

THE ROLE OF DIGITAL TOOLS IN EFL LEARNING: ENHANCING COMMUNICATION AND COLLABORATION SKILLS IN ONLINE ENVIRONMENTS

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ABSTRACT

This study explores the role of digital tools in enhancing communication and collaboration skills in online environments for English as a Foreign Language (EFL) learner. A true-experimental design was employed, involving ninth-grade students at Tursynkhan Aitzhanov Secondary School. The research investigated the impact of an intervention by analyzing the pre-test and post-test scores of 30 ninth-grade students assigned to experimental and control groups. The results indicated that digital tools, including online resources and learning platforms, significantly improved students' comprehension, vocabulary, and language skills. Additionally, these tools fostered a more positive attitude towards learning and communication in English, particularly for students who had previously struggled with traditional learning methods. This study demonstrates that digital tools can be an effective approach in supporting EFL learners' development, offering a more engaging and accessible way to enhance communication and collaboration skills.

Keywords: digital tools, language learning, group work, motivation, online platforms, educational technologies.

1.0 INTRODUCTION

In an era of rapid technological breakthroughs, the integration of digital tools and online platforms has drastically altered the landscape of education, particularly language acquisition. The traditional classroom model, formerly limited to face-to-face interactions and tangible textbooks, has transformed into a dynamic, digital learning environment that provides learners with new options for involvement, collaboration, and communication. As a result, English as a Foreign Language (EFL) instruction is increasingly using digital tools to improve both linguistic ability and soft skills like communication and teamwork. According to Warschauer (2000), "digital tools and the internet have revolutionized language instruction, offering previously unthinkable possibilities for communication and cooperation." The extensive use of online tools like Zoom, Google Classroom, and WhatsApp, which are now essential for supporting EFL training, is one example of this shift. The geographical and temporal constraints that frequently restrict traditional language learning environments are removed by these tools, which offer real-time communication, cooperation, and engagement. Students can participate in group projects, have meaningful conversations, and hone critical communication skills using these platforms—all of which are vital for success in an increasingly digital and globalized society as well as for language learning. Digital resources, however, play a part in

EFL instruction that goes beyond language acquisition. These resources have developed into effective student motivators that promote higher levels of participation and independent study. Students may manage their assignments, get immediate feedback from teachers, and monitor their own progress by using tools like Google Classroom. Long-term academic achievement and motivation depend on fostering a sense of autonomy and ownership over the learning process. Additionally, the collaborative nature of digital platforms fosters peer engagement and teamwork, two abilities that are critical in both academic and professional contexts. The development of pupils' social and communication skills is also significantly impacted by the incorporation of digital tools. Students can engage with classmates from a variety of cultural backgrounds through apps like Zoom and WhatsApp, which helps them understand other viewpoints. In addition to improving their language proficiency, this kind of contact fosters intercultural competency, which is crucial in the globalized world of today. Students develop their ability to listen intently, negotiate meaning, and express themselves clearly while cooperating to achieve a common objective through group projects and conversations. Additionally, students can participate in real language use, which is a crucial component of language learning, through the use of digital resources. Digital tools provide real-world uses of language, in contrast to traditional classroom settings where students might only participate in teacher-led activities or scripted dialogues. For instance, students can hone their speaking and writing abilities in dynamic, uncertain settings that closely mimic real-life communication situations by using video conferencing or collaborative platforms. In addition to enhancing language competency, this authenticity equips students with the skills necessary to communicate well in a range of digital contexts—a skill that is becoming more and more important in both academic and professional settings. The purpose of this project is to investigate how digital technologies improve self-directed learning, communication, and teamwork in online EFL learning environments. We aim to shed light on the benefits and drawbacks of digital collaboration in EFL instruction so that teachers can make the most of these resources to encourage better language learning and increased student involvement. The significance of creating interactive and cooperative learning environments that not only promote language proficiency but also equip students to succeed in the digital age, where teamwork and communication are essential, is underscored by this study. The way we teach and study languages has been completely transformed by digital tools, which present new avenues for communication, cooperation, and connection. It is imperative that educators and students embrace these tools and realize their potential to improve the EFL learning experience as the educational landscape changes. We can make sure that students not only improve their language proficiency but also acquire the skills they need to succeed in an increasingly digital world by skillfully incorporating digital technologies into the classroom.

2.0 PURPOSE OF THE STUDY

This study looks at how digital technologies can improve teamwork and communication when studying English as a foreign language (EFL). The purpose of this study is to look at the effects that digital tool integration has on students' capacity to connect, work together, and communicate well in English in online learning environments.

The main research questions of this article are as follows:

- How online tools improve student to-student and student to-teacher interaction?

- The impact of virtual environments on developing social and communication skills in language learners.
- How digital technologies foster motivation and self-directed learning in EFL students?
- The role of collaborative learning in achieving better language proficiency outcomes in an online setting.

3.0 LITERATURE REVIEW

A crucial part of teaching English as a foreign language (EFL) in recent years has been the incorporation of digital resources into language learning. Particularly in online settings, digital tools give students a variety of ways to actively communicate and collaborate. These resources promote cooperation, improve language skills, and provide genuine chances for face-to-face communication. The purpose of this literature review is to examine how digital technologies can enhance EFL learners' communication and teamwork abilities while examining the benefits and drawbacks of doing so. Digital tools give students a variety of chances to improve their communication abilities, especially in online and virtual settings. These resources offer real-time or asynchronous communication platforms for learners to practice their language skills, which improve speaking, listening, and writing abilities, among other communication skills. Real-time engagement between EFL learners is made possible by synchronous communication tools like live chat capabilities, instant messaging apps like WhatsApp, and video conferencing platforms like Zoom and Skype. These resources give students the chance to ask questions, have impromptu conversations, and get prompt feedback—all of which are essential for language development (Thorne and Payne, 2005). Additionally, synchronous conversation helps learners become more fluent by enabling them to think more rapidly and confidently in the target language. Furthermore, in-person interactions are made possible by platforms such as Google Meet and Microsoft Teams, which give students the opportunity to practice speaking and listening in a way that mimics real-world talks. By exposing students to a range of accents and speech patterns, synchronous technologies help them develop their listening abilities and become more adaptive to a variety of communicative circumstances, according to research by Hwang and Chen (2017). However, learners can converse at their own pace via asynchronous resources like blogs, discussion boards, and email. Asynchronous communication helps students to take their time while composing their answers, which enables them to consider how they use language and improve their writing (Blake, 2013). The fact that feedback in these contexts is delayed also encourages more deliberate language skill development among students. The development of written communication abilities is aided by these resources, which are crucial in both academic and professional settings. Peer relationships are also frequently encouraged by asynchronous communication since students can comment on each other's posts, participate in conversations, and offer criticism. According to Lai and Zhao (2018), this kind of interaction promotes learners to communicate their ideas more effectively and convincingly while enabling deeper engagement with the language. Since it enables students to share ideas, negotiate meaning, and co-construct knowledge, collaboration is essential to language acquisition. In online settings, where students can work with colleagues from all around the world, digital technologies are especially important for promoting collaboration. These resources not only facilitate group learning but also assist students in acquiring vital teamwork abilities that are required in both academic and professional contexts. With the help of programs like Google Docs, Padlet, and Microsoft OneDrive, EFL students may work together in real time on projects, presentations, and shared documents. These

platforms allow students to collaborate, modify each other's efforts, and provide feedback. According to Zhao (2016), collaborative technologies foster a more engaging and supportive learning environment in which students may actively engage with one another, share ideas, and solve problems together. These platforms also encourage learners to improve critical thinking and problem-solving abilities by collaborating on activities, clarifying doubts, and negotiating meaning. This collaborative method helps students to interact with language in more meaningful ways, allowing them to enhance their writing and speaking skills (Vygotsky, 1978). Peer-to-peer learning is a critical component of collaborative learning, and digital tools make this contact easier. Students can use platforms like Google Classroom and Edmodo to participate in group conversations, collaborate on assignments, and assist one another with language-related issues. Swain and Lapkin (2001) found that peer collaboration improves language learning by encouraging learners to engage in "language-related episodes" (LREs), in which they must explain their comprehension and negotiate the meaning of words or phrases. Digital tools can also encourage cooperation between students with various linguistic and cultural backgrounds, which improves cross-cultural communication. As Godwin-Jones (2018) notes, using digital tools in international projects promotes interaction between students and peers from different backgrounds, which broadens their perspective and cultivates cultural understanding. Students who are exposed to many cultures are better able to adjust to a range of communication styles and gain a more sophisticated comprehension of the language. In addition to facilitating cooperation in local settings, digital tools offer chances for intercultural communication. Intercultural dialogue is promoted by global learning platforms such as eTwinning, where students from many nations work together on projects. Cortes (2014) asserts that these kinds of platforms give students important exposure to many cultures, which improves their language proficiency and enriches their educational experience. Through these contacts, students are able to develop cultural competence, which is essential for successful communication in today's worldwide society. Although using digital tools for EFL instruction has numerous benefits, there are also some drawbacks. The digital gap is among the biggest obstacles. Learners in many areas might not have access to current gadgets, dependable internet connections, or the digital skills needed to use online platforms efficiently. Inequalities in learning outcomes can result from this difference in access to technology, which puts certain students at a disadvantage in the digital learning environment (Jang, 2017). One such issue is the possibility of technological overload. While there are many ways to communicate and work together with digital tools, relying too much on them can cause distractions and a decline in in-person encounters, which are crucial for the development of interpersonal communication skills. Achieving a balance between digital and conventional communication methods is essential to ensuring that learners continue to improve all facets of their language competency, according to Godwin-Jones (2018). EFL teachers must use efficient teaching techniques in order to get the most out of digital resources. Training students in digital literacy is one of the most crucial factors to take into account. Instructors should make sure that pupils know how to use digital tools responsibly and successfully. Along with technical instruction, this also offers advice on how to collaborate and communicate effectively online (Blake, 2013). Educators must also carefully choose digital resources that complement the course's learning goals. For instance, improving oral communication skills should be accomplished with tools that promote speaking and listening practice, while improving written communication should be accomplished with tools that assist writing and editing (Warschauer, 2013). A more dynamic and captivating learning environment can be produced by teachers through the deliberate integration of digital resources into the curriculum. To sum up, digital technologies

are essential for improving teamwork and communication in EFL instruction. These resources give students the chance to engage in peer cooperation, cross-cultural communication, and real-time contact. The potential advantages of utilizing digital technologies greatly exceed the drawbacks, even while issues like the digital divide and technological overload need to be addressed. EFL teachers can assist students in acquiring the abilities required for successful communication in both online and offline contexts by implementing efficient teaching techniques and making sure that digital resource are used with intention.

4.0 METHODOLOGY

4.1 Research design

The purpose of this study is to investigate how digital technologies can improve teamwork and communication abilities in EFL instruction. Eighth-grade students were divided into two groups as part of an experimental research design: the experimental group, which was used digital tools, and the control group, which was used conventional means. The main objective of the study is to evaluate how digital technologies affect students' language acquisition as well as the growth of their teamwork and communication abilities. Digital technologies including Google Classroom, Zoom, Kahoot, Padlet, and other collaborative platforms was introduced to the experimental group, while traditional teaching techniques was used with the control group. Over the course of the eight-week study, students' speaking, writing, listening, and reading abilities will be observed and evaluated. Interviews, student surveys, and pre- and post-tests were all used to gather data. Teachers were watch and document how well students collaborate and communicate during class activities. In order to compare the pre- and post-test findings, quantitative data was evaluated using statistical techniques (such as t-tests). Survey and interview qualitative data was subjected to thematic analysis in order to get insight into how students experience and perceive the digital tools. According to the research, students' communication and teamwork skills will be greatly enhanced by using digital tools, and the experimental group is projected to demonstrate higher levels of engagement and language proficiency improvement than the control group.

4.2 Participants and setting

The study population comprised of all eighth-grade Kazakh students at Tursynkhan Aitghanov Secondary School in the village of Shornakh, Turkestan area. The study's sample size was 30 students, both male and female. In the class there were 15 girls and 15 boys. The study was conducted in a classroom equipped with basic technology so that the experimental group could use digital tools. The study will take place in the school over an eight-week period and both groups will follow the same curriculum, the main difference being the teaching methods used. This setting is ideal for investigating the impact of digital tools in an educational context that combines traditional and modern approaches to language learning.

Table 1. Research participants

Group	Total	Age	Grade	Girls	Boys
Experimental	15	12-13	8	7	8
Control	15	12-13	8	10	5

4.3 Data collection instruments

Improving EFL Teaching with Digital Tools: Data collection tools for developing communication and collaboration skills in online environments and data collection tools that combine qualitative and quantitative methods can be used to answer the research questions. Therefore, I extended the study to 4 weeks, first collecting questionnaires and survey from students. Our goal was to determine the opinions of students and teachers about the impact of online tools on communication, collaboration and motivation. In addition, we conducted interviews (students and teachers). In the third week, the lesson was observed (in an online environment). We analyzed communication patterns in a virtual classroom. Pre- and post-tests were used to compare students' language skills before and after the intervention. The main objective of the study was to assess the impact of digital tools on the development of students' communication, collaboration, and language competences through their test results. And the results showed that there was a change in the children, that is, the use of the platforms was effective.

4.4 Treatment

This study compared the experimental and control groups to see how digital tools affected students' motivation, collaboration, and communication. The experimental group aggressively integrated digital tools and interactive techniques into the learning process (e.g., collaborative writing with Google Docs, brainstorming with Padlet, video feedback with Flipgrid, group discussions in Zoom breakout rooms), whereas the control group used more traditional online learning techniques (e.g., text assignments, individual work, communication via standard chat). Over the course of four weeks, members of the experimental group completed a range of exercises aimed at improving their capacity to collaborate and communicate online. Initial and final diagnostics (pre-test and post-test), questionnaires, and discourse analysis were utilized to assess the students' developmental stages.

As a result, children in the experimental group had noticeably improved language, communication, and cooperation abilities. Their involvement was boosted by the use of digital tools, which also helped them become more motivated and capable of learning on their own.

Table 2. Treatment Diagram

Groups	Methods used	Tools\examples
Control group	Traditional online learning methods	Text-based assignments, individual work, standard chat communication
Experimental group	Integration of interactive methods and digital tools	Google Docs (collaborative writing), Padlet (discussion board), Flipgrid (video responses), Zoom Breakout Rooms (group discussions), Storybird (interactive storytelling), Canva/Google slides (group presentations)

4.5 Data analysis

The data collected in this study were analyzed using SPSS to answer the research questions. To evaluate how digital tools affected EFL learners' online communication and teamwork abilities, a mix of descriptive and inferential statistical techniques was used. To assess students' improvement, pre- and post-test results for language competence, communication effectiveness, and teamwork were compared using paired samples t-tests. Both the control and experimental groups' performance was examined using descriptive statistics, such as mean scores, standard deviations, and p-values. The results showed that during the course of the four weeks, the experimental group's communication and teamwork abilities significantly improved. When compared to the control group, the students who participated in online collaborative activities showed improved interaction patterns and higher language ability. The statistical findings validated the efficacy of the digital tools and collaborative learning techniques used in the study by confirming that these gains were not the result of chance.

4.6 Findings

According to the results, the experimental group's use of digital tools greatly enhanced their motivation and engagement levels as well as their ability to collaborate and communicate. Comparing the post-test results to the control group, SPSS analysis revealed a statistically significant increase ($p < 0.05$). These results were corroborated by qualitative data from interviews and discourse analysis, which showed that students grew more independent and actively involved in their education.

Table 3. The pre-test result of the experimental and control groups.

	group	N	Mean	Std. Deviation	t	p
Pre_test	Control	15	61,9333	2,73774	2,199	,036
	Experimental	15	60,1333	1,59762		

Results from the pre-test for the experimental and control groups are displayed in Table 3. The experimental group scored 60.13 (SD = 1.60) on average, compared to 61.93 (SD = 2.74) for the control group. With a t-test result of 2.199 and a p-value of 0.036, the two groups' pre-test scores differed statistically significantly. This shows that the experimental and control groups' baseline levels of linguistic competency differed somewhat, with the control group doing marginally better. The difference is regarded as statistically significant, nevertheless, because the p-value is less than 0.05.

Table 4. The result of paired samples t-test of the control group.

	Mean	N	Std. Deviation	t	p
Pre_test	61,9333	15	2,73774	-3,651	,003
Post_test	65,9333	15	2,76371		

The results of the paired samples t-test for the control group are displayed. The control group had a mean score of 61.93 (standard deviation = 2.74) before the test and 65.93 (standard deviation = 2.76) after it. The p-value is 0.003 and the t-test result is -3.651, indicating a statistically significant difference. These findings show that the control group's language

proficiency has increased over time. There is a statistically significant difference because the p-value is smaller than 0.05.

Table 5. The result of paired samples t-test of the experimental group.

	Mean	N	Std. Deviation	t	p
Pre_test	60,1333	15	1,59762	-19,678	,000
Post_test	82,6000	15	3,73784		

The experimental group's mean score was 60.13 (standard deviation = 1.60) before the test and 82.60 (standard deviation = 3.74) after the test. The p-value is 0.000 and the t-test result is -19.678, indicating a very high level of statistical significance. This demonstrates how much the experimental group has improved in terms of language proficiency, teamwork, and communication. As the p-value is significantly less than 0.05, the obtained difference is regarded as statistically very credible.

Table 6. The post-test result of the experimental and control groups.

	Group	N	Mean	Std. Deviation	t	p
Post_test	Control	15	65,9333	2,76371	-13,886	,000
	Experimental	15	82,6000	3,73784		

The post-test outcomes for the experimental and control groups are contrasted. The experimental group's mean post-test score was 82.60 (standard deviation = 3.74), whereas the control group's was 65.93 (standard deviation = 2.76). The results of the two groups show a very high degree of statistical significance, as indicated by the t-test result of -13.886 and the p-value of 0.000. The performance of the experimental group was noticeably better than that of the control group, suggesting that the use of digital tools benefited language skill development.

The study's findings demonstrated that the experimental group's language, communication, and teamwork skills development was positively impacted by the usage of digital tools. Initially, the control and experimental groups' pre-test results differed little ($p = 0.036$). While there was modest progress in the control group's post-test results ($p = 0.003$), the experimental group's progress was noticeably greater. The experimental group's pre- and post-test results showed a very significant difference ($p = 0.000$), and the post-test findings from the two groups likewise showed a statistically significant difference ($p = 0.000$). This conclusion demonstrates that the methodical use of digital tools improved students' motivation and made a substantial contribution to the growth of their communication, cooperation, and language abilities.

5.0 DISCUSSION AND CONCLUSION

The results of this study are in line with previous research that emphasizes the use of digital technologies in enhancing the communication and teamwork abilities of EFL students. Synchronous digital platforms like Zoom, Google Meet, and Skype give students instantaneous and genuine opportunities to learn language through real-time conversations, which enhances fluency and listening comprehension, as demonstrated by earlier research (Thorne & Payne,

2005; Hwang & Chen, 2017). The findings of Blake (2013) and Lai and Zhao (2018) that asynchronous communication enhances writing abilities and critical thinking are also supported by the fact that asynchronous platforms like Padlet and Google Docs enable reflective language development and peer feedback. In keeping with the findings of Zhao (2016) and Godwin-Jones (2018), our findings also imply that collaborative tools like Storybird, Canva, and shared document editors foster dynamic peer interactions, improve problem-solving abilities, and facilitate cross-cultural interchange. Furthermore, the experimental group's higher levels of engagement and motivation show the positive effects of technology-enabled learning on motivation. To enhance the efficacy of digital learning environments, the study also draws attention to issues brought up in the literature about the digital divide and technology overload (Jang, 2017).

Digital tools make learning more dynamic and engaging by facilitating both synchronous and asynchronous engagement, fostering cross-cultural communication, and supporting student collaboration. Students are also encouraged to take charge of their education, learn self-control, and design their own learning routes thanks to digital tools. Students are therefore able to properly address their varied learning demands and have more autonomy as a result. The study found that students' motivation, communication, and teamwork skills are much enhanced when digital tools are incorporated into online English instruction. The information gathered for the study demonstrated that digital tools provide genuine, varied, and adaptable language practice opportunities. They also help to foster the growth of 21st century abilities like digital literacy, critical thinking, and teamwork, as well as language proficiency. Digital tools make learning more dynamic and engaging by facilitating both synchronous and asynchronous engagement, fostering cross-cultural communication, and supporting student collaboration. Students are also encouraged to take charge of their education, learn self-control, and design their own learning routes thanks to digital tools. Students are therefore able to properly address their varied learning demands and have more autonomy as a result. The study's findings demonstrate that digital technologies ought to be viewed as an essential part of contemporary language instruction as well as an extra resource. The digital environment fosters the development of critical values like creativity, international understanding, and a desire for lifelong learning in addition to language proficiency. In this sense, a key prerequisite for effective education is the methodical and deliberate integration of digital technology into the English language teaching process. Future research on the long-term effects of digital tool use across age groups, linguistic proficiency levels, and cultural contexts is advised. Additionally, it's critical to look for novel approaches and tool combinations that will improve student cooperation, engagement, and academic performance.

The results of this study demonstrate the significance of methodically incorporating digital resources into the process of teaching English to speakers of other languages. In this sense, it is crucial that digital technology be deliberately and regularly integrated into teaching methods. Digital platforms and interactive resources are considered to be powerful tools for improving students' language proficiency, motivation, and teamwork. Teachers' digital literacy needs to be developed with special care. It is advised that teachers participate in ongoing professional development programs and acquire the most recent technological skills to guarantee the efficient use of digital technologies. Additionally, because digital environments offer a wealth of options for autonomous learning, it is critical to include tasks that promote individual responsibility in order to promote student autonomy and self-regulated learning. Future studies

should concentrate on examining how digital technologies affect various age groups and educational settings over the long run. Additionally, it is essential to investigate the best digital resources and methodological strategies for students with different skill levels. These initiatives have the potential to improve language instruction's overall quality and better equip students to handle the demands of modern, technologically advanced learning environments.

REFERENCES

1. Warschauer, M. (2000). The role of technology in language learning: A review of the research. *Language Learning & Technology*, 4(1), 1–13.
2. Blake, R. (2013). *Brave new digital classroom: Technology and foreign language learning*. Georgetown University Press.
3. Cortes, V. (2014). "The Impact of Cultural Background on Collaborative Learning in EFL Contexts". *Journal of Educational Technology & Society*, 17(4), 22-31.
4. Godwin-Jones, R. (2018). "Emerging Technologies: Language Learning and the Internet". *Language Learning & Technology*, 22(2), 12-21.
5. Hwang, G. J., & Chen, P. Y. (2017). "Effects of digital tools on EFL learners' oral English skills". *Educational Technology Research and Development*, 65(1), 123-137.
6. Jang, S. (2017). "The challenges of using online tools in the classroom". *Journal of Educational Research*, 24(3), 46-56.
7. Lai, C., & Zhao, Y. (2018). "Collaborative learning in an online environment". *The Modern Language Journal*, 102(1), 10-24.
8. Swain, M., & Lapkin, S. (2001). "Interaction and second language learning: Two adolescent French immersion students working together". *The Modern Language Journal*, 85(3), 320-337.
9. Thorne, S. L., & Payne, J. S. (2005). "Evolutionary perspectives on technology-mediated language learning". *CALICO Journal*, 23(3), 471-495.
10. Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
11. Warschauer, M. (2013). *Technology and social inclusion: Rethinking the digital divide*. MIT Press.
12. Zhao, Y. (2016). "The role of collaboration in language acquisition". *Language Learning & Technology*, 20(1), 44-59.
13. Arnold, N., & Ducate, L. (2006). "Re-examining foreign language learning and technology: From practice to theory". *CALICO Journal*, 23(3), 17-34.
14. Bax, S. (2011). "The role of technology in the language classroom". *Language Learning & Technology*, 15(2), 56-78.
15. Beetham, H., & Sharpe, R. (2013). *Rethinking pedagogy for a digital age: Designing for 21st century learning*. Routledge.
16. Chapelle, C. (2003). *English language learning and technology: Lectures on applied linguistics in the age of information and communication technology*. John Benjamins Publishing.
17. Cummings, A. (2011). "The role of collaboration in language learning and its applications in classroom settings". *TESOL Quarterly*, 45(4), 745-762.
18. Kukulka-Hulme, A. (2009). "Will mobile learning change language learning?". .
19. Godwin-Jones, R. (2018). Using mobile technology to develop language skills and cultural understanding. *Language Learning & Technology*, 22(3), 1–17.

20. Hwang, W.-Y., & Chen, H. S. L. (2017). Users' familiarity and attitudes toward mobile devices as predictors for m-learning acceptance. *British Journal of Educational Technology*, 48(2), 654–671. <https://doi.org/10.1111/bjet.12349>
21. Jang, S. J. (2017). An investigation of factors influencing middle school students' digital literacy and self-directed learning readiness. *Educational Technology Research and Development*, 65, 905–925.
22. Lai, C., & Zhao, Y. (2018). Autonomy in self-access language learning: From individualization to learning in social contexts. *Innovation in Language Learning and Teaching*, 12(3), 317–331.
23. Thorne, S. L., & Payne, J. S. (2005). Evolutionary trajectories, Internet-mediated expression, and language education. *CALICO Journal*, 22(3), 371–397.
24. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
25. Zhao, Y. (2016). *Handbook of research on innovative technology integration in higher education*. IGI Global.

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