et al., 2017). In this regard, it may be argued that through online dialogic interactions with the students in their ZPDs, the teacher might have had the optimal time for diagnosing the students' needs and lacks. Accordingly, she might have been able to offer congruent, contingent mediations. With the help of these mediations, the students might have extended their current writing abilities to higher abilities levels (Poehner & Wang, 2020).

Finally, the findings of the study may be explained by the assumption that the dialogic interactions might have raised the students' metacognitive awareness. Along with Lee (2017), it may be argued that with the increase of the students' metacognitive awareness of the writing tasks at hand, they might have gained valuable insights into the features of a well-written paragraph, recognized their abilities, and diagnosed their writing weaknesses. In this way, they might have been able to take necessary actions to strengthen their abilities and ameliorate their writing problems (López-Pellisa et al., 2021; Moradain et al., 2021).

Conclusions

The present study purported to investigate the effects of online dialogic interactions on the improvement of Iranian high school students' writing skills. The findings evidenced that the online dialogic interactions had the potential to improve the students' writing skills significantly. The results of the microgenetic analysis evidenced that the students could benefit from the dialogic interactions tied with their ZPDs to co-construct the required knowledge to handle the writing tasks. As Swain (2006) notes, the dialogic interactions could raise the students' awareness concerning the requirements to formulate and organize a paragraph by offering contingent, congruent mediations. With the help of the given mediations, the students could consulate their writing competence in such a way they could decrease their dependence on the teachers' assistance. To close, the dialogic interactions enabled the students to raise their metacognitive awareness about the requirements of the writing tasks, to rectify and correct their problems.

Based on the findings of the study, three implications are suggested for relevant stakeholders. The first implication is that L2 teachers should consider online dialogic interactions as an effective way to facilitate learning. They should become aware of this view that learning and cognitive development lie in dialogic interactions where language as a cultural artifact plays an important role in the processes of learning and cognitive development. The second implication is that L2 teachers can benefit from the microgenetic analysis to gain insight into changes that occurred in the learning processes and tailor their teaching methods to students' needs and wants. The final implication is that language institute owners in Iran should equip their educational centers with new technologies such that EFL learners can benefit from online courses.

In light of the limitations imposed on this study, some suggestions for further research are presented. First, as the sample of the present study was restricted to one intact 12-grade class, more studies can be conducted with larger samples to increase the generalizability of the obtained findings. Second, as the present study was conducted in the high school setting, further studies are needed to be run in other settings, such as private language institutes and universities with different levels of language proficiency. Third, as the current study focused on writing skills, future studies can investigate the effects of online dialogic interactions on other language skills and communicative competence (e.g., pragmatic competence). Fourth, as the present study was cross-sectional, a longitudinal study is required to explore how increased participation and understating of how to participate in dialogic interactions improve potentially L2 learners' writing performance. Fifth, as the present study involved dialogic interactions between a teacher and students, future studies can examine the effects of dialogic interactions between peers in online courses to improve L2 writing. Last but not least, interested researchers can explore the EFL students' and teachers' perceptions of the efficacy of online dialogic interactions in L2 learning.

References

Akdeniz, H., & Bangir Alpan, G. (2020). Analysis of gifted and talented students' creative problem solving styles. *Talent, 10*(1), 79-94. https://doi.org/10.46893/talent. 758416

Aljaafreh, A., & Lantolf, J. P. (1994). Negative feedback as regulation and second language learning in the zone of proximal development. *Modern Language Journal, 78*(4), 465-483. https://doi.org/10.1111/j.1540-4781.1994.tb02064.x

Boonmoh, A., Jumpakate, T., & Karpklon, S. (2021). Teachers' perceptions and experience in using technology for the classroom. *Call-EJ*, *22*(1), 1-24. http://callej.org/journal/22-1/Boonmoh-Jumpakate-Karpklon2021.pdf

Bouhnik, D., & Deshen, M. (2014). Unethical behavior of youth in the internet environment. *International Journal of Technology, Knowledge & Society: Annual Review*, *9*(2). 109-124. https://doi.org/10.18848/1832-3669/CGP/v09i02/56372

Brown, S. (2010). From VLEs to learning webs: The implications of Web 2.0 for learning and teaching. *Interactive Learning Environments, 18*(1), 1-10. DOI: 10.1080/10494820802158983

Casanave, C. P. (2009). Training for writing or training for reality? Challenges facing EFL writing teachers and students in language teacher education programs. In *Writing in foreign language contexts* (pp. 256-278). Multilingual Matters.

Dobao, A. F. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of Second Language Writing*, *21*(1), 40-58. https://doi.org/10.1016/j.jslw.2011.12.002

Fahim, M., Miri, M., & Najafi, Y. (2014). Contributory role of collaborative assessment in improving critical thinking and writing. *International Journal of Applied Linguistics & English Literature, 3*(1), 1-11. https://doi.org/10.7575/aiac.ijalel.v. 3n.1p.1

Gánem Gutiérrez, A. (2008). Microgenesis, method and object: A study of collaborative activity in a Spanish as a foreign language classroom. *Applied Linguistics*, *29*(1), 120-148. https://doi.org/10.1093/applin/amm032

Gardner, H. (1992). Assessment in context: The alternative to standardized testing. In B. R. Gifford, O' Connor, & M. Catherine (Eds.), *Changing assessments alternative views of aptitude, achievement and instruction* (pp. 46-60). Kulwer Academic Publishers.

Glazier, R. A., Hamann, K., Pollock, P. H., & Wilson, B. M. (2019). What drives student success? Assessing the combined effect of transfer students and online courses. *Teaching in Higher Education*, *25*, 1-18. https://doi.org/10.1080/13562517. 2019.1686701

Granott, N., & Parziale, J. (Eds.). (2002). *Microdevelopment: Transition processes in development and learning* (Vol. 7). Cambridge University Press.

Grower, R., Philips, D., & Walters, S. (1995). *Teaching practice: A handbook for teachers in training*. Mcmillian.

Hamid, S., Waycott, J., Kurnia, S. & Chang, S. (2015). Understanding students' perceptions on the benefits of online social networking use for teaching and learning. *The Internet and Higher Education, 26,* 1-9. https://doi.org/10.1080/00220485.2014.978922

Hyland, K. (2013). Writing in the university: education, knowledge and reputation. *Language Teaching*, *46*(1), 53-70. https://doi.org/10.1017/S0261444811000036

Jopp, R., & Cohen, J. (2020). Choose your own assessment - assessment choice for students in online higher education, *Teaching in Higher Education*, 24, 1-16. https://doi.org/10.1080/13562517.2020.1742680

Kuhn, D. (1995). Microgenetic study of change: What has it told us? *Psychological Science, 6*(3), 133-139. https://doi.org/10.1111/j.1467-9280.1995.tb00322.x

Lantolf, J. P., Xi, J., & Minakova, V. (2021). Sociocultural theory and concept-based language instruction. *Language Teaching*, *54*(3), 327-342. https://doi.org/10.1017/S0261444820000348

Latifi, S., Noroozi, O., Hatami, J., & Biemans, H. J. (2021). How does online peer feedback improve argumentative essay writing and learning? *Innovations in Education and Teaching International*, *58*(2), 195-206. https://doi.org/10.1080/14703297.2019.1687005

Lee, I. (2017). *Classroom writing assessment and feedback in L2 school contexts*. Springer Singapore.

Lee, K., & Karmiloff-Smith, A. (2002). Macro- and microdevelopmental research: Assumptions, research strategies, constraints, and utilities. In N. Granott & J. Parziale (Eds.), *Microdevelopment: Transition processes in development and learning* (pp. 243-265). Cambridge University Press.

Leeser, M. J. (2004). Learner proficiency and focus on form during collaborative dialogue. *Language Teaching Research*, *8*(1), 55-81. https://doi.org/10.1191/1362168804lr134oa

López-Pellisa, T., Rotger, N., & Rodríguez-Gallego, F. (2021). Collaborative writing at work: Peer feedback in a blended learning environment. *Education and Information Technologies*, *26*(1), 1293-1310. https://doi.org/10.1007/s10639-020-10312-2

McShane, K. (2004). Integrating face-to-face and online teaching: academics' role concept and teaching choices. *Teaching in Higher Education, 9*(1), 3-16, https://doi.org/10.1080/1356251032000155795

Merkel, W. (2018). Role reversals: A case study of dialogic interactions and feedback on L2 writing. *Journal of Second Language Writing*, *39*, 16-28. https://doi.org/10.1016/j.jslw.2017.11.007

Moradian, M. R., Miri, M., & Alamdar, P. (2021). The role of dialogic interaction in EFL writing assessment: A sociocultural perspective. *Indonesian Journal of Applied Linguistics*, *10*(3), 677-686. https://doi.org/10.17509/ijal.v10i3.31754

Miri, M., Alibakhshi, G., Kushki, A., & Bavarsad, P. S. (2017). Going beyond one-to-one mediation in zone of proximal development (ZPD): concurrent and cumulative group dynamic assessment. *Eurasian Journal of Applied Linguistics*, *3*(1), 1-24. DOI:10.32601/ejal.461025

Naghdipour, B. (2016). English writing instruction in Iran: Implications for second language writing curriculum and pedagogy. *Journal of Second Language Writing*, *32*, 81-87. https://doi.org/10.1016/j.jslw.2016.05.001

Naghdipour, B. (2021). English writing pedagogy at the crossroads: The case of Oman. *Journal of Second Language Writing*, *52*, 100815. https://doi.org/10.1016/j.jslw.2021.100815

Nassaji, H., & Tian, J. (2010). Collaborative and individual output tasks and their effects on learning English phrasal verbs. *Language Teaching Research*, *14*(4), 397-419. https://doi.org/10.1177/1362168810375364

Ngui, W., Pang, V., Hiew, W., & Wah, L. K. (2020). Exploring the impact of e-portfolio on ESL students' writing skills through the lenses of Malaysian undergraduates. *Call-Ej*, *21*(3), 105-121. http://eprints.ums.edu.my/id/eprint/25867

Ohta, A. S. (2001). *Second language acquisition processes in the classroom: Learning Japanese*. Routledge.

Pang, Y. (2021). Psychological crisis intervention of college sports majors based on big data analysis. *Revista De Psicología Del Deporte (Journal of Sport Psychology), 30*(3), 124-132. https://www.rpd-online.com/index.php/rpd/article/view/479

Parziale, J. (2002). Observing the dynamics of construction: Children building bridges and new ideas. In N. Granott & J. Parziale (Eds.), *Microdevelopment: Transition processes in development and learning* (pp. 157-180). Cambridge University Press.

Poehner, M. E., & Lantolf, J. P. (2010). Vygotsky's teaching-assessment dialectic and L2 education: The case for dynamic assessment. *Mind, Culture, and Activity*, *17*(4), 312-330. https://doi.org/10.1080/10749030903338509

Poehner, M. E., & van Compernolle, R. (2013). L2 development around tests: Learner response processes and dynamic assessment. *International Review of Applied Linguistics in Language Teaching, 51*(4), 353-377. https://doi.org/10.1515/iral-2013-0015

Poehner, M. E., & van Compernolle, R. A. (2020). Reconsidering time and process in L2 dynamic assessment. In *Toward a Reconceptualization of Second Language Classroom Assessment* (pp. 173-195). Springer, Cham.

Poehner, M. E., & Wang, Z. (2020). Dynamic assessment and second language development. *Language Teaching, 54*(4), 472-490. https://doi.org/10.1017 /S0261444820000555

Rahimi, S., Ghonsooly, B., & Rezai, A. (2021). An online portfolio assessment and perception study of Iranian high school students' English writing performance during the COVID-19 Pandemic. *Teaching English as a Second Language (Formerly Journal of Teaching Language Skills), 40*(3), 197-231. DOI:10.22099 /jtls.2021.39788.2946

Robbins, D. (2001). *Vygotsky's psychology-philosophy: A metaphor for language theory and learning*. Springer Science & Business Media.

Saad, R., Murugiah, G., Abdulhamid, J., Yusuf, E., & Fadli M. (2014). Comparative study between percolation and ultrasonication for the extraction of hibiscus and jasmine flowers utilizing antibacterial bioassay. *International Journal of Pharmacognosy and Phytochemical Research, 6*(3), 472-476. https://www.researchgate.net /publication/265389763_Comparative_Study_between_Percolation_and_Ultraso nication_for_the_Extraction_of_Hibiscus_and_Jasmine_Flowers_Utilizing_Anti bacterial_Bioassay

Schroeder, A., Minocha, S., & Schneider, C. (2010). The strengths, weaknesses, opportunities and threats of using social software in higher and further education teaching and learning. *Journal of Computer Assisted Learning, 26*(3), 159-174. http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2729.2010.00347.x/abstract

Siegler, R. S., & Crowley, K. (1991). The microgenetic method: A direct means for studying cognitive development. *American Psychologist, 46*(6), 606-620. https://doi.org/10.1037/0003-066x.46.6.606

Storch, N. (1999). Are two heads better than one? Pair work and grammatical accuracy. *System, 27*(3), 363-374. https://doi.org/10.1016/S0346-251X(99)00031-7

Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of Second Language Writing, 14*(3), 153-173. https://doi.org/10.1016/ j.jslw.2005.05.002

Storch, N. (2007). Investigating the merits of pair work on a text editing task in ESL classes. *Language Teaching Research, 11*(2), 143-159. https://doi.org/10.1177/ 1362168807074600

Susilawati, E., Khaira, I., & Pratama, I. (2021). Antecedents to student loyalty in indonesian higher education institutions: the mediating role of technology innovation. *Educational Sciences: Theory and Practice, 21*(3), 40-56. http://dx.doi.org/10.12738/jestp.2021.3.004

Swain, M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 97-114). Oxford University Press.

Swain, M. (2006). Languaging, agency and collaboration in advanced language proficiency. In H. Byrnes (Ed.), *Advanced language learning: The contribution of Halliday and Vygotsky* (pp. 95-108). Continuum.

Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *The Modern Language Journal*, *82*(3), 320-337. https://doi.org/10.1111/j.1540-4781.1998.tb01209.x

Swain, M., & Lapkin, S. (2002). Talking it through: Two French immersion learners' response to reformulation. *International Journal of Educational Research*, *37*(3-4), 285-304. https://doi.org/10.1016/S0883-0355(03)00006-5

Üstün, B. & Aksu Ataç, B. (2022). Attitudes of foreign language teaching students towards online learning. *International Online Journal of Education and Teaching (IOJET), 9*(1). 333-342. https://files.eric.ed.gov/fulltext/EJ1327221.pdf

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language*. The MIT Press.