ATU
PRESS

Diagnosing EFL Learners Development of Pragmatic Competence Implementing Computerized Dynamic Assessment

Seyyed Mohammad Alavi iD

Professor of Applied Linguistics, University of Tehran, Tehran, Iran

*Mahboube Shahsavar iD

Ph.D. Graduate of TEFL, University of Tehran, Tehran, Iran

Mohammad Hossein Norouzi iD

Assistant Professor of TEFL, University of Tehran, Tehran, Iran

Abstract

Computerized Dynamic Assessment (CDA), encouraged by Brown and colleagues' graduated prompt approach, is grounded in Vygotsky's Socio-Cultural Theory (SCT) of mind and its concept of the zone of proximal development (ZPD). It emerged to respond to the challenge of implementing DA in large classes and to meet the psychometric properties of assessment. To this end, the present study attempted to design a unique computerized dynamic assessment tool to diagnose learners' development of pragmatic competence, specifically their knowledge of the speech acts of apology and request. To conduct the research, 60 BSc students of engineering, aged 18-24, participated in the study. They had different proficiency levels, including pre-intermediate, intermediate, and upper-intermediate levels. In the course of CDA, they were provided with 30 multiple choice discourse completion tests of apology and request, and they were required to choose what they would say in that specific situation. The participants received pre-established meditational hints for each of the unacceptable responses, which were arranged from the most implicit to the most explicit. Finally, to diagnose learners' development, their test performance, including their actual score, mediated score, and learning potential score (LPS), was instantly displayed. Paired samples t-test showed development in learners' mediated scores. The results of the univariate analysis of variance showed that there is no interaction between mediation and proficiency level. Teachers can use this supplementary dynamic assessment tool to diagnose learners' development of pragmatic competence.

*Corresponding author's email: shahsavar.m78@gmail.com

INTRODUCTION

The sudden increase in terms such as "teaching to the test," "narrowing of the curriculum" and "assessment driven instruction" proposes that assessment and instruction have different goals (McNamara, 2001, as cited in Poehner, 2008). The literature of psychometrics indicates that any possible ability changes in the course of test performance is considered 'instrument decay' and sounds highly problematic for drawing inferences based on test performances (Glutting & McDermott, 1990). Nevertheless, in both general education and the second/ foreign language teaching domain, there is a renewed interest in relating assessment to teaching and learning, and it is within this context that dynamic assessment (DA) has begun to attract attention from researchers and practitioners (Poehner, 2009).

Dynamic assessment challenges traditional views on teaching and assessment by arguing that these two are completely integrated and should not be taken as separate activities. This unification is due to the intervention, which is embedded within the evaluation process to interpret individuals' abilities and lead them to higher levels of performance (Lidz & Gindis, 2003). Moreover, this educational approach questions the idea of accepting learners' independent performance as the prevailed sign of their ability and asks the examiners change their roles as an observer of learners' performance to somebody who collaborates with them in the process of problem-solving to support their development (Poehner, 2007).

DA is a procedure that simultaneously assesses and promotes development, considering the individual's (or group's) ZPD (Lantolf & Poehner, 2004). Learners' responsiveness to external forms of mediation, including dialogic interaction with the assessor or a peer as well as the use of other resources such as models, diagrams, and charts, provides insights into the range of abilities that are still developing, which Vygotsky termed the zone of proximal development (ZPD) (Poehner, Zhang & Lu, 2014). As DA is sensitive to each learner's ZPD, the scope of most DA studies has been limited in terms of the number of learners and the abilities being assessed: in

each DA procedure, only a few learners and a few abilities are assessed dynamically (Pishghadam, Barabadi, & Kamrood, 2011). Teo (2012) states that offering one-on-one mediation to individual learners has been a demanding and unfeasible task for many EFL specialists. According to Poehner (2009), a major challenge in implementing DA in the second language classrooms is that these contexts typically do not permit the one-on-one interactions that have characterized most DA works to date. To meet the psychometric properties of the test and to solve the dilemma of the feasibility of DA in large classes, some researchers have attempted computerized DA.

The literature of the computerized DA indicates that almost all DA research in the field has addressed language skills, including listening, reading, and to a lower extent writing, and there is a gap of research in the field of pragmatics. Thus, to fill this gap, a unique software program, which integrates assessment and instruction, was developed to diagnose learners' development of pragmatic competence through generating learning profile, solve the dilemma of the practicality of DA in classrooms and provide a technology-based, reliable and valid assessment tool for assessing learners' pragmatic competence. Thanks to being computerized, this assessment tool can be used in large classes. Moreover, being designed following interventionist DA format, it can meet the psychometric properties of the test. Moreover, it lends support to the positive effect of computerized dynamic assessment on diagnosing students' development.

LITERATURE REVIEW

Pragmatic Competence

A review of the related literature in applied linguistics and language assessment shows that pragmatics is generally characterized as the study of "meaning in context" or "language use in a social context" (Ross & Kasper, 2013). Before the 1970s, research on language mainly focused on learners' ability to create grammatically accurate words and forms. It was not until 1990 when Bachman (1990) introduced pragmatic competence as an integral

part of communicative language ability. Among several models of communicative language ability (reviewed in Purpura, 2008), three of them have introduced pragmatic ability as one of their components: Canale and Swain (1980), Bachman 1990, in later versions, Bachman and Palmer (1996, 2010), and Purpura (2004).

   Within the domain of pragmatic competence, the ways people carry out speciifc social functions in speech such as apologizing, complaining,. making requests, refusing things/invitations, complimenting, or thanking have been referred to as speech acts (Ishihara & Cohen, 2010). According to Kasper and Rose (2002), among different speech acts, request and apology are the most frequently used speech act in everyday conversation. So, research on teaching and assessing these speech acts should be taken seriously.

Dynamic Assessment

Dynamic assessment has emerged as an alternative to ''static'' types of assessment, specifically, standardized tests. It is supplementary to other types of assessment but not a substitution for them (Anto´n, 2009). DA has roots in Vygotsky's sociocultural theory (SCT) of mind and it deals with what an individual can do when cooperating with others rather than what they can do alone (Sternberg & Grigorenko, 2002). According to SCT, the individual's development always occurs through others' mediation. This mediation may be offered immediately as the one offered by parents or teachers or it may be 'displaced in time and space', as reading texts written by others or taking part in activities such as work (Lantolf, 2007). Vygotsky (1986) disapproved of Western approaches to psychological assessment because they only measure the child's independent performance (zone of actual development, ZAD), not because the child can benefit from interaction with more experienced collaborators. He believes that independent performance is both deficient and faulty as children with the same independent performance perform quite differently when engaged in a learning experience (as cited in Peña, Iglesias & Lidz, 2001).

DA draws particularly upon Vygotsky's (1978) proposal of the Zone of Proximal Development (ZPD), which is famously described as the difference between what individuals can do on their own and what becomes possible when working with others (Poehner & van Compernolle, 2011). Vygotsky proposed the concept of the ZPD to explain how development is caused by the 'dialectical unity of individuals. It is within ZPD that individuals can act at higher levels of their ability (Lantolf, 2007).

At the center of the concept of ZPD, and the main concept within Vygotsky's theory of mind is 'mediation (Lantolf & Poehner, 2004). By providing mediation when individuals encounter difficulties and carefully monitoring their responsiveness to mediation, Vygotsky (1998) proposed that diagnoses may reveal abilities that have completely formed as well as those still in the process of developing. This insight has given rise to many assessments collectively referred to as DA, which has been pursued primarily in the areas of special education and general cognitive abilities evaluation (Feuerstein, Feuerstein, & Falik, 2010; Haywood & Lidz, 2007).

Dynamic Assessment Approaches

Interventionist vs Interactionist DA

Lantolf & Poehner (2011) state that DA practices are widely different concerning how the mediation is offered as well as how DA sessions connect to the current instruction. Lantolf and Poehner (2004) made a distinction between what they name interventionist and interactionist DA, which are different regarding the mediation offered to learners. According to Poehner and Lantolf (2005), the former is rooted in the quantitative interpretation of ZPD, while the latter is rooted in its more qualitative interpretation. In interventionist DA, practitioners prepare a set of pre-scripted and standardized sets, including prompts, hints, and leading questions, while interactionist DA advocates an open-ended, dialogic approach to mediation in which mediators are allowed to respond based on learners' changing needs and to seek unanticipated problems (Poehner, 2008). As Poehner (2008)

suggests, in assessment environments in which psychometric testing is prevalent, interventionist approaches may be more easily accepted than interactionist ones. According to Poehner and Lantolf (2013), a major difference between interventionist and interactionist DA is the possibility of employing DA procedure with large groups of learners. Although the mediator flexibility reduces in standardized tests, in such tests the efficiency increases concerning the quantity of the students that can be evaluated in a session. However, evaluating a large number of students is at the cost of limiting the prompts to a 'one-size-fits-all format'.

Sandwich vs. Cake Formats

DA procedures can also be designed based on what Sternberg and Grigorenko (2002) have described as sandwich and cake formats. The sandwich format is much more the same as the traditional experimental research design in which the enrichment program is offered after pretest, which is used as a 'baseline measure', and post-test, which is used to evaluate how effective the enrichment program is (Ableeva, 2010). That is, first, test takers perform pre-test. Then, the mediation is offered to them in form of given instruction (which is pre-planned or is based on the test takers need, considering their performance during the pre-test), and eventually, they complete a set of post-tests. In the end, the learners' pre-test and post-test performance are compared to measure how much improvement they made after the mediation (Sternberg & Grigorenko, 2002).

Interventionist DA can also be implemented using cake format. According to Lantolf and Poehner (2004), within the layer-cake format, the examiner provides intervention during the test administration. In this DA format, the examinees do testing activities one item at a time. If they cannot give a correct answer to an item, they are provided with the instruction presented in the form of pre-established hints. Two well-developed interventionist approaches to DA that follow a cake format are 'Jurgen Guthk's Leipzig Learning Test' (LLT) and Brown and colleagues' 'graduated

prompts approach' (GPA) to intelligence assessment and cognitive development (Lantolf & Poehner, 2004; Poehner, 2008).

The Graduated Prompt Approach, proposed by Brown and colleagues, is an approach that offers the most extensive study, which monitors how learners respond to new challenges (Brown & Ferrara, 1985; Campione, Brown, Ferrera & Bryant, 1984). GPA implies scripted prompts, which are sequenced from implicit to explicit and presented to learners in a standardized format, whenever they have difficulty in answering the test items. The scores, which are weighted, show how much prompt a learner needs for responding to each test item. This reveals how close learners are to independent performance (Brown & Ferrera, 1985). Graduated prompt approach to DA, which attributes to the research of Brown and colleagues (e.g., Brown & Ferrara, 1985; Campione & Brown, 1990), encouraged the development of L2 computerized dynamic assessment tests (as cited in Poehner et al., 2014).

Empirical Research on Computerized Dynamic Assessment (CDA)

Research on DA continues in the West for more than 40 years, and now there is a remarkable body of research in this area in the literature of the general education and psychology (Poehner, 2009). The literature shows that the leading researches in the field of DA have been primarily conducted in classroom settings (see Poehner, 2005; Ableeva, 2010; Lantolf & Poehner, 2011; Poehner, 2007) and almost all of such studies have explored the use of DA for a limited number of students and they have not taken into account the psychometric properties of testing (Poehner, 2008). However, a major challenge in implementing DA in the second language classrooms is that these contexts typically do not permit the one-on-one interactions that have characterized most DA work to date (Poehner, 2009). Computerized dynamic assessment as a new field of research evolved to respond to the challenge of implementing DA in large classes and to meet the psychometric properties of the test.

The first computerized mediation naming 'Lerntest' (learning test) was introduced by Guthke and Beckmann (as cited in Poehner & Lantolf, 2013). The test included a series of prompts, which were designed to evaluate different cognitive abilities, including language aptitude. Those items for which a learner did not receive any tutorial were interpreted to reflect a learner's zone of actual development (ZAD) (i.e. learner's independent performance) and those items that lead the learner to the correct response were assumed to form learners' ZPD.

In their study, Tzuriel and Shamir (2002) compared the effectiveness of computer-assisted dynamic assessment with DA implemented by an examiner in developing learners' cognitive performance. Their study drew from Feuerstein's mediated learning experience theory and Tzuriel's DA approach with young children. Their study involved the interventionist model of DA. The findings of their research revealed that computer-assisted dynamic assessment procedure (the combination of CA and the examiner) caused more significant cognitive changes than mediation provided only with an examiner. It seems the two groups were not mediated in an equal condition. That is, one group has received more mediation and this can affect the results.

In another study, Wang (2010) compared two methods of test administration: web-based dynamic assessment system and normal web-based test. To perform web-based DA, he made use of the idea of cake format dynamic assessment proposed by Sternberg and Grigorenko (2002) and the 'graduated prompt approach' proposed by Campione and Brown (1985, 1987) and developed a multiple-choice web-based dynamic assessment system. He randomly assigned the participants into four classes of web-based DA and non-web-based DA groups. The design of his study was a pre-test, e-Learning instruction, and posttest. The pretest and posttest were administered summatively. The research showed that the web-based DA group outperformed the non-DA web-based group. However, Wang's study was instructional. That is, it was used as a tool to instruct learners not simply to assess their performance.

Following the above-mentioned research, Barabadi (2010) developed a software program to examine the efficiency of DA on students reading ability. The software provided the learners with graduated hints, whenever they encountered difficulty and at the end of the DA session, it automatically reported their performance. The results of his study revealed that mediation offered in the form of hints can enhance learners' performance. Moreover, Pishghadam and Barabady (2012) conducted a research on constructing and validating computerized Dynamic Assessment. Their study showed that CDA can meet the psychometric features of the test i.e. reliability and validity. They also showed that CDA can improve students' reading ability. However, while some students benefited from the hints provided in the course of DA, others could not use them to their advantage.

Poehner and Lantolf (2013) investigated DA of second language listening and reading comprehension, which was delivered in an online format. To determine to what extent the learner's development is the result of the tutor's support, the test included transfer items. The test involved three scores: actual score, mediated score, and learning potential score. Actual score represented the learner's independent performance, the mediated score reported learner's reaction to mediation and learning potential score, which is based on the gain between actual, and mediated performance, showed how much help the learner requires in future in order to move the development forward. Poehner, et al. (2014) discussed a recent project dealing with designing an online multiple-choice test of L2 reading and listening comprehension that is based on the principle that mediation is essential to diagnose development. Each test item involved a set of prompts, which were graduated from implicit to explicit. In this way, final diagnoses not only revealed learners' number of current responses (their actual score) but also indicated how much support they required (mediated score) in the course of test performance.

Ebadi and Saeedian (2015) carried out a research study on a computerized dynamic assessment of reading comprehension skill of at-risk advanced learners. In their study, to identify the proficiency level of the

learners and to investigate the effectiveness of the enrichment program in DA, the 'DIALANG' software and the 'Computerized Dynamic Reading Test' (CDRT) were utilized respectively. The results showed a pretest score was an insufficient indication for both measuring an individual's ability and preparing an effective lesson plan as well.

In the field of pragmatics, Montazeri Shatoori (2015) examined EFL learners' metapragmatic knowledge, including idiosyncratic implicature and indirect refusal, across different proficiency levels using web-based DA. He found that learners' comprehension of implied meaning was statistically significant across proficiency levels.

Alavi, Kaivanpanah, Fekri Pilehroud (2018) developed a unique computer software program to investigate the effect of online dynamic assessment on reading and listening comprehension ability of 185 upper-intermediate EFL learners who attended TOEFL preparation courses. Their results confirmed the findings of the previous research on the effectiveness of mediation provided by CDA. Furthermore, their findings indicated a significant difference between high, moderate-high, moderate-low, and low achievers in the number of hints they used in almost all types of questions, except negative facts and details items in reading comprehension and inference and detail items in listening comprehension.

Kamrood, Davoudi, Ghaniabadi, and Amirian (2019) also conducted a research on the computerized dynamic assessment of listening skill. A sample of 54 intermediate and advanced EFL university students participated in their study. The results of their research confirmed the significant role of mediation in developing learners' test performance. Moreover, reporting LPS, they suggested that in contrast with non-dynamic testing, CDA can distinguish between learners with the same level of English proficiency. They stated that analyzing each learner's scoring profile can help teachers diagnose learners' strengths and weaknesses as to different language construct included in the test.

The literature of the computerized dynamic assessment shows that almost all CDA research has addressed learners' cognitive ability (Guthke &

Beckmann, 2000; Tzuriel & Shamir (2002) and language skills including reading (Barabadi, 2010; Ebadi & Saeedian, 2015; Ebadi & Saeedian, 2016; Estaji & Saeedian, 2020; Poehner & Lantolf, 2013; Poehner et al., 2014) and listening (Poehner & Lantolf, 2013; Poehner et al., 2014; Alavi, et al., 2018; Kamrood, et al., 2019). However, pragmatic competence has not got much attention by researchers working on computerized DA, while the importance of pragmatic competence in communication has been widely acknowledged in various models of communicative competence (see Bachman, 1990; Bachman & Palmer, 1996; Canale, 1983; Canale & Swain, 1980) and research findings (Soler, 2005; Bardovi-Harlig & Dornyei, 1998; Bardovi-Harlig &Griffin, 2005) highly acknowledged that ignoring pragmatic competence in foreign language teaching results in the increase of students' metalinguistic awareness but not helping them with developing second language (L2) metapragmatic consciousness to be able to differentiate between what is and is not appropriate in a given situation.

PURPOSE OF THE STUDY

The present study aims to design and develop a computerized dynamic assessment software program to fill the gap of research in the field of CDA of pragmatic competence and to overcome the drawbacks of classroom-based dynamic assessment in terms of feasibility of performing DA in large classes and the psychometric properties of the test. To meet the psychometric properties of the test, interventionist DA was employed and the hints were offered in the middle of the test performance, using DA cake format. It also intends to diagnose learner's development of pragmatic competence, reporting learners' actual and mediated scores as well as their LPS (learning potential score). Further, it aims to see if the proficiency level has any effect on learners' test scores. The current study seeks to answer the following questions:

1. Is there any statistically significant difference between learners' actual and mediated scores of apology and request?
2. Does computerized DA have any effect on learners' learning potential

scores?

3. Is there any statistically significant difference between learners actual, mediated, and learning potential scores of apology and request across different proficiency levels?

METHOD

Participants

60 BSc students of engineering participated in the study. They were mostly first-year university students taking the general English course. They completed computerized DA as their course requirement. The average age of the participants was 20.11, ranging from 18-22, and they were mostly males. They had different proficiency levels, including pre-intermediate (N = 22), intermediate (N = 17), and upper-intermediate (N = 20) levels and they did not have the experience of living in an English speaking country. Table 1 displays the frequency of the variables of gender, age, and proficiency levels.

Table 1: *The frequency of the gender, age and proficiency levels of the learners*

Variables		Frequency	Percent
Gender	Male	41	68.3.4
	Female	19	31.7
Age	18	1	1.7
	19	23	38.3
	20	14	23.3
	21	6	10
	22	4	6.7
	23	3	5
	24	2	3.3
Proficiency levels	Pre-intermediate	22	36.7
	Intermediate	17	28.3
	Upper-intermediate	20	33.3

Instrumentation

The instruments used in the study included a 'preliminary test of English' (PET), a 'Written Discourse Completion Test' (WDCT), 'a multiple-choice discourse completion test' (MDCT) of apology and request and a 'unique online DA software program', which was developed for the study. The

WDCT and M Research procedure followed in this study included preparing the multiple-choice discourse completion tests of apology and request, preparing the mediational hints for each of the test items, and developing DA software program for the online administration of the test.

Data Collection Procedure

The research procedure followed in this study included preparing the multiple-choice discourse completion tests of apology and request, preparing the mediational hints for each of the test items, and developing the DA software program for the online administration of the test.

Preparing the Test and the Mediational Hints

The test employed in the study was an MDCT of apology and request adapted from Hudson et al. (1995). The test included 30 situations, 15 situations for apology, and 15 situations for request. The original test was a three-option MDCT. To reduce the chance factor and to increase the freedom of choice by learners, one distractor was added to each test item. To this end, one month before CDA administration, the learners were requested to answer the WDCT of apology and request developed by the same authors. Based on their responses and considering different strategies of apology and request proposed by Blum-kulka and Olshtain (1984) and Olshtain and Cohen (1983), one distractor was added to each item. In constructing distractors, Brown and Levinson's (1987) social variables of 'relative power', 'social distance', and 'degree of imposition' were taken into account. To see the efficiency of the test and distractors, the items were presented to a group of advanced level Iranian English teachers and online native English teachers. Finally, based on their comments, some minor modifications were made to some situations and alternatives.

The second step of the test preparation involved preparation of the hints for each of the alternatives that happen to be chosen by the participants, either in the first, the second, or the third attempt. In developing the hints, the

researcher took advantage of the feedback received from the native English teachers available at www.usingenglish.com and specifically common strategies of apology and request proposed by Blum-kulka and Olshtain (1984) and Olshtain and Cohen (1983), considering Brown and Levinson's (1987) social variables of 'relative power', 'social distance', and 'degree of imposition. The hints were specific to each situation and whenever the students encountered difficulty, they were presented to them from the most implicit to the most explicit.

Preparing the Software Program

For the online administration of DA, a software program was developed under the researcher's supervision. The software included a login page, an instruction page, a test page, and learners' profile page. In the login page, the learners required to provide some personal and English background information. After filling in all the required fields, they were allowed to move to the next page, i.e. the 'instruction page'. This page informed the students of different aspects of the test, including test instruction, test timing as well as the scoring procedure. The third page was comprised of DA, and the last page of the software reported the learners' learning profile, providing information about their actual score (i.e. the score they received without help), mediated score (i.e. the score they received with the help) and learning potential score (LPS). The results were reported both numerically and in a pie chart. The same information, as well as the number of the hints used by each learner, was reported to the researcher.

Test Administration

At the beginning of the study, the proficiency test of PET was administered to decide on the students' proficiency levels. Based on the mean and the SD of the learners' scores, they were classified into pre-intermediate, intermediate, and upper-intermediate levels. Then, since the students were unaccustomed to DA procedure, the researcher made them acquainted with

DA procedure. The test was available online and the students could visit the website to take the test. Each test item demonstrated a situation for either apology or request, and the students had to choose what they would say in that specific situation. They could answer one item at a time, and they did not have access to previous items after they have replied to them. If they got disconnected, they could resume the test.

In the course of DA administration, participants received immediate hints from the software if they did not check the most appropriate answer in the first, second, or third attempt. Throughout the test completion, an initial less appropriate response was met with the following statement, 'Sorry, that's not the most appropriate answer.' If they checked the most appropriate answer in the first attempt, they were allowed to move to the second item. Nevertheless, if they did not check it in the first try, they were provided with pre-established hints presented from the most implicit to the most explicit. Following the second less appropriate response, the learners were reminded that the choice was not the best one: 'Sorry, that's not right either.' Then, a hint was offered to direct them to the best answer. At this point, the scope of the hint was further narrowed and the learners could select from among the remaining two options. This process continued for a total of three attempts. If the learner still could not find the most appropriate answer, the software would display it.

At any point, where the most appropriate response was selected by the learner, either in the first, second, or the third attempt, the option of viewing the explanation, which justifies the correct response, was displayed. This explanation intended to help those learners who answered a test item correctly but who might not be certain of their response or to help the learners who guessed the best answer. Finally, the software would provide the learners with a profile of their non-dynamic test score (or actual score, which is based on their first attempt), their dynamic test score (or mediated score, which is based on the number of hints they received) as well as their learning potential score (LPS), which is calculated based on the difference between actual and mediated score.

Scoring Procedure

To score the learners' performance in each group, Poehner and Lantolf's (2013) scoring procedure was adopted, which involved assigning an actual score, mediated score, and learning potential score (LPS). The actual score represents learners' independent, unassisted performance. Each actual score for each test item involved either maximum point (3) or no point (0). That is, if learners selected the best answer in the first attempt, the score of 3 was awarded to them. But if they could not choose the best answer in the first attempt, they received a score of 0. However, for the mediated score, which is the score the learners receive with the help, the learners' score was influenced by the number of the hints they received by the software. That is, for each of the mediating prompts a learner received, 1 point was subtracted from the total score of the item. For example, if a learner used 2 mediating prompts for answering an item, 2 points were subtracted from the total score of 3. So, the mediated score would be 1. Finally, the learning potential score (LPS) was calculated for each learner. The concept of LPS was introduced by Kouzlin and Grab (2002) to show how much progress learners make due to the mediation. The formula for computing LPS developed by Kozulin and Grab is as follows:

$$LPS = \frac{(2 * \text{mediated score} - \text{actual score})}{\text{maximum score}}$$

Data Analysis

To investigate the efficiency of computerized DA on developing learners' knowledge of the speech acts of apology and request, a paired sample t-test was run. Moreover, in order to investigate the interaction between mediation and proficiency levels and to see the effect of mediation across different proficiency levels, the test of ANCOVA was run.

RESULTS

To estimate the reliability of the test, the measure of Cronbach's alpha was employed. The results showed the reliability of .74 and to examine the construct validity of the apology and request items in the computerized DA practices, a factor analysis using the principal component method was used. Since the factor analysis at the item level did not show a clear pattern of factor loadings, the participants' total scores were included in the factor analysis. Table 2 displays the validity of the test.

Table 2: *The results of total variance explained*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.739	68.468	68.468	2.739	68.468	68.468	1.917	47.919	47.919
2	1.059	26.482	94.951	1.059	26.482	94.951	1.881	47.032	94.951
3	.132	3.293	98.244						
4	.070	1.756	100.000						

Extraction Method: Principal Component Analysis.

Table 2 indicates that two factors that explain 94.95 percent of cumulative variances emerged with an Eigenvalue above 1.

Table 3: *The results of the rotated component matrix*

	Component	
	1	2
Apology Actual Score	.962	
Apology Mediated Score	.946	
Request Actual Score		.947
Request Mediated Score		.940

The rotated factors, as appeared in Table 3, indicate that the construct of actual and mediated request scores tends to be explained by factor one and that of actual and mediated scores in apology can be explained by factor two. To measure the effectiveness of mediation on learners' test performance, a paired sample t-test was run. The results of the descriptive statistics have been displayed in Table 4.

Table 4: *The results of descriptive statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
Apology Actual Score	59	15.00	45.00	30.5000	6.85813
Apology Mediated Score	59	29.00	45.00	38.3333	3.62509
Request Actual Score	59	12.00	45.00	25.4000	7.44061
Request Mediated Score	59	22.00	45.00	34.1000	4.66033
Apology LPS	59	.80	1.13	1.0220	.06643
Request LPS	59	.08	1.18	.9277	.17531
Apology Gain Score	59	.00	20.00	7.8333	3.80083
Request Gain Score	59	.00	16.00	8.7000	4.04341

LPS = Learning Potential Score

As Table 4 shows, the mean of actual and mediated scores of apology test is respectively 30.5 and 38.33 and that of request is respectively 25.4 and 34.1. The results show an increase in learners' scores after mediation. The gain score, which is the difference between actual and mediated score, is respectively 7.83 and 8.7 for apology and request. The results also show that the SD of the scores has decreased with the mediation and the scores have become more homogenized. According to table 4, the LPS of the learners in this study ranged from 0.8 to 1.13 in the apology test, and from 0.08 to 1.18 in the request test. The mean of LPS of apology test is 1.02 and that of request is .92, which according to Kozulin and Garb (2002) are respectively high and moderate. In their study, Kozulin and Garb (2002) categorized LPS as high ($\geq$1.0), mid (.71–.8) and low ($\leq$.71) and suggested that to enhance their abilities, learners in each of these categories will need a different amount of instructional support (Poehner et al., 2014).

Table 5: *The Results of Correlation Statistics*

		N	Correlation	Sig.
Pair 1	Apology Actual Score & Apology Mediated Score	59	.920	.000
Pair 2	Request Actual Score & Request Mediated Score	59	.876	.000
Pair 1	Apology Gain Score & Apology Actual Score	59	-.927	.000
Pair 2	Request Gain Score & Request Actual Score	59	-.831	.000

As displayed in Table 5, there was a strong correlation between mediated and actual score ($r = .920$ for the apology test; $r = .876$ for the request test). The results also showed that there was a strong negative correlation between the gain and the actual score ($r = -.927$ for the apology test; $r = -.831$ for the request test). To see if mediation has any effect on students' test performance and to respond to the research question 1, paired-samples t-test was run.

The result of the paired samples t-test, as displayed in Table 6, shows that there is a statistically significant difference between students' actual and mediated scores of apology test, as $t(59) = 15.94$, $p = .00$. The results also show that there is a statistically significant difference between students' actual and mediated scores of request test, as $t(59) = 16.66$, $p = .000$. Table 7 shows the effect of mediation across different proficiency levels.

Table 6: *The results of the paired-samples t-test*

	Paired Differences							Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	
			Lower	Upper			

Pair 1	Apology actual score– apology mediated score	-7.83333	3.80083	.49069	-8.81519	-6.85147	-15.964	59	.000
Pair 2	request actual score – request mediated score	-8.70000	4.04341	.52200	-9.74452	-7.65548	-16.667	59	.000

To see if there is any difference between learners' test scores across different proficiency levels and to respond to the research question 3 ANCOVA was run.

Table 7: *The Results of Tests of Between-Subjects Effects*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
fac.al.Request.Apology	80656.078	5	16131.216	693.405	.000	.912
fac.language.level	26.187	2	13.094	.563	.570	.003
fac.al.Request.Apology * fac.language.level	112.429	10	11.243	.483	.901	.014
Error	7816.627	336	23.264			

As Table 7 suggests, there is not any statistically significant difference between the interaction of language levels and learners' scores of apology and request, that is $F(10, 336) = .483$, $p > .05$.

Table 8: *The results of multiple comparisons*

fac.language.level (I)	fac.language.level (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
	Intermediate	-.4360	.63586	.791	-1.9994	1.1274

Pre-intermediate	Upper- intermediate	-.6285	.60836	.587	-2.1243	.8673
Intermediate	Pre-intermediate	.4360	.63586	.791	-1.1274	1.9994
	Upper- intermediate	-.1925	.64957	.957	-1.7896	1.4046
Upper-intermediate	Pre-intermediate	.6285	.60836	.587	-.8673	2.1243
	Intermediate	.1925	.64957	.957	-1.4046	1.7896

Table 8. depicts that there is not any statistically significant difference between the learners' test performance across different proficiency levels.

DISCUSSION

The present study developing a unique computerized DA assessment tool aimed to diagnose learners' development, as to the speech acts of apology and request, reporting a learning profile including their actual score, mediated score, and LPS. The results of the study, concerning the effectiveness of CDA on learners' test performance, confirmed the findings of the previous research (see Barabadi, 2010; Ebadi & Saeedian, 2015; Montazeri Shatoori, 2015; Poehner & Lantolf, 2013; Poehner et al., 2014). This conclusion was arrived at due to the increase in the mean score of the learners' from actual to mediated score, which is in line with the findings of the research having been already conducted within DA field (see Barabadi, 2010; Tajeddin & Tayebipour, 2012; Poehner et al., 2014; Montazeri Shatoori, 2015). The results also suggested that SD has decreased with the mediation across different proficiency levels, that is, the learners' mediated scores had lower SD than their actual scores. This shows that the scores have been more homogeneous after the mediation. This finding is in line with the findings of the research conducted by Poehner and Lantolf (2013) and it can be attributed to the role of mediation in homogenizing the learners' scores.

The positive effect of mediation has been already acknowledged in the literature of the DA field. However, improving learners' test scores is not the goal of DA. As Poehner et al. (2014) state, the aim of DA is not to increase

the students' test scores, but it intends to diagnose their actual and potential development. While the actual score represents the learners' independent performance, it does not inform teachers how much mediation they require while working through test items. Therefore, Poehner et al. (2014) warn stakeholders not to concentrate on any single score when reporting the results of the CDA. Each score gives specific information about the learners' abilities. According to Poehner and Lantolf (2013), the actual score represents learners unmediated performance, the mediated score reflects learners' responsiveness to mediation, offered on each test item and learning potential score, which is built on the gain between actual and mediated performance, reveals the number of instruction learners will need to move forward development. All these scores provide the instructors with a complete picture of the learners' abilities and help them individualize their instruction based on each learner's need.

In non-DA tests, teachers only take into account the learners' actual test scores, while the actual score does not give a whole picture of learners' abilities. Furthermore, the actual score does not have anything to do with the learner's future performance. As argued by Anton (2009), educators will misrepresent students' capabilities if they take into account merely the results of traditional assessments. In contrast, in CDA each test score gives specific information about the learner's ability. Among different test scores created by CDA, learning potential score is of paramount importance because it gives valuable information about learners' abilities. According to Poehner and Lantolf (2013), learners who possess lower LPS will require more extensive and intensive instruction than those who have higher LPS. Further, as stated by Kozulin and Garb (2002), a high learning potential score means that the test takers' ZPD level is typically close to their own ZAD level. In other words, the targeted capability is close to internalization. Conversely, a low learning potential score indicates that the test taker requires much more pre-determined hints (mediation) and some external assistance to adopt and internalize the targeted learning point in question.

A strong correlation between actual and mediated score, which was reported in this study and also reported in the studies done by Kozulin and Garb (2002) and Poehner et al. (2014) indicates that, as Poehner et al. (2014) suggest, learners with higher actual scores generally also had higher mediated scores. But the strong negative correlation between the gain and the actual score which was reported in this study, according to Poehner et al. (2014), implies that learners whose independent performance was not much acceptable took more advantage of mediation than those who performed well independently. They suggest that in some cases this may be since those who received high actual score did not have much room for improvement when mediation was offered.

The report of the learners' test scores revealed that it may happen that two or more learners with the same zone of actual development (ZAD), i.e. the ability to perform independently, have different ZPD and respond differently to mediation. There may also be learners with different ZAD but the same ZPD. Still, in some cases that the students have the same ZAD and ZPD, it cannot be concluded that they have the same learning potential, as this was claimed by Poehner et al. (2014). In their study, Peña, et al. (2001) observed that children whose scores were similar in the beginning showed different learning profiles when they were subjected to mediated learning. This implies Vygotsky's (1956, as cited in Poehner, 2007) favorite example that two 7-year-old children, both being able to solve problems independently, perform differently when mediation is offered. Due to the mediation, one child could perform to the level of a 7.5-year-old child, while the other could enhance his performance to the level of a 9-year-old child. As he states, while they are equal concerning the independent performance, they are noticeably different as to their immediate potential development.

Even students with the same actual, mediated and learning potential scores are not equal taking into account their performance in each test item and the amount and type of mediation they required. For instance, in response to a question in which '*a renter wants to make a request to his landlord*', one student used two mediational hints, while another one did not use any

mediational hints to reach the best answer. Moreover, while one student answered that same question within 187 seconds, it took 40 seconds for the other one to answer the same question. All these suggest that even the individual students with the same ZAD perform differently concerning individual test items. Such detailed information provides teachers with diagnostic information that help them concentrate on individual learners' needs when planning their teaching.

Another issue dealt with in this study was the difference between learners' test scores (actual, mediated, and learning potential scores) and their proficiency levels. According to the results, there was not any statistically significant difference between learners' test scores across different proficiency levels. This suggests that it was mediation, not the proficiency level that contributed to learners' better test performance and proficiency level did not affect learners' test scores. This finding confirms the findings of the research conducted by Tajeddin and Tayebipour (2012), which showed no statistically significant difference between the interaction of instruction and proficiency levels in DA of learners' pragmatic performance. This result may emphasize the role of mediation over proficiency level in developing learners' pragmatic competence. To the best of the researcher's knowledge, except the research conducted by Tajeddin and Tayyebipour (2012), almost none of the previous studies conducted on DA have considered the role of proficiency levels in learners' performance.

The previous research on the role of pragmatic instruction reported that L2 proficiency possibly influences the effectiveness of pragmatics instruction (Soler & Martinez-Flor, 2008; Narita, 2012; Takahashi, 2010). However, the majority of previous instructional ILP studies have examined the effects of instruction on learners at a single level of proficiency, with paying little attention to potential differences across levels. The small number of studies that have explored the effects of instruction across levels have also had mixed findings (Yang, 2017). For example, a study conducted by Langer (2013) showed that pedagogical intervention improved all learners' performance, irrespective of their proficiency level; however, the intermediate learners

revealed the most improvement. Therefore, it is not still clear whether the effect of instruction varies across learners' L2 proficiency and, if yes, how it differs. So, future investigations on dynamic assessment can take into account the interaction of proficiency levels and mediation in developing learners' performance.

Another finding of the research was that learners performed better about the speech act of apology. This finding can be attributed to the nature of the speech act of apology as it can be expressed using fewer cross-culturally acceptable strategies. This interpretation can be confirmed by comparing the strategies of apology proposed by Olshtain and Cohen (1983) and Blum-Kulka and Olshtain (1984) with those strategies proposed by Blum-Kulka and Olshtain (1984) for the speech act of request. According to their taxonomy, request involves a range of strategies varying from the most direct to the least direct, considering the addresses' power and disposition as well as the imposition of the request. Therefore, learners could use an assortment of pragmalinguistically different strategies to make a request, while they had access to limited strategies for apologizing.

CONCLUSION AND IMPLICATIONS

Although DA has proved to be a useful method of assessment, it is not usually practiced in English classes. The main challenge in implanting DA in a classroom context is that DA practice entails one-on-one interaction between the mediator (teacher) and the learner, which is very time consuming and is not usually feasible in large classes. So, the feasibility of the DA practice is an issue that prevents most teachers and practitioners from employing this type of assessment in classes. However, computerized DA (CDA), which has the capability of being simultaneously administered to a large group of learners, can solve the problem of the practicality of DA.

According to Lantolf and Poehner (2013), the major contribution of the approach [CDA] is that it can be simultaneously administered to a large number of students and the results can be reported in a quantitative format that is easily interpretable. Kozulin and Garb (2004) suggest that employing computerized DA has some advantages such as being administered simultaneously to a large number of learners, providing the opportunity for learners to be reassessed as many times as they would like, and generating the scoring profile of each learner as they finish answering the question. According to Poehner (2008), being administered in a highly standardized way, CDA offers three advantages: reliability and validity are taken into account; many students can be assessed dynamically, and mediation is given at the time of assessment, not in a separate session.

Computerized DA, not being limited to learners' single test scores and displaying students' learning profiles, including their actual score, mediated score, and learning potential score, can have implications to teachers, diagnosing learners' development and giving a complete report of their present and future test performance. Poehner et al. (2014) state each of the actual, mediated, and learning potentials scores gives different diagnostic insights into learner L2 abilities. Each of these test scores provides instructors with invaluable information about individual learners' independent test performance, their performance with the help as well as their future performance.

Another implication of CDA to teachers is that, as Poehner and Lantolf (2013) suggest, LPS can be potentially used for placement decisions. Therefore, just like proficiency tests, practitioners can use LPS for placement purposes as it predicts learners' performance in the future. This way, the instruction provided to the learners not only is complementary to their level of 'actual development' but to their level of 'proximal development'. According to Poehner et. al (2014), practitioners can benefit from these scores in planning their future instruction, attuning it to individual learner's needs. As Ahmadi Safa and Hamzavi (2013) state, DA can also support language students to solve their difficulties and problems and assist language educators

to predict the future performance of their language students. It is recommended that teachers use CDA as a supplementary assessment tool for traditional tests to enable them to diagnose learners' development and provide solutions for individual learners' problems.

Several limitations need to be acknowledged and addressed concerning the present study. The first limitation is related to the electronic delivery of the mediation. According to Poehner (2008), such mediation would be limited to the extent to which it could be tailored to learners' needs. In this way, computerized DA will have the same challenge as all interventionist approaches: it is not clear how the learner would respond if other forms of mediation were offered.

The next limitation is related to the nature of technology-based DA. As in computerized DA, the teacher does not have any control over the learners' performance, they may answer the questions carelessly and skip some stages of the DA procedure, like the explanations provided by the software for each of the best options. Moreover, as Chapelle and Douglas (2006) point out, web-based testing has the problem of test security since a web-based system is more likely to be hacked at Tacks than a closed local system. One more limitation attributes to the development of a computer-based testing system which tends to be costly and time-consuming. In developing a web-based DA software program, providing hints is a challenging task, as hints should be offered considering the examiners' possible choices.

Focusing on the practicality of the test and the possibility to apply the test to a large number of learners, the present research implemented a multiple-choice discourse completion test as the test instrument. So, it only measured the learners' awareness of the pragmalinguistically and sociopragmatically appropriate forms, not their ability to produce such forms. Additionally, according to Brown (2001), multiple-choice discourse completion tests, due to the difficulty in constructing distractors, usually have lower reliability than other tests of pragmatics. Thus, future research can make use of different test formats, including open-ended or short answer tests,

in designing and developing computerized DA software programs. Future research can also address productive language skills of speaking and writing.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Seyyed Mohammad Alavi   ⓘ   http://orcid.org/0000-0003-1740-2164
Mahboubeh Shahsavar   ⓘ   http://orcid.org/0000-0001-5318-8244
Mohammad   Hossein   ⓘ   http://orcid.org/0000-0002-0514-2433
Norouzi

References

Ableeva, R. (2010). *Dynamic assessment of listening comprehension in second language learning.* (Unpublished doctoral dissertation). The Pennsylvania State University. Retrieved from https://etda.libraries.psu.edu/catalog/11063.

Ahmadi Safa, M., & Hamzavi, R. (2013). Dynamic assessment in ELT. *Language and Translation Studies*, *45*(4), 83-1

Alavi, M., Kaivanpanah, S., & Fekri Pilehroud, L. (2018). *Online dynamic assessment of reading comprehension and listening comprehension ability in TOEFL.* (Unpublished doctoral dissertation). University of Tehran.

Antón, M. (2009). Dynamic assessment of advanced second language learners. *Foreign Language Annals*, *42*(3), 576-598.

Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.

Bachman, L. F., & Palmer, A. S. (1996). *Language testing in practice: Designing and developing useful language tests (Vol. 1)*. Oxford: Oxford University Press.

Bachman, L. F., & Palmer, A. (2010). *Language assessment in practice: Developing language assessments and justifying their use in the real world*. Oxford: Oxford University Press.

Barabadi, E. (2010). *Designing computerized dynamic assessment of L2 reading comprehension of Iranian university students and its comparison with static test of L2 reading comprehension*. (Unpublished master's thesis). Ferdowsi University of Mashhad, Mashhad, Iran.

Bardovi-Harlig, K., & Dornyei, Z. (1998). Do language learners recognize pragmatic violations? Pragmatic versus grammatical awareness in instructed L2 learning. *TESOL Quarterly*, *32* (2), 233-262.

Bardovi-Harlig, K., & Grififn, R. (2005). L2 pragmatic awareness: Evidence from the ESL classroom. *System*, *33* (3), 401-415.

Blum-Kulka, S., & Olshtain, E. (1984). Requests and apologies: A cross-cultural study of speech act realization patterns (CCSARP). *Applied linguistics*, *5*(3), 196-213.

Brown, A., & Ferrara, R. A. (1985). Diagnosing zones of proximal development. In J. V. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives* (pp. 225-226). Cambridge: Cambridge University Press.

Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage (Vol. 4)*. Cambridge, NY: Cambridge University Press.

Campione, J. C., & Brown, A. L. (1985). *Dynamic assessment: One approach and some initial data. Technical report no. 361*, Cambridge, MA: The National Institute of Education.

Campione, J. C., & Brown, A. L. (1987). Linking dynamic assessment with school achievement. In C. S. Lidz (Ed.), *Dynamic assessment: An international approach to evaluating learning potential* (pp. 82–115). New York, NY: The Guilford Press.

Campione, J. C., Brown, A. L., Ferrera, R. A., & Bryant. N. R. (1984). The zone of proximal development: Implications for individual differences and learning. In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the "zone of proximal development"* (pp. 77-91). San Francisco, CA: Jossy-Bass.

Canale, M. (1983). From communicative competence to communicative language pedagogy. *Language and Communication*, *1*(1), 1-47.

Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, *1*(1), 1-47.

Ebadi, S., & Saeedian, A. (2015). The effects of computerized dynamic assessment on promoting at-risk advanced Iranian EFL students' reading skills. *Issues in Language Teaching*, *4*(2), 1-26.

Ebadi, S., & Saeedian, A. (2016). Exploring transcendence in EFL learners' reading comprehension through computerized dynamic assessment. *Iranian Journal of Language Teaching Research*, *4*(1), 27-45.

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

Estaji, M., & Saeedian, A. (2020). Developing EFL learners' reading comprehension through computerized dynamic assessment. *Reading Psychology*, 1-22.

Feuerstein, R., Feuerstein, R., & Falik, L. H. (2010). *Beyond smarter: Mediated learning and the brain's capacity for change,* New York, NY: Teachers College Press.

Glutting, J. J., & McDermott, P. A. (1990). Principles and problems in learning potential. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children's intelligence and achievement*, (pp. 296-347), New York, NY: Guilford.

Guthke, J., & Beckmann. J. F. (2000). The learning test concept and its applications in practice. In C. S. Lidz, & J. G. Elliott (Eds.), *Dynamic assessment: Prevailing models and applications* (pp. 17–69). Amsterdam: Elsevier.

Haywood, H. C. & Lidz, C. S. (2007). *Dynamic assessment in practice: Clinical and educational applications*. New York, NY: Cambridge University Press.

Hudson, T., Brown, J. D., & Detmer, E. (1995). *Developing prototypic measures of cross-cultural pragmatics (No. 7)*, Mānoa, HI: National Foreign Language Resource Centers.

Ishihara, N., & Cohen, A. D. (2010). *Teaching and learning pragmatics: Where language and culture meet*. London: Pearson.

Kasper, G., & Rose, K. R. (2002). Pragmatic development in a second language. *Studies in Second Language Acquisition*, *27*(1), 116-118

Kamrood, A. M., Davoudi, M., Ghaniabadi, S., & Amirian, M. R. (2019). Diagnosing L2 learners' development through online computerized dynamic

assessment. *Computer Assisted Language Learning*, 1-30. Retrieved from https://doi.org/10.1080/09588221.2019.1645181

Kozulin, A., & Garb, E. (2002). Dynamic assessment of EFL text comprehension. *School Psychology International*, *23*(1), 112-127.

Kozulin, A., & Garb, E. (2004). Dynamic assessment of literacy: English as a third language. *European Journal of Psychology of Education*, *19*(1), 65.

Langer, B. D. (2013). Teaching requests to L2 learners of Spanish. *Journal of Language Teaching and Research*, *4*(6), 1147-1159.

Lantolf, J. P., & Poehner, M. E. (2004). Dynamic assessment of L2 development: Bringing the past into the future. *Journal of Applied Linguistics*, *1*(1), 49-72.

Lantolf, J. P., & Poehner, M. E. (2011). Dynamic assessment in the classroom: Vygotskian praxis for second language development. *Language Teaching Research*, *15*(1), 11-33.

Lidz, C. S., & Gindis. B. (2003). Dynamic assessment of the evolving cognitive functions in children. In A. Kozulin, B. Gindis, V. S. Ageyev, & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context*, (pp. 99-116). New York, NY: Cambridge University Press.

Montazeri Shatoori., J. (2015). *Examining EFL learners' metapragmatic knowledge: Using online dynamic assessment*. (Unpublished master's thesis), University of Tehran, Tehran, Iran.

Narita, R. (2012). The effects of pragmatic consciousness-raising activity on the development of pragmatic awareness and use of hearsay evidential markers for learners of Japanese as a foreign language. *Journal of Pragmatics, 44*(1), 1–29.

Olshtain, E., & Cohen, A. D. (1983). Apology: A speech act set. In N. Wolfson., & E. Judd (Eds), *Sociolinguistics and language acquisition* (pp. 18-35). Rowley, MA: Newbury House.

Peña, E., Iglesias, A., & Lidz, C. S. (2001). Reducing test bias through dynamic assessment of children's word learning ability. *American Journal of Speech-Language Pathology*, *10*(2), 138-154.

Pishghadam, R., & Barabadi, E. (2012). Constructing and validating computerized assessment of L2 reading comprehension. *Iranian Journal of Applied Linguistics*, *15*(1), 73-95.

Pishghadam, R., Barabadi, E., & Kamrood, A. M. (2011). The differing effect of computerized dynamic assessment of L2 reading comprehension on high and low achievers. *Journal of Language Teaching and Research*, *2*(6), 1353-1358.

Poehner, M. E. (2005). *Dynamic assessment of oral proficiency among advanced L2 learners of French.* (Unpublished doctoral dissertation). Pennsylvania State University. Retrieved from https://etda.libraries.psu.edu/catalog/6627

Poehner, M. E. (2007). Beyond the test: L2 dynamic assessment and the transcendence of mediated learning. *The Modern Language Journal*, *91*(3), 323-340.

Poehner, M. E. (2008). *Dynamic assessment: A Vygotskian approach to understanding and promoting L2 development (Vol. 9).* Berlin: Springer.

Poehner, M. E. (2009). Group dynamic assessment: Mediation for the L2 classroom. *TESOL Quarterly*, *43*(3), 471-491.

Poehner, M. E., & Lantolf, J. P. (2005). Dynamic assessment in the language classroom. *Language Teaching Research*, *9*(3), 233-265.

Poehner, M. E., & Lantolf, J. P. (2013). Bringing the ZPD into the equation: Capturing L2 development during computerized dynamic assessment (C-DA). *Language Teaching Research*, *17*(3), 323-342.

Poehner, M. E., & van Compernolle, R. A. (2011). Frames of interaction in dynamic assessment: Developmental diagnoses of second language learning. *Assessment in Education: Principles, Policy & Practice*, *18*(2), 183-198.

Poehner, M. E., Zhang, J., & Lu, X. (2014). Computerized dynamic assessment (C-DA): Diagnosing L2 development according to learner responsiveness to mediation. *Language Testing*, *32*(3), 337-357.

Purpura, J. E. (2004). *Assessing grammar*. Cambridge: Cambridge University Press.

Purpura, J. E. (2008). *Assessing communicative language ability: Models and their components*. New York, NY: Springer.

Ross, S., & Kasper, G. (2013). *Assessing second language pragmatics*. New York, NY: Springer.

Soler, E. A. (2005). Does instruction work for performing pragmatics in the EFL context? *System*. *33*(3), 417-435.

Soler, E. A., &, Martinez-Flor, A. (2008). *Investigating pragmatics in foreign language learning, teaching and testing.* Bristol: Multilingual Matters.

Sternberg, R. J., & Grigorenko, E. L. (2002). *Dynamic testing: The nature and measurement of learning potential*. Cambridge: Cambridge University Press.

Tajeddin, Z., & Tayebipour, F. (2012). The effect of dynamic assessment on EFL learners' acquisition of request and apology. *Journal of Teaching Language Skills*, *31*(2), 87-118.

Takahashi, S. (2010). The effect of pragmatic instruction on speech act performance. In A. Martinez-Flor & E. Uso-Juan (Eds.), *Speech act performance: Theoretical, empirical and methodological issues* (pp. 126–142). Amsterdam: John Benjamins.

Teo, A. (2012). Promoting EFL students' inferential reading skills through computerized dynamic assessment. *Language Learning and Technology*, *16*(3), 10-20.

Tzuriel, D., & Shamir, A. (2002). The effects of mediation in computer assisted dynamic assessment. *Journal of Computer Assisted Learning*, *18*(1), 21-32.

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

Vygotsky, L. S. (1986). *Thought and language.* Cambridge, MA: MIT.

Vygotsky, L. S. (1998). The problem of age. The collected works of L. S. Vygotsky. In R. W. Rieber (Ed.), *Child Psychology (Vol. 5)*, (pp. 83-149). New York, NY: Plenum.

Wang, T. H. (2010). Web-based dynamic assessment: Taking assessment as teaching and learning strategy for improving students' e-Learning effectiveness. *Computers and Education*, *54*(4), 1157-1166.

Yang, L. (2017). The effects of L2 proficiency on pragmatics instruction: A web-based approach to teaching Chinese expressions of gratitude. *L2 Journal*, *9*(1). 62-83.