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Research Paper

Online Synchronous/Asynchronous Vs In-person Mediation and EFL Learners' Writing Skills Development

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Abstract

As the demand for effective language instruction continues to rise in an increasingly digital world, understanding the impact of different synchronous/asynchronous mediation methods on language acquisition is crucial. Drawing on Vygotskian sociocultural theory and social constructivism, and adopting a quasi-experimental approach, this study explored the impact of synchronous, asynchronous, and in-person mediations on short- and long-term general writing skills through one-on-one dynamic assessment sessions conducted in-person and online using ONLYOFFICE Personal and its upgraded version, ONLYOFFICE DocSpace. Moreover, it explored the perceptions of synchronous and asynchronous online learners regarding computer-assisted language learning using a Likert-scale questionnaire. Sixty EFL university students preparing for the IELTS General exam participated in the study. Their general writing skills were assessed using IELTS Task 1 samples from three books, and they were marked according to the IELTS band descriptors. To analyze the data, Kruskal-Wallis and Chi-Square tests were used. The findings revealed that in-person mediation was significantly more effective than both online mediations in the short run. No significant difference was found between online synchronous and asynchronous mediation in the short term. However, online synchronous mediation proved more effective than its asynchronous counterpart in the long term, though not significantly different from in-person mediation. In addition, the results showed that students in synchronous online classes displayed more favorable attitudes than those in asynchronous online classes. The study suggests that tailored mediation approaches can enhance EFL learners' writing proficiency across diverse educational contexts, offering educators and curriculum developers valuable insights.

Keywords: in-person mediation, one-on-one dynamic assessment, online synchronous/ asynchronous mediation, short-term and long-term writing development, ONLYOFFICE DocSpace

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Dynamic assessment (henceforth, DA), rooted in Vygotsky's sociocultural theory and zone of proximal development (ZPD), involves evaluating skills and potential learning abilities through interactive processes. It highlights cognitive development modification through mediator-learner interaction. Lantolf and Thorne (2006) emphasize the significance of mediation in distinguishing dynamic processes. In the context of globalization and ever-changing interaction dynamics, proficiency in the English language communication has become increasingly important, particularly for non-native speakers and EFL learners. Writing proficiency is regarded as an indispensable aspect of language learning, as it not only demonstrates an individual's command of language but also serves as a means of self-expression. Consequently, innovative methods and strategies for developing writing abilities that align with the evolving landscape of technology and pedagogy are continually explored. Studies on DA have shown its potential and efficacy, with some studies concentrating especially on writing in EFL contexts (Beck et al., 2020; Peterson et al., 2021; Sherkuziyeva et al., 2023; Shrestha, 2020). Today's educational landscape is increasingly integrated with computer technologies and digital platforms. The COVID-19 pandemic has fast-tracked the process, with educational institutions worldwide having to switch to online learning platforms. Synchronous and asynchronous are the two broad forms of online mediation that have developed under these circumstances. Synchronous online mediation enables real-time interaction between students and instructors and provides instant feedback. In contrast, online asynchronous mediation supports reflective and independent learning, as students can interact with the materials at their own pace. Traditional face-to-face mediation also remains crucial, as it promotes contemporaneous social interaction that, with prompt feedback and support, can foster motivation and engagement (Poehner & Infante, 2016).

Online assessments have also risen alongside this scenario, as a majority of exams, quizzes, tests, and various other evaluation and measurement methods have transitioned to online platforms during the Emergency Remote Teaching phase (Topuz et al., 2022). Also, computers as platforms for instructional support allow learners to share ideas and receive feedback digitally without face-to-face interaction (Hyland & Hyland, 2006). Computer-assisted language learning (CALL) tools such as Google Docs, The Criterion, and Grammarly provide real-time feedback to improve writing. The transition from paper tests to digital assessments is evident globally, driven by 21st-century digitalization trends (Ercikan et al., 2018). Technology-based assessments enhance measurement accuracy, interpretability, engagement, interaction, and communication between teachers and parents (Chen et al., 2023). In line with this digitalization trend, different platforms and software enhance DA by fostering extensive interaction between learners and teachers for assessing linguistic skills (Ebadi & Rahimi, 2019). Some studies have investigated various affordances of computer-based tools for enhancing L2 writing accuracy and facilitating mediation in computer-based DA (e.g., Barrot, 2021; Ding & Zou, 2024; Ebadi & Bashir, 2021; Ebadi & Rahimi, 2017, 2019; Sun & Shin, 2025).

Despite the burgeoning interest in online education, the current literature reveals a notable gap regarding the comparative effects of online synchronous and online asynchronous mediation versus traditional in-person mediation on EFL learners' writing skills. While some studies (e.g., Barnard-Brak et al., 2010; Wong et al., 2019) have explored the advantages of online learning environments, such as fostering learner autonomy and enhancing engagement through interactive tools, few studies have systematically examined how these different types of mediation specifically impact writing proficiency. Nevertheless, as the academic realm increasingly shifts toward online platforms, educators and curriculum developers must understand how these various forms of mediation shape the development of writing proficiency. To address this research gap, this study examined one of the researchers'/mediator's roles in improving EFL learners' general writing skills across three conditions: online synchronous DA, online asynchronous DA, and in-person mediation in the classroom context, using ONLYOFFICE Personal and its upgraded version, ONLYOFFICE DocSpace. This study provides empirical evidence to inform best practices in language instruction. By addressing this gap, the present study aims to contribute to a deeper understanding of how various types of mediation can be leveraged to enhance EFL learners' writing skills, thereby informing educators' best practices for adapting to the fast-changing digital learning landscape.

Literature Review

Sociocultural Theory

Vygotsky's Sociocultural Theory (SCT) emphasizes that social interactions and cultural contexts shape learning and cognitive development. Sociocultural Theory asserts that every developmental function first appears in a social form before being internalized by the individual. This argument entails guided participation, in which children acquire skills through collaboration with supportive adults and by internalizing shared experiences (Rogoff, 1990). In addition, Vygotsky's concept of the ZPD emphasizes the distinction between a child's ability to solve problems independently and their potential when aided by adults or more experienced peers (Lantolf et al., 2020). Vygotsky emphasizes that scaffolding allows students to master concepts independently after receiving initial assistance or mediation. He emphasizes the necessity of assisting children through interaction with a More Knowledgeable Other (MKO) in the ZPD. Vygotsky (1978) also explains MKO as a person with greater knowledge of the task or concept the child is engaged in, and that they ought to tailor education to individual students' needs.

Regarding writing ability, SCT emphasizes the teacher as a reader engaged in process writing activities such as group writing and brainstorming, playing the role of the MKO to help students acquire skills. The approach provides various forms of mediation to students who face challenges in problem-solving (Poehner, 2008). Sociocultural theory-based instruction, scaffolding, and collaborative methodologies foster writing proficiency (Allami et al., 2025)

Mediation

Vygotsky (1978) argued that cultural tools, practices, and concepts shape human mental processes, a process he called mediation. Similarly, Kozulin et al. (2003) stated human mediation is the strongest form of mediation for achieving educational objectives. Mediation involves seeking assistance from someone with more experience, which enables the use of tools in collaborative efforts to focus attention on a specific object. This mediation process must be continually adapted to meet learners' needs and evolve through social interactions.

Dynamic Assessment and Writing

The complex problem-solving procedure in writing skills can be more effectively addressed through a DA approach that integrates teaching and assessment. Zhang and Yang (2025) stated that integrating a dynamic assessment system into writing tasks can boost students' interest, autonomy, evaluation, and writing development, and that this requires teamwork. An increasing number of studies indicated that DA positively impacts learners' writing proficiency (e.g., Mauludin et al., 2021; Poehner & Yu, 2022; Shrestha, 2020; Wind, 2024). Mauludin et al. (2021) asserted that DA positively impacts students' writing texts, as it involves mediation processes that offer students a chance to engage with and discuss an issue during writing.

Online Dynamic Assessment and Writing Using CALL

The pervasiveness of technology and online platforms has enabled students to practice their writing skills effortlessly from nearly any location and at any time (Yan, 2023). The practice entails the use of artificial intelligence (AI)-powered software on computers and mobile applications that offer personalized, interactive tools specifically designed to support writing skills development and boost motivation (Jiang, 2022). Asadi et al. (2025) showed that integrating AI tools with traditional teaching methods to deliver tailored feedback improves writing development. According to Wang and Wang (2025), learners used AI in various ways, including topic selection, brainstorming, outlining, editing, and sourcing. Moreover, the Emergency Remote Teaching has created increased demand for online assessment systems (Topuz et al., 2022). Online assessment is described by Crisp (2011) as the use of digital technology to facilitate the development, delivery, storage, or recording of student assessment activity, responses, evaluations, or feedback in an online context. Tests, assignments, and skills assessments are major online assessment approaches (Liu et al., 2025).

Within the context of online assessment, DA can be administered either synchronously or asynchronously. Assessment in a synchronous, dynamic context is conducted in real time and can be implemented face-to-face or through virtual media. It focuses on the process of learning and considers both the depth of participation and the mode of interaction by the assessor (Kessler & Bikowski, 2010; Kim, 2014). Conversely, in asynchronous dynamic assessment,

there are no real-time interactions, but they can occur through virtual environments or other avenues (Elola & Oskoz, 2010; Li & Zhu, 2013).

The number of studies addressing online assessment in writing is growing (e.g., Barrot, 2021; Bucol & SangKawong, 2024; Ebadi & Bashir, 2021; Escalante et al., 2023; Huang & Renandya, 2018; Rezai et al., 2022). For example, Ding and Zou (2024) reported that automated writing evaluation systems positively impact writing proficiency and foster positive attitudes toward digital tools among both learners and instructors. In a separate study, Escalante et al. (2023) found that AI-generated feedback did not lead to better linguistic development than feedback from a human tutor. Also, Barrot's (2021) findings demonstrated the potential of automated written corrective feedback in improving students' writing accuracy. Likewise, Woodworth and Barkaoui (2020) concluded that judicious use of automated writing evaluation can promote L2 writing development. Parra and Calero (2019) also confirmed the benefits of free automated writing evaluation tools for improving writing skills. On the contrary, Huang and Renandya (2018) found no significant writing improvement from automated feedback.

In the context of mobile-mediated DA, Kaveh and Rassaei (2022) found that mobile-mediated DA improved EFL learners' writing fluency and strategy awareness more effectively than face-to-face DA. Similarly, Ebadi and Bashir (2021) showed that mobile-based DA enhances EFL students' writing by enabling effective text-and-voice-mediated interactions, with participants appreciating the mediation's efficiency and convenience.

Moreover, in the realm of face-to-face (FTF) mediation, Vakili and Ebadi (2019) concluded that FTF mediation supports reflection, whereas computer-mediated mediation enhances error correction and critical thinking. Also, Ahmadi and Besharati (2017) showed that both FTF and web-based mediation yielded similar improvement levels in writing. Moreover, Seyed Erfani and Agha Ebrahimiyan (2013) indicated that online DA via blogs improved writing skills and evaluation efficiency compared to traditional methods.

Online DA, in its various forms—individual, peer, group, and technology-mediated—has been shown to enhance EFL learners' writing performance significantly. In a research, Nouri and Alavinia (2024) examined the effect of online dynamic assessment (interactionist vs. interventionist) on upper-intermediate EFL learners' writing performance using a quantitative pretest-posttest quasi-experimental design. The results indicated that participants in the online interactionist dynamic assessment group outperformed those in the online interventionist group. Additionally, a study by Rezai et al. (2022) supported the effectiveness of online peer-dynamic assessment in improving students' writing performance. Group dynamic assessment (GDA) by Alemi et al. (2019) significantly improved writing performance and suggested its integration into online teaching for enhanced feedback. Further, Ebadi and Rahimi (2019) revealed that Google Docs synchronous DA sessions improve learners' academic writing. Besharati (2018) also revealed improvements in students' argumentative writing through mediational interactions.

Reviewing the related literature revealed that while DA and writing skills have been studied recently, there is scarce research on the comparative effect of mediation types in online DA on writing skills. This study addressed this gap by exploring the effect of online synchronous and online asynchronous mediation in online DA and in-person mediation in a classroom context. To address the goals of the study mentioned above, the following research questions are addressed:

1. Is there any significant difference among online synchronous, online asynchronous, and in-person mediations in terms of their effect on EFL learners' short-term general writing development in one-on-one dynamic assessment?
2. Is there any significant difference among online synchronous, online asynchronous, and in-person mediations in terms of their effect on EFL Learners' long-term general writing development in one-on-one dynamic assessment?
3. To what extent do online synchronous-mediated learners and online asynchronous-mediated learners differ in their perceptions of CALL?

Method

This study employed a quasi-experimental design with a pretest and two posttests to examine the effects of online synchronous mediation, online asynchronous mediation, and in-person mediation on EFL Learners' short- and long-term general writing skills. The independent variables included the types of mediation (online synchronous, online asynchronous, and in-person). In contrast, the dependent variables included learners' writing performance assessed in the short-term, immediately after the treatment, and in the long-term, two weeks after the treatment. In this research, short-term writing skill development is operationally defined as participants' responses to the writing tasks immediately after the treatment session, while long-term writing skill development is defined as participants' responses to the writing tasks two weeks following the treatment session.

Context and Participants

A total of 60 participants out of 77 senior students at an intermediate level (both males and females) in the 21 -28 age range were selected through non-random convenient sampling (via a faculty notice board announcement) for online groups and non-random snowball sampling for the in-person group from a university and an academic center in Birjand, Iran. All participants were preparing for the International English Language Testing System (IELTS) General Exam.

The Oxford Placement Test (OPT) was used to ensure homogeneity in participants' proficiency levels. The OPT results revealed that the participants' writing skills were at the B1 level. Pseudonyms protected participant privacy throughout the whole study. This study was conducted during the late Fall semester (in January) and the Winter semester of 2023-2024, lasting approximately 9 months.

Instrument

ONLYOFFICE Personal is free software that lets multiple users work together in real time online. It supports sharing, co-editing, and commenting. Users can edit shared documents synchronously and asynchronously. When this research began in January 2023, the software was referred to as ONLYOFFICE Personal. In September 2024, during the research process, it was upgraded to a new version, ONLYOFFICE DocSpace. ONLYOFFICE DocSpace is a cloud platform by ONLYOFFICE that allows online collaboration (Paruthi, 2023). It allows instructors and students to edit documents together in real time or save and revise them later. The updated version maintains previous features and also aligns with this study.

Paruthi (2023) states that this platform provides clearly structured, customizable rooms, adaptable permissions and user roles, the ability to invite and categorize users, various customization options, integration with any website, and ready-to-use integrations (e.g., Zoom, Zapier, WordPress, Drupal). ONLYOFFICE Personal and its newer version, ONLYOFFICE DocSpace, enable online collaboration within a shared user space featuring customizable rooms. This research applied ONLYOFFICE DocSpace editing and highlighting features to support learners' writing skills both synchronously and asynchronously.

Materials and Tasks

In this study, to select a sample of IELTS General Writing Task 1 for the pretest production item, the book *IELTS General Writing Task Masterclass: IELTS Writing Task 1 and IELTS Writing Task 2*, developed by Marc Roche (2018), was used. Also, to select samples of IELTS General Writing Task 1 for both immediate and delayed posttests, the book *Get IELTS Band 9 General Training Cambridge IELTS*, developed by Jessica Alperne and Peter Swires (2014), was used. Moreover, to select a sample of IELTS General Writing Task 1 for the writing assignment in the DA session for all three groups of participants, *IELTS General Training Essays & Letters from the Past Exams*, developed by Kaur Makkar (2017), was used.

The writing tasks chosen from the above-mentioned books across all assessments (pretest, DA test, and the two posttests) were similar and aligned with IELTS General Writing Task 1. All writing tasks asked the participants to write a letter within 20 minutes, express a complaint about a situation, provide an explanation, and make a request, using approximately 150 words in two or three paragraphs. Participants' writing tasks in the pretest, posttests, and DA sessions were evaluated based on task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy using IELTS General Writing Task 1 criteria and descriptors developed by the British Council, IDP IELTS, and Cambridge University Press and Assessment.

Additionally, to explore the extent to which online synchronous and online asynchronous-mediated participants might differ in their perception toward CALL, an English version of the 'A-CALL questionnaire', validated by Vandewaetere and Desmet (2009), was first adapted based on the requirements of the present study and then administered to the participants through sharing a link. This questionnaire included 20 items on a seven-point Likert scale ranging from

1 (completely disagree) to 7 (completely agree), with 4 as neutral, investigating EFL students' views on CALL. The A-CALL questionnaire is a standardized instrument for assessing attitudes toward CALL and has four sub-factors, including effectiveness of CALL (4 items), surplus value of CALL (10 items), teacher's influence (3 items), and degree of exposure to CALL (4 items). According to Jahangard et al. (2020), this questionnaire is reported to have high reliability and validity in Iranian contexts. Additionally, Cronbach's alpha indicated that this questionnaire had acceptable reliability (0.75) within the framework of this study.

Data Collection Procedure

To conduct the study, one of the researchers obtained consent and permission from the university chancellor, then posted a notice on the university board summarizing free IELTS General Writing Task 1 teaching and inviting intermediate learners to participate in the sessions and study. EFL teachers face challenges in implementing DA due to large class sizes, which make one-on-one mediation unmanageable (Ebadi et al., 2021; Poehner, 2009) and unsuitable for large classrooms (Ableeva, 2008). Hence, only 77 senior students from a university and an academic center in Birjand, Iran, were initially selected through non-random convenience sampling via a faculty notice board announcement for the online groups and non-random snowball sampling for the in-person group. All participants were preparing for the IELTS General exam. They were assured of anonymity and required to sign a consent form for voluntary participation. Then the participants were asked to take the OPT Test in an online version within 70 minutes, following a test link sent to them. After conducting the OPT test, 60 of 77 learners (77%) who scored within 1 standard deviation of the mean were classified as intermediate learners and participated in the study. Each group had 20 participants who undertook a writing pretest consisting of an IELTS General Writing Task 1 sample, requiring them to write 2-3 paragraphs (around 150 words) in 20 minutes.

As the participants in the two online groups did not know how to use ONLYOFFICE Personal or its upgraded version, ONLYOFFICE DocSpace, for collaboration, writing, and editing, they were presented with two short videos that provided step-by-step instructions for using the platform. The next phase of the study began. In all three groups, one of the researchers acted as a mediator, assisting participants with their writing tasks. The total instructional time across all three experimental groups was about 50 hours.

In the online synchronous-mediated group (OSMG), each participant engaged in online one-on-one interactions with one of the researchers/mediators and was presented with one sample of the IELTS General Writing Task 1. One of the researchers mediated EFL learners' general writing skills using ONLYOFFICE Personal and its latest version, ONLYOFFICE DocSpace, and also conducted all non-dynamic and dynamic assessment sessions online with the participants through these platforms. Each participant engaged in one-on-one interactions via ONLYOFFICE DocSpace and received synchronous mediation with real-time feedback and mediation from one of the researchers/mediators during the writing task. One-on-one interaction in OSMG lasted about 35-45 minutes per student. One of the researchers/mediators

assessed and mediated students' general writing skills in the presented task based on task achievement, coherence and cohesion, lexical resources, and grammatical range and accuracy, using IELTS General Writing Task 1 scoring criteria and band descriptors. Mediations, developed from the one-on-one single-student and mediator interactions, ranged from the most implicit to the most explicit. The mediational strategies outlined and categorized in Ebadi and Rahimi's (2019) typology of mediations were used. Participants in OSMG took two online posttests after the enrichment program to assess the short- and long-term effects of online synchronous DA mediations. An immediate posttest for each participant was conducted 1 day after the enrichment program, and a delayed posttest was given 2 weeks later. Moreover, to maintain inter-rater reliability, a second experienced teacher, who possessed qualities similar to the first researcher and was unfamiliar with the participants, evaluated 10% of the data.

Also, in the second experimental group, i.e., online asynchronous-mediated group (OASMG), the entire procedure was identical to that in OSMG; the sole distinction was that the mediator's feedback and comments on their writing tasks occurred after the participants sent their writing to one of the researchers/mediators using ONLYOFFICE Personal and subsequently its latest version (ONLYOFFICE DocSpace), rather than in real-time. Also, one-on-one single individual interaction in OASMG lasted about 55 to 60 minutes per student.

Following the delayed posttest, participants in both the OSMG and OASMG responded via a shared link to an English version of the 'A-CALL questionnaire,' which was validated by Vandewaetere and Desmet (2009) within 10 to 15 minutes. The questionnaire included 20 items on a seven-point Likert scale from 1 (totally disagree) to 7 (totally agree), with 4 indicating neutral.

Furthermore, in the third experimental group, i.e., in-person mediated group (IMG), all procedures, materials, and tasks were identical to those of OSMG and OASMG. Every member of this group engaged in one-on-one interactions with a researcher/mediator during sessions involving two participants. The sole difference was that, before starting the writing task, one of the researchers/mediators informed the participants that they could request feedback, comments, and mediation on their writing whenever necessary. In this group, every participant received face-to-face mediation, where one of the researchers/mediators offered help, feedback, and comments on their writing tasks while being present in the classroom. One-on-one single individual interaction in IMG lasted roughly 35 to 45 minutes per student. The CALL questionnaire was not administered to participants in IMG.

Statistical procedures were employed for the quantitative study. Group homogeneity was initially tested, revealing a violation of normality in pretest scores. Due to small group sizes, a nonparametric Kruskal-Wallis test was used to assess participant homogeneity. Additionally, the perception of CALL in online groups was analyzed through Chi-Square testing.

Results

Table 1 presents the descriptive statistics for the pretest, immediate posttest, and delayed posttest across the three groups. The results show that all groups started with similar pretest means (around 5.15–5.20), suggesting comparable initial proficiency levels.

Table 1

Descriptive Statistics for Pretest, Posttest, and Delayed Posttest

Group		N	Min	Max	Mean	Std. Deviation	Variance
In-person	Pretest	20	5	6	5.18	.52	.27
	Immediate Posttest	20	6	7	6.40	.52	.27
	Delayed Posttest	20	6	7	6.30	.49	.24
Online synchronous	Pretest	20	5	6	5.20	.52	.27
	Immediate Posttest	20	5	7	5.80	.49	.24
	Delayed Posttest	20	6	7	6.60	.34	.12
Online Asynchronous	Pretest	20	5	6	5.15	.46	.21
	Immediate Posttest	20	5	7	5.35	.46	.21
	Delayed Posttest	20	5	6	5.18	.40	.16

The normality test indicated a violation of the assumption regarding the pretest scores of the three groups. As the sample sizes in each group were also small, a nonparametric test was used to assess the homogeneity of the participants. A Kruskal-Wallis test was used to serve this purpose. The Q-Q plots were also drawn for the three tests. In contrast to the significant results of the Kolmogorov-Smirnov and Shapiro-Wilk tests, the dots' spread fell along the diagonal, indicating no severe departure from normality. Field (2024) asserts that if the spread of dots falls along the diagonal, the data are normal.

Inter-rater reliability indices were computed for pretest, posttest, and delayed posttest of writing development. The findings (Table 2) indicated significant agreement between the two raters on the pretest, immediate posttest, and delayed posttest. The Pearson correlation coefficients are consistently strong across all time points (pretest r = .75, posttest r = .85, delayed r = .88, all $p < .01$). These values indicate a high degree of consistency between raters' judgments.

Table 2

Inter-Rater Reliability Indices for Pretest, Posttest, and Delayed Posttest of Writing Development

		PreR2	**PostR2**	**DelayedR2**
PreR1	Pearson Correlation	.75**		
	Sig. (2-tailed)	.00		
	N	60		
PostR1	Pearson Correlation		.85**	
	Sig. (2-tailed)		.00	
	N		60	

		PreR2	PostR2	DelayedR2
DelayedR1	Pearson Correlation			.88**
	Sig. (2-tailed)			.00
	N			60

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 presents the results of a Kruskal-Wallis test for differences in the immediate posttest scores across groups. The test yielded a significant result (H = 26.00, df = 2, p = .00), indicating that at least one group differed significantly from the others at the immediate posttest.

Table 3

Kruskal-Wallis Test for Immediate Posttest of Writing Development by Groups

	Posttest
Kruskal-Wallis H	26.00
Df	2
Asymp. Sig.	0.00

The significant results of the Kruskal-Wallis test were followed by pot-hoc comparison tests (Table 4). The results reveal significant differences between online asynchronous and in-person groups (p = .00) and between online synchronous and in-person groups (p = .01). The findings indicate that IMG outperformed both OASMG and OSMG in the immediate posttests, with no significant difference between OASMG and OSMG.

Table 4

Pairwise Comparisons of Groups for Posttest of Writing Development

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Online Asynchronous-Online synchronous	11.60	5.19	2.23	.02	.07
Online Asynchronous-In-person	26.42	5.19	5.08	.00	.00
Online synchronous-In-person	14.82	5.19	2.85	.00	.01

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 5 presents the mean rank scores of the three groups on the delayed posttest of writing development. It shows that the OSMG had the highest mean rank (43.85), followed by the IMG (36.00), while the OASMG ranked lowest (11.65). This suggests that, over time, online synchronous mediation proved most effective in supporting writing development, surpassing online asynchronous mediation, which was the least effective in sustaining progress.

Table 5

Mean Ranks on Delayed Posttest of Writing Development by Groups

	Group	N	Mean Rank
Delayed Posttest	In-person	20	36.00
	Online synchronous	20	43.85
	Online Asynchronous	20	11.65
	Total	60	

Table 6 reports the results of a Kruskal-Wallis test conducted to determine whether there were statistically significant differences among the three groups in their delayed posttest performance. The test was highly significant ($H = 39.05$, $df = 2$, $p < .001$), confirming that significant differences existed among the groups in their long-term writing development outcomes.

Table 6

Kruskal-Wallis Test for Delayed Posttest of Writing Development by Groups

	Delayed Posttest
Kruskal-Wallis H	39.059
Df	2
Asymp. Sig.	.000

Table 7 shows pairwise comparisons of the groups for the delayed posttest of writing development. Kruskal-Wallis test results followed by post hoc comparison tests (Table 7) indicated that IMG outperformed OASMG in the delayed posttest. While OSMG outperformed OASMG in the delayed posttest, IMG and OSMG showed no differences. Significant differences emerged between OASMG learners and those in both IMG ($p = .00$) and OSMG ($p = .00$), with OASMG participants showing significantly poorer performance.

Table 7

Pairwise Comparisons of Groups for the Delayed Posttest of Writing Development

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Online Asynchronous-In-person	24.350	5.373	4.532	.000	.000
Online Asynchronous-Online synchronous	32.200	5.373	5.993	.000	.000
In-person-Online synchronous	-7.850	5.373	-1.461	.144	.432

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Perceptions toward CALL in online groups were analyzed using the Chi-Square test. Table 8 displays frequencies, percentages, and Std. Residuals for group choice selections. The OSMG learners expressed stronger positive attitudes, with higher percentages agreeing (41.5%) or strongly agreeing (22.8%), while OASMG learners leaned more toward neutrality or partial disagreement (21.0% and 15.0%).

Table 8

Frequencies, Percentages, and Std. Residuals for Attitude towards Computer Assisted Language Learning by Groups

		Choices							Total
		Strongly Disagree	**Disagree**	**Partially Disagree**	**Neutral**	**Partially Agree**	**Agree**	**Strongly Agree**	
Synch.	Freq.	4	30	37	21	51	166	91	400
	%	1.0%	7.5%	9.3%	5.3%	12.8%	41.5%	22.8%	100.0%
	Std. Residual	.9	1.7	-1.7	-4.3	-5.0	4.3	5.2	
Asynch.	Freq.	1	14	60	84	153	73	15	400
	%	0.3%	3.5%	15.0%	21.0%	38.3%	18.3%	3.8%	100.0%
	Std. Residual	-.9	-1.7	1.7	4.3	5.0	-4.3	-5.2	
Total	Freq.	5	44	97	105	204	239	106	800
	%	0.6%	5.5%	12.1%	13.1%	25.5%	29.9%	13.3%	100.0%

Table 9 reports chi-square test results for group differences in attitudes toward CALL. The results indicated significant differences in the two groups' perceptions of CALL. Figure 1 shows the percentages of attitudes toward CALL across online groups. Table 9 reports chi-square test results for group differences in attitudes toward CALL. The Pearson chi-square was significant ($\chi^2 = 192.55$, df = 6, $p < .001$), with a moderate-to-strong association indicated by Cramer's V = .49. This demonstrates that group membership (online synchronous vs. online asynchronous) was associated with learners' attitudes toward CALL. In other words, learners' perceptions of technology-assisted language learning varied significantly depending on the instructional mode they experienced.

Table 9

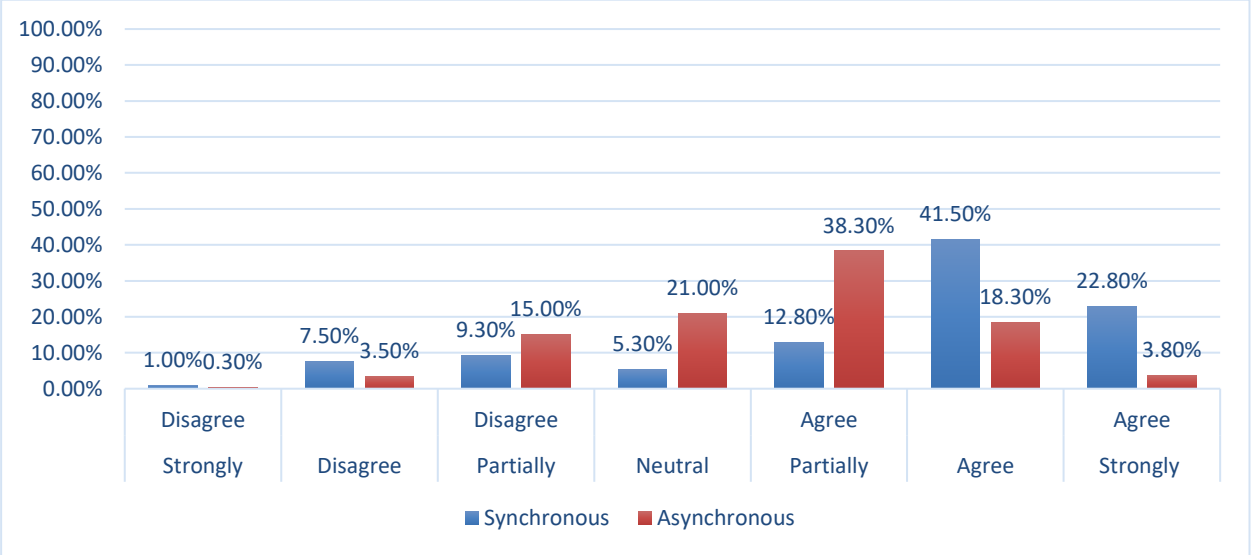
Chi-Square Tests for *Attitude towards Computer-Assisted Language Learning by Groups*

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	192.55	6	.00
Likelihood Ratio	204.91	6	.00
N of Valid Cases	52.89	1	.00
Cramer's V	.49		.00

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 2.50.

Figure 1

Percentages for Attitude towards Computer-Assisted Language Learning by Groups



As shown in Table 8 and Figure 1, students in the online synchronous-mediated group exhibited more positive attitudes than those in the online asynchronous group. These results suggest that students in an online synchronous mediation environment perceive CALL more positively than those in online asynchronous contexts.

Discussion

The present study, adopting a quasi-experimental approach, explored the impact of online synchronous, online asynchronous, and in-person mediation on EFL learners' short-term and long-term general writing development using one-on-one individual learner DA. Moreover, this study aimed to explore mediated learners' perceptions toward CALL, both synchronous and asynchronous. Based on the findings, in-person mediation was significantly more effective than both online synchronous mediation and online asynchronous mediation in the short run. No significant difference was found between online synchronous and online asynchronous mediation in the short term, but OSMG had a higher mean than OASMG. Moreover, it was revealed that online synchronous mediation was significantly more effective than online asynchronous mediation over the long term. The online synchronous-mediated group had a higher mean rank than the IMG group. Still, the analysis showed no significant difference between online synchronous and in-person mediation in the long term.

So far, there have been almost no studies that examine all three types of mediation in a single study. Therefore, a comparison between three methods of delivering mediation appeared to be an unexplored topic, and the originality of this study lies in this aspect. Nevertheless, the study's findings align with prior research on the benefits of in-person mediation in DA for writing development (Ahmadi & Besharati, 2017; Kushki et al. 2022; Shrestha & Coffin, 2012). The findings thus obtained are in line with those of Ebadi and Rahimi (2019), showing that

individual online synchronous DA sessions enhance academic writing. The current study supports Alemi et al. (2019) and Nouri and Alavinia (2024), showing that online synchronous DA improves writing development. This study's findings on short-term mediation impacts differ from those of Ahmadi and Besharati (2019), who found no significant difference between in-person mediation and web-based mediation. Also, the immediate posttest results contradict Suwantarathip and Wichadee (2014) and Kaveh and Rassaei (2022), who found that online mediation was more effective than in-person mediation.

The study aligns with Vygotsky's SCT, emphasizing that learning is a social skill. Likewise, the findings correspond with Poehner and Infante (2016), suggesting that when L2 learners are provided with appropriate mediations tailored to their shortcomings and needs, they can collaboratively acquire the essential knowledge and skills to accomplish tasks effectively. Moreover, the significant effectiveness of in-person mediation in the short term can be backed by the Interactionist Hypothesis, which emphasizes the importance of comprehensible input and feedback in language learning through direct interactions (Gass & Mackey, 2006). The Interactionist Hypothesis asserts that second-language acquisition is primarily driven by face-to-face interaction and communication. Likewise, the delayed posttest results of this study are consistent with those of Ahmadi and Besharati (2019), which showed that in-person and web-based media for delivering mediation had no differential impact on the degree of improvement in learners' essay writing ability. The findings of the delayed posttest are also in line with those of Li et al. (2023), which indicated that both in-person and online delivery formats are similarly effective. The delayed posttest results contradict research by Suwantarathip and Wichadee (2014) and Kaveh and Rassaei (2022), as well as Seyed Erfani and Agha Ebrahimiyan's (2013) findings, which indicated that online mediation was significantly more effective than face-to-face approaches in DA.

Mean values for in-person and online asynchronous mediation showed a slight reduction after the delayed posttest, indicating minor regression. This regression lacked significance in both groups and aligns with Vygotsky's perspective that educational development is non-linear but spiral. Students' understanding may occasionally regress, as noted by Van Der Veer and Valsiner (1991). Zebroski (1994) also argues that Vygotsky's proposed model of development is simultaneously progressive and regressive. Also, it supports the findings of Poehner (2009), which indicated regression and varying levels of backsliding in learners' performance on delayed tasks.

Moreover, the limited effectiveness of online asynchronous mediation relative to the other two mediation types in this study can be understood through Social Presence Theory (Gunawardena, 1995; Richardson & Swan, 2003), which posits that different communication channels vary in their ability to convey a sense of presence, which affects relationships, satisfaction, and outcomes. Both in-person mediation and online synchronous mediation, which entail immediate interaction between the mediator and learners, grant students and the mediator increased control over social presence, potentially enhancing the overall learning experience.

Additionally, according to the Constructivist Learning Theory (Vygotsky, 1978), which holds that the learners create their own understanding of the world based on experience and communication instead of being fed information, learning is fundamentally a social activity, and face-to-face interaction offers valuable chances for cooperation and comprehension that are frequently diminished in virtual contexts. This study also demonstrates that face-to-face mediation has a more substantial facilitative influence than both types of online mediation in the short term, and indicates a stronger facilitative effect than online asynchronous mediation in the long run.

The greater impact of in-person and synchronous online mediation relative to asynchronous online mediation may be due to the immediacy of real-time mediation and feedback. Hattie and Timperley (2007) noted that immediate feedback during FTF teaching allows for quick adjustments in understanding, greatly enhancing the learning experience compared to the delayed feedback often associated with online formats, especially asynchronous online mediation in this study. Furthermore, the similar and more significant impact of both online synchronous and in-person mediation versus online asynchronous mediation in the long term can be clarified by the Engagement Theory, which proposes that active and meaningful participation will improve learning outcomes, as Goleman (1995) noted that active participation in learning is markedly improved in environments that offer immediate feedback and interaction.

Both online groups showed positive views on CALL, but their attitudes differed significantly. Students in OSMG had more favorable attitudes than those in OASMG. This can be explained by Social Constructivism, which emphasizes that knowledge is actively constructed through social interactions. Accordingly, synchronous mediation in interactions promotes real-time support, fostering a sense of community and belonging among the learners in this study. Also, immediacy and intimacy, which enable effective social interaction (as claimed in Social Presence Theory), are more pronounced in online synchronous mediation, which may have positively affected attitudes toward CALL in OSMG. The questionnaire results from online groups support Gunawardena and Zittle's (1997) findings that social presence significantly predicts audience satisfaction in computer-mediated communication, explaining about 60% of the variance, and align with Richardson and Swan's (2003) assertion that perceived learning in online courses is influenced by perceived social presence.

The findings of this study contribute to the literature on DA and mediation in language acquisition by comparing the facilitative effect of mediation types. It highlights the effectiveness of in-person mediation for immediate skill development while recognizing online synchronous methods as valuable alternatives for long-term development, and emphasizing the need for tailored mediation design for EFL writing skills.

Conclusion

Based on the results of this research, EFL writing instructors view writing not as a fixed, one-dimensional skill but as a social competence that can be collaboratively fostered through synchronous supportive interactions in both in-person classrooms and online settings. Furthermore, writing practitioners should take into account the study's findings on the comparison between in-person mediation and both online synchronous and asynchronous mediation. The greater short-term effectiveness of in-person mediation indicates that educators should focus on face-to-face interaction for quick skill development. This insight could encourage educational organizations to include more face-to-face classes in their EFL curricula, especially for basic writing abilities. As there was no significant difference between in-person and online synchronous mediation over time, educators could contemplate creating hybrid models that integrate both approaches.

Additionally, organizations may need to allocate resources more efficiently by investing in technologies and tools that enhance online mediation experiences. This entails training both educators and students to use digital resources that enhance collaboration and feedback. Furthermore, as in-person and online synchronous mediation showed comparable long-term success, educators must focus on developing approaches that sustain learner engagement for longer durations. This may involve structured, pre-arranged follow-up tasks and chances for peer collaboration in asynchronous environments. This platform, ONLYOFFICE DocSpace, is already designed and developed to support collaborative editing with real-time co-authoring. Whatever software is chosen for teaching and assessment, learners must receive guidance on how to use the platform effectively and constructively.

Also, future research could examine which specific methods in online and in-person mediation (e.g., feedback types and scaffolding strategies) are most effective at enhancing writing skills. Also, upcoming research may investigate how the effectiveness of in-person mediation, online synchronous mediation, and online asynchronous mediation varies across different educational environments, including various cultural backgrounds, age demographics, and proficiency levels. Finally, it is recommended that future research explore the use of diverse, up-to-date digital tools for online mediation to assess their effectiveness and ability to deliver both synchronous and asynchronous mediation.

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References

Ableeva, R. (2008). The effects of dynamic assessment on L2 listening comprehension. In J. P. Lantolf & M. E. Poehner (Eds.), *Sociocultural theory and the teaching of second languages* (pp. 57-86). Equinox.

Ahmadi, A., & Besharati, F. (2017). Web-based versus face-to-face interactionist dynamic assessment in essay writing classrooms: A comparative study. *The Journal of Language Teaching and Learning, 7*(1), 1-29.

Alemi, M., Miri, M., & Mozafarnezhad, A. (2019). Investigating the effects of online concurrent group dynamic assessment on enhancing grammatical accuracy in EFL learners. *International Journal of Language Testing, 9*(2), 29–43. https://www.ijlt.ir/article_114279.html

Allami, H., Najari, B. & Tajeddin, Z. (2025). The impact of sociocultural theory-informed instruction on learners' IELTS writing: task response, grammar, vocabulary, coherence and cohesion. *Asian. J. Second. Foreign. Lang. Educ*. 10, 7. https://doi.org/10.1186/s40862-024-00310-z

Alperne, J., & Swires, P. (2014). *Get IELTS Band 9 in General Training: Writing Task 1 letters*. Cambridge IELTS Consultants.Asadi, M., Ebadi, S., & Mohammadi, L. (2025). The impact of integrating ChatGPT with teachers' feedback on EFL writing skills. Thinking Skills and Creativity, 56, 101766.

Asadi, M., Ebadi, S., & Mohammadi, L. (2025). The impact of integrating ChatGPT with teachers' feedback on EFL writing skills. *Thinking Skills and Creativity, 56*, 101766. https://doi.org/10.1016/j.tsc.2025.101766

Barnard-Brak, L., Paton, V. O., & Lan, W. Y. (2010). Profiles in self-regulated learning in the online learning environment. *The International Review of Research in Open and Distributed Learning, 11*(1), 61–80. https://doi.org/10.19173/irrodl.v11i1.769

Barrot, J. S. (2021). Using automated written corrective feedback in the writing classrooms: Effects on L2 writing accuracy. *Computer Assisted Language Learning, 36*(4), 584–607. https://doi.org/10.1080/09588221.2021.1936071

Beck, S. W., Jones, K., Storm, S., & Smith, H. (2020). Scaffolding students' writing process through dialogic assessment. *Journal of Adolescent and Adult Literacy, 6*(6), 651-660. https://doi.org/10.1002/jaal.1039

Besharati, F. (2018). An interactionist dynamic assessment of essay writing via Google Docs: A case of three Iranian EFL university students. *Iranian Journal of English for Academic Purposes, 7*(1), 96–114. https://dorl.net/dor/20.1001.1.24763187.2018.7.1.6.9

Bucol, J. & L., Sangkawong, N. (2024). Exploring ChatGPT as a writing assessment tool. *Innovations in Education and Teaching International*, 1–16. https://doi.org/10.1080/14703297.2024.2363901

Cambridge IELTS Consultants. (2014). *Get IELTS Band 9 in General Training Writing Task One Letters: with 65 Band 9 Model Letters*. [Self-published].

Chen, D., Jeng, A., Sun, S., & Kaptur, B. (2023). Use of technology-based assessments: A systematic review covering over 30 countries. *Assessment in Education: Principles, Policy Practice, 30*(5–6), 396–428. https://doi.org/10.1080/0969594X.2023.2270181

Crisp, G. (2011). *Teacher's handbook on e-assessment*. Retrieved from http://transformingassessment.com/sites/default/files/files/Handbook_for_teachers.pdf

Ding, L., & Zou, D. (2024). Automated writing evaluation systems: A systematic review of Grammarly, Pigai, and Criterion with a perspective on future directions in the age of generative artificial intelligence. *Education and Information Technologies, 29*, 14151-14203. https://doi.org/10.1007/s10639-023-12402-3

Ebadi, S., & Rahimi, M. (2017). Exploring the impact of online peer-editing using Google Docs on EFL learners' academic writing skills: A mixed methods study. *Computer Assisted Language Learning, 30*, 787–815.

Ebadi, S., & Rahimi, M. (2018). An exploration into the impact of WebQuest-based classroom on EFL learners' critical thinking and academic writing skills: A mixed methods study. *Computer Assisted Language Learning, 31*(5–6), 617–651.

Ebadi, S., & Rahimi, M. (2019). Mediating EFL learners' academic writing skills in online dynamic assessment using Google Docs. *Computer Assisted Language Learning, 32*(5–6), 527–555. doi:10.1080/09588221.2018.1527362

Ebadi, S., & Bashir, S. (2021). An exploration into EFL learners' writing skills via mobile-based dynamic assessment. *Education and Information Technologies, 26*(1), 1-14. https://doi.org/10.1007/s10639-020-10348-4

Ebadi, S., Ashtarian, S., & Yousefi, N. (2021). Dynamic assessment training and mediational strategies of EFL student mediators. *Teaching English Language, 15*(2), 95-126. https://doi.org/10.22132/TEL.2021.140223

Elola, I., & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning and Technology, 14*, 51–71.

Ercikan, K., Asil, M., & Grover, R. (2018). Digital divide: A critical context for digitally based assessments. *Educational Policy Analysis Archives, 26*, 1–24.

Escalante, J., Pack, A., & Barrett, A. (2023). AI-generated feedback on writing: Insights into efficacy and ENL student preference. *International Journal of Educational Technology in Higher Education, 20*, Article 57. https://doi.org/10.1186/s41239-023-00425-2

Field, A. (2024). Discovering statistics using IBM SPSS statistics. Sage Publications Limited.

Gass, S. M., & Mackey, A. (2006). Input, interaction and output. *AILA Review, 19*, 3–17. https://doi.org/10.1075/aila.19.03gas

Goleman, D. (1995). *Emotional intelligence*. Bantam Books.

Gunawardena, C. N. (1995). Social presence theory and implications for interaction collaborative learning in computer conferences. *International Journal of Educational Telecommunications, 1*(2/3), 147-166.

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education, 11*(3), 8–26. https://psycnet.apa.org/doi/10.1080/08923649709526970

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112. https://doi.org/10.3102/003465430298487

Hyland, K., & Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching, 39*(2), 83–101. https://doi.org/10.1017/S0261444806003399

Huang, S., & Renandya, W. A. (2018). Exploring the integration of automated feedback among lower-proficiency EFL learners. *Innovation in Language Learning and Teaching, 14*(1), 15–26. https://doi.org/10.1080/17501229.2018.1471083

Jahangard, A., Rahimi, A., & Norouzizadeh, M. (2020). Students' attitudes towards computer-assisted language learning and its effect on their EFL writing. *International Journal of Learning and Teaching, 12*(3), 144–152. https://doi.org/10.18844/ijlt.v12i3.4767

Jiang, R. (2022). How does artificial intelligence empower EFL teaching and learning nowadays? A review on artificial intelligence in the EFL context. *Frontiers in Psychology, 13*, https://doi.org/10.3389/fpsyg.2022.1049401

Kaveh, A., & Rassaei, E. (2022). Mobile-mediated versus face-to-face dynamic assessment, EFL learners' writing fluency, and strategy awareness: A sociocultural perspective. *Language and Sociocultural Theory, 9*(1), 34–68. https://doi.org/10.1558/lst.20288

Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer-mediated language learning: Attention to meaning among students in wiki space. *Computer Assisted Language Learning, 23*(1), 41–58. https://doi.org/10.1080/09588220903467463

Kim, H. Y. (2014). Learning opportunities in synchronous computer-mediated communication and face-to-face interaction. *Computer Assisted Language Learning, 27*(1), 26–43. https://doi.org/10.1080/09588221.2012.703576

Kozulin, A., Gindis, B., Ageyev, V. S., & Miller, S. M. (Eds.). (2003). *Vygotsky's educational theory in cultural context*. Cambridge University Press. https://doi.org/10.1017/CBO9780511840975

Kushki, A., Rahimi, M., & Davin, K. J. (2022). Dynamic assessment of argumentative writing: Mediating task response. *Assessing Writing, 52*, https://doi.org/10.1016/j.asw.2022.100606

Lantolf, J., & Thorne, S. L. (2006). Sociocultural theory and the genesis of second language development. Oxford: Oxford University Press.

Lantolf, J. P., Poehner, M. E., & Thorne, S. L. (2020). Sociocultural theory and L2 development. In B. VanPatten, G. Keating, & S. Wulff (Eds.), *Theories in second language acquisition* (3rd ed., pp. 223–247). Routledge.

Li, M., & Zhu, W. (2013). Patterns of computer-mediated interaction in small writing groups using wikis. *Computer Assisted Language Learning, 26*, 61–82.

Li, Z., Hassan, N. C., & Jalil, H. A. (2023). The Effectiveness of Face-to-Face versus Online Delivery of Continuing Professional Development for Science Teachers: A Systematic Review. *Education Sciences, 13*(12), 1251. https://doi.org/10.3390/educsci13121251

Liu, Q., Hu, A., & Daniel, B. (2025). Online assessment in higher education: a mapping review and narrative synthesis. *Research and Practice in Technology Enhanced Learning, 20*, 007. https://doi.org/10.58459/rptel.2025.20007

Makkar, k. k. (2017). *IELTS General Training Essays and Letters from the Past Exams*. MakkarIELTS.

Mauludin, L. A., Ardianti, T. M., Prasetyo, G., Sefrina, L. R., & Astuti, A. P. (2021). Enhancing students' genre writing skills in an English for specific purposes class: A dynamic assessment approach. *MEXTESOL Journal, 45*(3), 0–3.

Nouri, D., & Alavinia, P. (2024). On the impact of online interactionist vs. interventionist dynamic assessment on Iranian EFL learners' writing performance. *Indonesian Journal of Applied Linguistics, 13*(3), 611–622. https://doi.org/10.17509/ijal.v13i3.66936

Parra, G. L., & Calero, S. X. (2019). Automated writing evaluation tools in the improvement of the writing skill. *International Journal of Instruction, 12*(2), 209–226. https://doi.org/10.29333/iji.2019.12214a

Paruthi, N. (2023, May 26). ONLYOFFICE DocSpace: The new and better way to collaborate on documents with customers and partners. *MUO*. Retrieved June 23, 2023, from [URL]

Peterson, S. S., Altidor, A., & Kerwood, J. (2021). Young children's written and verbal responses in a dynamic assessment context. *Assessing Writing, 49*, 100543. https://doi.org/10.1016/j.asw.2021.100543

Poehner, M. E. (2008). *Dynamic assessment: A Vygotskian approach to understanding and promoting second language development*. Springer Publishing.

Poehner, M. E. (2009). Group dynamic assessment: Mediation for the L2 classroom. *TESOL Quarterly, 43*(4), 471–491. https://doi.org/10.1002/j.1545-7249.2009.tb00106.x

Poehner, M. E., & Infante, P. (2016). Mediated development: A Vygotskian approach to transforming learner L2 abilities. *TESOL Quarterly, 51*(2), 332-357.

Poehner, M. E., & Yu, L. (2022). Dynamic assessment of L2 writing: Exploring the potential of rubrics as mediation in diagnosing learner emerging abilities. *TESOL Quarterly, 56*(4), 1191–1217. https://doi.org/10.1002/tesq.3050

Rezai, A., Naserpour, A., & Rahimi, S. (2022). Online peer-dynamic assessment: An approach to boosting Iranian high school students' writing skills: A mixed-methods study. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2022.2086575

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68–88.

Roche, M. (2018). *IELTS General Writing Task Masterclass: IELTS Writing Task 1 & IELTS Writing Task 2*.Independantly Published.

Rogoff, B. (1990). *Apprenticeship in thinking*. Oxford University Press.

Seyed Erfani, S., & Agha Ebrahimiyan, A. (2013). Web 2.0 incorporated dynamic assessments to assess writing ability of Iranian EFL learners. *Global Journal of Human-Social Science Research, 13*(14), 49–55.

Sherkuziyeva, N., Gabidullina, F. I., Ibrahim, K. A. A., & Bayat, S. (2023). The comparative effect of computerized dynamic assessment and rater-mediated assessment on EFL learners' oral proficiency, writing performance, and test anxiety. *Language Testing in Asia, 13*(1), 1–24. https://doi.org/10.1186/s40468-023-00227-3

Shrestha, P. N. (2020). Dynamic assessment of students' academic writing: Vygotskian and systemic functional linguistic perspectives. *Language and Sociocultural Theory, 8*(2), 268–273. https://doi.org/10.1558/lst.21360

Shrestha, P., & Coffin, C. (2012). Dynamic assessment, tutor mediation, and academic writing development. *Assessing Writing, 17*, 55–70. https://doi.org/10.1016/j.asw.2011.09.001

Sun, W., & Shin, Y. (2025). Improving Organizational Skills in Chinese L2 Learners through Dynamic Assessment. *SAGE Open, 15*(3). https://doi.org/10.1177/21582440251356186

Suwantarathip, O., & Wichadee, S. (2014). The effects of collaborative writing activity using Google Docs on students' writing abilities. *Turkish Online Journal of Educational Technology-TOJET, 13*(2), 148–156.

Topuz, A. C., Saka, E., Fatsa, Ö. F., & Kurşun, E. (2022). Emerging trends of online assessment systems in the emergency remote teaching period. *Smart Learning Environments, 9*, 1–21. https://doi.org/10.1186/s40561-022-00199-6

Vakili, S., Ebadi, S. (2019). Investigating contextual effects on Iranian EFL learners' mediation and reciprocity in academic writing. *Cogent Education, 6*(1), 1-26 . https://doi.org/10.1080/2331186X.2019.1571289

Van Der Veer, R. & Valsiner, J. (1991). *Understanding Vygotsky: A quest for synthesis.* Cambridge: Blackwell.

Vandewaetere, M. & Desmet, P. (2009). Introducing psychometrical validation of questionnaires in CALL research: the case of measuring attitude toward CALL. *Computer Assisted Language Learning, 22*(4), 349–380.

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

Wang, C. R., & Wang, Z. Z. (2025). Investigating L2 writers' critical AI literacy in AI-assisted writing: An APSE model. *Journal of Second Language Writing, 67*, 101187. https://doi.org/10.1016/j.jslw.2025.101187

Wind, A. M. (2024). The effects of dynamic written corrective feedback on EFL university students' writing accuracy: A complex dynamic systems theory perspective. *Journal of Response to Writing, 10*(2), 83–120.

Wong, J., Baars, M., Davis, D., Van Der Zee, T., Houben, G. J., & Paas, F. (2019). Supporting self-regulated learning in online learning environments and MOOCs: A systematic review. *International Journal of Human–Computer Interaction, 35*(4), 356–373.https://doi.org/10.1080/10447318.2018.1543084

Woodworth, J., & Barkaoui, K. (2020). Perspectives on Using Automated Writing Evaluation Systems to Provide Written Corrective Feedback in the ESL Classroom. *TESL Canada Journal, 37*(2), 234-247. https://doi.org/10.18806/tesl.v37i2.1340

Yan, D. (2023). Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation. *Education and Information Technologies, 28*, 13943–13967. https://doi.org/10.1007/s10639-023-11742-4

Zebroski, J. T. (1994). *Thinking through theory: Vygotskian perspectives on the teaching of writing*. Boynton/Cook-Heinemann.

Zhang, M., & Yang, S. (2025). Application of continuation writing tasks in English teaching practice from the perspective of dynamic assessment system. *International Journal of Education and Humanities*, *18*(2), 126-131. https://doi.org/10.54097/fz0hqj46