The Effects of Models of Dynamic Assessment on EFL Learners' Writing Apprehension and Writing Self-Efficacy

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Abstract

Dynamic assessment (DA) is an innovative way of assessing students' knowledge. Given the importance of knowing how to reduce writing apprehension and improve writing self-efficacy in language learning, this study investigated the effects of models of DA including Buddoff's Learning Potential Measurement Approach (LPMA), Carlson and Wiedl's Testing-the-Limits Approach (TLA), and Intensive Mediated Learning Experience (IMLE) on L2 writing apprehension and self-efficacy. The participants were 302 students in four groups. All groups were given the writing apprehension and writing self-efficacy questionnaires as pretests, followed by 20 sessions of treatment. The same questionnaires were given in the last session as posttests. The collected data were analyzed using one-way Analysis of Covariance. The results showed a significant difference among the four groups' writing apprehension and writing self-efficacy mean scores on the posttests. The findings also revealed that the IMLE group outperformed the other two groups. Based on the results, it was concluded that employing DA models can be conducive to reducing writing apprehension and improving writing self-efficacy among EFL learners. The findings of the present study can have useful implications for teachers, students, material designers, and language assessors.

Introduction

Unlike traditional assessment, which is product-oriented and believes in the summative evaluation of learners and neglects the learning process (Nobre & Villas-Boas, 2020), dynamic assessment (DA) emphasizes learners' potential ability for the future (Hadidi, 2023). It pays attention to the interaction between examiners and learners in the process of evaluation (Poehner & Lantolf, 2022; Sun et al., 2022).

This new form of assessment has been reported to facilitate the learning of different language skills (Kartal, 2022; Maysuroh et al., 2023; Palanisamy & Rajasekaran, 2023; Ritonga et al., 2022). However, there may be factors that impede learning. For instance, in the area of writing, the focus of this study, writing apprehension, as a skill-specific anxiety construct, is one of the factors that can block the acquisition of a language (Qadir et al., 2021; Skar et al., 2023).

Furthermore, Wang and Sun (2020) have verified the significance of self-efficacy in learning skills like writing. Writing self-efficacy, derived from social cognitive theory, means writers' confidence in their abilities and capabilities to meet the requirements of writing tasks (Sun et al., 2021; Teng & Zhan, 2023).

A review of previous studies reveals that writing is the most challenging language skill (Hang, 2021). Many studies (e.g., Rashidi & Bahadori Nejad, 2018; Sherkuziyeva et al., 2023; Torabi & Safdari, 2020) have focused on factors that might be effective in improving learners' writing performance. However, there are few studies done to see if DA has any role in decreasing apprehension and promoting self-efficacy in the process of writing. Accordingly, the aim of the present study is to examine the effect of DA on writing apprehension and writing self-efficacy and to fill part of the gap in the literature. The purpose of this study is to address the following questions:

RQ1. Are there any significant differences among the effects of Carlson and Wiedl's TLA, Buddoff's LPMA, IMLE), and conventional instruction on EFL learners' writing apprehension?

RQ2. Are there any significant differences among the effects of Carlson and Wiedl's TLA, Buddoff's LPMA, IMLE, and conventional instruction on EFL learners' writing self-efficacy?

Literature Review

Dynamic Assessment and its Models

According to Haywood and Lidz (2006), DA is an approach that involves interactive assessment while focusing on learners' ability to respond to intervention in different psychological, linguistic, and educational domains. According to Lantolf and Poehner (2004), DA is either 'interventionist' or 'interactionist', based on the type of mediation used. The term 'mediation' means any kind of scaffolding that supports standardized hints to dialogic interactions (Poehner, 2008).

According to Poehner (2008), the interventionist approach to DA involves employing standardized procedures of assistance to achieve quantifiable outcomes. These results are used by instructors to compare groups of learners within and between groups. Furthermore, instructors can predict future performance by comparing those quantifiable results with other measures. The assumption of this approach is that if the mediator provides learners with a hint to solve a problem, learners would have more control over materials than those learners who solve a problem with explicit clues (Lantolf, 2009). This approach contains four models including: Guthke's Lerntest Approach, Budoff's LPMA, Brown's Graduated Prompt Approach, and Carlson and Wiedl's TLA. Two of these models, which are the concern of this study, are described below.

Budoff's Learning Potential Measurement Approach

According to Poehner (2008), the way intervention is designed in this approach is what distinguishes it from other approaches. Intervention in Budoff's approach is designed in advance and includes principles and strategies that aim to solve a task, which means direct instruction is given in the intervention phase to learners. Budoff employed the testing instrument that enjoyed an experimental format of pretest-intervention-posttest. The amount of influence this intervention phase had been checked by comparing learners' performance in both pre- and post-test conditions.

Budoff's Learning Potential Measurement is applicable to situations that involve a large number of learners; i.e. it seems as a placement test for an intensive academic English program. Another important fact to mention is that scores are reported to the officials without any follow-up to the post-test (Sternberg & Grigorenko, 2002).

Carlson and Wiedl's Testing-the-Limits Approach

Poehner (2008) stated that Carlson and Wiedl's TLA is associated with the information processing theory. They claimed that the reasons for learners' unsuccessfulness are not their cognitive impairments but their different backgrounds leading them to be disadvantaged. Testing-the-limit approach comes to the scene when a mediator attempts to shed light on the hidden potentials of learners in the process of performing a specific task such as an achievement test (Lai, 2023).

According to Poehner (2008), there are two intervention techniques for the Testing-the-Limits Approach; namely the provision of meaningful extensive feedback and the application of verbalizing cognitive processes. The instructor intervenes during the test administration to provide learners with feedback and elicit verbalization instead of simply having an intervention phase.

The main aim of the Carlson and Wiedl's TLA is to determine the limit of students' abilities by methods and practices that result in improved performance. What distinguishes it from other approaches of DA are summarized in two notes; some particular interventions are incorporated into the testing procedure, and the typical formula of pretest-intervention-posttest is not obligatory. Therefore, this approach does not change the general structure and content of traditional exams since essential changes are provided in the testing context (Carlson & Wiedl, 1992).

The interactionist approach to DA has its origin in Vygotsky's dialogic interactions. Lantolf (2009) stated that in dialogical interaction, the amount of help and care will be determined to provide learners with the most applicable and appropriate assistance. The purpose of interactionist DA is to assist the development of both individual learners and groups of learners without taking into account the effort required and, as a result, there is no predetermined endpoint. In the interactionist approach of DA, scaffolding, and assistance emerge as the mediator and the learner interact. This approach contains two models including Feuerstein's Structural Cognitive Modifiability Theory, and Mediated Learning Experience. The latter, which is related to this study, is explained in further detail below.

Intensive Mediated Learning Experience

Feuerstein's IMLE theory has a lot in common with Vygotsky's theory of the zone of proximal development and internalization, as well as the notion of scaffolding. Feuerstein considered humans as open systems rather than closed ones that can develop their cognitive abilities through various ways that depend on the existence and quality of appropriate interaction and instruction forms. In IMLE, interactions are specified in the form of processes during which knowledgeable mediators or experienced adults intervene between the students and stimuli for students' development (Rashidi & Bahadori Nejad, 2018).

According to Poehner (2008), when the mediator provides students with as much mediation as possible during a task and activities, they are actually dealing with IMLE. Instructors make necessary changes according to learners' responsiveness. They aim to discover learners' potentiality for cognitive changes, and to do so, they assist learners to change during the assessment process. In this qualitative interactional process, socialization agents such as parents, and teachers play as mediators between the data in the environment of the learners (Tzuriel & Shomron, 2018).

Through satisfactory MLE interactions, mediators help learners accentuate critical contents, regulate, plan, make connections, set goals and objectives, and control behavior; moreover, they assist individuals to enhance their cognitive and metacognitive strategies, intrinsic motivation, and cognitive flexibility. Furthermore, mediators give feedback on learners' errors and correct those (Panahi et al., 2013).

Poehenr (2008) assigned 11 attributes to MLE: the first one is Intentionality and reciprocity; the second one is 'Transcendence'; then come 'Mediation of meaning' and 'Mediation of feelings of competence'; next, there are 'Mediated regulation and control of behavior' and 'Mediated sharing behavior', which are followed by 'Mediation of individuation and psychological differentiation', 'Mediation of goal seeking, goal setting, goal planning, achieving behavior', 'Mediation of challenge: the search for novelty and complexity'. The last two attributes include 'Mediation of an awareness of the human being as a changing entity' and 'Mediation of an optimistic alternative'. In the present study, the researchers applied only three attributes: Mediation of feelings of competence; Mediated sharing behavior, and Mediation of challenge: the search for novelty and complexity.

Writing Apprehension

Improving learners' writing skills is highly important for language learning and development. However, numerous learners view writing as a demanding and fear-provoking experience (Bahşi & Ateş, 2021). Loureiro et al. (2020) state that the ways learners think about the task of learning have a significant influence on their learning process. Akhtar et al. (2020) claim that teachers can measure learners' degree of apprehension toward the writing process to investigate teaching strategies that can reduce learners' writing apprehension and encourage them to employ suitable writing strategies in order to make a positive impression on their achievement, decrease their negative feelings and anxiety and, consequently, enhance their writing achievement.

Over the recent decades, many researchers in the field of language learning have investigated apprehension. Daly and Miller (1975) introduced the term 'writing apprehension' to the language learning field. Research has shown that writing apprehension is positively correlated with writing performance and quality (Hassan, 2001). Moreover, Yu (2020) believes that when learners write in a foreign language, they experience more anxiety than the time they write in their native language.

Researchers (Cletzer et al., 2022; Guo, 2023; Kelly et al., 2022; Loureiro et al., 2020) have identified eleven interrelated causes of writing apprehension, including: 1) insufficient writing skills, 2) teachers' reactions toward mechanical problems, 3) the nature of given writing tasks, 4) the inclination of writers to associate the writing process with negative consequences, 5) apprehensive writers view teachers as the source of punishments, 6) contempt and embarrassment due to public comparisons of students' work with others, 7) teachers' negative feedbacks on the content, 8) writers' poor self-perceptions, 9) insufficient role models, 10) the target language of writing, and 11) writing in another language than native language.

Writing Self-efficacy

Writing self-efficacy means writers' belief in how well they can succeed in a task of writing, meanwhile applying various compositions, usage, grammar, and mechanical skills (Pajares & Valiante, 2006)

The social cognitive framework developed by Bandura (1986) is in line with self-efficacy. He mentioned that the interaction between learners' thoughts, behaviors, and environment is what determines learning. Thus, self-efficacy not only facilitates and mediates the mechanism of human agency, but also influences their psychological states, emotional well-being, academic identity, behaviors, choices, performance, motivation, and the instructional conditions (Jonas & Hall, 2022; Mitchel et al., 2023; Mitchell et al., 2019).

Moreover, Sun and Wang (2020) believe that writing self-efficacy has a positive correlation with motivational attributes, including writing value, self-efficacy for self-regulation, self-concept, performance-approach goals, and task-approach goals. However, it is negatively related to performance-avoidance goals.

A number of studies have been carried out on the main variables of the present study, some of the more relevant ones are described in the next section.

The Empirical Background

Several researchers have studied the effects of DA on the writing skill. Torabi and Safdari (2020) studied the possible impact of dynamic assessment on the writing performance of Iranian EFL students. The findings revealed that dynamic assessment notably boosted the writing performance of the learners. Sun (2023) applied DA to English writing classes at the college level and came up with similar results.

Furthermore, Mauludin (2018) investigated the impact of DA on improving learners' skills in summary writing in ESP classes. The results suggested that applying DA is effective on enhancing learners' skill in summary writing. This finding supported earlier results reported by Mauludin and Ardianti (2017).

Several studies have also focused on writing apprehension. In a study by Sherkuziyeva et al. (2023), the effect of computerized DA on test anxiety and writing performance was explored. It turned out that learners in the experimental group were able to enhance their written skills and experienced less test anxiety at the end of the treatment, while the control group did not show such results.

Al-Khresheh (2023) investigated the level of writing apprehension among a group of university EFL learners and found that they acted poorly in writing and showed a moderate level of writing apprehension. Considering the influential factors, gender and university were of significance. Similarly, Mauludin and Ardianti (2021) reported that DA helped learners to reduce their anxiety during the process of writing.

Several studies have also addressed writing self-efficacy, the other dependent variable of this study. In a study by Al-Hawamdeh et al. (2023), the impact of using summative assessment and e-portfolio assessment in enhancing learners' writing self-efficacy was investigated. The findings suggested that e-portfolio assessment was considered to be more practical for enhancing students' autonomy and self-efficacy than the summative assessment method. In another study, Teng and Zhan (2023) found that the influence of task complexity on academic writing performance was mediated by beliefs in self-efficacy and strategies for self-regulated writing. Meanwhile, Teng and Wang (2022) discovered that academic writing performance in EFL can be explained by self-efficacy beliefs. Moreover, it provided support for the predictive impact of academic writing self-efficacy beliefs on the academic writing performance of EFL students. This was corroborated by the findings of Takarroucht (2022), suggesting that self-assessment, as a learning strategy, can maximize learners' writing self-efficacy beliefs.

In a study by Martinez et al. (2011), the predictors of learners' writing anxiety and writing self-efficacy were investigated. Writing self-efficacy was discovered to be significantly influenced by leisure writing and writing anxiety. It turned out that leisure writing positively influenced writing self-efficacy while writing anxiety had a significant negative impact.

The studies mentioned above reveal that more investigations are required in the context of language assessment to shed light on the significance of DA. Numerous studies have demonstrated the significance and positive outcomes of innovative assessment models over the years. The outcomes of these studies have shown that DA makes teaching much more effective and comprehensible, and DA models and approaches have a crucial role to play in teaching

and assessing. In spite of the positive effects of DA in language teaching, these studies lack in linking DA to psychological attributes that might influence the learning process. The studies done on DA consider DA as a general term without focusing on the application of DA models. Moreover, the review of the related literature suggests that there is still a paucity of research on the relationship between DA models and traits such as writing apprehension and writing self-efficacy. To fill the existing gaps, the present study aimed at applying DA models, specifically, Carlson and Wiedl's TLA, Buddoff's LPMA, and IMLE and their probable effects on writing apprehension and writing self-efficacy.

Method

Design of the Study

This study employed a quasi-experimental 'pretest-posttest-control group' design. The reason why the design was not truly experimental is that, although the assignment of the groups to different treatment conditions was random, the initial selection of the participants was not done randomly.

Participants

The study involved 302 female EFL learners of English who had completed their pre-intermediate level on the basis of their performance on Preliminary English Test (PET), as a placement test, who were studying at three high schools in Tehran. The range of the participants' age was from 16 to 19. Their selection was done through convenience sampling based on availability. They were assigned to four groups, three treatment groups and one control group, with Buddoff having 77, Carlson and Wiedl's having 68, IMLE having 76, and the Control group having 81 participants. Each of the mentioned groups was randomly assigned to one of the treatment conditions.

Materials and Instruments

In this study, three instruments were employed: PET, Daly and Miller's Writing Apprehension Test (WAT), and the Questionnaire of English Writing Self-efficacy (QEWSE). They are explained in the following sections.

Preliminary English Test (PET)

PET, a B1 Preliminary, formerly known as Cambridge English, is one of the Cambridge English Qualifications that shows the learners' mastery of basics. The participants were homogenized based on their proficiency through the administration of a version of PET. PET consists of 70 items with four sections of language skills. The time allotted to assess the overall language skills is about two hours and 20 minutes. The time allotted to the subskills is as follows: reading 45 minutes, writing 45 minutes, listening 35 minutes, and speaking 10-12 minutes. It includes two test formats of computer and paper-based; the paper format was used in this study. PET is a standardized test of high reliability and validity. The Cronbach alpha reliability of the test has been reported to be 0.96 (Cambridge English Research Group, 2022).

Daly and Miller Writing Apprehension Test (WAT)

One of the main data collection instruments of the current study was Daly and Miller's (1975) Writing Apprehension Test. WAT includes 26 items using a Likert-type scale with five choices. To determine learners' scores, first, the researchers added up all point values for positive statements (PSV); they did the same procedure for all point values for negative statements (NSV). Then, following the guidelines of the designers, the researcher placed each learner's score in the following formula to compute the participants' writing apprehension (WA) score: WA = 78 + PSV-NSV

The range of scores on WAT varies from 26 to 130. Those who score between 26 and 59 are categorized as high writing anxiety level learners, those scoring 60-96 as moderate and those scoring 97-130 as low writing anxiety students. The internal consistency of the questionnaire in the context of this study was checked, and the Cronbach's alpha coefficient was .86.

Questionnaire of English Writing Self-efficacy (QEWSE)

Sun et al. (2022) designed a questionnaire related to writing self-efficacy. QEWSE contains 27 statements on a seven point Lickert scale ranging from 1) I cannot do it at all, to 7) I can do it well. Very high levels of internal consistency have been reported for QEWSE, with Cronbach's alpha indices as high as .94 (Sun et al. 2022). Nevertheless, Cronbach's alpha was estimated in the context of this study, which turned out to be .92.

Materials

To familiarize students with narrative writing, they were introduced to some short story books, such as 'Short Stories in English for Beginners' and 'Short Stories in English for Intermediate Learners' by Richards (2019). Moreover, the main materials used in the present study were the course books 'Vision 1, 2 and 3', which were taught as the English books for the 10th, 11th and 12th graders.

Procedure

First, the participants were selected through convenience sampling based on availability. To ensure the homogeneity of the participants, the study began with the administration of a PET. The participants were pre-intermediate learners at three high schools in Tehran. Each group of students was randomly assigned to a different treatment condition. Group 1 received instruction through Budoff's LPMA, Group 2 through Carlson and Wiedl's TLA, and Group 3 through IMLE. The fourth group acted as a control group, and received conventional treatment.

The participants received both questionnaires before the treatment as pretest. After that, the treatment was given for 20 sessions over four months. The treatments were those mentioned models of DA, and all of them included pretest, treatment, and posttest; however, contrary to the experimental groups, the control group received conventional treatment. The details of how each group was treated are explained in the following paragraphs:

The first group was instructed using Budoff's LPMA. According to Poehner (2008), the concept of Budoff's LPMA revolves around the notion that cognitive abilities are dynamic and not static, as Budoff's work suggested that learners respond in different ways to the mediation

phase. Budoff grouped participants by their pretest and posttest scores, indicating that training has different benefits for different individuals. It means that two students who perform equally on the pretest may act in a different way on the posttest, or vice versa. He suggested the following three grouping of individuals: 'high scorers' who performed well on the initial pretest; 'gainers' who performed well after training; and 'non-gainers' who performed poorly on both the pretests and posttests.

The Budoff model was assumed to be time-consuming. In each session, 30 minutes of the class time was devoted to work on writing. The writing style that the mediator chose was narrative writing. In this approach, a mediation phase is sandwiched between a non-dynamic pretest and posttest. In each session, the mediator gave a topic to the students. While the students were thinking about the topic and writing it down, the teacher, as a mediator, started to sandwich a mediation phase to assist students to write more easily and comfortably. The teacher used some prefabricated procedures, such as elaboration, explanations, recommendations, and prompts to facilitate the students' writing. Here, the purpose was to raise the learners' awareness about writing. Some students had problems with writing down their ideas, and how to continue them step by step. The teacher gave them a writing prompt like a question, statement, picture, etc. to center and guide their writing content.

The second group was exposed to Carlson and Wiedl's TLA. Based on the principles of this approach, the examiner employed standardized hints and asked learners to think aloud and verbalize their reasoning after their responses whether the response was correct or incorrect. In this way, the examiner was aware of learners' thought processes and could better assess the difficulties during the learning process where problems occurred during task solution. These verbalization and thinking aloud acted as a means for intervening in learners' thinking, which led and encouraged them to approach a task in a particular way.

In the third group, the students were taught through the IMLE. The mediator noticed learners' responses to mediation and, based on this responsiveness, made changes accordingly. The mediator aimed at realizing learners' potential for cognitive change. To do so, the mediator helped them to change during assessment. In IMLE , 11 attributes are proposed; for the purpose of the current study, the examiner applied the following three attributes: 1) Mediation of feelings of competence: by offering many forms of assistance to learners to guide them successfully to complete a task that was previously perceived as challenging and explaining to them the meaning of their success, 2) Mediated sharing behavior: the mediator communicates to learners in a forthcoming task, when simultaneously the mediator tries to elicit learners' feelings, and 3) Mediation of challenge: the search for novelty and complexity: the mediator attempts to help students with an activity they have already mastered, but cannot generate feelings of accomplishment. Here, MLE tasks targeted what learners were not yet capable of doing independently. The more the mediator applied these attributes, the more intensive the mediation was.

In the fourth group (control group), the learners were instructed through conventional instruction. Hence, the participants did not have a mediational phase and experienced no mediation. That is, the teacher explicitly offered instruction to the learners.

In the final treatment session, the two questionnaires were administered as the post-tests. Finally, the collected data were summarized and prepared for statistical analysis.

Data Analysis

In the present study, both descriptive and inferential statistics were employed to address the research questions and analyze the obtained data. Descriptive statistics were used to summarize the participants' performance on the pretests and posttests. In order to answer each research question, a one-way analysis of covariance (ANCOVA) was used.

Results

In the present study, the research questions were addressed by using one-way ANCOVA, which assumes normality of data, homogeneity of variances of the groups, homogeneity of regression slopes and linear relationship between the covariate (pretest) and the dependent variable (posttest). To check the assumption of normality, the ratios of skewness and kurtosis over their standard errors were checked, and they were lower than 1.96, suggesting that the data did not show any significant deviation from a normal distribution. Earlier, it was mentioned that both questionnaires had high reliability indices (WA= .86, WSE= .92), ensuring a reliable measurement of the traits.

The First Research Question

The first question aimed at determining if Buddoff's LPMA, Carlson and Wiedl's TLA, IMLE, and conventional instruction were differentially effective on EFL learners' writing apprehension. A one-way ANCOVA was used to compare the means scores of the four groups on the posttest of writing apprehension after controlling for the effects of their writing apprehension as measured through the pretest.

The first step in using ANCOVA is to assume that the correlation between the dependent variable (posttest of writing apprehension) and the covariate (pretest of writing apprehension) is linear. To check this assumption, a scatterplot was created, and there was no evidence of a curvilinear relationship between the mentioned variables for the four groups. The second step is to assume homogeneity of regression slopes. Given the non-significant interaction between the pretest (covariate) and the independent variable (types of treatment) ($F (3, 294) = 15.05$, $p > .05$), it was concluded that the assumption of homogeneity of regression slopes was met. The final assumption of one-way ANCOVA is that group variances should be homogeneous. Although the results showed that the assumption of homogeneity of variances was not retained ($F (3, 298) = 4.377$, $p < .05$), there was no need to worry about the violation of this assumption because it can be ignored if sample size in each group is equal to or more than 30, as was the case in this study.

After checking the assumptions, the scores of the four groups were compared. Table 1 shows the descriptive statistics for the four groups on the pretest and posttest of WA. Based on these findings, it can be observed that the IMLE group had the highest mean on both the pretest and posttest of WA. This was followed by the Carlson and Wiedl's, Buddoff and Control groups.

Table 1. *Descriptive Statistics for Writing Apprehension*

Group	Pretest			Posttest		
	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Control Group	76.64	15.91	81	92.91	16.39	81
Buddoff	74.92	13.13	77	101.67	12.35	77
Carlson and Wiedl's	74.10	15.58	68	103.79	12.10	68
IMLE	53.40	11.84	76	112.52	8.29	76
Total	69.78	17.06	302	102.53	14.50	302

The main output of one-way ANCOVA ($F(3, 297) = 48.709$, $p < .005$, partial $\eta^2 = .330$, representing a large effect size) (Table 2) showed notable differences among the four group means on the posttest of writing apprehension after controlling for the effect of the pretest. In addition, the covariate was also statistically significant and accounted for 11.7% of the variability in the dependent variable.

Table 2. *Tests of Between-Subjects Effects for Writing Apprehension*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	20887.052[a]	4	5221.763	36.541	.000	.330
Intercept	78612.199	1	78612.199	550.110	.000	.649
WApreT	5637.226	1	5637.226	39.448	.000	.117
group	20881.982	3	6960.661	48.709	.000	.330
Error	42442.117	297	142.903			
Total	3238267.000	302				
Corrected Total	63329.169	301				

a. R Squared = .330 (Adjusted R Squared = .321)

The results of post-hoc comparison tests (Table 3) showed that all the experimental groups performed better than the control group. Moreover, the IMLE group performed better than the other two groups. Besides, the Buddoff group outperformed the Carlson and Wiedl's group.

Table 3. *Post-Hoc Comparisons for Writing Apprehension*

(I) Group	(J) Group	Mean Difference (I-J)	Sig.	95% Confidence Interval for Difference	
				Lower Bound	Upper Bound
Control Group	Buddoff	-9.288*	.000	-13.036	-5.540
	Carlson and Wiedl's	-11.658*	.000	-15.535	-7.781
	IMLE	-26.725*	.000	-31.093	-22.356
Buddoff	Carlson and Wiedl's	-2.370	.235	-6.285	1.546
	IMLE	-17.436*	.000	-21.764	-13.109
Carlson and Wiedl's	IMLE	-15.067*	.000	-19.467	-10.667

The Second Research Question

The second question was to find out whether or not there are any significant differences among the effects of the selected DA models and conventional instruction on EFL learners' writing self-efficacy. A one-way ANCOVA was used for this purpose. Like the first research question, the assumptions of ANCOVA were checked prior to using it. The scatterplot showed no evidence of a curvilinear relationship between the pretest and posttest scores on WSE for the four groups. Meanwhile, the non-significant interaction between groups and pretest indicated that the assumption of homogeneity of regression slopes was retained (F (3, 294) = 27.52, p > .05). And finally, the results of the Levene's test (F (3, 298) = 27.309, p > .05) revealed that the assumption of homogeneity of variances was also met.

Table 4 shows the descriptive statistics for the four groups on the pretest and posttest of writing self-efficacy. It can be observed that the IMLE group had the highest mean score on the posttest of writing self-efficacy, followed by the Carlson and Wiedl's, Buddoff and Control groups.

Table 4. *Descriptive Statistics for Writing Self-efficacy*

Group	Pretest		Posttest		
	Mean	Std. Deviation	Mean	Std. Deviation	N
Control Group	97.09	28.31	119.65	40.50	81
Buddoff	70.70	19.70	147.16	14.25	77
Carlson and Wiedl's	72.80	25.45	149.55	17.63	68
IMLE	65.46	18.39	158.30	15.70	76
Total	76.93	26.38	143.12	28.95	302

The main findings of one-way ANCOVA (F (3, 297) = 60.87, p < .005, partial η^2= .38, indicating a large effect size) (Table 5) revealed significant differences among the four group means on the posttest of writing self-efficacy after controlling for the effect of the pretest. Moreover, the covariate was statistically significant and accounted for 16% of the variability in the dependent variable.

Table 5. *Tests of Between-Subjects Effects for Writing Self-Efficacy*

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	96734.26[a]	4	24183.56	46.17	.000	.38
Intercept	310188.89	1	310188.89	592.31	.000	.66
WSEpreT	30532.23	1	30532.23	58.30	.000	.16
group	95644.23	3	31881.41	60.87	.000	.38
Error	155535.69	297	523.68			
Total	6439027.00	302				
Corrected Total	252269.96	301				

a. R Squared = .383 (Adjusted R Squared = .375)

Meanwhile, post-hoc comparisons (Table 6) confirmed that all the experimental groups achieved better results than the control group. Moreover, the IMLE group outperformed the other two groups. Besides, the Buddoff group outperformed the Carlson and Wiedl's group.

Table 6. *Post-Hoc Comparisons for Writing Self-Efficacy*

(I) Group	(J) Group	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Control Group	Buddoff	-27.51[*]	.000	-37.78	-17.23
	Carlson and Wiedl's	-29.90[*]	.000	-40.52	-19.28
	IMLE	-38.64[*]	.000	-48.95	-28.33
Buddoff	Carlson and Wiedl's	-2.38	.940	-13.13	8.35
	IMLE	-11.13[*]	.031	-21.57	-.69
Carlson and Wiedl's	IMLE	-8.74	.157	-19.52	2.03

Discussion

The findings of this study showed that each of the models of DA is more practical than conventional treatment in reducing writing apprehension and improving writing self-efficacy. In accordance with Alsaadi's (2021) work, it was discovered that the nature and effects of DA, as an influential assessment method, keep language learners moving forward.

Furthermore, this result is consistent with the finding reported by Sherkuziyeva et al. (2023), according to whom, DA has a significant effect on reducing EFL learners' writing anxiety. Meanwhile, the findings of a study conducted by Mauludin and Ardianti (2017) revealed that while learners are likely to feel anxious and nervous throughout the assessment process, the application of DA contributes to reducing their anxiety.

Moreover, this result implicitly supports Kumar et al.'s (2024) claim that by using DA, writers can gain a better understanding of their own abilities, strong and weak points, and devise strategies to enhance their writing; it has the power to foster a growth mindset among learners, giving them a feeling that personal abilities can be enhanced through hard work over time.

One justification for this finding can be Kao's (2020) claim that the mediator tries to provide learners with hints and prompts, and DA identifies strategies that learners use and looks for methods to develop these strategies. Besides, DA enables teachers to make recommendations for teaching based on the evaluation of learners' developmental potential.

Likewise, our findings go along with those of Rahmaty and Zarei (2021), who showed that both interactionist and interventionist DA reduced foreign language anxiety. Furthermore, this finding is in line with the findings of Mauludin and Ardianti (2017), who showed that the implementation of DA aids learners in reducing their writing anxiety. Further support for this finding comes from Afshari et al. (2020), Kumar et al. (2023) and Rashidi and Bahadori Nejad (2018), who argue that DA leads to a boost in students' writing self-efficacy.

Human learning involves mediation. Mediation is the process of developing human cognition, which leads to more self-regulation (completing tasks independently) than an environment that encourages other-regulation. The assumption is that DA is a model for integrating assessment and instruction, which leads to a transition toward an emergent future. Interaction between students and teachers during the mediation phase had a significant influence on their writing ability and assisted them to work toward self-regulation.

In addition, the findings showed that IMLE was the most significant model of DA in decreasing writing apprehension and increasing writing self-efficacy. This result is in agreement with that of Zarei and Khojasteh (2020), who concluded that IMLE is the most efficient model among the other models of DA.

Besides, the findings showed no significant difference between IMLE and Carlson and Wiedl's TLA in writing self-efficacy. This result seems to accord with that of Rahmaty and Zarei (2021), who observed that although they both had significant effectiveness over the treatment condition, the interactionist and interventionist models of DA did not differ significantly from each other. They asserted that DA can help reduce anxiety in a foreign language setting, regardless of its model.

Likewise, in terms of writing self-efficacy and writing apprehension, there was no notable difference between Buddoff's Approach and Carlson and Wiedl's TLA. Zarei and Khojasteh (2020) provided additional support for this finding, suggesting that IMLE was superior to other DA models, but there was no notable difference between the other models. Nevertheless, the findings of this study seem to contradict Zarei and Khojasteh (2020), who confirmed that Carlson and Wiedl's model was superior to Buddoff's model, whereas we found no noticeable difference between the two models.

Conclusion

Based on the obtained results, it is concluded that the three models of DA, regardless of their name, are generally preferable to conventional instruction with regard to reducing writing apprehension and improving writing self-efficacy.

Besides, according to Zarei and Khojasteh (2020), cooperative learning can lead to a decrease in learners' stress levels and anxiety. They mentioned that a sense of accomplishment can be achieved through cooperative learning. In DA, instructors are not the authority and always try to provide learners with a feeling of efficacy and accomplishment, and the class is learner-centered. In other words, DA can be considered as a semi-cooperative learning tool. Therefore, it can be concluded that DA can reduce the levels of anxiety in learners.

The way Carlson and Wiedl's TLA, Buddoff's LPMA, and IMLE mediate between students and teachers is what sets them apart from each other. The instructor in all the models is more like a friend than an authority in the classroom. Consequently, it is crucial for teachers to recognize learners' needs and opt for the most advantageous model that can affect different aspects of a language in different ways and should be eclectic about selecting the best model.

In conclusion, the primary focus of DA is on the process of learning, not its final product. By using DA models, we can assist learners in comprehending and producing tasks of writing more efficiently and effortlessly, and assess and instruct them at the same time. Contrary to the models and approaches that emphasize learners' final outcome, in DA learners have a less stressed environment, and this can reduce the anxiety of students. Learning through DA models can enhance learners' comprehension and production of other aspects of language. According to the sociocultural theory, human learning can be seen as a kind of mediated learning. In the DA learning environment, teachers help learners to solve their problems through mediating. It means that employing mediation assists the cognitive development of humans from other regulations such as teacher's assistance. Moreover, learners gain control over the use of language. Therefore, based on our findings, IMLE turned out to fulfill almost all the above-mentioned features, thus enabling both tutors and learners to benefit from it more than the two other DA models, namely Buddoff's LPMA and Carlson and Wiedl's TLA.

Various stakeholders, such as material developers, syllabus designers, and learners can find these findings useful and relevant. EFL learners can develop their writing skills more precisely by learning about the ups and downs of learning writing if they are given more relevant interventions. By acknowledging their own affective barriers, learners can strive for higher levels of learning. Moreover, the results of this study may have implications for instructors in enhancing the efficiency of their instruction and evaluation simultaneously. Additionally, the

findings of the present study can assist curriculum designers in designing course books that conform to DA models and approaches to enhance the effectiveness of teachers' assessment and instruction.

Finally, the findings of the present research may extend the literature on the effectiveness of DA models in reducing writing apprehension and improving the writing self-efficacy of EFL learners. In fact, these findings shed light on a novel perspective to the current empirical literature on the impacts of DA models on reducing writing apprehension and improving writing self-efficacy since previous studies on implementing DA have given little priority to the relationship between DA and writing apprehension and writing self-efficacy.

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