Models of Dynamic Assessment Affecting the Learning of English Lexical Collocations

Research Article

Abbas Ali Zarei*[1]
Amin Khojasteh[2]

Abstract

Given the importance of collocations, different attempts have been made to facilitate their learning. One such attempt has been the the application of dynamic assessment models. This study compared the effectiveness of three DA models including Budoff's Learning Potential measurement, Group Dynamic Assessment, and Intensive Mediated Learning Experience with conventional instruction on the learning of English lexical collocations. One hundred-twenty male students studying English at Allame Helli 5 High School were selected through convenience sampling. A researcher-made collocation comprehension test, containing 100 items, was used as the pre-test. The students were divided into four intact groups. Each group received a different treatment for 16 sessions. A multiple-choice test and a fill-in-the-blanks test, each consisting of 30 items, were used as the post-tests. Analysis of data using one way ANOVA showed that the

Intensive-MLE model was more effective than the other models on both comprehension and production of English lexical collocations. The findings may have useful implications for teachers, students, instructional materials designers, and language assessors.

Keywords: Budoff's learning potential measurement, dynamic assessment (DA), group dynamic assessment (G-DA), intensive mediated learning experience (Intensive-MLE), lexical collocations.

Introduction

The importance of the role that collocations can play in the use of language has been shown over the years. Shin and Nation (2007) point out that the proper use of collocations helps learners to develop language fluency and nativelike language use. Fan (2009) argues that because collocations are an essential element of language, they should be included in second language instruction programmes.

For collocations to be learnt effectively, we may need careful methods of teaching and assessing. In this regard, Poehner (2008) believes that in Dynamic Assessment (DA), teaching and assessing are an integrated activity. DA has its several models which may be helpful for effective instruction of language components. Among the prevailing models are Buddoff's Learning Potential Measurement Approach (LPMA), Group Dynamic Assessment (G-DA), and Intensive Mediated Language Experience (Intensive-MLE), the potential effect of which we examined on learning collocations.

DA is grounded on the concept of Zone of Proximal Development (ZPD). In this regard, Lantolf (2006) argues that the distance between learners' unassisted level and assisted levels is known as the ZPD. DA promotes performance through mediation (Alavi & Taghizadeh, 2014).

The first model to be discussed is the Learning Potential Measurement of Budoff, in which it is believed that if a child is provided with information about a test, the impact of background on their test performance might be reduced (Sternberg & Grigorenko, 2002). Sternberg and Grigorenko (2002) proposed two formats of DA procedures - sandwich and cake formats. In the former, a 'sandwiched' phase of mediation is placed after a pretest and before a posttest.

The next model is Group Dynamic Assessment (GDA). Grounded in the sociocultural theory (SCT) of Vygotsky, GDA is claimed to have the capacity to capture learners' ZPD in groups (Poehner & Lantolf, 2011). According to Poehner (2009), GDA consists of two different approaches: concurrent and cumulative. Based on the concurrent approach, though mediation is provided for an individual learner, the exchange that is initiated by the first interactant in the form of a question or comment can create an occasion for another's contribution. In cumulative GDA, students are primary interactants, interacting with their teacher. Although both concurrent and cumulative approaches are of the same

level of importance, for the purpose of this research, we just focused on the cumulative approach.

Mediated Learning Experience (MLE) is the last model to be discussed. It is based on one of the broad schools of thought in DA known as Interactionism. Feuerstein et al. (1988) enumerate eleven attributes which differentiate between MLE and other models of interaction. In Intensive MLE, the assessor provides learners with as much mediation as they can, and an adult mediator performs the task along with the learner, all the time noting the way the learner responds to mediation and makingchanges when needed (Poehner, 2008).

Previous studies have already dealt with DA. However, to the best knowledge of the present researchers, little, if any, research has considered the comprehension and production of lexical collocations based on the application of the above-mentioned DA models. Accordingly, this study focused specifically on the effect of the mentioned models on the comprehension and production of lexical collocations. It is aimed at answering these research questions:

1) Are Budoff's Learning Potential measurement, G-DA, Intensive MLE, and conventional instruction differentially effective on the comprehension of English lexical collocations?

2) Are Budoff's Learning Potential measurement, G-DA, Intensive MLE, and conventional instruction differentially effective on the production of English lexical collocations?

Literature Review
Collocation

The inevitable contribution of collocations to vocabulary development is of little doubt (Nation, 2001). According to Lewis (2000), collocations are phenomenal, because they involve the natural go-togetherness of words in context. The co-occurrence is based on a regular basis, rather than being based on a random basis. Based on linguistic and lexicographic literature, collocations are considered as language entities which are different from free word combinations and idioms.

According to Siepmann (2005), we can approach collocations from three main perspectives including the frequency-based, the semantically-based approach, and the pragmatic approaches. He claims that statistically significant co-occurrences of words are of interest in the frequency-based approach, whereas the semantically-based approach sheds light on the lexical relationship between the elements of collocations. Meanwhile, based on the pragmatic approach, the syntactic anomalies of collocations are due to the pragmatic regularities.

According to Nesselhauf (2003), for language learners, collocations may stand for great sources of difficulty. Hence, finding better ways of effective teaching of collocations is of great concern. This problem has been addressed

by several researchers. In one such attempt, Bahns and Eldaw (1993) investigated the way German learners of English used collocations and concluded that EFL learners lack an adequate knowledge of English collocations.

In a Croatian EFL context, Takač and Lukač (2013) investigated the role of Adjective-Noun (AN) collocations in language learning. The results showed that certain adjectives (*big*, *strict, good*, *bad, different, negative, important)* were overused, whereas specific adjectives were not used (e.g., *a responsible person*). They just used highly frequent collocations which were general-use adjectives.

Considering the Iranian EFL context, Zarei and Koosha (2002) investigated the problems that Iranian advanced learners had in producing English lexical collocations. Their examined the collocational errors of high proficiency level Iranians. They came up with five problematic patterns of collocations. They also observed that the production of English collocations was demanding for Iranian advanced learners of English.

Such results imply that we are in need of effective ways of teaching and assessing collocations. The reserachers of this study were interested in finding out whether, and to what extent, applying models of Dynamic Assessment (DA) can influence the learning of lexical collocations. For manageability reasons, we have focused on three prevailing models of DA, namely, Budoff's LPM, G-DA and Intensive MLE.

Assessment

A distinction is normally made between two broad terms, namely, assessment and testing. Assessment means informal data collection about students' knowledge. Assessment involves collecting information through several informal information gathering methods. Moreover, assessment is not time and context constrained. Testing, however, is a formal and standardized context through which students' performance on a specific task is scored based on some predetermined set of rules (Law & Eckes, 1995).

In addition, a distinction is also made between traditional testing and alternative assessment. In traditional testing, tests play the role of a means of estimating learners' competence, and interpretation of learners' performance is solely based on scores (Rezaee et al., 2013). On the other hand, alternative assessment is a reaction to traditional testing and is more focused on student-centered forms of assessment, and the main focus is on the process of learning (Hamp-Lyons, 1997).

According to Matsuno (2009), in contrast with traditional testing, alternative assessment concentrates on the process of learning, and assessment is at the service of promoting student learning. The purpose of teaching and the desired outcomes are of great importance in choosing from among different alternative assessment techniques.

According to Law and Eckes (1995), alternative assessment provides teachers with an opportunity to understand their students' weaknesses and strengths in different contexts. Alternative assessment has been claimed to have many advantages. It carefully evaluates and analyzes instruction (Ghanavati Nasab, 2015).

Amongst the models of alternative assessment, it seems that DA plays a key role in fulfilling the aim of assessment alternatives. Therefore, in line with the objectives of this study, we focused on DA and applied three of its models to the teaching of lexical collocations.

Dynamic Assessment

According to Lunt (1993), traditional testing aims at measuring actual development, which is often misinterpreted as being a measure of potential. The goal of DA is to see how a learner's learning strategies can be improved and how this improvement can be guaranteed.

Poehner and Lantolf (2003) believe that higher forms of thinking emerge from our social and cultural interactions with others and with physical things. Roosevelt (2008) states that based on Vygotskian perspective, trying to help learners to keep their own ZPDs is at the heart of education. Lantolf and Thorne (2006) believe that integration of mediation into the assessment process determines whether or not a procedure is dynamic.

In DA, we deal with those kinds of interactions which are beneficial for learners' development. In this regard, Lidz and Gindis (2003) believe that not all interactions are the same, and we have to distinguish between those interactions that improve learners' development and those that do not. According to Poehner (2008), DA can be looked at from two perspectives. The first one is interventionist and the second one is interactionist.

Poehner (2008) states that in interventionist DA, standardized mechanisms of assistance are used to produce quantifiable results, based on which we can make comparisons between and within groups. He believes that interactionist type of DA is concerned with the development of learners without much attention to the effort required. In the interactionist approach, what provides assistance is actually the interaction that happens between the mediator and the learner. It is for this reason that the learner's ZPD is of great importance (Lantolf & Poehner, 2005).

Amid the prevailing models of interventionist DA are Guthke's Lerntest Approach, Budoff's LPM, Brown's Graduated Prompt Approach, and Testing-the-Limits Approach of Carlson and Wiedl (2000). The concern of Budoff's work was the extent to which standardized measures of intelligence produce valid results (Poehner, 2008). Poehner argues that the mediation phase in this approach is standardized, and it includes instruction in problem solving strategies. Poehner (2005) states that according to Budoff, the sign of learning potential is the degree of positive change that learners experience as a result of in-

struction. Differences in individuals' results, which may be due to different ways of training, are not taken into account. He also argues that in Budoff's approach to DA, optimizing standardization of procedures is significant, and thus mediators cannot depart from the standardized procedures to help a particular learner.

According to Elkonin (1998), interaction is a source of development, and Budoff's claim about how much environment can influence test performance and how much of the performance is because of the learner is against Elkonin's claim of ZPD. Therefore, we may say that the views of Budoff are, in fact, completely rooted in rather traditional viewpoints to psychological measurement.

Guthke (1993) argues aginst the idea of a single ZPD that pertains to one's general intellectual potential or learning capability; instead, he claims that there are several ZPDs pertaining to different domains. Guthke and his colleagues' work was built upon Budoff's work, and they developed their own model of DA, which they called Lerntest and later as Leipzeig Learning Test (LLT).

In contrast to Budoff's static administration of tests, in Guthke's approach, we are allowed to assist learners during the test itself. According to Guthke and Beckmann (2000), the aim of Guthke was to include content areas like language aptitude in DA procedures, and separate DA procedures from intelligence testing. They also believe that in early versions, a single type of assistance was provided for a learner who had given an incorrect answer. If the learner still produced the incorrect response, the teacher would reveal the solution and move on to the next item.

Poehner (2008) believes that the Testing-the-Limits Approach is closely related to information-processing theory, which is in sharp contrast with other DA models that are based on SCT. He states that their work is similar to Budoff's. Carlson and Wiedl (2000) believe that the reason why some learners are disadvantaged is not their cognitive impairment, but their different backgrounds, and that it is through changing testing conditions that we can make the learners' backgrounds the same. Carlson and Wiedl aimed at choosing among those procedures that lead to improved performance, and specifying the level of usefulness of each procedure for each kind of learner (Sternberg & Grigorenko, 2002).

According to Poehner (2005), Carlson and Wiedl (2000) offered two techniques of intervention: providing feedback and verbalizing cognitive processes. In contrast to other DA approaches, this approach is in favour of interrupting the administration of the test in order to provide learners with feedback and to get learners to verbalize rather than just presenting an intervention phase (Poehner, 2005).

Brown's Graduated Prompt Approach has much in common with Guthke's LLT. In this approach, a list of standardized hints and prompts is available which can be applied from most to least implicit (Poehner, 2008). Transfer tasks make this model a unique one. In other words, in this procedure, we first

teach examinees problem solving techniques based on which they find and apply a set of principles. When students are able to solve problems independently and become proficient in doing so, the next step is to figure out the capability of individuals in transferring their new ability to novel problems (Poehner, 2005).

Interactionist DA may be regarded as a process of improving the works done in interventionist DA. By interactionist DA, we mostly mean Feuerstein's MLE. In this approach, we interpose ourselves between the task and the child. By doing so, we can both assist the child and assess his/her reaction to assistance (Poehner, 2008).

According to Feuerstein, in Intensive MLE, we provide learners with as much mediation as possible in a task and are cautious about how the learners respond to mediation. The goal is to understand if learners have the potential to change cognitively during the assessment process (Poehner, 2005).

The next model is Group Dynamic Assessment (G-DA). According to Petrovsky (1985), a group is an association of people who have been brought together by chance and have no particular bond that connects them together other than time or, perhaps, space. According to Vygotsky (1998), it is possible to construct a group ZPD when we allow each individual to negotiate for mediation with other individuals.

Poehner (2009) points out that in education, the fact that social activities and development of the mind are not separable is of much importance. Simply put, there is no need for teaching to wait until learners are ready. Still, it may have a role in assisting learners to come up with new developmental views. In addition, he believes that one-to-one and group-based DA procedures are based on the general principles of mediation, but they are different in that G-DA has to pay attention to group's ZPD.

There are two approaches to Group DA; one of them is concurrent and the other one is cumulative Group DA. In the former approach to Group DA, the teacher normally interacts with learners as a whole group. However, in cumulative Group DA, there are a number of one-on-one interactions. In other words, each individual is a primary interactant and interacts directly with the teacher. (Poehner, 2009).

Previous Studies on DA

Several studies have been conducted on various aspects of DA. A case-study was conducted by Nassaji and Cumming (2000) in which 95 interactive dialogue exchanges between a 6-year-old Persian-speaking English learner and his Canadian teacher were analyzed. The results showed how scaffolding helped the teacher and the student to construct a long-term written conversation. In this study, the importance of language as a unified, interactive phenomenon was highlighted.

In a different study, Poehner (2008) observed that mediation lead to an improved understanding of various language aspects. Likewise, Ableeva (2008)

concluded that employing DA enables both teachers and learners to discover and solve potential sources of difficulty that learners are likely to experience in their listening and reading comprehension classes.

Davoudi and Ataei Tabar (2015) investigated the effect of using a computerized dynamic test of writing (CDTW) on L2 writing performance of Iranian EFL students. They found that the students' performance in four major sub-skills of writing improved. Moreover, Lantolf and Poehner (2011) reported the development of students' grammar ability after the application of DA. In still another study, Sadeghi and Khanahmadi (2011) investigated the contribution of dynamic assessment to EFL learners' grammar development. The finding of their study was indicative of the potenatial value of instruction based on DA, particularly when it came to the teaching and learning of L2 grammar. A case study done by Xiaoxiao and Yan (2010) showed that dynamic assessment has the potential to improve learners' performance in a writing course. In a similar study by Ebadi and Saeedian (2016), the effectiveness of computerized dynamic assessment (CDA) on reading comprehension was reported. Similar results had been reported earlier by Naeini (2014), as well as Pishghadam et al. (2011). These findings were later confirmed by Ebadi and Saeedian (2016).

Mardani and Tavakoli's (2011) findings confirmed the effectiveness of the interactionist model on EFL students' reading comprehension. In another study, Ajideh and Nourdad (2012) attempted to find out if the application of DA has any meaningful effect on the reading comprehension of learners in an EFL context. They, too, concluded that teaching through DA was beneficial for improving students' reading comprehension. Birjandi et al. (2013) also confirmed the practicability of implementing DA procedures in metacognitive awareness of reading strategies.

Tavakoli and Nezakat-Alhossaini (2014) carried out another study, the purpose of which was to examine the effect of applying corrective feedback by using DA techniques on learners' understanding of reported speech. The findings revealed that applying DA procedures in combination with error correction was more effective in improving the way learners understood and produced the structures of reported speech than error correction alone. In another study on the effectiveness of DA on improving learners' grammatical knowledge, Malmeer and Zoghi (2014) reported that, compared to children, DA was more effective on adult learners' grammar development.

Hessamy and Ghaderi (2014) investigated the effectiveness of DA procedures on improving the vocabulary knowledge. They concluded that DA can have the role of a constructive supplement to the conventional testing procedures. In one of the few studies on collocatins, Hashemi and Eskandari (2017) investigated the effect of DA on EFLlearners' learning of both congruent and incongruent collocations. The results suggested that the students in the experimental group, who had received instruction through dynamic assessment strategies, experienced a considerable improvement in their collocational knowledge.

Over the years, many studies have shown the importance of innovative models of assessment. Amongst those models, DA plays a pivotal role, and it has a variety of models. Nevertheless, the literature suffers from a paucity of research with regard to the application of DA models to each language component. The objective of this study was to help brifge a part of the existing gap and to compare the effectiveness of DA models, specifically Buddoff's LPM, G-DA and Intensive-MLE on the productive as well as receptive knowledge of lexical collocations.

Method
Participants

The final number of the participants of this study included 120 (in four groups of 30 students) male Iranian EFL learners, studying English in Allame Helli 5 high school. They were selected through convenience sampling based on availability. Indeed, the participants were selected in the form of four intact high school classes. The mean age of the participants was 17.

Instruments

The following instruments were employed for the purpose of data collection in this study:

Preliminary English Test (PET). In order to make sure that all the students were almost at the same level of general language proficiency, a version of PET (2010) was administered. This test includes 70 items in four sections. The time allotted for reading and writing sections was 90 minutes;in addition, 35 minutes were allocated for the listening section, and 10-12 minutes for the speaking section. Although PET is a standardized test the reliability and validity of which are already established, because it was being used in the new context of this study, its reliability was re-estimated using the KR-21 formula, and the reliability index turned out to be .81.

The Pre-Test of Collocations Comprehension. The researchers developed and administered a pre-test to check the comprehension of collocations. It was in multiple choice format and contained 100 items. Each of the items included a stem in which an element of a collocation was missing, and the words which completed those elements properly were available in the choices. The students were to choose the correct choice. An hour was allocated to the administration of this test. The KR-21 reliability of this test was estimated to be .79. Also, its validity was confirmed through expert judgment. It was shown to three professors in the field, and they agreed that the test was suitable for checking students' comprehension of collocations. It should be noted that the content of this test was based on Mccarthy and O'Del (2005).

Collocation Comprehension Post-test. A researcher-made collocations' comprehension test was administered as the post-test. It contained 30 items in multiple choice format. Those collocations which were correctly answered by more than 10% of the students were excluded from the post-test. In each item, an element of a collocation was missing and the words which completed those elements properly were given in the alternatives.

Example

A group of wolves together is called a … of wolves.

a. flock   b. herd   c. pack   d. bunch

The students were required to choose the correct alternative. It took almost 15 minutes to administer this test. The KR-21 reliability of this test was estimated to be .80. Also, its validity was confirmed through expert judgment.

Collocation Production Post-test. A researcher-made collocations production test was administered as the post-test to gauge the participants' productive knowledge of English lexical collocations,. This test consisted of 30 items in fill-in-the-blanks format. Each item included a stem that contained one of the target collocations. An element of each collocation was missing in each item. The students were to fill the blanks with their own words. In this test, the Persian equivalents of the target collocations were provided.

Example:

The country has a/an … economy that is badly in need of repair (اقتصاد بیمار).

The students were given 20 minutes to respond to the items of this test. The index of the internal consistency of this test was estimated to be .70, and three experts of EFL confirmed its validity.

Procedures

Initially, 160 students with the above-mentioned characteristics were selected through convenience sampling. To homogenize the students, the researchers administered the version of the PET described before. Those students whose score was extreme (over a standard deviation below or above the mean score) were not included in any statistical analysis. After homogenizing the students, 120 students remained out of 160. Then, each intact class was randomly assigned to a different treatment condition. Group 1 received instruction through Budoff's Learning Potential measurement, group 2 through Group Dynamic Assessment (G-DA), and group 3 through Intensive Mediated Learning Experience (Intensive MLE). The fourth group served as a control group, receiving conventional treatment.

Before starting the treatment, the pretest of collocations comprehension was given to the students in all the groups to ensure that the participants did

not know the target collocations beforehand. For treatment, all the four groups participated in 16 class sessions of the English course. As a part of the class sessions, English lexical collocations were taught to all the four groups. However, while each of the three experimental groups was taught through one of the DA models, the control group was exposed to conventional instruction.

In the first group, students were taught using Budoff's LPM. In this model, the mediation phase of teaching was important. Here, mediation was similar to treatment. What was different was that the teacher intervened whenever needed, and by doing so, made the collocations easier to understand. In each session, 30 minutes of the class time was allotted to work on 6 target collocations. In each session, we gave a collocation test. While students were taking their tests, the teacher started to sandwich a mediation phase to help them answer more easily. During the mediation phase, the teacher used some prefabricated procedures like explanations, suggestions and prompts to help students achieve the correct answer for each question on their own. The goal was to help the students to notice the correct use of collocations. For example, one of the students had problem with the collocation '*burst into laughter*'. As mediation, the teacher said *what is the meaning of laughter, Ali?,* and the student answered 'خنده' in Persian. The teacher continued the mediation by saying that *'in Persian, for '*خنده*' we say '*ژد زیر خنده*', Am I right?* He continued the mediation by asking *Now, open your dictionary to see what we can use for laughter*. The teacher left the student without giving the answer. The teacher did so about all other collocations.

In the second group, the students were taught using Group Dynamic Assessment (G-DA). G-DA has two versions/approaches: concurrent and cumulative. In this study, we focused on the cumulative approach. In this approach, the teacher provided students, one by one, with mediation prompts until each student achieved the correct answer. For this, a list of standardized prompts was needed. These prompts ranged from implicit to explicit. For implicit hints, we alerted the students that there were mistakes; we also gave them indirect hints about the mistakes. For explicit prompts, we provided the solution. In each session, the teacher gave a collocation test. Because of time constraint, six collocations were included in each test. If a student had a problem, the teacher corrected them with standardized prompts, both implicit and explicit. The prompts in our study were based on what Pohner (2009) provided in his work, and we slightly changed them to make them suitable for our study. The prompts were as follows:

1. Pause
2. Repeat the collocation with a questioning tone
3. Repeat only the part of the collocation that included error
4. Point out a mistake with the collocation, "What is wrong with that collocation?"
5. Refer to the mistake
6. Ask questions that require a choice between two things
7. Identify the correct response
8. Explain why

In the third group, the participants were taught through Intensive MLE. According to Feuerstein et al. (1988), enhancing students' improvement in a flexible way is one of the key features of MLE. In this approach, a list of attributes was used. Being intensive depends on the application of those attributes. In other words, the more the teacher applied the attributes, the more intensive the mediation was. In this study, the mediator used three of these attributes including reciprocity and intentionality, transcendence and meaning mediation.

Through intentionality and reciprocity, the teacher mediated an object or an activity for the students. Mediation was done through transforming the stimulus, making it more salient to the learner, and changing its frequency.

Transcendence was against the idea of teaching to the test. The teacher taught students to do tasks independently. In mediation of meaning, the teacher made students understand meaning through explaining the meaning of each collocation. Not doing so, students would have been left with only a partial understanding of the world around them.

The teacher designed a mediational instrument to show the mediator-learner interactions. The mediational instrument was not prescriptive. In the first session, the teacher distributed the exam papers amongst the students. Then, to fulfill intentionality, the teacher asked each student to think aloud to show his self-strategy. Next, if the student's self-strategy resulted in the correct answer, to fulfill the mediation of meaning attribute, the teacher showed them the importance of their self-strategy by saying motivational sentences like '*you are taking the right path*'. Next, to fulfill transcendence, the teacher asked them to apply that self-strategy for answering other questions.

However, if their self-strategy did not lead to the correct answer, to fulfill reciprocity, the teacher showed the student that he did not know the correct answer, either. In MLE, the student is a co-constructor of knowledge. Therefore, the teacher, with the help of the student, came up with the solution. By helping them to change their way of approaching collocation related questions, the teacher tried to change the way students approached the collocations.

In the fourth group (control group), the students were taught the collocations through conventional instruction. They experienced no mediation. The teacher taught the collocations in his own method. For teaching each collocation, he provided the students immediately with the meaning of the collocations. He did not have a mediational phase in his teaching. That is, the teacher explicitly taught the lexical collocations to the students.

One week after the treatment period, the collocations production and comprehension tests were administered in two separate sessions as the post-tests. It is worth mentioning that the same teacher taught in all the four classes and the researcher administered the tests.

Data Analysis

Different types of statistics were used to analyze the collected data. Descriptive statistics was employed to summarize the participants' performance on the post-tests. The One-way Analysis of Variance (ANOVA) was used to see if the differences among the scores of the four groups on the post-tests were significant.

Results and Discussion
Results

Research Question One. Research question one was about the effects of three DA models and conventional instruction on the comprehension of English lexical collocations. To address this question, first, descriptive statistics was summarized for the collocations comprehension post-test. The results are provided in Table 1.

Table 1.
Descriptive Statistics for the Collocations Comprehension Post-test

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
LPM	30	25.07	2.12	0.39	20.00	29.00
G-DA	30	25.23	2.69	0.49	20.00	29.00
MLE	30	28.27	1.84	0.34	24.00	30.00
Control	30	22.03	2.66	0.49	16.00	28.00
Total	120	25.15	3.21	0.29	16.00	30.00

Before using the One-way ANOVA to compare the participants' scores on the post-test, the assumptions of ANOVA were checked. Table 2 shows the results of checking the assumption of normality of data for the collocations comprehension post-test.

Table 2.
*Results of Normality Test for the Collocations Comprehension Post-tes*t

Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	Sig.	Statistic	N	Sig.
LPM	0.126	30	0.200	0.967	30	0.460
G-DA	0.146	30	0.104	0.939	30	0.084
MLE	0.261	30	0.052	0.843	30	0.054
Control	0.109	30	0.200	0.980	30	0.822

As indicated in Table 2, the distribution of data is normal at %95 confidence level. Furthermore, it was necessary to check the assumption of homogeneity of variances. Table 3 contains the summary of the results:

Table 3.
Equality of Variances Test Results for the Post-test of Collocations Comprehension

Levene Statistic	df1	df2	Sig.	Levene Statistic
Post test	1.622	3	116	0.188

As it is shown in the above table, the assumption of equality of variances is met. Accordingly, the ANOVA pprocedure was used to see if the mean differences among the groups on the collocations comprehension post-test are meaningful. The results of One-way ANOVA are presented in Table 4:

Table 4.
One-way ANOVA Test Results for the Collocations Comprehension Post-test

	Sum of Squares	df	Mean square	F	Sig.
Between Groups	583.233	3	194.411	35.124	0.000
Within Groups	642.067	116	5.535		
Total	1225.300	119		ω^2 = .78	

Table 4 shows significant mean score differences among the groups ($F_{(3,116)}$ = 35.12, P < .005). Meanwhile, the index of the strength of association shows that 78 percent of the observed variability is accounted for by the intervention. To locate the significant mean differences, the pairwise Tukey test was used. The results of the comparisons are shown in Table 5. The Tukey test showed that all the three groups have performed significantly better than the control group. This shows the effectiveness of each of the approaches to DA compared to the conventional treatment on the receptive test of collocations. Moreover, the scores of the MLE group on the comprehension of lexical collocations test are significantly higher than each of the other two approaches. However, LPM and G-DA are approximately at the same level of effectiveness on the comprehension of collocations.

Table 5.
Results of Tukey Post hoc Test for Collocations Comprehension

Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.
LPM	G-DA	-0.167	0.607	0.993
	MLE	-3.200	0.607	0.000
	Control	3.033	0.607	0.000
G-DA	MLE	-3.033	0.607	0.000
	Control	3.200	0.607	0.000
MLE	Control	6.233	0.607	0.000

Research Question Two. The second research question investigated the differences among the effects of Budoff's Learning Potential measurement, G-DA, Intensive MLE and conventional instruction on the production of English lexical collocations. To this end, descriptive statistics was summarized for the collocations production post-test. Table 6 shows the results:

Table 6.
Descriptive Statistics for the Collocations Production Post-test

	N	Mean	Std. Deviation	Minimum	Maximum
LPM	30	24.63	2.57	19.00	30.00
G-DA	30	24.80	3.09	17.00	30.00
MLE	30	28.13	2.05	23.00	30.00
Control	30	21.43	2.67	16.00	27.00
Total	120	24.75	3.52	16.00	30.00

Table 6 shows that the groups have performed differently on the collocations production post-test. Before comparing the group means, the assumption of normality of data for the collocations production post-test was checked. The results are presented in Table 7. The table suggests that the distribution of data is normal.

Table 7.
*Results of Normality Test for the Collocations Production Post-tes*t

Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	N	Sig.	Statistic	N	Sig.
LPM	0.164	30	0.038	0.943	30	0.111
G-DA	0.126	30	0.200	0.972	30	0.598
MLE	0.219	30	0.077	0.837	30	0.053
Control	0.149	30	0.086	0.956	30	0.251

Then, homogeniety of variances was checked. In Table 8, the significance level suggests that there is no violation of this assumption.

Table 8.
Equality of Variances Test Results for the Collocations Production Post-test

	Levene Statistic	df1	df2	Sig.
Post test	1.537	3	116	0.209

Next, the mean scores were compared using One-way ANOVA. The results of the test are given in Table 9.

Table 9.
One-way ANOVA Results for the Collocations Production Post-test

	Sum of Squares	Df	Mean square	F	Sig.
Between Groups	673.900	3	224.633	32.711	0.000
Within Groups	796.600	116	6.867		
Total	1470.500	119		$\omega^2 = .715$	

Table 9 shows a significant difference among the groups ($F_{(3,116)}$ = 32.71, p < .005). Meanwhile, the index of the strength of association shows that more than 71 percent of the observed variability is accounted for by the intervention. To find where the significant differences lie, the post hoc Tukey test was used. The results of the pairwise comparisons are shown in Table 10. The Tukey test indicated that all the three groups have significantly outperformed the control group, suggesting the effectiveness of each of the approaches to DA compared to conventional treatment on the production of English lexical collocations. Moreover, MLE is significantly more effective than the other two approaches. However, no significant difference was found between the effectiveness of Budoff's LPM and G-DA on the production of English lexical collocations.

Table 10.
Results of Tukey Post hoc Test for Collocations Production

Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.
LPM	G-DA	-0.167	0.677	0.995
	MLE	-3.500	0.677	0.000
	Control	3.200	0.677	0.000
G-DA	MLE	-3.333	0.677	0.000
	Control	3.360	0.677	0.000
MLE	Control	6.700	0.677	0.000

Discussion

The analysis of the collected data showed that each of the approaches to DA is more effective than conventional treatment on both receptive and productive knowledge of lexical collocations. This finding implicitly supports Poehner's (2008) finding that DA results in improved understanding of different language aspects. Also, this finding is also compatible with those of Ableeva (2008), who showed that DA enhances the development of comprehension skills among EFL learners. In addition, this finding indirectly corroborates the findings of the studies by Ashraf et al. (2016), Mardani and Tavakoli (2011), Ajideh and Nourdad (2012), and Ebadi and Saeedian (2016), who showed the significant effect of DA on EFL learners' listening and reading comprehension ability. In addition, Malmeer and Zoghi (2014), as well as Tavakoli and Nezakat-Alhossaini (2014) showed the effectiveness of DA on improving learners' grammatical knowledge.

This finding can be justified on grounds that DA leads to students' internalization and understanding of learning materials (Poehner, 2008). That is, as a result of learners' exposure to DA, the learned materials become internalized and better understood, and learners can improve their comprehension ability in comparison with those provided with conventional instruction. Another justification for this finding can be Ableeva's (2008) argument that, as a result of exposure to DA, learners will be able to find out the probable sources of problems that may hinder their comprehension.

The finding that each of the approaches to DA is more effective compared to the conventional treatment on the production of English lexical collocations is congruent with the findings of Hashemi and Eskandari (2017), who reported that dynamic assessment can contribute substantially to collocations learning. Given that collocation learning is considered as a kind of vocabulary learning, this finding also implicitly supports Hessamy and Ghaderi's (2014) findings that DA significantly affects the vocabulary learning of EFL learners.

In justifying this finding, it might be said that DA makes vocabulary learning (in fact, collocation learning is considered within the scope of vocabulary learning) easier for EFL learners by engaging both teachers and students in a more dynamic process in which the potentials and differences of the learners can be used as an asset for their development in an interactive system (Hashemi & Eskandari, 2017).

Moreover, MLE was conducive to the comprehension of English lexical collocations significantly more than each of the other two approaches. This finding is consistent with Naeini's (2014) study which showed that MLE has a positive effect on the reading comprehension of EFL students. Another study the results of which are indirectly in line with those of the present study is the one by Hessamy and Ghaderi (2014), in which it was found that MLE significantly affects learners' vocabulary learning.

This finding can be justified on the ground that MLE can help learners solve their problems through mediation. Moreover, it can help them gain more control over the use of language. In addition, it leads to the co-construction of ZPD (Ash & Levitt, 2003) and, consequently, to fundamental changes in the learners' conceptions of selecting one option from existing options. Similarly, as Walqui (2006) confirms, MLE can facilitate the understanding of ideas and self-correction through reciprocal activities. Furthermore, as Isman and Tzuriel (2008) state, MLE interactions have the potential to facilitate the use of learning strategies and the development of cognitive functions. Through MLE, learners internalize the mentioned processes and mechanisms of change. When learners receive MLE, they develop the ability to learn from exposure to learning contexts, both formally and informally (Isman & Tzuriel, 2008). This finding can be justified by the argument made by Hessamy and Ghaderi (2014) that MLE improves the involvement of learners in the learning process by increasing their motivation and reducing their anxiety.

Furthermore, MLE was significantly more effective on the production of lexical collocations than each of the other two approaches. Although no study was found on the effect of MLE on the production of English lexical collocations, this finding can be implicitly congruent with the finding of the study done by Amiri and Saberi (2016), who showed significant improvements in the writing skill of learners in an EFL context after the application of MLE. An argument which can be put forth in justifying this finding is that MLE can help learners better learn communication and take a strategic orientation to learning (Behroozizad et al., 2014). That is, learning communication associated with MLE can play a mediating role in the effect of MLE on the production of English lexical collocations.

Conclusion and Implications
Conclusion

The observation that all of the three groups using DA scored significantly better than the control group leads one to the conclusion that DA, regardless of its type, is more promising than conventional instruction in L2 collocations teaching. Therefore, teachers may be advised to replace their conventional instruction with DA-based teaching. Moreover, Intensive MLE resulted in improving students' collocational knowledge better than the other two DA models. From this, it can be concluded that in the Iranian context, when the situational constraints allow, Intensive MLE should be given priority because it can help students become independent in solving language-related issues.

Moreover, Suwantarathip and Wichadee (2010) showed that students' anxiety and stress levels can be reduced through cooperative learning. In line with Suwantarathip and Wichadee's (2010) study, Johnson and Johnson (2005) observed that cooperative learning creates a sense of achievement. Since in all DA models, the teacher is not the authority and the whole class is student-centered, and the teacher always wants to provide students with a sense of self-efficacy and achievement, we can call DA a semi-cooperative learning approach. Therefore, we can conclude that DA models can reduce students' anxiety and stress levels.

The main difference between these three models can be the way they mediate between students and teachers. In all the mentioned models, the teacher is a friend rather than an authority in the classroom. The way Budoff's learning potential measurement mediates is different from how the two other models mediate. Therefore, each model can affect each aspect of language differently. From this, it can be concluded that teachers should be eclectic about choosing the best model. They should decide upon their needs and choose the most beneficial one.

It can also be concluded that because in G-DA, we were dealing with groups of students as a whole, the teacher-student interactions may have resulted in more positive developmental outcomes for each learner in comparison with those interactions in the two other models, in which interactions were person by person.

Therefore, we can make use of DA models to help students to comprehend and produce English lexical collocations more effectively and effortlessly, assess and instruct simultaneously, have a less stressed environment, help students to improve their comprehension and production of other aspects of language, help students to solve their problems through mediating, and gain control over the use of language. This study suggests that Intensive-MLE can fulfill, to some extent, all the above-mentioned features, and teachers and students will benefit from it more than the two other DA models.

These findings can have useful implications, both theoretical and practical, for different stakeholders. Teachers can apply these models of DA to improve the effectiveness of their teaching and assessing at the same time. In addition, the result of this study can help curriculum designers to design course books in line with DA models to pave the way for teachers to assess and instruct more effectively.

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