Research Article

Investigating the Efficacy of Google Meet in Fostering Learner Autonomy: How Motivation Levels Influence Outcomes among Iranian EFL Students

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Abstract

This study compared the development of learner autonomy between EFL students receiving instruction via Google Meet and those in traditional classroom settings while investigating the moderating role of learner motivation. A quasi-experimental design with two groups involving 40 intermediate EFL learners was employed. The learners' English Proficiency was evaluated using the Oxford Placement Test *(OPT)*, motivation with the English Learning Motivation Questionnaire (ELMQ*)*, and autonomy with the Learner Autonomy Questionnaire (LAQ). The results revealed a statistically significant increase in the learner autonomy scores in the experimental group who received instruction through Google Meet, while the control group receiving traditional face-to-face instruction did not experience a significant change. A two-way ANOVA revealed that the learners with high motivation scored higher in both groups compared to those with low motivation. Notably, the learners with high motivation in the Google Meet group achieved the highest scores, while the learners with low motivation in the control group scored the lowest. The results also confirmed that both learner motivation and Google Meet instruction, along with their interaction, significantly affect learner autonomy development. These findings contribute to the understanding of technology-assisted language learning environments and their potential to foster learner autonomy while highlighting the important role of learner motivation in this process.

Keywords: Google Meet, autonomy, motivation, online language learning

Introduction

The landscape of language learning is undergoing a remarkable transformation. Educational technologies are empowering learners with unparalleled opportunities to acquire new languages independently (Tran & Duong, 2020; Tsai, 2019; Zhong, 2018). Platforms like Moodle, email, Google Meet, web-blogs, Blackboard, MOOCs, WhatsApp, and Telegram provide anytime, anywhere access to language instruction, shattering geographical limitations. These technologies create a vibrant digital social environment where learners can interact meaningfully with native speakers (Ueki & Takeuchi, 2013). In this dynamic learning environment, fostering learner autonomy becomes paramount. As language learning becomes increasingly personalized, learners require the ability to pursue independent study effectively (Ueki & Takeuchi, 2013).

Within the domain of foreign/second language education, learner autonomy has enjoyed a prominent position as the ultimate objective for decades (Benson & Voller, 2014; Huang & Benson, 2013). Learner autonomy refers to students' capacity to take ownership of their learning journeys (Benson & Voller, 2014). Macaskill and Taylor's (2010) seminal work defines learner autonomy as a multifaceted construct encompassing responsibility, intrinsic motivation, self-regulated learning strategies, and perseverance in the face of challenges. Autonomous learners actively participate in setting their own learning goals, selecting appropriate learning strategies, and monitoring their progress. This self-directed approach extends beyond the confines of the classroom, demanding sustained effort and dedicated practice to achieve success in a new language.

Researchers have found that digital learning environments both require and foster learner autonomy (Reinders & White, 2016). These environments offer advantages ranging from anytime, anywhere access to resources (Liu, 2009) to heightened student awareness of the learning process (Smith & Craig, 2013) and even encouraging positive attitudes towards autonomous learning (Sato et al., 2020). While research extensively documents the potential of technology-mediated instruction to support learner autonomy (Chen et al., 2017; Murdock & Williams, 2011; Susanti et al., 2023; Tsai, 2019), a critical gap exists in our understanding of how Google Meet specifically interacts with learner motivation in developing learners' autonomy.

The dynamic between motivation and learner autonomy has enjoyed a great deal of attention in L2 acquisition studies, with multiple researchers

focusing on the role of self-constructs (i.e., ideal L2 self and self-efficacy) concerning the reality of autonomous learning behaviors and self-initiated learning (Ushioda, 2006; Dörnyei & Ryan, 2015). Although prior research has examined this process in many learning contexts including feedback, a considerable gap still exists to examine the motivation-learner autonomy and autonomous learning dynamic in a particular technology-enhanced learning context, in other words, specifically with Google Meet using its features and structure. Previous research has established that synchronous tools like Zoom can support autonomy development (Lenkaitis, 2019), and that motivation serves as the most influential individual difference variable in language learning success (Ellis, 2008). However, the distinctive affordances of Google Meet - including its seamless integration with collaborative Google Workspace tools, structured breakout room functionality, and hybrid learning capabilities - remain unexplored in relation to autonomy development, despite the platform's widespread adoption in post-pandemic EFL instruction. The present research study explored motivation-autonomy associations through the lens of Google Meet's affordances, in that it examines not only if Google Meet presents higher autonomy than conventional classes in-person classes with Iranian EFL learners, how learners' pre-existing motivation levels interact with these platform-specific features to influence autonomous learning outcomes. By working with the situated affordances of the technology platform in a context like Iran that is relatively unstudied, and facing some unique challenges related to infrastructure and teacher-centered pedagogy, I have advanced the field both theoretically and practically, and will contribute to future knowledge development on the motivational-autonomy relationship while also providing practical solutions for planning technology-enhanced learning environments.

Google Meet

A growing body of research (Bahari, 2021; Grabe & Grabe, 2005; Ratnaningsih et al., 2019; Tafazoli, 2019) underscores the pervasiveness and effectiveness of technology-mediated second language learning over the past four decades. The integration of technological tools has been empirically shown to augment learner motivation and foster autonomous learning behaviors (Grabe & Grabe, 2005). Furthermore, CALL offers language instructors innovative pedagogical design possibilities (Azizinezhad & Hashemi, 2013). Ratnaningsih et al. (2019) highlight the multifaceted advantages of CALL in the educational domain, including fostering active engagement with the target language through task completion and problem-solving activities facilitated by computers. Their research also suggests that CALL can enhance learners'

English- speaking proficiency. Notably, Tafazoli (2019) emphasizes that CALL benefits students of diverse genders, ages, and across a broad spectrum of learning topics.

Emerging as a prominent tool in educational settings, Google Meet facilitates synchronous online learning, enabling a shift from traditional classroom environments. Beyond its role in facilitating synchronous online learning, Google Meet offers secure virtual meetings and video calls with features such as scheduling, screen sharing, and user management. Notably, its functionality in remote areas is praised for its low bandwidth requirements and stable connection (Ironsi, 2021). Additionally, the user-friendly interface and integration with Gmail make it a convenient choice for educators (Niciporuc, 2014).

This ease of use extends to student adoption as well. Google Meet's widespread adoption among students and educators minimizes the need for extensive tutorials compared to other platforms (Lewandoski, 2015; Kang et al., 2015). This, coupled with privacy features that separate connections, positions Google Meet as a valuable tool for synchronous language learning. Synchronous online learning with Google Meet has the potential to enhance student autonomy and efficiency in reading acquisition, especially during disruptions like pandemics (Martinez-Nuñez et al., 2016; Al-Maroof et al., 2020). The ability to engage in real-time learning through Google Meet goes beyond replicating a physical classroom. It has the potential to bridge learning gaps and promote student interaction, fostering a more connected learning environment (McKinley, 2015).

Motivation

Motivation stands as a prominent variable in predicting human behavior and achievement across various domains. Within the educational context, it is strongly linked to learning outcomes, playing a vital role in student engagement and academic success (Deci et al., 1991; Derakhshan et al., 2021; Pawlak et al., 2021; Schiefele, 1991). This holds particularly true in self-directed language learning environments, where learner autonomy is paramount (Gardner & Miller, 2014; Kormos & Csizér, 2014). Harmer (2007) defines motivation as a dynamic and ever-evolving collection of internal forces that influence an individual's thoughts and actions. These internal drives initiate, guide, coordinate, and amplify goal-oriented behaviors, ultimately leading to their evaluation and potential termination (Harmer, 2007). Through this process, individuals prioritize, operationalize, and strive to achieve their initial desires (Harmer, 2007). Motivation can also be conceptualized as an internal impetus

that compels individuals to engage in goal-directed actions (Melhe et al., 2021). Brown (2000) suggests that motivation serves as a key factor in determining success or failure when undertaking challenging tasks. In the context of second language acquisition, motivation is typically viewed as a multifaceted construct encompassing effort, desire, and overall attitude towards learning the target language (Gardner, 1985). Dörnyei (2001) further refines this notion, defining motivation as the individual's agency in "choosing a specific action," "investing effort in that action," and "demonstrating persistence in its pursuit" (p. 7).

The field of L2 motivation research boasts a rich history. Gardner and Lambert's (1972) influential work on integrative and instrumental motivation (desire for integration vs. utilitarian value) dominated the latter half of the 20th century. Subsequent research shifted focus to attribution theory (Weiner, 1992) and self-determination theory (Deci & Ryan, 2000), incorporating intrinsic and extrinsic motivations. Building on these advancements, Dörnyei (2001, 2005, 2009) advocated for a theoretical framework centered on the process of motivation in second language acquisition, culminating in the development of the L2 Motivational Self System. This system, introduced by Dörnyei (2005), integrates psychological constructs such as the concept of possible selves (Markus & Nurius, 1986) and discrepancy theory (Higgins, 1987) to explain motivational processes in language learning. Higgins' theory proposes that humans regulate behavior based on balancing a "promotion focus" (anticipating positive outcomes) and a "prevention focus" (anticipating negative outcomes). Leveraging existing research, Dörnyei (2005) incorporates the concepts of the ideal L2 self, the ought-to L2 self, and the L2 learning experience into the domain of L2 motivation. Ideal L2 Self reflects the learner's aspirations for their L2 proficiency, aligning with their internalized instrumental goals (e.g., desire for career advancement). Ought-to L2 Self focuses on the L2 attributes that learners perceive are necessary to meet external expectations and avoid negative consequences, corresponding to less internalized, more extrinsic instrumental motives. And L2 Learning Experience encompasses the immediate learning environment and its influence on motivation. It captures situated, executive motives that are shaped by experiences with teachers, peers, and instructional practices.

Dörnyei's (2005) L2 Motivational Self System posits that learners are driven by a discrepancy between their current L2 proficiency and their envisioned ideal L2 self. This framework aligns with self-discrepancy theory (Higgins, 1987), where individuals strive to achieve congruence between their self-concept and their "personality relevant self-guides" (Dörnyei, 2005, p. 101). Notably, Dörnyei emphasizes the distinction between future self-guides

(ideal and ought-to L2 selves) and goals. While both represent desired future states, future self-guides are imbued with richer cognitive, emotional, visual, and sensory aspects, goals are purely cognitive constructs (Magid & Chan, 2012).

Autonomy

The concept of learner autonomy, defined as the ability to self-direct one's learning journey (Benson, 2011; Holec, 1981), is characterized by a multifaceted metacognitive awareness. This awareness encompasses personal learning styles, subject-specific knowledge, and the ability to adapt to different learning contexts (Van Nguyen & Habók, 2021). It further involves the knowledge and application of learning strategies such as planning, goal setting, monitoring progress, and self-evaluation. The emergence of technology has significantly impacted language learning by placing learner autonomy at the forefront. Researchers have extensively explored the potential of various technologies in fostering this autonomy (e.g., Ribbe & Bezanilla, 2013). These technologies empower learners to not only take individual ownership of their knowledge acquisition, but also to collaborate with others in constructing meaning. Furthermore, technology fosters a more active learning profile by providing access to digital and social environments that promote authentic interactions with native speakers in real-world contexts. Tools like video conferencing software allow geographically dispersed individuals to engage in synchronous communication (Zhong, 2018). Additionally, discussion forums and chat environments facilitate collaborative and socially-rich learning experiences. Notably, scholars posit a consensus that autonomous learners are characterized by both intrinsic motivation and the strategic ability to leverage technology and resources effectively within their learning environment (Benson, 2007; Lai et al., 2016).

Online learning platforms necessitate a more pronounced level of learner autonomy compared to traditional classroom settings (Cho & Heron, 2015). Learners must exhibit control over monitoring and managing their cognitive abilities, such as planning, focus, and information processing (Cho & Heron, 2015). Effective online learning also requires learners to regulate their emotions and enjoyment through self-regulation, co-regulation, and social regulation (Zhang et al., 2021). This fosters group engagement in shared processes like collaborative planning, monitoring progress, and evaluation.Broadbent and Poon's (2015) meta-analysis underscores the significant correlation between learner autonomy, technology use frequency, and academic achievement in online courses. The study identified specific

learning strategies – metacognitive skills, time management, critical thinking, and effort regulation – as strong predictors of success compared to traditional settings. Interestingly, the preferred strategies may also reflect the inherent constraints of the online learning environment itself (Broadbent et al., 2021). The multifaceted nature of online learning encompasses various delivery formats, including synchronous, asynchronous, uni-modal, and multi-modal (Colson & Hirumi, 2018). This diversity can lead to a wide range of learning experiences for students. Educators can leverage this understanding to tailor their instructional methods to specific learning objectives based on the chosen format (Olsen et al., 2020).

From a technical standpoint, technology grants learners the ability to exercise control, modify the learning process, and enhance engagement. A recent review by Reinders and White (2016) explores the potential of technology-rich environments to cultivate learner autonomy in language education. Their analysis identifies five key themes that technologies can foster: a) Technologies can deliver instructional modules that equip learners with the tools and strategies necessary for self-directed learning. b) Rather than replacing teachers, technology empowers them by automating routine tasks and providing personalized learning resources. c) Technology provides learners with the tools they need to take ownership of their learning journey. d) Technologies facilitate real-time communication and collaboration between geographically dispersed learners. And e) Online platforms become more than just repositories of information through the use of social technologies. Discussion forums and collaborative learning environments provide opportunities for learners to connect, share ideas, and engage in meaningful interactions.

Research exploring learner autonomy in digital language learning contexts has identified key factors such as task design, motivation, and technological affordances (Castillo Zaragoza, 2011; Tsai, 2019; Mohammadi Zenouzagh et al., 2023). Castillo Zaragoza (2011) focused on learner identity; specifically conceptualizing the "ideal L2 self" and "ought-to L2 self" which fits well with the tenets of self-determination theory in that autonomy is only possible to thrive when learners feel they have control over their learning. Tsai (2019) found that the interactive digital tasks in a flipped classroom context, allowed the learners to interact with the digital task, have immediate feedback, collaborate with peers, and feel empowered to develop self-directed learning strategies and confidence. All of these studies have similarities to studies on digital task-based instruction, that discussed the potential for autonomous and

self-directed learning through structured, purposeful, technology-mediated activities (Lenkaitis, 2019; Susanti et al., 2023).

Mohammadi Zenouzagh et al. (2023) investigated the influence of communication methods on learner autonomy. Their study compared text-based and multimodal computer-mediated communication within an online learning context. The findings revealed that the text-based computer-mediated communication group exhibited higher levels of learner autonomy compared to the multimodal group. Additionally, the text-based group outperformed the multimodal group in specific areas of engagement, namely cognitive and behavioral engagement. However, the study also identified a counterpoint: learners in the multimodal group reported experiencing greater emotional and social engagement. Interestingly, both groups expressed dissatisfaction with the internet infrastructure, suggesting that technical limitations may have impacted the overall learning experience. Lenkaitis (2019) explores the potential of synchronous communication (Zoom) for learner autonomy. Data analysis using Little's (1991) pedagogical principles revealed that Zoom effectively facilitated computer-mediated communication activities, promoting learner autonomy and creating an authentic language learning experience.

Susanti et al. (2023) investigated factors influencing student autonomy in online EFL contexts [(synchronous (Zoom meetings) and asynchronous (Google Classroom)], focusing on student teachers. The findings revealed a moderate level of learner autonomy among the student teachers, with a need for continued instructor guidance. Motivation and collaboration were identified as key determinants of student autonomy. The study emphasized the importance of a gradual approach to fostering learner autonomy and the role of teachers in providing collaborative activities and strategies that promote active learning within online environments.

Notwithstanding this insight, a considerable gap remains: no extant studies have systemically examined Google Meet’s use in terms of learner autonomy, and specifically its interaction with motivation. This is a noteworthy omission, given its unique affordances–integrated collaborative tools, hybrid suitability, and breakout rooms–that it meets self-determination theory's (Ryan & Deci, 2017) criteria for autonomy-supportive conditions and also supports principles of digital task-based instruction. For example, Google Meet's ease of collaboration provides learners potentially with their "relatedness" and "competence" needs, while its task-structure potential could support autonomy far more effectively than a text-only or multimodal tool. To address this gap, this study investigates the following two questions:

1. Does Google-meet instruction and face-to-face instruction have differential effect on EFL learners' autonomy?
2. Is there a significant interaction between Google Meet and motivation in improving EFL learners' autonomy?

Method

Design

This study used a quasi-experimental design with two groups. The first group (experimental group) received English language instruction delivered through the Google Meet platform. The second group (control group) received conventional face-to-face English language instruction in a classroom setting. The independent variable is EFL instruction in two levels of Google-meet and face-to-face instructions. The dependent variable is EFL learners' autonomy.

Participants

Forty intermediate English as a Foreign Language (EFL) learners, enrolled at a private institute in Tehran province, Iran, participated in the study. The sample comprised both males (n = 17) and females (n = 23). Age ranges spanned from 15 to 19 years old. Convenience sampling was employed for participant selection. To ensure participant homogeneity regarding English language proficiency, the OPT was initially administered to a pool of 70 EFL students. The participants scoring within the intermediate level range (scores out of a possible 60) were selected for the study, who were randomly assigned to two groups: an experimental group receiving instruction through Google Meet and a control group receiving conventional face-to-face instruction. The study adhered to the British Educational Research Association's (BERA) 2011 ethical guidelines. The participants were informed about the research objectives, provided written consent to participate, and were assured of anonymity. Additionally, they were offered the right to ask questions, provide comments, and withdraw from the research at any point.

Instruments

Oxford Placement Test (OPT)

This standardized test, designed by Brown (2005), evaluates learners' overall English language proficiency. It encompasses 60 items in various formats, assessing grammar, vocabulary, and reading comprehension. The OPT was administered to gauge the participants' English language proficiency and ensure homogeneity at the outset of the study. Edwards (2007) emphasizes the test's reliability and efficiency in placing learners within appropriate proficiency levels. Additionally, the OPT aligns with proficiency scales

established by the Common European Framework of Reference for Languages (CEFR) and the Cambridge ESOL Examinations (Allen, 2004). Birjandi and Sayyari's (2010) research using the OPT supports its concurrent validity, demonstrating a strong correlation between OPT scores and TOEFL scores.

English Learning Motivation Questionnaire (ELMQ)

This instrument, adapted from Taguchi, Magid, and Papi (2009), is a 21-item, six-point Likert scale questionnaire. Taguchi et al. (2009) validated the instrument in Japan, China and Iran. It targets key motivational factors relevant to the current research, including integrativeness, instrumentality, attitudes towards L2 speakers and communities, language choice preference, and intended learning effort. Certain items from the original questionnaire were omitted due to redundancy and limited relevance to the study's objectives. The original instrument's reliability, as reported by Taguchi et al. (2009), was .78 using Cronbach's alpha. The revised version employed in this study yielded a reliability coefficient of .90 using Cronbach's alpha (see Appendix B for details).

Learner Autonomy Questionnaire (LAQ)

The Learner Autonomy Questionnaire (LAQ), developed by Zhang and Li (2004), serves as a validated instrument for measuring the degree of learner autonomy in English language learning. The questionnaire consists of 11 items (detailed in Appendix C) utilizing a Likert-scale format. The design of these items draws upon established learning strategy classifications proposed by Oxford (1990), Wenden (1998), and O'Malley and Chamot (1990). Through empirical evaluation, the LAQ has demonstrated high content validity and reliability, solidifying its use in various research investigations (e.g., Dafei, 2007; Nematipour, 2012). Namaziandost et al. (2024) assessed the instrument's internal consistency and determined that the results were appropriate ($\alpha = 0.789$).

Procedure

The study began by administering the OPT to 70 EFL learners to assess their general English proficiency and ensure a homogeneous intermediate-level sample. Forty participants whose scores fell within the B1-B2 CEFR range were selected and randomly assigned to either the experimental group (Google Meet instruction) or the control group (face-to-face instruction). Prior to the intervention, all participants were provided written informed consent that explained the study's objectives, procedures, data handling protocols, and their rights as research subjects. Baseline measurements were then collected using two validated instruments: the ELMQ for motivation, and the LAQ for autonomy.

The instructional intervention took place across ten sessions that were scheduled three times per week, and both groups received identical content. For the experimental group, instruction was delivered through Google Meet. The first three sessions focused on goal-setting workshops using collaborative Google Docs, where learners developed personalized learning plans. Sessions four through six incorporated peer-reviewed debates conducted in breakout rooms, accompanied by rubric-guided self-assessment. The final sessions featured student-led mini-lessons where the participants curated and presented learning materials such as YouTube videos. The control condition, on the other hand, received traditional instructor-led face-to-face instruction covering the same content but used teacher-selected materials, followed by various structured classroom activities. While similar in content, these sessions lacked the digital autonomy scaffolds provided to the experimental group, such as breakout rooms for peer collaboration or self-paced learning tools. After the intervention period, the post-intervention assessments for the experimental condition and control condition were conducted by using the same ELMQ and LA questionnaires that measured potential changes in motivation and autonomies.

Results

To answer the first research question concerning the effect of using Google Meet in enhancing the participant EFL learners' autonomy, a paired sample *t*-test was run. Table 1 and 2 illustrate the results.

Table 1

Descriptive Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre autonomy for control	24.60	20	2.92	.65
	Post autonomy for control	25.00	20	2.86	.64
Pair 2	Pre autonomy for experimental	25.00	20	2.77	.61
	Post autonomy for experimental	40.85	20	3.04	.68

Table 2

Paired Samples Test

	Paired Differences	t	df

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
					Lower	Upper			
1	Pre autonomy for control - Post autonomy for control	-.400	1.391	.311	-1.051	.251	-1.28	19	.214
2	Pre autonomy for experimental - Post autonomy for experimental	-15.85	3.513	.785	-17.49	-14.20	-20.17	19	.000

Table 2 shows statistically significant differences between the pre and post administration of autonomy scores in the experimental group ($p = .000$) but not the control group ($p = .214$). This suggests that using Google Meet may have a positive effect on the EFL learners' autonomy. To answer the second research question concerning any interaction effect between using Google Meet and learners' motivation two-way ANOVA was run (Table 3).

Table 3

Descriptive Statistics

Motivation	Treatment	Mean	Std. Deviation	N
high motivation	control	25.27	2.61	11
	experimental	42.75	2.00	12
	Total	34.39	9.20	23
low motivation	control	24.66	3.27	9
	experimental	38.00	1.85	8
	Total	30.94	7.34	17
Total	control	25.00	2.86	20
	experimental	40.85	3.04	20
	Total	32.92	8.54	40

The study evaluated learner autonomy scores across different motivation levels (high vs. low) and instructional treatments (Google Meet

experimental group vs. face-to-face control group). As shown in Table 3, the descriptive statistics reveal three key patterns in the autonomy assessment scores. First, motivation level significantly influenced outcomes, with highly motivated learners outperforming their less motivated peers in both instructional formats. High-motivation learners in the control group achieved a mean autonomy score of 25.27, while their counterparts in the experimental group scored substantially higher (42.75). Similarly, low-motivation learners showed better performance in the experimental condition (mean = 38.00) compared to the control group (mean = 24.66). Table 4 indicates the results of the ANOVA.

Table 4
Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2622.343[a]	3	874.114	141.473	.000
Intercept	41621.958	1	41621.958	6736.404	.000
motivation	69.909	1	69.909	11.315	.002
treatment	2313.355	1	2313.355	374.410	.000
motivation * treatment	41.847	1	41.847	6.773	.013
Error	222.432	36	6.179		
Total	46207.000	40			
Corrected Total	2844.775	39			

a. R Squared = .922 (Adjusted R Squared = .915)

Looking at Table 4 specifically, we can see that the F-statistic for motivation (11.315), treatment (374.410), and motivation x treatment (6.773) are all significant ($p < 0.05$). This suggests that both motivation and treatment condition, as well as the interaction between them, have a significant effect on the corrected model.

Discussion

This study delves into the impact of Google Meet instruction on learner autonomy among EFL learners, with a particular focus on the potential moderating role of learner motivation. The findings resonate with prior research on interactive online learning environments, lending credence to the notion that Google Meet, with its collaborative features, fosters a sense of ownership and self-directed learning (Tsai, 2019; Han, 2015; Mok, 2014; Lenkaitis, 2019; Ding & Shen, 2019). This resonates with the core tenets of computer-mediated language learning, which emphasizes empowering learners to take charge of their learning journey by selecting materials, engaging with diverse language forms, and evaluating their progress (Wach, 2012). Google Meet offers unique affordances that transcend traditional face-to-face settings. These affordances encompass not only access to authentic learning materials and interactive feedback mechanisms but also the potential for personalized instruction tailored to individual needs. This personalized approach likely contributes to the development of learner autonomy by fostering a sense of agency and control over the learning process.

The second research question revealed that there was a significant interaction effect between learner motivation and Google Meet instruction. The findings align with Susanti et al. (2023) in highlighting the pivotal role of motivation in online learning success. This underscores the intricate interplay between the affordances of the platform and the learner's internal drive. Research suggests that technology enhanced language foster a sense of belonging to a global learning community, cultivate transcultural awareness, and prioritize a student-centered approach (Golonka et al., 2014; van den Berghe et al., 2019).

This aligns with González's (2013) observation that integrating technological tools can enhance learner engagement and motivation, with students reporting a more positive and relaxed learning experience. Furthermore, studies by Darasawang and Reinders (2010), Ushida (2005), Warschauer (1996), and Ciampa (2014) suggest that technology-based learning empowers students, fosters a sense of responsibility, and intrinsically increases motivation – potentially due to the informal nature of technology-driven learning compared to traditional classroom settings.

This study's contribution lies in unveiling the significant role of Google Meet instruction in nurturing learner autonomy in EFL learners while acknowledging the moderating influence of learner motivation. It underscores the importance of fostering a learning environment that not only provides the affordances of technology but also caters to the intrinsic drive of the learners.

The confirmed increase of learner autonomy seen through Google Meet instruction is attributable to multiple aspects of the interactions model relating to both technology affordances and pedagogical design. In Google Meet, both the breakout rooms and collaborative tools brought to life the salient aspects of self-determination theory by providing students with the capacity to meet their internal needs for autonomy and competence. These characteristics would have likely enhanced performance by placing the experimental group in structured, but flexible learning spaces where they could exercise their autonomy while taking responsibility of their learning.

The significant interaction effect of motivation is suggestive of more substantive psychological processes at play. It appears that more motivated learners were leveraging the affordances of Google Meet more readily and to greater effect through what Ushioda (2011) describes as "motivational spillover," where the novelty of the platform reinforced their ideal L2 selves in a new way than was afforded previously. The low-motivation learners in contrast seemed to show smaller gains; their lack of technology engagement may be attributed to requiring more structured, scaffolded instruction and support than the open-ended tools of the platform provided. These findings would be consistent with those of Susanti et al. (2023) that motivation is an effective mediator in eliciting technology engagement where collectivism is prevalent in educational cultures, motivating and constraining engagement relative to peer visibility in breakout rooms. Cultural dimensions further contextualize the outcomes identified here. Google Meet interactions were public and in alignment with the communal learning traditions of Iranian learners yet allowed for a slow transition to more autonomous means of learning. The asynchrony features of the platform provided students with much needed opportunities to "save-face" from spontaneous orals they had not previously experienced which diminished access to autonomy in high-power-distance classrooms (Warschauer, 1996).

These findings hold significant implications for EFL educators and curriculum developers. The study suggests that Google Meet, with its collaborative features and potential for personalized instruction, can be a valuable tool for fostering learner autonomy. By incorporating Google Meet into their teaching repertoire, educators can create learning environments that empower students to take ownership of their learning journey, select learning materials, and engage with the language in a self-directed manner. However, maximizing the impact of Google Meet requires a multifaceted approach. Educators should consider learner differences and adapt their instruction accordingly. Additionally, investigating effective instructional strategies within

Google Meet and exploring how instructors can best leverage the platform's features to scaffold autonomy and moderate online interactions are crucial areas for further exploration.

Looking beyond the classroom, these findings also have implications for curriculum development. The affordances of Google Meet can be integrated into broader learning materials and self-study resources, encouraging learners to become more autonomous in their language learning pursuits beyond instructor-led sessions. In conclusion, this study paves the way for a future where EFL learning environments harness the power of technology to empower learners and cultivate their autonomy. By embracing the potential of platforms like Google Meet, educators and curriculum developers can create engaging and effective learning experiences that equip learners with the skills and confidence to navigate their language learning journeys on their own terms.

Declaration of interest: none

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