

Novice and Experienced ELT Professors' Classroom-based and e-Diagnostic Assessment of Academic Writing in Higher Education: Contingencies on Focus

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ABSTRACT

Modern technologies continually advance digital diagnostic assessment tools that provide tailored, immediate feedback to L2 learners' writing in higher education. However, the synergetic role of L2 teachers' contextual and professional attributes, such as institutional affiliation and teaching experience, has remained insufficiently explored in pedagogical diagnostic assessment. To explore such nuances, this quasi-experimental study cross-examined how novice and experienced ELT professors employed diagnostic assessment in physical and virtual classrooms at State Universities and Islamic Azad University (IAU) Branches in Iran to improve EFL undergraduates' academic writing performance. To do so, 320 EFL undergraduates were non-randomly selected and assigned to eight groups, grounded in ELT professors' teaching experience (novice versus experienced), university affiliation (State versus IAU Branches), and diagnostic assessment modality (in real classroom versus Google Meet). Participants who collaborated on writing tasks received teacher diagnostic assessments and ratings across 14 sessions, based on the IELTS writing task rubric. Incorporated repeated measures two-way ANOVA tests demonstrated that ELT professors' productive classroom-based diagnostic assessment was not interfaced with their teaching experience or university affiliation. Yet, their e-diagnostic assessment, teaching experience, and university affiliation showed notable interactions. In other words, experienced ELT professors at State Universities and novice ELT professors at IAU Branches achieved better results with e-diagnostic assessment than their counterparts. These controversial findings imply the superiority of ELT professors' digital literacy to teaching experience or institutional affiliation in virtual L2 learning platforms. Moreover, regular and systematic institutional support for technology-mediated EFL learning is endorsed in higher education.

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Introduction

Language Assessment Literacy (LAL) represents a crucial competency for second/foreign language (L2) teachers aiming to enhance their teaching effectiveness. This multifaceted concept encompasses teachers' fundamental assessment knowledge (e.g., comprehension of measurement theory and linguistic foundations) and essential assessment skills (e.g., creating test items,

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conducting statistical analyses, and utilizing assessment technologies) (Fattah, 2024; Hyland, 2019; Gulikers et al., 2021; Pourdana & Nour, 2023).

As part of such assessment competencies, diagnostic assessment provides L2 teachers with a chance to evaluate their students' progress while identifying their qualifications and focusing on instructional interventions (Wu & Yu, 2025). According to Shirvani et al. (2025), by combining teacher diagnostic feedback with classroom-based tasks, remedial instructions are integrated with regular and formative assessment to achieve better learning outcomes. In diagnostic assessment, rather than simply assigning grades, L2 teachers create a detailed and session-wise map about *where each student currently stands* in their language learning journey. Also, by systematic diagnostic assessment, L2 teachers encourage individual learners' strengths while identifying specific challenges that they face.

What makes diagnostic assessment particularly invaluable is its departure from summative assessment methods. While conventional summative tests merely capture what students have already learned, diagnostic assessment actively explores outcomes in the ongoing learning process. This approach provides comprehensive feedback that helps L2 teachers understand why certain errors occur and suggests specific improvement strategies to the learners. Such personalized insights become the foundation for differentiated instruction (Jang & Sinclair, 2021), allowing teachers to customize their methods and materials according to each student's unique needs.

Diagnostic Assessment in L2 Education

The theoretical backbone of diagnostic assessment draws heavily from Vygotskian pedagogical principles, emphasizing the continuous interaction between teachers and students as they navigate complex learning challenges. This collaborative assessment approach enables language instructors to develop comprehensive student profiles and particularly focus on those individuals who may be struggling with specific concepts (Pourdana & Tavassoli, 2022).

As an effective alternative assessment method, diagnostic assessment identifies learner strengths and weaknesses to inform instruction (Rafi et al., 2022). It focuses on the learning process, not than the outcome and provides immediate, low-pressure feedback (Alderson et al., 2015; Jang & Sinclair, 2021). This feedback includes setting goals (feed-up), addressing performance (feedback), and supporting future progress (feed-forward). By pinpointing error causes and suggesting remedies, diagnostic feedback goes beyond regular feedback. It offers insights into learners' thinking processes and suggests them situated strategies for improvement (Alderson et al., 2015; Nikmard et al., 2023; Nour et al., 2021). These strategies can be cognitive (information processing) or meta-cognitive (self-regulation). In short, diagnostic assessment empowers language learners by helping them understand *how* they learn.

Harding et al. (2015) recommended a framework for diagnostic assessment with the following steps: (1) listening/observation, (2) initial assessment, (3) hypothesis testing, and (4) decision-making. In the listening/observation stage, L2 teachers monitor learners' performance (e.g., through classroom observations, tests, or presentations) to assess overall language ability. During the initial assessment step, teachers combine observations with their experience to identify learning difficulties. In the hypothesis testing phase, teachers consult with other experts to confirm their initial assessments. Finally, in the decision-making step, teachers determine the cause of each learner's strengths and weaknesses and select appropriate diagnostic feedback. This framework is often used in areas such as formative assessment of collaborative learning practices, particularly in developing academic writing skills (Rafi et al., 2022).

In recent years, e-diagnostic assessment (i.e., diagnostic assessment practice in virtual settings) leverages digital platforms to offer unprecedented advantages, including immediate feedback delivery, automated scoring capabilities, and comprehensive data collection that directly informs instruction (Roman & Racek, 2019). Platforms such as Google Meet™ and Zoom™ have demonstrated remarkable potential for facilitating e-diagnostic assessment through features that enable students to engage in real-time collaboration, seamless document sharing, and instant feedback provision on written assignments (Esfandiari & Noor, 2018).

Diagnostic assessment of collaborative writing (CW) tasks suitably scaffolds L2 learners in their learning process of writing skills (Ghorbani et al., 2025). Assessment for learning (AfL) framework successfully complements this collaboration approach to assessment, positioning assessment as a tool for enhancing rather than merely measuring student progress across diverse educational contexts (Csapó & Molnár, 2019; Zohrabi & Nasirfam, 2024). The CW tasks encourage learners to comprehend, manipulate, produce, and interact with language to convey meaning. They involve two or more learners working together to plan, draft, revise, and edit a single text, sharing responsibility for the outcome (Storch, 2019). Web-based CW tasks, often on learning management systems (LMS) platforms such as Google Docs™, have been shown to improve high-level qualities in writing such as coherence (Pourdana et al., 2021), along with L2 learners' motivation and self-efficacy (Lei & Medwell, 2021). Through these lenses, diagnostic assessment becomes a bridge that helps L2 teachers identify the most effective interventions to engage their students in various institutional contexts.

The institutional context of higher education, by and large, can influence the quality of L2 pedagogical instructions and assessment practices (Ghalajian Moghadam et al., 2024). Iranian L2 teachers, especially those English language teaching (ELT) professors at higher educational institutes such as State Universities, non-profit educational organizations, or Islamic Azad University Branches, often demonstrate a wide range of language assessment knowledge (LAK) and practical familiarity with alternative assessment methods such as diagnostic assessment (Alavi et al., 2024). This diversity is significantly shaped by the educational policy makers commonly responsible for designing and providing professional development programs for both pre-service and in-service ELT professors (Nour et al., 2021). The urgent need for improving ELT professors' assessment literacy, particularly in virtual and real academic writing classrooms, has been highlighted by empowering them with the context-sensitive knowledge and informed practice of assessment alternatives (Firoozi et al., 2019; Heidari et al., 2019; Khalili et al., 2025).

Empirical Studies on Diagnostic Assessment

Drawing on Vygotsky's socio-cultural theory of mind (SCT), collaborative writing has gained prominence in the digital era by emphasizing cognitive growth through interactions in social media and LMS such as Google Meet or Zoom. Numerous studies support that diagnostic assessment functions optimally in collaborative writing environments (Storch, 2019), where students work together in physical or virtual classrooms. In collaborative writing, learners jointly develop unified texts while building essential communication skills valued in every academic setting (Keshanchi et al., 2023). Accordingly, L2 learning flourishes through peer engagement in collaborative writing, which encourages discussion, increases linguistic awareness, and sharpens critical thinking (Storch, 2019). Similarly, Ghalajian Moghadam et al. (2024) noted that the integration of LAL and educational technology can substantially improve L2 teachers' assessment skills, particularly in digital L2 learning platforms.

Educational researchers have examined multiple dimensions of this technological transformation in L2 learning contexts, investigating teacher assessment adaptations for online settings (Pourdana, 2022), digital collaborative learning enhancement (Rafi et al., 2022), effective virtual learning resources supporting digital transitions (Roman & Racek, 2019), and virtual evaluation management (Kazemi et al., 2022). However, it still necessitates deeper investigation into L2 teachers' professional experience and their digital assessment capabilities (Hidri, 2021; Lei & Medwell, 2021; Toshiyuki & Mei-Shiu, 2024).

The role of L2 teachers' pedagogical and assessment experience is a critical, yet underexplored, variable in this scholarly endeavor. According to DeLuca et al. (2021), experienced L2 teachers typically possess a deeper understanding of assessment principles and greater practical familiarity with diverse instructional techniques. Their extensive experience allows for flexibility, a deeper focus on linguistic and rhetorical issues in writing, and sophisticated, actionable feedback (Azizpour et al., 2023). They seamlessly integrate assessment into instruction, using it for ongoing learning and mature diagnostic interpretation (Kremmel & Harding, 2020). Therefore, teaching experience leads to more comprehensive, context-sensitive feedback (Seluk & Jones, 2022), better student engagement (Brooks et al., 2024), and precise instructional adjustments (Pourdana & Rad, 2017).

Novice L2 teachers, on the other hand, often rely on prescribed methods, possess a less developed repertoire of teaching strategies, and may prioritize summative over formative assessment by potentially overlooking diagnostic functions (Ghalajian Moghadam et al., 2024). Yet, while lacking adequate pedagogical experience to fully leverage linguistic information effectively, novice L2 teachers are potentially more adept with new technologies and more open to educational challenges (Azizpour et al., 2023). These controversial trends, therefore, demand a conclusive empirical understanding of how different levels of experience can determine the optimally situated diagnostic assessment.

To expand the scope of the research literature in diagnostic assessment at higher education, this study cross-examined how physical and virtual modalities of diagnostic assessment would impact EFL students' collaborative academic writing performance in State Universities and Islamic Azad University (IAU) Branches in Iran. Moreover, the mediating role of teaching experience and university affiliations as two professional and ecological attributes of ELT professors was explored in this study. The following research questions were raised to address this gap:

RQ1: Do novice and experienced ELT professors' classroom-based diagnostic assessment make any differential impacts on EFL undergraduates' collaborative writing at State Universities and Islamic Azad University (IAU) Branches?

RQ2: Do novice and experienced ELT professors' e-diagnostic assessment make any differential impacts on EFL undergraduates' collaborative writing in Google Meet at State Universities and IAU Branches?

Accordingly, the following null hypotheses were formulated:

H01: Classroom-based diagnostic assessment performed by novice and experienced ELT professors makes no differential impacts on EFL undergraduates' collaborative writing at State Universities and IAU Branches.

H02: The e-diagnostic assessment performed by novice and experienced ELT professors makes no differential impacts on EFL undergraduates' collaborative writing in Google Meet at State Universities and IAU Branches.

Method

Participants

This study examined two distinct groups of participants: (1) novice and experienced ELT professors at State Universities and IAU Branches who provided session-wise classroom-based and e-diagnostic assessments, and (2) EFL undergraduate students at State Universities and IAU Branches whose collaborative academic writings were assessed in physical and Google Meet virtual classrooms.

Out of a pool of 50 ELT professors holding the PhD degree in Applied Linguistics, eight were purposefully selected from State Universities ($N = 4$) and IAU Branches ($N = 4$). They agreed to teach eight groups of 40 EFL undergraduates and provide them with the session-wise diagnostic assessment of their collaborative writing tasks in either physical or virtual classroom (Google Meet) settings.

Selected ELT professors were classified as either novice (having less than 3 years of teaching experience) or experienced (having 3 years or more of teaching experience). Thus, the participating ELT professors were selected based on the matrix of teaching experience (novice vs. experienced), university affiliation (State Universities vs. IAU Branches), and classroom modality (real classroom vs. Google Meet), as follows:

- Experienced and novice ELT professors providing classroom-based diagnostic assessment at State Universities ($N = 2$);
- Experienced and novice ELT professors providing e-diagnostic assessment in Google Meet at State Universities ($N = 2$);
- Experienced and novice ELT professors providing classroom-based diagnostic assessment at IAU Branches ($N = 2$);
- Experienced and novice ELT professors providing e-diagnostic assessment in Google Meet at IAU Branches ($N = 2$);

As an LMS platform with a secure video-conferencing service, Google Meet was utilized for e-diagnostic assessment of participants' academic writing. Google Meet's key features that were leveraged for e-diagnostic assessment include screen sharing (for ELT professors' synchronous diagnostic assessment) and the collaborative document production environment.

In addition, a total of 320 EFL undergraduate students majoring in English Translation Studies voluntarily participated in this study. They were non-randomly selected via convenience sampling from two State Universities (Guilan and Tehran) and four IAU Branches (Karaj, Lahijan, Rasht, and Tonekabon). Having completed four mandatory English writing units and signing the digital consent form to cooperate in this study willingly were the primary requirements for students' participation. The cohort included 192 females (60.06%) and 128 males (39.94%) students, aged 22 to 32 years ($M = 25$, $SD = 1.23$) (Table 1).

Table 1
EFL Undergraduate Students' Grouping

Group	University Affiliation	Professor's Experience	Modality
SEC	State University	Experienced	Classroom-based
SNC	State University	Novice	Classroom-based
SEG	State University	Experienced	Google Meet
SNG	State University	Novice	Google Meet
IEC	IAU	Experienced	Classroom-based
INC	IAU	Novice	Classroom-based
IEG	IAU	Experienced	Google Meet
ING	IAU	Novice	Google Meet

Instruments

To ensure baseline homogeneity, all students completed the Oxford Placement Test (OPT) (Allen, 2001) and scored within the range of 40.00 - 65.00, indicating their language proficiency at B1 in the OPT scoring system. The EFL students were also grouped based on the matrix of university affiliation, their professor's experience, and classroom modality.

At the outset of the study, to preserve ethical considerations, the eight recruited ELT professors signed a consent form converted into Google Forms™. They attended a briefing workshop from the researchers on the selection of diagnostic assessment strategies and instructional materials. This briefing aimed to ensure a consistent baseline understanding and mandatory application of diagnostic principles across all the participating ELT professors, regardless of their teaching experience or university affiliation. Adapted from Alderson et al. (2015), these procedural diagnostic assessment strategies are as follows:

- (1) Asking students about their preferred type of diagnosis in advance (verbal or written, synchronous or subsequent, public or private, etc.).
- (2) Asking students to identify the difficult parts of every writing task.
- (3) Appreciating strong points in every student's writing (e.g., effective word choice, proper use of complex structures).
- (4) Assisting students in articulating reasons for their incorrect responses.

Similarly, 320 EFL undergraduates signed a digital consent form adapted in Google Forms (Appendix A) and agreed to complete the Oxford Placement Test (OPT), whose scores showed their B1 (intermediate) proficiency level. Then, the selected EFL undergraduates were divided into eight groups of 40 participants (Table 1). This grouping ensured that the diagnostic assessment modality (classroom-based vs. Google Meet), ELT professor's teaching experience level (novice vs. experienced), and university affiliation (State vs. IAU) were represented by an equal number of participants.

Data Collection Procedure

The experiment spanned 14 sessions, excluding academic writing pretest and post-test sessions. After attending the writing pretest, group members engaged in weekly collaborative writing tasks and received either the classroom-based diagnostic assessment (N = 4 groups) or the e-diagnostic

assessment in the Google Meet ($N = 4$ groups). In every writing session, ELT professors provided instructions on key components of academic writing, such as crafting effective thesis statements or developing supporting ideas. Professors' instructions were followed by pairs of students who collaborated in preparing their writing assignments and receiving session-wise diagnostic assessment. The prompts for these writing tasks were meticulously selected from the *Cambridge IELTS Book 12* (2017), a resource well-suited for academic writing preparation. Each collaborative writing task was allotted 45 minutes, designed to improve students' subskills in organizing arguments, accurate vocabulary use, and grammatical correctness within a time-sensitive, collaborative environment.

For diagnostic assessment, ELT professors identified writing errors and highlighted strong points, also suggested effective writing strategies (e.g., brainstorming, outlining, using effective discourse markers) in oral and/or textual manner. Upon receiving the diagnostic feedback, students were required to collaboratively proofread and revise their assignments. All groups of EFL learners terminated the experiment by taking the writing post-test.

Rating Procedure

The independent ratings were performed by the current researchers, who had no direct involvement in the teaching or providing diagnostic assessment of the collected writing assignments. They referred to the IELTS Writing Rubric to rate the writing pretest and post-tests. This rubric evaluates a writing performance across four key domains of task response, coherence and cohesion, lexical resource, grammatical range and accuracy, with each domain scored individually on a scale from 1.00 to 9.00. To ensure objectivity, the double scoring for each writing task outcome was conducted by one of the researchers with a two-week interval. The inter-rater reliability index for the ratings was high and dependable at $r = .901, p \leq .021$.

Results

This study examined how physical and virtual modalities of diagnostic assessment would affect EFL students' collaborative writing performance in State Universities and IAU Branches in Iran. Moreover, the moderating role of ELT professors' teaching experience and university affiliations as two professional and ecological attributes was explored in this study.

The first research question addressed the possible differential impacts of classroom-based diagnostic assessment performed by novice and experienced ELT professors on four groups of 160 EFL undergraduates' collaborative writing performances at State Universities and IAU Branches. To decide on appropriate parametric/non-parametric statistical tests, the normality of collected OPT scores, writing pretests, post-tests, and weekly task ratings was examined by using One-sample Kolmogorov-Smirnov Tests for EFL students at State Universities and IAU Branches (i.e., SEC and SNC vs. IEC and INC groups), separately.

The distribution of OPT scores for SEC and SNC groups at State, and IEC and INC groups at IAU Branches ($N = 40$ each) was proved as normal at $p \geq .58, .43, .68$, and $.81$, respectively. Similarly, the normal distribution of writing pretests and post-tests for SEC and SNC groups at State Universities and IEC and INC groups at IAU Branches was proved at $p \geq .28, .45, .08$, and $.11$, respectively. Therefore, the choice of conducting parametric tests was supported as legitimate with the collected data. As Table 2 represents, EFL undergraduates at State Universities and IAU

Branches performed similarly on the OPT according to their mean scores ($M_{\text{State}} = 41.58 \pm 1.18$, $M_{\text{IAU}} = 42.41 \pm 1.97$, respectively).

Table 2

Descriptive Statistics: OPT Scores of EFL Undergraduates at State Universities and IAU Branches

		N	Mean	Std. Deviation
OPT	SEC and SNC	80	41.58	1.18
	IEC and INC	80	42.41	1.97

Next, to further examine the possible within-group differences in EFL undergraduates at State Universities and IAU Branches before receiving classroom-based diagnostic assessment, an Independent-Samples t-test was conducted with the pool of OPT scores.

Table 3

Within-Group Differences in OPT Scores of EFL Undergraduates at State and IAU Branches

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
OPT	Equal variances assumed	.316	.57	-.73	158	.46
	Equal variances not assumed			-.79	76.98	.43

As reported in Table 3, the detected within-group differences were insignificant ($t_{(158)} = -.73$, $p \geq .46$). Descriptive statistics for writing pretests and post-tests are presented in Table 4.

Table 4

Descriptive Statistics: Writing Pretests and Posttests of EFL Undergraduates at State and IAU Branches

Affiliation	Group		Writing Pretest	95% Lower Upper Bound	Writing Post-test	95% Lower Upper Bound
State University	SNC	Mean	4.50.	3.69 - 6.11	6.12	5.11 - 7.41
		SD	.57		.57	
	SEC	Mean	5.52	4.25 - 6.89	6.21	5.69 - 7.21
		SD	.61		.70	
IAU Branch	INC	Mean	5.57	3.78 - 7.24	6.22	5.34 - 7.41
		SD	.43		.37	
	IEC	Mean	6.08	5.91 - 7.63	6.78	5.32 - 7.64
		SD	.18		.16	

The data in Table 4 can be summarized as follows:

(1) After receiving the classroom-based diagnostic assessment by the novice ELT professor, the mean of writing scores by EFL undergraduates at State Universities (SNC) was improved from pretest to post-test ($M_{\text{pretest}} = 4.50 \pm .57$, $M_{\text{post-test}} = 6.12 \pm .57$, respectively).

(2) After receiving the classroom-based diagnostic assessment by the experienced ELT professor, the mean of writing scores by EFL undergraduates at State Universities (SEC) was improved from pretest to post-test ($M_{\text{pretest}} = 5.52 \pm .61$, $M_{\text{posttest}} = 6.21 \pm .70$, respectively).

(3) By comparing the means of writing post-test scores in the SNC and SEC groups, it can be concluded that at State Universities, EFL undergraduates who received classroom-based diagnostic assessment by the experienced ELT professor (SEC) outperformed those who received diagnostic assessment by the novice ELT professor (SNC).

(4) After receiving the classroom-based diagnostic assessment by the novice ELT professor, the mean of writing scores by EFL undergraduates at IAU Branches (INC) was improved from pretest to post-test ($M_{\text{pretest}} = 5.57 \pm .43$, $M_{\text{posttest}} = 6.22 \pm .37$, respectively).

(5) After receiving the classroom-based diagnostic assessment by the experienced ELT professor, the mean of writing scores by EFL undergraduates at IAU Branches (IEC) was improved from pretest to post-test ($M_{\text{pretest}} = 6.08 \pm .18$, $M_{\text{post-test}} = 6.78 \pm .16$, respectively).

(6) By comparing the means of writing post-test scores in the INC and IEC groups, it can be concluded that at IAU Branches, EFL undergraduates who received classroom-based diagnostic assessment by the experienced ELT professor (IEC) outperformed those who received diagnostic assessment by the novice ELT professor (INC).

(7) Finally, by cross-comparing the means of writing posttest scores by EFL undergraduates at both State Universities and IAU Branches, it can be speculated that the teaching experience of the ELT professors can be a determining factor in shaping their diagnostic assessment performances. Thus, to investigate the significance of the observed differences, a repeated-measures two-way ANOVA was run.

Table 5

Between-Subjects Effects: Writing Pretest and Post-Test Scores of SEC, SNC (State Universities), IEC, INC (IAU Branches)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Writing Pre/post-tests	Sphericity Assumed	7.76	1	7.76	9.76	.00*	.11
Writing Pre/post-tests × Affiliation	Sphericity Assumed	.72	1	.72	.90	.34	.01
Writing Pre/post-tests × Teaching Experience	Sphericity Assumed	.53	1	.53	.67	.41	.00
Writing Pre/post-tests × Affiliation × Teaching Experience	Sphericity Assumed	.06	1	.06	.08	.77	.00

To summarize the data in Table 5, the results of two-way RM ANOVA indicated that after receiving classroom-based diagnostic assessment, EFL undergraduates had significant improvement in their writing performance from writing pretests to post-tests at both State Universities and IAU Branches ($F_{(3, 156)} = 9.76, p \leq .05$, Partial $\eta^2 = .11$, interpreted as a strong effect size). Also, the insignificant interplay of EFL undergraduates' affiliation with their writing improvement can be observed ($F_{(3, 156)} = .90, p \geq .34$). Similarly, ELT professors' teaching experience had no significant interaction with EFL undergraduates' writing improvement ($F_{(3, 156)} = .67, p \geq .41$). Finally, the chance of any interaction between the ELT professors' teaching experience and their university affiliation on EFL undergraduates' writing task improvement was narrow ($F_{(3, 156)} = .08, p \geq .77$).

To sum up, at State Universities and IAU Branches, ELT professors' diagnostic assessment had an instructive role to improve EFL undergraduate students' collaborative writing. However, those EFL undergraduates who received classroom-based diagnostic assessment by experienced ELT professors seemed to improve their writing more than those who received diagnostic assessment by novice ELT professors. The observed differences between EFL undergraduates at State Universities and IAU Branches showed similar patterns and were statistically insignificant.

The second research question of the study queried the possible differential impacts of performing e-diagnostic assessment by novice and experienced ELT professors at State Universities and IAU Branches on four groups of 160 EFL undergraduates' collaborative academic writing. To address this question, the normality of OPT scores, writing pretests, post-tests, and 14 weekly task ratings was examined by using One-sample Kolmogorov-Smirnov Tests.

The normal distribution of OPT scores for SEG and SNG groups at State Universities, and IEG and ING groups at IAU Branches ($N = 40$ each) was proved at $p \geq .71, .83, .72$, and $.70$, respectively. Similarly, the distribution of writing pretests and post-tests for SEC and SNC groups and IEG and ING groups at IAU Branches was proved as normal at $p \geq .81, .84, .18$, and $.97$, respectively. Therefore, the choice of conducting parametric tests was supported by the normality of the collected data.

Table 6

Descriptive Statistics: OPT Scores of EFL Undergraduates at State and IAU Branches

		N	Mean	Std. Deviation
OPT	SEG and SNG	80	42.05	5.35
	IEG and ING	80	42.50	5.40

As Table 6 represents, EFL undergraduates at State Universities and IAU Branches performed similarly on the OPT according to their mean scores ($M_{\text{State}} = 42.05 \pm 5.35$, $M_{\text{IAU}} = 42.50 \pm 5.40$, respectively). Next, to examine within-group differences in EFL undergraduates before they received e-diagnostic assessment, an Independent-Samples t-test was conducted with the pool of OPT scores.

Table 7

Within-Group Differences in OPT Scores of EFL Undergraduates at State Universities and IAU Branches

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
OPT	Equal variances assumed	.04	.83	-.78	158	.43
	Equal variances not assumed			-.78	76.91	.43

As reported in Table 7, the detected within-group differences were insignificant ($t_{(158)} = -.78, p \geq .43$). The descriptive statistics for writing pretests and post-tests are presented in Table 8.

Table 8

Descriptive Statistics: Writing Pretests and Posttests of EFL Undergraduates at State and IAU Branches

Affiliation	Group		Writing Pretest	95% Lower Upper Bound	Writing Post-test	95% Lower Upper Bound
State University	SEG	Mean	5.52	4.89 - 6.11	6.38	5.42 - 7.12
		SD	.47		.34	
	SNG	Mean	5.22	4.56 - 6.31	5.95	4.89 - 6.98
		SD	.30		.51	
IAU Branch	IEG	Mean	5.85	5.21 - 7.10	6.41	5.97 - 7.69
		SD	1.08		1.17	
	ING	Mean	6.33	5.63 - 7.36	6.56	5.77 - 7.58
		SD	1.31		1.36	

The data in Table 8 can be summarized as follows:

(1) After receiving e-diagnostic assessment by the experienced ELT professor, the mean of writing scores by EFL undergraduates at State Universities (SEG) was improved from pretest to post-test ($M_{\text{pretest}} = 5.52 \pm .47$, $M_{\text{post-test}} = 6.38 \pm .34$, respectively).

(2) After receiving e-diagnostic assessment by the novice ELT professor, the mean of writing scores by EFL undergraduates at State Universities (SNG) was improved from pretest to post-test ($M_{\text{pretest}} = 5.22 \pm .30$, $M_{\text{post-test}} = 5.95 \pm .51$, respectively).

(3) By comparing the means of writing post-test scores in the SEG and SNG groups, it can be concluded that at State Universities, EFL undergraduates who received e-diagnostic assessment

by the experienced ELT professor (SEG) outperformed those who received e-diagnostic assessment by the novice ELT professor (SNG).

(4) After receiving e-diagnostic assessment by the experienced ELT professor, the mean of writing scores by EFL undergraduates at IAU Branches (IEG) was improved from pretest to post-test ($M_{\text{pretest}} = 5.85 \pm 1.08$, $M_{\text{post-test}} = 6.41 \pm 1.17$, respectively).

(5) After receiving e-diagnostic assessment by the novice ELT professor, the mean of writing scores by EFL undergraduates at IAU Branches (ING) was improved from pretest to post-test ($M_{\text{pretest}} = 6.33 \pm 1.31$, $M_{\text{post-test}} = 6.56 \pm 1.36$, respectively).

(6) Unexpectedly, after comparing the means of writing post-test scores in the IEG and ING groups, it can be concluded that at IAU Branches, EFL undergraduates who received e-diagnostic assessment by the novice ELT professor (ING) outperformed those who received e-diagnostic assessment by the experienced ELT professor (IEG).

(7) By cross-examining the means of the writing post-tests by EFL undergraduates at State Universities and IAU Branches, it was found that the impact of e-diagnostic assessment on EFL undergraduates' writing performance was moderated by ELT professors' teaching experience at IAU Branches. To further explore the significance of the observed differences and detected interaction, a repeated-measures two-way ANOVA was run.

Table 9

Between-Subjects Effects: Writing Pretest and Post-Test Scores of SEG, SNG (State Universities), IEG, ING (IAU Branches)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Pre/Post Writing Ratings	Sphericity Assumed	5.43	1	5.43	6.92	.01*	.08
Pre/Post Writing Ratings × Affiliation	Sphericity Assumed	1.13	1	1.13	1.44	.03*	.02
Pre/Post Writing Ratings × Teaching Experience	Sphericity Assumed	.18	1	.18	1.94	.02*	.13
Pre/Post Writing Ratings × Affiliation × Teaching Experience	Sphericity Assumed	.00	1	.00	.95	.03*	.14

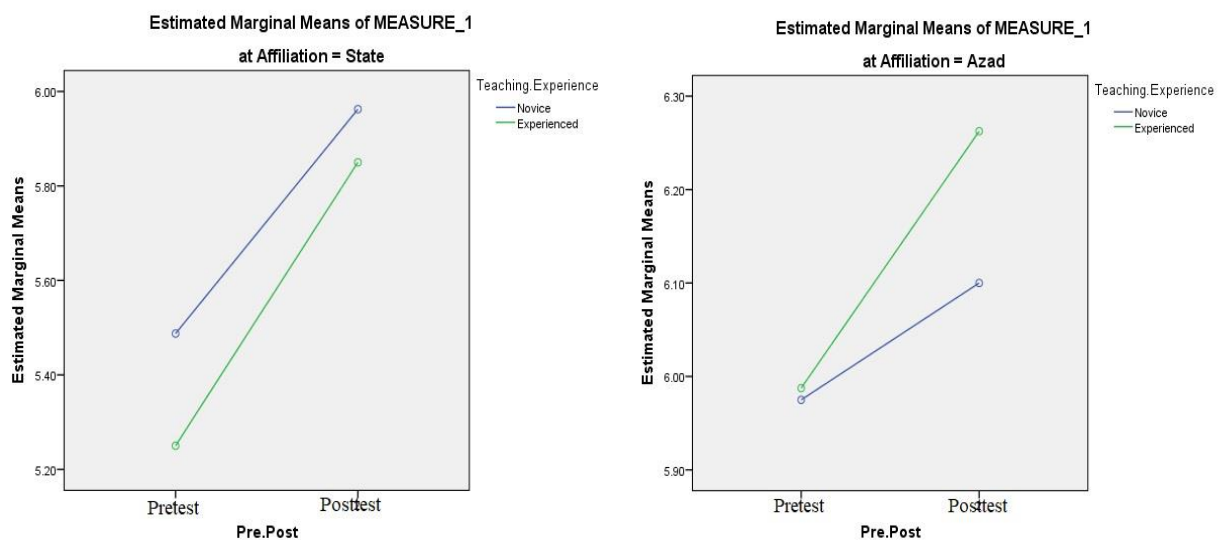
To summarize the data in Table 9, the results of two-way RM ANOVA indicated that after receiving e-diagnostic assessment, EFL undergraduates had significant improvement in their writing performance from pretests to post-tests at both State Universities and IAU Branches ($F_{(3, 156)} = 6.92$, $p \leq .01$, Partial $\eta^2 = .08$, interpreted as a moderate effect size). Also, the small significance of EFL undergraduates' university affiliation in their writing improvement ($F_{(3, 156)} = 1.44$, $p \leq .03$, Partial $\eta^2 = .02$, interpreted as a small effect size) can be detected. In other words,

the e-diagnostic assessment could equally improve the EFL undergraduates at State Universities and IAU Branches.

Moreover, the teaching experience and university affiliation of ELT professors played a significant but controversial role in the writing improvement of EFL undergraduates ($F_{(3, 156)} = 1.94, p \leq .02$, Partial $\eta^2 = .13$, interpreted as a large effect size of teaching experience, $F_{(3, 156)} = 1.44, p \leq .03$, Partial $\eta^2 = .13$, interpreted as a moderate effect size of university affiliation). Finally, the presence of the interaction between the ELT professors' teaching experience and university affiliation had confounding impacts on EFL undergraduates' writing task improvement ($F_{(3, 156)} = .95, p \leq .03$, Partial $\eta^2 = .14$, interpreted as a large effect size). Therefore, the instructional impacts of e-diagnostic assessment on reported writing improvement should be qualified in terms of ELT professors' teaching experience at the State Universities and IAU Branches. This significant difference was illustrated in Figure 1.

Figure 1

Estimated Marginal Means in Pretests/Post-Tests of SEG, SNG (State Universities), and IEG, ING (IAU Branches)



As illustrated in Figure 1, regardless of the writing progress that EFL undergraduates demonstrated over the course of 14 weeks as a result of receiving consistent e-diagnostic assessment, the experienced ELT professors at State Universities outperformed their novice counterparts; however, the situation was reversed in favor of novice EFL professors at IAU Branches.

Discussion

The primary objective of this quasi-experimental study was to investigate the impact of Iranian ELT professors' classroom-based and e-diagnostic assessments on the collaborative writing skills

of EFL undergraduate students at State Universities and IAU Branches. It specifically focused on how ELT professors' teaching experience (novice versus experienced), university affiliation (State Universities versus IAU Branches), and classroom modality (face-to-face versus Google Meet) could moderate the intended outcomes. The results can be summarized as follows:

(1) In both classroom-based and virtual classrooms, ELT professors' diagnostic assessment was supported as an effective instructional tool to improve the EFL undergraduate students' collaborative writing.

(2) In the real classroom context, the impact of ELT professors' diagnostic assessment on EFL students' collaborative writing was moderated neither by their teaching experience nor their university affiliation. In other words, the classroom-based diagnostic assessment performed by novice and experienced ELT teachers equally improved EFL learners' collaborative writing performance at State Universities and IAU Branches.

(3) In the virtual classroom context, the impact of ELT professors' e-diagnostic assessment on EFL students' collaborative writing was partially moderated by their teaching experience and university affiliation. More specifically, at State Universities, experienced ELT professors were much more successful in conducting e-diagnostic assessment of collaborative writing than their novice counterparts. However, at IAU Branches, the novice professors outperformed the experienced professors in their e-diagnostic assessment performances.

The findings for the first research question in this study strongly support the effectiveness of diagnostic assessment in improving face-to-face collaborative writing at both State Universities and IAU Branches. In other words, the constructive role of diagnostic assessment in improving collaborative writing was not confounded by ELT professors' teaching experience nor their university affiliation. These observations are aligned with recent empirical evidence. Accordingly, Abdulaal et al. (2022) reported similar positive outcomes when examining the constructive role of diagnostic assessment on the speaking performance of Afghan EFL learners, noting improvements in their accuracy, fluency, and cognitive load, while also decreasing learning anxiety. Similarly, the diagnostic assessment of EFL learners' writing and speaking task outcomes was reported by novice and experienced L2 teachers in physical classroom settings (Nikmard et al., 2023). Nikmard et al. (2023) found that although experienced EFL teachers might show limited superiority over novice teachers in certain contexts, diagnostic assessment remained consistently effective across different levels of teaching experience. This consistency across various language skills, from speaking to writing, indicates that the benefits of classroom-based diagnostic assessment can extend beyond specific linguistic domains, supporting its fundamental pedagogical value. The consistent findings across diverse language skills reinforce the current study's observation that diagnostic assessment possesses inherent pedagogical strength that exceeds the influence of individual L2 teachers' professional attributes, such as teaching experience or university affiliations, in classroom settings.

Findings for the second research question in this study are threefold:

Firstly, the statistical results echoed the similar effectiveness of e-diagnostic assessment in enhancing collaborative writing at State Universities and IAU Branches. This observation is instantiated by several recent studies on implementing technology-mediated assessment alternatives. Rafi et al. (2022), for instance, examined the rigor of computer-mediated diagnostic assessment and reported significant improvements in EFL undergraduates' academic oral performance and positive learner responses to online teacher feedback. Similarly, Rafi and

Pourdana (2023) investigated the impact of e-diagnostic assessment on EFL learners' collaborative and individual speaking performances, reporting agentic and sustainable speaking progress.

Secondly, findings resonated with successful e-diagnostic assessment by *experienced* ELT professors at State Universities, which corroborated several research findings. For instance, a survey conducted by Lee et al. (2022) on EFL teachers' assessment literacy in real and virtual L2 environments suggested that experienced teachers often possess a more developed technological pedagogical content knowledge (TPACK), are relatively more adept at interpreting and utilizing diagnostic data generated in online platforms, and thereby optimizing corrective feedback on collaborative writing tasks. Aligned with the reported data for experienced ELT professors in this study, Lee et al. (2022) reiterated the positive role of teaching experience in successful assessment performance, which enabled them to apply more sophisticated diagnostic strategies within the digital realm. Hence, teaching experience provides reassuring support for ELT professors' e-diagnostic assessment performance at State Universities.

Thirdly, the superiority of *novice* ELT professors in their e-diagnostic assessment over their experienced counterparts at IAU Branches was an unexpected result in this study, which disrupts the simplistic notion that teaching experience can automatically lead to better assessment performance or professional achievement in digital L2 learning contexts. Instead, the novice ELT professors' successful e-diagnostic outperformance suggested that digital literacy might represent a distinct competency that intersects with, but differs from, traditional pedagogical expertise. This finding is notably supported by Ölmezer-Öztürk and Aydin (2018), who claimed that L2 teachers' professional profile would not necessarily influence Language Assessment Knowledge (LAK) related outcomes. Their large-scale survey reported that teachers' personal factors, such as gender, teaching experience level, educational background, and institutional affiliation, usually have an insignificant relationship with their language assessment literacy. Moreover, a meta-analysis by Chaudhary and Singh (2022) on the factors influencing teacher effectiveness in assessment provision strongly indicated that while explicit training in diagnostic assessment strategies consistently improves learning outcomes, general teaching experience alone does not always render overachievement across all contexts. In other words, and in line with findings in this study, although diagnostic assessment itself is a highly effective instructional tool, the power of teaching experience in higher educational contexts might only be limited to how *assessment knowledge* is delivered. Ölmezer-Öztürk and Aydin (2018) also advanced the inherent methodological rigor of diagnostic assessment; regardless of who delivers it (novice or experienced) or where (real or virtual setting), it contributes significantly to language learning efficacy. They further emphasized the importance of providing robust professional development in diagnostic assessment practices for all ELT professors, irrespective of their tenure or institutional affiliation, to maximize their potential in fostering academic writing skills.

Conclusion

Many researchers and educators believe that strong language assessment literacy equips everyone involved in education, especially language teachers, researchers, and university professors, to make informed decisions in designing, administering, and sharing assessment tools (Bigverdi & Khalili Sabet, 2024). Therefore, the insights from this study provide several key recommendations. This study strongly supports the positive impact of diagnostic assessment on enhancing EFL learners' writing achievement in both real and virtual L2 learning contexts. When L2 teachers

consistently use diagnostic assessment, they “can effectively pinpoint student needs by tracking learning progress, addressing challenges, and boosting ongoing achievement” (Pourdana, 2022, p. 5). This positive influence extends to students working collaboratively on writing tasks and proofreading their assignments, where the benefits of diagnostic feedback are evident. Coupled with the crucial, catalytic role of collaborative L2 learning, the findings in this study also offer significant implications for L2 teachers and practitioners, providing valuable insights for improving pedagogical strategies.

Furthermore, they underscore the crucial role of teaching experience for most ELT professors in higher education in Iran, regardless of their university affiliation. This experience is not just a professional bonus, as it appears to be a key factor in their ability to successfully implement innovative assessment methods like diagnostic assessment. While prior research suggests that extensive teaching experience can sometimes have mixed impacts on factors like teacher burnout or vocational stress (Azizpour et al., 2023), this study highlights its strong connection to more sophisticated and effective assessment practices, complementing overall teaching success. However, the observed controversy in experienced and novice ELT professors’ e-diagnostic assessment records at IAU Branches might also highlight the complexity of integrating technology in higher education settings in Iran. These findings remind professional development programs to address not only general assessment literacy but also specific competencies related to digital assessment environments in higher education.

This research holds significant implications for L2 teacher educators and policymakers in Iran, suggesting a pressing need to reform language teacher education programs in Iranian universities. As university policymakers are tasked with making crucial decisions about all facets of language education, including language assessment, they must “continually familiarize themselves with emerging assessment approaches to inform their policy-making effectively” (Rafi et al., 2022, p. 4). Consequently, implementing specialized in-service professional development courses focusing on technology-integrated assessment, the use of appropriate technological tools and software, automated feedback applications, and artificial intelligence tools should be promoted within Iranian educational settings.

Despite its compelling results, this study had several limitations concerning its research methodology and sampling, which open untaken trails for future research. Specifically, the current researchers limited themselves to exploring ELT professors’ teaching experience and university affiliation as two moderating variables at the cost of several others, such as teacher immunity, or ecological and transformative agencies. Furthermore, it is important to note that neither the ELT professors nor the EFL undergraduates in this study received explicit training in digital literacy. Therefore, it was strongly believed that holding such a de facto approach to digital training could have negatively influenced participating ELT professors’ e-diagnostic assessment practices and the volunteer students’ collaborative writing performance on Google Meet. Therefore, it is recommended that future research in this area incorporate digital literacy training to the extent that it controls for its potential confounding effects, thereby providing clearer insights into the impact of e-diagnostic assessment in virtual L2 environments.

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Conflict of interests

The authors declare that they have no conflict of interest.

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Appendix A

The Digital Consent Form in Google Forms

Dear participant,

In this scientific study, the researchers explore the different impacts of diagnostic assessment on your writing improvement in the classroom and on Google Meet. Your participation in this study is critical to us but entirely voluntary. You may withdraw at any time without any consequences. Also, there are no physical or financial risks associated with this study. All information you provide will be kept strictly confidential. Results will be reported in aggregate form without any identifying details. The researchers offer you an opportunity to reflect on your own language learning process and the possible advantages of diagnostic assessment of your writing performance. If you have any questions or concerns, please contact

hajieh_ghalajian_moghadam@iaiu.ir

By clicking "I Agree," you acknowledge that:

1. You have read and understood the purpose of the study.
 2. You agree to participate voluntarily.
 3. You understand you can withdraw from this study at any time.
- I Agree