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The Effect of Digital Communication Activities on Iranian EFL Learners' Classroom Engagement

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Abstract
This study investigated the impact of digital communication activities on engagement among English as a Foreign Language (EFL) learners. Forty Iranian freshman students, consisting of 27 native Azari speakers and 13 Farsi speakers, aged 18 to 25 (M = 18.81, SD = 3.62), were selected and randomly assigned to the experimental and control groups, each with 20 students. Over a 3-month semester, the control group received traditional language instruction, while the experimental group engaged in various digital activities, including online discussions and language exchange, gamified learning, role-playing, story creation, peer review, and comprehension check using platforms like Skype, Duolingo, Duolingo Stories and Storybird. Engagement levels were measured pre- and post-intervention using the Student Engagement Scale (SES). Results indicated significant improvements in engagement for the experimental group, underscoring the effectiveness of digital tools in fostering emotional connections and active participation. These findings aligned with the Cognitive Theory of Learning and sociocultural theory, highlighting the importance of social interactions in language acquisition. Pedagogical implications suggested that educators should incorporate digital communication tools to create more engaging and inclusive learning environments. However, limitations such as a small sample size and short duration pointed to the necessity for further research. This research contributed to the literature on technology-enhanced language education, advocating for collaborative efforts to optimize digital tools in EFL contexts.
Keywords: Classroom engagement, digital communication activities, educational technology, EFL, language acquisition
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1. Introduction

Digital communication involves the transmission of information via electronic devices such as computers, smartphones, and the Internet. Its popularity has surged as advancements in technology have simplified the process of sharing information and connecting with others (Bulman & Fairlie, 2016). This shift has significantly altered conventional classroom environments, offering new avenues for learning and personal growth, as noted by Ng (2016). For instance, distance education has become more widely available, allowing students to enroll in their preferred courses without the limitations of time and location. Furthermore, online learning has broadened educational access, attracted diverse audiences, and enhanced interactivity in the learning experience. Online peer tutoring, discussions across various platforms, and the availability of information on the Internet exemplify this transformation. Additionally, digital communication has widened the educational landscape beyond mere academic achievement, equipping learners with essential life skills and practical knowledge. Resources such as e-books and educational videos are easily accessible online. In today's educational landscape, the integration of technology has gained paramount importance, as digital literacy is vital for success in the 21st century (Collins & Halverson, 2018). Educational systems are increasingly assessed by the degree of technology integration, as research indicates that digital communication enhances both learner motivation and performance. The implementation of advanced visual technologies in education has expedited information delivery and improved retention among students. This shift has notably altered the traditional role of teachers in the classroom (Bates, 2015; Darling-Hammond et al., 2020). With the rise of digital technology, educators are now viewed not merely as knowledge providers, but as facilitators who guide students through the vast resources available online (Oecd, 2019). Teachers are expected to demonstrate proficiency with digital tools and integrate these into their instructional methods to enrich the learning experience (Wohlfart & Wagner, 2023). This integration includes utilizing digital resources alongside conventional teaching materials, establishing online learning environments, and employing collaborative tools to enhance student engagement. Furthermore, educators are encouraged to adopt a flexible and personalized teaching approach, adapting their methods to cater to the diverse needs of their students (Darling-Hammond et al., 2020). This necessitates that teachers be innovative and adaptable in their strategies (Wohlfart & Wagner, 2023) and capable of providing constructive feedback in a digital context (Henrie et al.,

2015). In summary, the advent of digital communication has redefined the teacher's role to one that is more collaborative, flexible, and technologically adept (Bates, 2018; Bulman & Fairlie, 2016; Collins & Halverson, 2015; Darling-Hammond et al., 2020; Ng, 2016). The impact of digital communication activities extends to various learner variables, including affective, cognitive, and educational factors. A key affective variable influencing language learners' progress is their engagement in classroom activities. Learner engagement refers to the allocation of a student's cognitive and emotional resources toward completing a learning task. It has been consistently linked to positive educational outcomes such as academic success, persistence, satisfaction, and a sense of community (Henrie et al., 2015). These findings have led researchers to describe learner engagement as both "an educational bottom line" and "the holy grail of learning" (Halverson & Graham, 2019). Despite these correlations, many students remain inadequately engaged in their education, leading to high dropout rates and a decrease in motivation and academic performance. Promoting active student engagement is a crucial area of exploration in instructional technology research (Henrie et al., 2015). However, most scholarly works reviewed lack a clearly defined framework for understanding engagement (Henrie et al., 2015). While a universally accepted definition of student engagement is still lacking, researchers agree that it is a complex phenomenon comprising various sub-constructs, supported by multiple indicators. Emotional and cognitive engagement are particularly emphasized as essential sub-constructs within blended learning contexts (Halverson & Graham, 2019). Emotional engagement involves students' affective responses to different aspects of the learning experience, including tasks, context, peer interactions, and teacher dynamics, reflecting feelings such as curiosity, joy, and affiliation. Cognitive engagement, on the other hand, pertains to the mental investment students make in understanding and mastering academic content, which includes metacognitive strategies, a willingness to tackle challenges, and self-regulatory skills (Fredricks et al., 2024; Manwaring et al., 2017). Both emotional and cognitive engagement significantly influence academic achievement. This study primarily focused on engagement of language learners, aiming to explore the complex dynamics and perceptions of English as a Foreign Language (EFL) learners regarding digital communication. In line with the objectives of the study, the following research question was stated: Do digital communication activities have a statistically significance effect on Iranian EFL learners' engagement?

2. Review of Literature

2.1. Sociocultural and Cultural Theory

The sociocultural theory emphasizes the important link between an individual's psychological processes and the cultural and institutional contexts surrounding them (Scott & Palincsar, 2019). As noted by Ahmed (2017), culture consists of inherited beliefs and practices that significantly shape our life trajectories. This theory highlights the critical role of social interactions and cultural experiences in influencing psychological development, suggesting that growth is not merely an internal phenomenon but is deeply affected by external social engagements. The environments individuals inhabit are crucial in determining their behaviors and learning processes. In this perspective, language serves as a reflection and means of conveying cultural essence. English as a Second Language (ESL) learners improve their language skills through interactions with native speakers and guidance from mentors. Additionally, digital communication platforms provide immersive sociocultural experiences, where the language utilized on these platforms plays a vital role in language enhancement. The richness of word meanings is derived through interactive communication (Adilbayeva et al., 2022; Ahmad, 2017). Peer interactions, guided by instructional support, are equally essential, as emphasized by the theory (Scott & Palincsar, 2019).

2.2. Cognitive Theory of Learning

The Cognitive Theory of Learning explains how people understand and remember information, which is crucial for effective learning (Resnick, 2017). This theory highlights the significance of comprehension in the learning process and encourages creativity. Key language skills involved in this approach include listening, speaking, reading, and writing. English as a Second Language (ESL) learners should utilize various language resources to stay motivated and engaged in practice. The theory suggests that language acquisition requires cognitive effort, with success depending on the quality of input and interaction (Ghazi-Saidi & Ansaldo, 2017). Furthermore, repetition is emphasized as a means to improve learning outcomes by enhancing memory retention. Learners who frequently engage in repetitive activities or revisit material tend to demonstrate greater language proficiency and better information retention. Javed (2018) also argued that developing effective language skills requires clear teaching, comprehensive explanations, and ample practice opportunities.

2.3. Digital Communication Activities and ESL/EFL Learning

Technology has significantly influenced the development of educational media, enhancing communication in instruction and improving both student learning and teaching strategies (Mellati et al., 2018). It provides various platforms for theoretical, informational, and experiential content delivery. Research by Viberg and Gronlund (2017) emphasizes the importance of aligning learning methods with technological tools, advocating for the integration of technology to bridge theoretical concepts and practical application. Their study suggests that curriculum

development must acknowledge the prevalent use of mobile phones and laptops by learners for self-directed study, highlighting the necessity for resources that cater to these preferences. Therefore, language programs should evolve to support personalized learning experiences by incorporating technology that aligns with students' habitual use of devices. This perspective is reinforced by Mellati et al. (2018), who argue that learners can improve their vocabulary and language skills through social networks as effective practice platforms. Their investigation into technology's impact on language acquisition reveals that students favor personalized learning at their own pace and are often unwilling to limit their mobile device usage for academic purposes. The internet serves as an interactive educational space, offering a platform for creative expression, while electronic devices promote diverse and innovative learning environments (Javed, 2018; Mellati et al., 2018).

Online learning platforms facilitate the development of learning communities, allowing students to create and share knowledge (Ahmad, 2017; Dweikat, 2016). According to Sari and Magana (2019), language proficiency involves not only understanding others but also responding appropriately, with media serving as an effective medium for enhancing this ability. Sockett (n.d.) supports these claims, noting that practicing English as a Second Language (ESL) skills outside the traditional classroom setting can significantly enhance learners' language abilities and build their confidence. Additionally, the informal characteristics of online social media may lead ESL learners to overlook the improvements in their language skills gained through online engagement. Lai, Zhu, and Gong (2015) further elaborate that students who participate in extracurricular activities and interactions tend to demonstrate higher language proficiency, reaping the benefits of a varied learning environment. Digital communication not only improves English language skills and vocabulary but also promotes a positive mindset and motivation toward learning the language (A-Sofi, 2016; Kagan, 2019; Lai et al., 2015). These online platforms provide a relaxed atmosphere that encourages learners to practice speaking English. As a result, reduced teacher authority allows students to communicate more freely and enhance their communication skills.

Social networking sites, particularly Facebook, have become key avenues for communication in English, promoting the exchange of ideas and thoughtful discussions (Ahmad, 2017). Research by Dweika (2016) explored the effects of a specialized Facebook group designed for English as a Second Language (ESL) students, revealing that participants demonstrated notable advancements in their language proficiency. This finding led to suggestions for educators to utilize Facebook as a tool for fostering connections and sharing resources. Similarly, Ahmed (2017) found that students engaged in English-centric conversations on Facebook exhibited enhancements in their writing and grammatical skills.

YouTube serves as an additional social media platform that enables ESL learners to engage with a wide array of English-language content, which helps them enhance their language abilities in multiple areas (Sari & Magana, 2019). Research by Raj, Ann, Subramaniam, and Yunus (2019) demonstrated that utilizing YouTube for language acquisition not only boosts vocabulary but also improves fluency. Moreover, learners can foster their creativity through participation in discussions and by creating their own videos. Sockett (n.d.) pointed out that engaging with musical content and analyzing YouTube lyrics can aid in refining pronunciation and writing skills. Additionally, Lee (2007) emphasized the importance of video conferencing in improving speaking proficiency and facilitating interactions with native speakers. Alamrani (2020) assessed the role of digital communication, revealing its beneficial effects on ESL learning, which are influenced by access to technology and the ability to address challenges.

2.4. Student Engagement

Emotional engagement refers to the positive and negative feelings that students display towards their peers, teachers, educational institutions, and learning outcomes. In contrast, cognitive engagement involves the intellectual commitment students make to understanding the material, which includes deep thinking and a readiness to exert considerable effort to grasp complex ideas and acquire challenging skills (Fredricks & McColskey, 2012). The effects of academic engagement are extensive and long-lasting, influencing various aspects such as the pursuit of higher education, the maintenance of consistent learning practices, the improvement of career prospects, the development of a positive self-image and well-being, and the reduction of depressive symptoms (Eccles & Wang, 2012). Thus, active participation in academic activities leads to beneficial results that extend beyond educational settings. Additionally, cognitive engagement shows a strong connection to academic motivation and performance, as students who engage deeply in their studies tend to give higher ratings to their academic experiences, achieve better grades, and exhibit lower levels of disengagement and avoidance (Li & Lerner, 2011). Recently, engagement has emerged as a crucial factor in academic success, with the suggestion that positive emotional experiences indirectly impact academic performance through motivational pathways, particularly through engagement itself (Gobert et al., 2015; King, 2015; Zhou et al., 2010). In this context, engagement serves as a key motivator for educational aspirations.

3. Methodology

3.1. Research Design

This study employed a quantitative research design to explore the complex relationship between digital communication activities and EFL learners' engagement. Specifically, a pretest/posttest control/experimental group design was utilized. This approach involved administering pretests and posttests to both a control group and an experimental group to assess the impact of an intervention on learner engagement. The quantitative data collected were analyzed using appropriate statistical methods to draw valid conclusions regarding the effects of digital communication activities on engagement levels.

3.2. Participants

The sample comprised 40 Iranian freshman EFL students from the University of Mohaghegh Ardabili in Ardebil, Iran. Among the participants, 27 were native speakers of Azari, while the remaining 13 spoke Farsi as their mother tongue. The demographic breakdown included 32 females and 8 males, with ages ranging from 18 to 25 years (M = 18.81, SD = 3.62). This diverse sample allowed for a comprehensive analysis of engagement across different linguistic backgrounds.

3.3. Instruments

Here are the instruments employed to collect data in this study:

1. Student Engagement Scale (SES): Developed by Fredricks and McColskey (2012), this self-report measure assesses the extent of student engagement in classroom activities. The total score ranges from 31 to 155, with higher scores indicating greater levels of engagement. To assess the internal consistency of the SES, Cronbach's alpha was calculated. The results indicated high reliability, with alpha coefficients for each dimension exceeding 0.77, confirming that the scale effectively measures the intended constructs.
2. Digital Communication Tools: The study incorporated various digital communication tools, including Skype for video calls, Duolingo as an interactive language app, Duolingo Stories for role-playing activities, and Storybird for creative storytelling in multiple languages.

3.4. Procedure

The procedure commenced with measuring participants' baseline engagement levels using the SES pretest prior to any intervention. Participants were then randomly divided into a control group and an experimental group. Over the course of a 3-month academic semester, the control group received regular language instruction without incorporating digital communication activities. In contrast, the experimental group engaged in a range of digital communication activities, including online discussions and language exchange, gamified learning, role-playing, story creation, peer review, and comprehension check through Skype, Duolingo, Duolingo Stories and Storybird. Post-intervention engagement levels were measured using the SES, allowing for a comparative analysis of engagement before and after the treatment for both groups. Data were collected at two points: before the intervention and after its completion. Statistical analyses, including descriptive statistics and Independent Samples t-tests, were conducted to determine if there was a statistically significant difference in engagement levels between the control and experimental groups.

4. Results

Table 1 presents the descriptive statistics for both groups. The control group had mean scores of 56.03 (SD = 3.51) in the pretest and 53.05 (SD = 2.16) in the posttest, while the experimental group scored 54.88 (SD = 3.26) and 72.50 (SD = 3.98), respectively. Overall, the groups' average scores improved from 55.06 to 65.19, reflecting enhanced student engagement following the intervention.

Table 1
Descriptive Statistics

		N	Mean	Std. Deviation
Pretest	Control Group	20	56.03	3.51
	Experimental Group	20	54.88	3.26
	Total	40	55.96	3.89
Posttest	Control Group	20	53.05	2.16
	Experimental Group	20	72.50	3.98
	Total	40	65.19	2.53

A Kolmogorov-Smirnov test was performed to assess the normality of the scores. As shown in Table 2, all p-values were not statistically significant, confirming that the assumption of normal distribution was met.

Table 2
Kolmogorov-Smirnov Test

	Methodology	Kolmogorov-Smirnov Statistic	Df	Sig.
Pretest	Control Group	.16	20	.17
	Experimental Group	.14	20	.20
Posttest	Control Group	.14	20	.20
	Experimental Group	.14	20	.20

Table 3 shows that Levene's test yielded non-significant results for both the pretest (p = .47, F = .52) and posttest (p = 1.13, F = .07), confirming homogeneity of variances. The independent samples t-test for the pretest indicated no significant difference in performance between groups, t(58) = -.09, p = .92, with a mean difference of -.02 and a 95% confidence interval of -.58 to -.53, suggesting equal level of engagement prior to treatment. Conversely, the posttest revealed a significant difference, t(58) = 8.90, p = .00, with a mean difference of 3.52 and a confidence interval of 2.27 to 4.32, indicating that the level of engagement in the experimental group was higher than that in the control group due to the incorporation of digital communication activities in the classroom.

Table 3
Independent Samples t-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pretest	Equal variances assumed	.52	.47	-.09	38	.92	-.02	.27	-.58	.53
	Equal variances not assumed			-.09	37.01	.92	-.02	.27	-.58	.53
Posttest	Equal variances assumed	1.13	.00	8.90	38	.00	3.52	.39	2.72	4.32
	Equal variances not assumed			8.90	31.35	.00	3.52	.39	2.71	4.33

5. Discussion

The findings of this study provide compelling evidence of the positive impact of digital communication activities on EFL learners' engagement. The analysis of pretest and posttest scores between the experimental and control groups revealed significant improvements in overall learner engagement, supporting the hypothesis that digital communication tools enhance student involvement in the learning process. This result aligns with previous research highlighting the role of digital communication activities in fostering a more emotionally connected and invested learning environment (Ahmad, 2017; Scott & Palincsar, 2019). The increase in engagement suggests that these activities contribute to creating a more enjoyable and meaningful learning experience. The collaborative and interactive nature of digital platforms facilitates dynamic exchanges of ideas and resources among learners (A-Sofi, 2016; Kagan, 2019; Lai et al., 2015; Mellati et al., 2018; Sari & Magana, 2019). Such environments not only motivate learners but also promote a sense of community, which is essential for language acquisition. This sense of belonging can lead to increased motivation, as learners feel more connected to their peers and the learning process itself. In addition to emotional engagement, the findings are consistent with the Cognitive Theory of Learning, which underscores the importance of comprehension and understanding in the learning process (Resnick, 2017). Engaging in digital communication exposes learners to diverse language resources and interactions, thereby promoting a more profound experience and knowledge acquisition (Ghazi-Saidi & Ansaldo, 2017; Javad, 2017). The varied formats of communication available through digital platforms allow learners to encounter language in context, enhancing their understanding and retention. This exposure to authentic language use is critical, as it provides learners with the tools to navigate real-world communication scenarios effectively. Moreover, the study revealed that learners in the experimental group demonstrated higher levels of active participation and involvement in learning tasks compared to their counterparts in the control group. This observation echoes the sociocultural theory's emphasis on the role of social interactions in shaping behavior and learning. The collaborative nature of digital communication platforms encourages learners to actively contribute, share ideas, and collaborate, leading to enhanced behavioral engagement (Ahmad, 2017). This active participation is crucial, as it fosters a sense of ownership over the learning process, motivating learners to take initiative and engage deeply with the material.

The implications of these findings extend beyond individual learner engagement. The integration of digital communication activities can transform traditional classroom dynamics, promoting a more student-centered approach to learning. Educators can leverage these tools to create a more inclusive and participatory learning environment, accommodating diverse learning styles and preferences. This flexibility is particularly important in EFL contexts, where learners may have varying levels of proficiency and comfort with the language. Furthermore, the positive impact of digital communication activities on engagement has broader implications for language proficiency. As learners become more engaged, they are likely to invest more time and effort in their studies, leading to improved language skills over time. This aligns with the notion that engagement is a critical predictor of academic success (Fredricks et al., 2004). Therefore, fostering engagement through digital communication not only enhances the immediate learning experience but also contributes to long-term language development. However, it is essential to acknowledge potential challenges associated with the implementation of digital communication activities. While the benefits are evident, educators may face obstacles such as varying levels of technological proficiency among students, access to reliable internet, and the need for adequate training to effectively integrate these tools into their teaching practices. Addressing these challenges will be crucial for maximizing the potential of digital communication in EFL settings.

In conclusion, the evidence presented in this study underscores the significant role of digital communication activities in enhancing EFL learners' engagement. The findings support existing literature and provide a framework for future research on the integration of digital tools in language education. As educators continue to explore innovative teaching methods, the insights gained from this study can inform practices that maximize learner engagement and promote effective language acquisition. Future research should explore the long-term effects of digital communication activities on language proficiency and learner outcomes, as well as the potential challenges educators may face in implementing these strategies in diverse classroom settings. By addressing these areas, the field can continue to evolve and adapt to the changing landscape of language education.

6. Conclusions

In summary, this study provides robust evidence that digital communication activities significantly enhance engagement among EFL learners. The findings indicate that these activities not only foster a more emotionally connected learning environment but also promote active participation, collaboration, and deeper understanding of the language. By aligning with established theories such as the Cognitive Theory of Learning and sociocultural theory, this research underscores the importance of social interactions and comprehension in effective language acquisition.

The pedagogical implications of these findings are substantial. Educators are encouraged to integrate digital communication tools into their teaching practices to create more engaging and student-centered learning environments. By leveraging technology, teachers can facilitate collaborative learning experiences that cater to diverse learning styles and preferences, ultimately enhancing learner motivation and achievement. Moreover, training and support for educators in utilizing these tools effectively should be prioritized to ensure successful implementation.

However, this study is not without limitations. One significant limitation is the relatively small sample size, which may affect the generalizability of the findings. Future research should aim to include a larger and more diverse participant pool to better understand the impact of digital communication activities across different contexts. Additionally, the study's duration was limited, which means that long-term effects on engagement and language proficiency were not fully explored. Longitudinal studies could provide deeper insights into how sustained use of digital communication tools influences EFL learning outcomes over time.

Further research is essential to explore the long-term effects of digital communication activities on language proficiency and learner outcomes. Future studies should also investigate how different demographic factors, such as age, background, and prior experience with technology, influence the effectiveness of these activities. Additionally, research could focus on identifying best practices for integrating digital communication in various educational contexts, including both face-to-face and online learning environments.

In conclusion, as the landscape of education continues to evolve with technological advancements, it is imperative that educators and researchers collaborate to harness the potential of digital communication tools. By doing so, we can enhance learner engagement, foster meaningful interactions, and ultimately improve language acquisition outcomes for EFL learners.

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Appendix
Student Engagement Scale (SES)

	Emotional engagement	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
4	Teachers in my school are honest with their students.	5	4	3	2	1
5	I like the teachers in my school.	5	4	3	2	1
6	Principals in my school are fair with regard to discipline.	5	4	3	2	1
7	My teachers care about me.	5	4	3	2	1
8	My teachers are good at their job.	5	4	3	2	1
10	My teachers understand me.	5	4	3	2	1
13	My teachers help me whenever I need.	5	4	3	2	1
14	I feel I am a member of my school.	5	4	3	2	1
15	I recommend other students to come to my school.	5	4	3	2	1
53	I believe I'm receiving a good education in my school.	5	4	3	2	1
	Cognitive engagement					
20	I spend a lot of time on my studies and homework.	5	4	3	2	1
28	I give all my attention to the lesson in the class.	5	4	3	2	1
29	I do my homework (work about the school) on time.	5	4	3	2	1
36	I work as hard as I can at my lessons.	5	4	3	2	1
40	I do my best in class.	5	4	3	2	1
41	I don't give up trying even when the lessons are hard.	5	4	3	2	1
42	I believe I do my best to learn in class.	5	4	3	2	1
43	I try my best when working on my lessons.	5	4	3	2	1
48	I usually plan before doing my homework.	5	4	3	2	1
58	I work on my lessons even when there are no upcoming exams.	5	4	3	2	1
59	I share the knowledge I learned at school with other people.	5	4	3	2	1
60	I check mistakes in my homework.	5	4	3	2	1
	Behavioral engagement					
27	I often get into trouble in school.*	5	4	3	2	1
31	I often get into fights in school.*	5	4	3	2	1
32	I am usually sent to the disciplinary board because of my behavior.*	5	4	3	2	1
33	I play truant from school every chance I get.*	5	4	3	2	1
34	I am usually late for school. *	5	4	3	2	1
37	I have considered dropping out of school.*	5	4	3	2	1
38	I pretend to be working during the class.*	5	4	3	2	1
54	I'm going to graduate from my school.	5	4	3	2	1
55	I want to attend university.	5	4	3	2	1

*reverse item