Transcendence of Learning in an Online Computerized Dynamic Test of English Listening

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Abstract

As a post-psychometric model based on Vygotsky's sociocultural theory (SCT), dynamic assessment (DA) aims at assessing and developing learners' abilities simultaneously. The learners' development is accounted for through the analysis of their performance on the transcendence/transfer (TR) tasks that are more challenging and difficult than the original DA tasks. Addressing the scarcity of research on the transcendence of learning in the L2 context, and following Poehner and Lantolf (2013), the present study explored the transcendence of learning via developing an online computerized dynamic test of English listening skill for the first time. 43 Iranian English majors in two state universities participated in the study. Applying graphical representations as well as correlations and t-tests, the overall comparison of the mediated (DA) and transfer (TR) scores revealed that learners sustained their abilities responding to TR tasks yet analyzing the TR scores on the basis of both the constructs (sub-skills) and the individuals proved more informative in that it uncovered significant instances of regression, sustenance, and progress in different constructs and individuals. Finally, in line with Poehner and Lantolf's (2013) findings, the learning potential score (LPS) of the learners surfaced as a possible indicator of their future learning. The findings of this study suggest that language teachers can have a more informative prediction of leaners' future development through analyzing and comparing their performance on DA and TR items in C-DA projects.

Introduction

Building on an ontologically different standpoint towards human beings put forward by Vygotsky, dynamic assessment (DA) is claimed to bring assessment and instruction into an integrated process. Addressing the learner's zone of proximal development (ZPD), besides their zone of actual development (ZAD), DA scholars have cogently introduced the abundant potential of DA procedures in presenting a more comprehensive picture of learners' abilities in comparison to traditional non-dynamic assessment (NDA) in second or foreign language contexts (e.g., Ableeva 2008; Ableeva & Lantolf, 2011; Anton, 2009; Kozulin & Garb 2001; Lantolf & Poehner, 2004, 2011; Poehner & Lantolf, 2005). In other words, DA helps teachers differentiate among learners with the same independent performance (ZAD) on tests through comparing their learning potential scores (LPS). This, in turn, empowers teachers in developing more informed and individualized learning plans for such learners.

However, apart from the above-mentioned contributions of DA to the realm of second and foreign language assessment, an integral tenet of DA is that it is development-referenced (Poehner, 2007). In other words, the leading role of ZPD in DA is that it provides learners with the kind of mediation that grants teachers with a complete account of the learner's abilities while they are developing their abilities at the same time (Poehner, 2007). Hence, each DA procedure should account for the learners' development. The development of the learners in the DA procedures is addressed through their performance on the transcendence/transfer (TR) tasks in the test. Poehner (2007) claimed that "Transcendence is fundamental to tracking development because it involves going beyond the test as learners endeavor to re-contextualize their abilities while engaging in new tasks" (p. 334). Elsewhere, Poehner (2007) posited that TR tasks are more complex than the tasks in the original dynamic tests; however, they are similar in terms of the mediation process that happens between the mediator and the learners.

One of the most significant current lines of research in L2 DA is developing and implementing computerized dynamic assessment (C-DA) procedures proposed as a solution to the applicability concerns raised over the ordinary DA procedures (Lantolf & Poehner, 2008). Nonetheless, an inconsiderable amount of literature has been published on the transcendence of learning in the L2 C-DA projects (e.g., Poehner & Lantolf, 2013; Ebadi and Saeedian, 2016). Accordingly, the scarcity of research in this area necessitates more research into the transcendence of learning in L2 C-DA.

Poehner and Lantolf (2013) developed a comprehensive web-based C-DA for the reading and listening skills of Chinese and French languages. However, they did not present a full account of the learners' performance on the TR tasks; that is, they did not report the evidence of learning for

different constructs included in their tests. As for Ebadi and Saeedian (2016), though reporting rewarding results about the transcendence of learning in the case of the reading skill of Iranian EFL learners, one might find some inconsistencies in their methodology of C-DA research(i.e., providing learners with both predetermined and negotiated mediation in the TR tests) that may make readers hesitate to accept their findings. Furthermore, their C-DA project was not web-based, depriving interested third parties from both attempting and appraising their softwares. In addition to the shortcomings mentioned above, no research has been found that probe the evidence of learning in a web-based C-DA of English listening skill. Hence, this study is an attempt to explore the transcendence of learning in the case of Iranian EFL university students who participated in an online computerized dynamic test of English listening skill. The present study attempts to answer the following research questions:

1. How does TR score give evidence for development across different language constructs and individuals?
2. Does learning potential score predict the future development in the case of the English listening ability of the learners?

Literature Review

Vygotsky's Sociocultural Theory

Vygotsky holds that man is primarily social; that is, a part of everybody is always anchored in other human beings, i.e. a human being is not complete in isolation (Ivic, 2000). In light of this claim, he posits that any instance of human beings' development moves through two levels. First, it occurs at the social level and then it moves to the psychological level through the gradual process of internalization (Tzuriel, 2000). In other words, Vygotsky (1978) proposed that higher cognitive functions of human beings have to move through a three-stage process of object regulation, other regulation, and self-regulation (Poehner, 2008). A corollary of Vygotsky's (1978) SCT is the notion of ZPD which is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p. 86). According to Kozulin, Gindis, Ageyev, and Miller (2003), the notion of ZPD gives three important insights to the issue of dynamic testing:

1. It focuses our attention on those psychological functions of the child that are emerging at a given moment but that have not yet been fully developed

2. The concept of ZPD introduces assisted performance as a legitimate parameter of assessment procedure
3. ZPD helps to conceptualize the difference between the level of actual performance and the learning potential of the child (p.17).

DA is the assessment model that is proposed based on Vygotsky's SCT and ZPD as a reaction to the inherent shortcomings of NDA procedures. The striking difference between DA and NDA is the legitimization of intervention during the assessment (Lidz & Gindis, 2003). Through ZPD-based intervention (mediation), DA helps assessors account for the developing as well as the developed potentials within individuals (Sternberg & Grigorenko, 2001). Contrary to NDA procedures that regard assessment and instruction as mutually exclusive, DA favors a marriage of the two at the service of both assessing and promoting learner's abilities, hence, change (i.e. development) rather than stability is at the heart of any DA procedure (Lantolf, 2009). Transcendence has been put forward as a method for showing if true development has happened in a DA procedure (Poehner, 2007). In the following, a more comprehensive account of TR is presented.

Transcendence of Learning in Dynamic Assessment

Transcendence addresses individual's ability to recontextualize their learning into a novel and more challenging learning situations (Poehner, 2007). Apart from Vygotsky's SCT, Feuerstein's Mediated Learning Experience theory (MLE) also contributed to the emergence of DA (Tzuriel, 2000). Fuerstein put the mediation of transcendence among the first three attributes of MLE in which mediator passes over the problem that child is dealing with at the moment and thinks about empowering the child in the process of working out general rules and principals that are context-free and could be applied to newer and more demanding situations (Tzuriel, 2000).

The Graduated Prompt Approach to DA developed by Brown and her colleagues (Brown & Ferrera, 1985; Campione et al., 1984) consisted of three phases of TR. In the first phase, learners were exposed to "near transfer" tasks which were different from original tasks only in their being presented in different combinations while demanding the same principles in order to fulfill the task. The second phase consisted of "Far transfer tasks" in which new but related rules and principals as well as the original ones were needed in order to solve TR problems (Campione et al., 1984). Very far transfer tasks encompassed the third phase of their TR in which the kind of tasks and problems were presented to learners that were more demanding in terms of their complexity in comparison to far transfer tasks. Likewise, Tzuriel and Kaufman (1999) and Tzuriel and Shamir (2002) included TR tasks in their DA studies.

Transcendence of Learning in L2 Dynamic Assessment

Within the second and foreign language context, Poehner (2007) reported the transcendence of learning in his study of advanced learners of French composing oral narratives. He managed to present learners who had finished the enrichment phase with two TR tasks. The first TR task was a video clip that was more difficult requiring more specialized vocabulary to be recounted by learners. In the second task, he changed the modality of the task into a written literary text. He studied the behavior of two learners on TR tasks and concluded that learners with the same performance in original dynamic test did not behave similarly in TR section, that is, while one of them could transcend their learning to more difficult tasks, he observed the reemergence of the inability of the other one in producing appropriate recount of the TR tasks. Hence, he concluded that an all-around generalization about these two learners is legitimate only when their performance is monitored not only in the original dynamic phase but also in the TR phase. Moreover, he reported that one of the learners extended her learning to other related linguistic features not included in mediation sessions.

In another study, Ableeva (2010) conducted a DA of listening comprehension of French learners. In her near transfer task, she exposed learners to a more complex listening task, that is, a TV documentary and in the far transfer task, she urged them to deal with an even more complex task, that is, a radio commercial in French. She reported that learners showed improvement in their listening ability as a result of the main (dynamic) part of the study, however, the result of learners' performance on TR tasks was not similar (i.e., not all learners succeeded in dealing with TR tasks). Nonetheless, a major problem with the application of these (interactionist) DA studies is that they encompass a few learners as well as a limited scope of the constructs. Moreover, their application is both time-consuming and labor-intensive.

Transfer Tasks in L2 Computerized Dynamic Assessment Tests

Computerized dynamic assessment (C-DA) has been proposed as a solution to the applicability concerns raised over the ordinary DA procedures (Lantolf & Poehner, 2008). However, only a few studies have been published on the transcendence of learning in L2 C-DA. So far, Poehner and Lantolf, (2013); Poehner, Zhang, and Lu, (2015); Ebadi and Saeedian (2016); and Ebadi (2017) have included TR tasks in their L2 C-DA projects. Poehner and Lantolf (2013) tried to "uncover evidence of learning through the integration of transfer items into the test" (p. 324). They presented transfer items along with original items in the same manner; however, transfer items were more difficult and demanding in comparison to original dynamic items. They did not try to show the difficulty of transfer items statistically; instead, the lexical density of transfer items along with their less familiar content was taken as the criteria for their difficulty. They reported that learners

with higher LPS generally answered more transfer items without using mediation. They also found significantly low and moderate correlation coefficients between the LPS and transfer scores in the listening and reading of Chinese test. However, no significant correlation was found between learners' LPS and transfer score in the French reading test. Moreover, they tried to compare the transfer scores of learners classified into high, mid and low LPS groups. Finally, through correlations and comparisons, they concluded that LPS could be considered as a legitimate predictor of learning. Nonetheless, they did not report how the transfer of learning could be analyzed regarding different language constructs that had been included in each of the tests in their L2 C-DA projects. In other words, they did not report if it was possible to find various instances of evidence of learning across different constructs in each test.

Although Poehner, et al. (2015) included TR items in the C-DA Chinese listening and reading, they did not report any results about learners' performance regarding TR tasks. In Iran, Ebadi and Saeedian (2015) searched for evidence of learning through exploring learners' performance on a computerized dynamic test of English reading CDRAT. The design of their study was an amalgam of interactionist (i.e., the mediation offered during the enrichment phase) and interventionist (i.e., the mediation offered in the posttest, TR1 and TR2) approaches. They also utilized both sandwich and cake format of interventionist DA. The TR1 and TR2 tests were administered one and three weeks after the post-test respectively. According to readability formulas, they provided learners with more challenging texts in TR tests. They took learners' improved performance in the posttest as indicative of their development; however, as Poehner and Lantolf (2013) posited, the predictable improved performance of learners in original DA procedure only represents their responsiveness to the ZPD-based mediation. In other words, the development of learners is only accounted for through the analysis of learners' performance on TR tasks. As for TR tasks, comparing the DA (posttest), TR1 and TR2, they reported that nearly all of learners showed signs of development. Quite interestingly and in contrast with the previous literature (Poehner, 2007; Brown & Ferrara, 1985) which reported both regression and improvement, none of learners had regressed in their TR sessions. Finally, they analyzed the performance of one of them on the DA, TR1 and TR2 tasks regarding nine different sub-skills included in the tests indicating different behaviors on the part of the learner regarding each sub-skill. Unfortunately, they only numbered the sub-skills and did not introduce them.

Finally, another major motive behind designing and implementing interventionist C-DA procedures is equipping teachers with tools to quantify learners' behavior in DA. This happens through standardization of the process of ZPD-based mediation; that is, providing learners with similar pre-planned and fixed prompts and hints. However, as a major source of uncertainty in accepting the results of their study, Ebadi and Saeedian (2016) let learners receive supplementary hints other than those presented in their software in the TR administrations. These interactionist

and online hints were not accounted for by different scores generated in learners' profile putting at risk the validity of the use and interpretation of these scores. In other words, the interesting progress of all learners participating in TR tasks in their CDRAT could be attributed to the obscure (non-accounted) mediation by a teacher that they received outside their software context while they were answering the test items in CDRAT. Another major criticism towards Ebadi and Saeedian is that, contrary to those of Poehner and Lantolf (2013) and Poehner et al. (2015), their L2 CDA was not web-based. Thus, third parties could not participate and appraise CDRAT's content and mediation process.

Ebadi (2017) conducted an online interactionist computerized dynamic procedure aiming at assessing and promoting knowledge of grammatical structures applied in the writing of only two learners. He reported that learners with the same learning potential in DA sessions do not necessarily reveal the same levels of development in TR tasks. Though contributing considerably to the field, the major drawback of his study was that through conducting his study, in an interactionist approach, he could not fulfill the major objectives of developing C-DA procedures that is overcoming the limitation of ordinary DA procedures in terms of the number of learners and the scope of issues addressed in a single DA procedure. Accordingly, contrary to studies by Poehner and Lantolf (2013) and Poehner et al. (2015), he did not report any DA, TR or even LPS scores. Addressing the issues raised in the mentioned L2 C-DA studies as well as searching for evidence of learning for English listening ability in a C-DA procedure for the first time, the present study was an attempt to design and implement an online computerized dynamic test of English listening skill.

Method

Participants

The online software developed in the present study has the capacity to be tried by an infinite number of learners; however, our initial sample was a convenient one consisting of 54 English language and literature majors (23 men and 31 women aged from 21 to 37) from two state universities in Iran who had passed all their listening courses and were either junior or senior students. They volunteered to participate in the study, and they were completely briefed about the C-DA project before taking the test. However, the data of 11 participants were excluded from the data set due to the very short overall time reported in their scoring files revealing that they had not listened to some of the audio files.

Instrument

The only instrument used in this study was a web-based Software called a computerized dynamic test of English proficiency (CDTELP) that was developed following Poehner et al. (2015). The software is accessible at www.dynamic-english-learning.com. The listening items were taken from authentic TOEFL iBT practice items that were in the multiple-choice format. However, the researchers increased the number of choices to five in order to reduce the chance of learners' guessing. The listening section of CDTELP consisted of 25 items (i.e., 19 items consisted the original DA test and 6 of them comprised the TR test). The same question types comprising the listening section of TOEFL iBT test were included in the listening section of the present study. The type and the number of the question were as followed: Vocabulary knowledge (3), idiomatic knowledge (3), inferential (3), factual (3), main point/main topic (3); rhetorical purpose (3) and grammatical (1) questions. The duration of audio files including both conversations and parts of lectures ranged from 10 seconds to more than 3 minutes. Likewise, each of TR questions was related to one of the constructs assessed in the original DA test except for grammar item that was not included in TR section. This was because of the fact that no proper grammar items were found to be included in the DA section.

Like those of Poehner & Lantolf (2013) and Poehner et al. (2015), the DA and the TR items were included in the same test, that is, they were administered simultaneously. However, learners encountered TR items after they had answered the items in the main DA test. In the case of the listening section of CDTELP, questions 1 to 19 were ordinary DA items while questions 20 to 25 were transferred items. Transfer items were more challenging than ordinary DA items. The researchers applied two criteria for ensuring the difficulty of TR items with respect to the quality of items and learners' performance on them in the piloting phase of the study. First, TR items were more challenging than ordinary DA items in terms of their lexical density, their unfamiliar topic or context; their longer streams of speech in the audio file, their more technical language, etc. This was followed by the criteria set for the difficulty of TR items in Poehner and Lantolf (2013). Second, the piloting phase of the study was an enormous help for the researchers to determine the difficulty of test items based on learners' response patterns, that is, the researchers tried to choose TR items from among the items that learners had more problems dealing with.

Before developing the final version of the CDTELP, the researchers moved through somewhat the same piloting process that Poehner et al. (2015) did. That is, they first developed about 40 test items for the listening section of the test. In an attempt to find the response patterns, the level of learners, and the difficulty level of the test, they administered the test to 20 learners without any intervention (non-dynamic administration). Then, following Aljaafreh and Lantolf's (1994) regulatory scale for developing graduated and contingent ZPD-based hints, they developed and arranged some hypothetical hints for each item. In the next stage, they asked for DA scholars' comments about both test items and hints. In the next step, they administered a dynamic format of the test in an interactionist style, that is, besides the hypothetical hints, online and individualistic mediations were presented to a group of six learners wherever needed. The mediation sessions were transcribed and then analyzed in order to work out the most suitable mediations and the best arrangement for presenting them in the C-DA format of the test. Finally, they reduced the number of the questions to 19 items for the original C-DA section and 6 items for the TR section of the test.

Appendix A depicts the opening page of the CDTELT as well as a listening item along with the hints presented to learners in case they were not able to answer the item. The mediation process moved from most implicit (hint1 as a mere acknowledgment of their being wrong) to most explicit (hint 4, that is, an indication of the right answer along with an explanation of the answer). As for hints 2 and 3, depending on the nature of the question in terms of addressing which of the language constructs included in the text, hints were subject to change. Describing the nature of questions, presenting the best strategies for answering such questions, shortening audio file towards the right answer, drawing learner's attention towards the meaning of a specific word, phrase or sentence that lead to the right choice, etc. consisted the mediations presented in hints 2 and 3.

Procedure

After being briefed about the test, learners took part in the CDTELP. The software allowed them to listen to the audio file twice before their first try. If they chose the right choice, they would get 4 points and move to the next item. If not, they would receive the first hint and try again having just one chance to listen to the file again. If they were wrong again, the second hint would be presented and then they would have a chance to listen and try again. This process would continue as long as they were not able to find the right answer. Upon receiving each hint, one point was subtracted from the total 4 points allocated for each item. As it is evident in Appendix B after they finished taking the test, their performance was reported through a scoring profile containing the following scores:

1. An actual (non-dynamic) score reporting learners' unassisted independent performance. In other words, this score, like traditional (non-dynamic) tests, accounted for learners' scores in their first try in the original DA section of CDTELP. The actual scores range was from 0 to 76.
2. A mediated (dynamic) score reporting learners' assisted performance. That is, the maximum test score of 76 minus the sum total of the number of hints used by learners in the DA section of CDTELP ranging from 0 to 76.
3. A learning potential score (LPS). Based on the following formula, as put forward by Kozulin and Garbn (2002).

$$LPS = \frac{(spost - spre)}{MaxS} + \frac{Spost}{MaxS}$$

   Where Spost stands for the mediated scores; Spre stands for the actual scores; and Smax stands for the highest mediated score

4. A transfer score which accounts for learners' assisted performance in the TR section of the test ranging from 0 to 24.

Results and Discussion

As Poehner and Lantolf (2013) posited, the expected improvement of the learners' performanc evidenced by mediated scores could be interpreted as an indication of their responsiveness to mediation, not their development. Hence, the analysis of learners' performance on TR items is the only legitimate tool for exploring learners' development in a DA procedure. An important consideration in the data analysis phase of the study was that the number of items in DA and TR sections of the test was not equal, i.e., the maximum score for the DA section consisting of 19 questions was 76 while the maximum score for the TR section consisting of 6 questions was 24; thus, the researchers decided to compare and contrast learners' performance in terms of their percentage of achievement in the two sections. A comparison of the mean and the standard deviation of learners' performance in terms of their mediated scores (M=74.87, SD=15.46) and transfer (M=74.51, SD =17.44) scores revealed that they had sustained their level of performance in the TR section although they had been exposed to more challenging listening items. This could be indicative of their ability to transfer their learning to more challenging contexts ensuring that they developed their listening capabilities. Nonetheless, the higher standard deviation of TR scores showed that learners had performed less homogeneously.

Tracing the Evidence of Learning by Language Constructs

The overall findings of this study were in line with those of Poehner and Lantolf (2013) and Ebadi and Saeedian (2015); however, if we wanted to have a more informative comparison of mediated and transfer scores of learners, we had to break their performance into different language constructs (question types) included in the listening section of CDTELP. Table 1 compares learners' overall performance in DA and TR sections of the test by different constructs. Neither Poehner and Lantolf (2013) nor Poehner et al. (2015) did report learners' performance by language construct in the TR section of their C-DA studies. However, contrary to the findings of Ebadi and Saeedian (2016) who reported an absolute progress of learners in all sub-skills included in their test, we found mixed results observing regression (in vocabulary questions); sustenance (in idiomatic, main point-main topic; purpose questions) and progress (in inferential and factual questions) in learners' performance in TR section of the test contributing crucial insights to the better diagnosis of learners' development regarding different language constructs. As it is evident in Table 1, on the one hand, the sharp regression (almost 10 percent) in the mean percentage of learners' performance in TR section might be indicative of the fact that, not surprisingly, the mediation process provided for vocabulary questions in the DA section could not enhance the vocabulary command of learners when they encountered a much harder vocabulary question.

Table 1.

Mediated (DA) and TR Scores of the Learners by the Language Constructs.

	Idiomatic		Inferential		Factual		Main point- main topic		Purpose		Vocabulary	
	DA	TR	DA	TR	DA	TR	DA	TR	DA	TR	DA	TR
Mean	77.71	77.32	65.89	73.83	80.03	81.97	75.77	76.16	77.71	76.74	69.18	59.30
Standard deviation	16.43	29.28	25.31	29.85	20.98	31.01	21.50	28.84	18.34	34.24	26.00	30.87

This could be partly because of the fact that learners' development in their vocabulary knowledge necessities more time, effort and remedial courses and materials while in the case of the present study and the other interventionist L2 C-DA projects (e.g., Poehner & Lantolf, 2013; Poehner et al., 2015) both DA and TR tests are conducted in a one-shot administration. On the other hand, the considerable progress of learners' mean percentage of performance in inference questions (almost 8 percent) could be pertained to the fact that the mediation provided for the three inferential questions in DA body of the test in terms of providing workable strategies for answering these types of questions had brought about a tangible improvement in learners' abilities in answering inferential questions.

Tracing Evidence of Learning by Individuals

As Table 1 shows, the comparison of the standard deviation of DA (mediated) and TR (transfer) scores of the learners indicates that they have performed in a significantly heterogeneous manner in nearly all constructs. This heterogeneity of performance is more significant in the idiomatic, factual and rhetorical purpose questions. This necessitates a comparison of the performance of different individuals regarding TR and DA items. Accordingly, two learners were chosen with similar mediated scores of 44 (58% of the total percentage of the original DA test.). They had TR scores of 13 (54%), 18(75%) respectively. In line with the findings of Poehner (2007), the former showed evidence of slight regression (4 percent) in his overall TR score while the latter progressed (13percent) in TR section; however, in order to have a better analysis of the two learners, we analyzed the percentage of their achievements in DA and TR sections across language constructs.

Figure 1 is quite revealing in many aspects in this regard. First, it compares the performance of each of them regarding DA and TR sections. For instance, learner 1 progressed in answering idiom and main topic/main point questions. Moreover, he maintained the same level of performance on vocabulary and inferential questions.
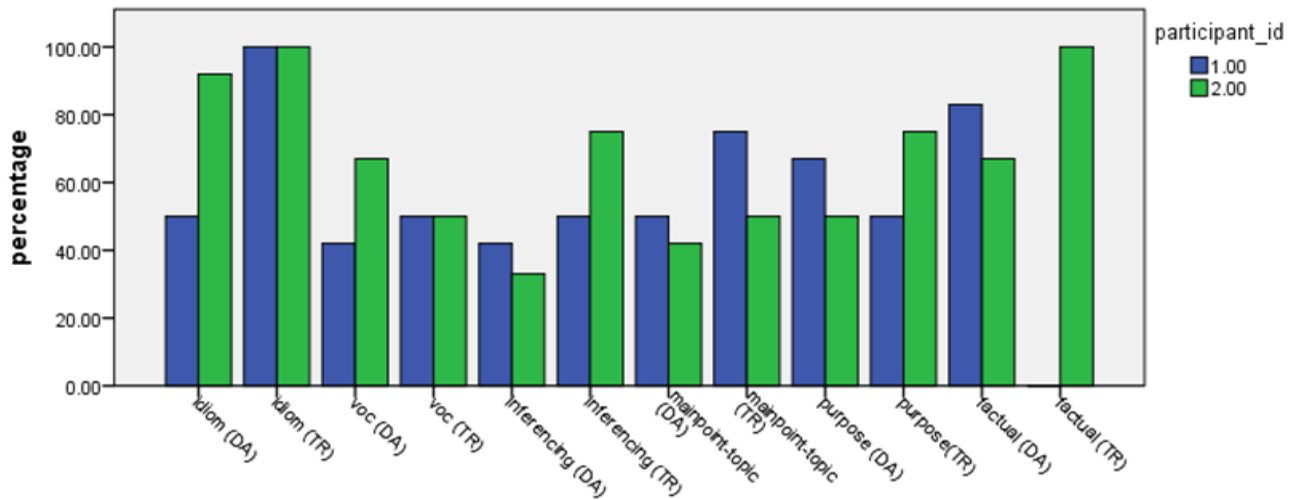
Figure 1 The mediated (DA) and transfer (TR) scores of two learners by language constructs

nonetheless, regression is observable in his ability in answering purpose and factual questions. In the same manner, learner 2 progressed in answering idiom, inferential, purpose and factual questions. Moreover, he sustained his ability in answering main point-topic question yet evidence of regression was apparent in answering the vocabulary question. Second, the two learners' performance in TR section is also comparable by language constructs. For example, while learner 2 had a moderate achievement rate of 67 percent in answering three factual questions included in DA section of the test, he gained all points of the factual question in TR section indicating his ability in transferring his learning to more difficult tasks in TR section. Nonetheless, learner 1 had a high achievement rate of 83% for factual questions in DA section but he lost all points of factual question in TR section. This showed that he was not able to transfer his learning to more difficult and challenging factual listening tasks in TR section even after receiving all of the ZPD-based hints. Thus, in order to account for this discrepancy, one might think of some non-intellective factors such as guessing, lack of attention or motivation which might be involved both in the acceptable performance of learner 1 regarding factual questions in the DA section and his total failure in answering factual question in the TR section.

The relationship between learners' LPSs and their TR scores

Poehner and Lantolf (2013) were the first DA scholars who examined the relationship between LPS and the TR scores of learners in a C-DA project. They reported low and moderate significant correlation coefficients for learners' performance in Chinese reading and listening sections of their tests. However, no significant relationship was found between LPS and TR scores of learners in their French reading test. In the same vein, there was a significant positive moderate correlation between learners LPSs and their TR scores (r = 0.543, p<0.01) indicating that LPS could be used as a means for the prediction of their performance in more challenging instances of learning in future. Moreover, they explored the significance of differences among TR scores of learners classified into high, mid and low LPS sub-groups. Likewise, the TR scores of learners across low,

mid and high LPS sub-groups were examined. Table 2 represents the mean, standard deviation and number of learners in each of the LPS sub-groups.

Table 2

Mean and Standard Deviation of Transfer Scores Grouped by (LPS)

LPS range	TR scores		Number of the learners
	Mean	SD	
high	19.23	3.32	13
mid	19	3.31	21
low	13.33	4.30	9

Significant differences were found between TR scores of high and low LPS sub-groups (t= 2.94, p <0.01) and mid and low LPS sub-groups (t= 3.16, p<0.01); however, no significant difference was found between TR scores of high and mid LPS sub-groups. As Poehner and Lantolf (2013) suggested, both the correlations between TR scores and LPSs and the significant differences between TR scores grouped by LPSs could justify the rewarding role of LPS in predicting learning in C-DA projects. In other words, corroborating those of Poehner and Lantolf (2013), the findings of the present study suggested that learners' ZPD level accounted for through their LPSs could be used as a criterion for knowing how close a learner is to fully internalize an ability or skill. This, in turn, directly influences on teachers' choice of remedial and supplementary courses and materials for different individuals.

Conclusion

Drawing on Vygotsky's notion of ZPD, the objective of dynamic assessment is twofold: The first objective is presenting a more comprehensive picture of learners' abilities through addressing both the abilities that are fully developed and those that are still developing and the second objective is developing learners' abilities as well as assessing their learning at the same time. The latter is ensured through exposing learners to more difficult and demanding transfer (TR) tasks addressing the same constructs included in the original DA body of the test. However, less than a handful of L2 C-DA studies have addressed transcendence of learning. Moreover, reviewing the literature, we found no study addressing transcendence of learning in the case of English listening skill through a web-based L2 C-DA project. Hence, the present study set out with the aim of exploring transcendence of learning in learners' English listening skill through designing and implementing a web-based computerized dynamic test for the first time in Iran and abroad.

Contrary to the work of Ebadi and Saeedian (2016) and in line with the findings of Poehner (2007); Poehner and Lantolf (2013); and Ebadi (2017), the findings of this study revealed that it is far-fetched to have all learners show evidence of progress in TR sections of L2 C-DA projects. Instead,

one might find evidence of regression, sustenance, and progress when analyzing TR scores of the individuals participating in the study. The second major finding of the present study was that analyzing and comparing learners' performance in DA and TR sections of C-DA projects through targeting the constructs included in the test or focusing on the individual response patterns proved conducive to obtaining a better understanding of learners' development. Finally, the rewarding role of learning potential score (LPS) in predicting learning was investigated. The results of the present study corroborated those of Poehner and Lantolf (2013) indicating that LPS could be considered as a potential means for prediction future learning in L2 C-DA projects. However, further studies need to be conducted in order to establish a solid and reliable base for DA researchers to make use of LPS in their interpreting and predicting learners' abilities.

Finally, a number of caveats need to be noted regarding the present study. First, just like other L2 C-DA studies (e.g., Teo, 2012; Poehner & Lantolf, 2013; Poehner et al., 2015; Ebadi & Saeedian, 2016; Yang & Qian, 2017), the present study applied multiple-choice format as the best available option lending itself into standardized ZPZ-based mediation. Nonetheless, for sure, this is not the best optimal format for designing L2 C-DA procedures. Other formats that cater more to the individuality of learners in terms of their capacity for acknowledging learners' emergent and unique responses are more in line with the original ideas of Vygotsky, yet designing prefabricated and preplanned hints and prompts for such formats is very hard because test developers cannot predict learners' response patterns. Second, the quality of ZPD-based mediation offered in any C-DA project is of utmost importance. In other words, the validity of insightful findings and interpretations of any DA procedure depends on how rigorously ZPD-based the mediation scheme is developed. Consequently, to achieve the most optimal scheme of mediation, following Poehner et al (2015), we moved through different phases of piloting as well as asking for the ideas of experts in the field about the arrangement of hints. Nonetheless, there is always room for criticizing the mediation scheme of any C-DA procedure and proposing better possible ZPD-based schemes. Accordingly, a future line of research might be trying to find more ZPD-based mediation schemes.

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Appendix A:

A screenshot of the opening page of CDTELP as well as screenshots of question no.1 along with the mediation process.

Home   ×

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1

Listen to a part of discussion about Hula dance.
What does the professor imply in her answer to the student?

Play

○ She has absolutely no idea why the ukulele was given its name
○ No one knows why the name "jumping flee" was given to the ukulele
○ She is not sure if ukulele really means "jumping flee"
○ She is explaining why she has not been telling the truth
○ She tries to say that her meaning is just a wild guess

Submit

Home   ×

→ C   ① dynamic-english-learning.com   ☆

1

Listen to a part of discussion about Hula dance.
What does the professor imply in her answer to the student?

Hint   ✖

Your answer is wrong. These types of listening questions require close word-for word listening. Listen again please.

○ She has absolutely no idea why the ukulele was given its name
○ No one knows why the name "jumping flee" was given to the ukulele
○ She is not sure if ukulele really means "jumping flee"
○ She is explaining why she has not been telling the truth
◉ She tries to say that her meaning is just a wild guess

Submit
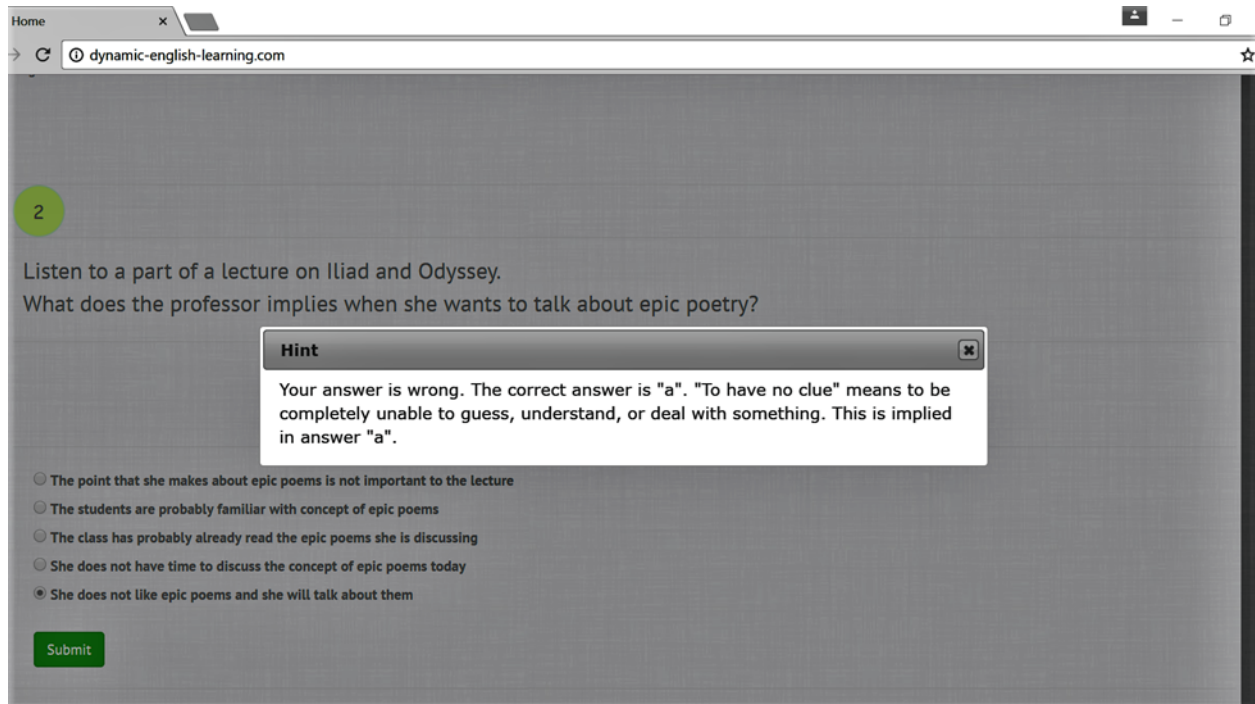
Appendix B:

Screenshots of the scoring file

First Name :

Last Name :

Email :

Tel Number :

Gender : **Male**

Age : **21**

Time Spent **00:56:24.0952454**

Id	Hint Used	Dynamic Score	Actual Score	Missed
1	1	3	0	False
2	3	1	0	False
3	1	3	0	False
4	4	0	0	False
5	4	0	0	False
6	2	2	0	False
7	0	4	4	False

Id	Hint Used	Dynamic Score	Actual Score	Missed
8	0	4	4	False
9	3	1	0	False
10	3	1	0	False
11	3	1	0	False
12	0	4	4	False
13	2	2	0	False
14	0	4	4	False
15	2	2	0	False
16	0	4	4	False
17	0	4	4	False
18	2	2	0	False
19	2	2	0	False

Id	Hint Used	Transfer	Missed
20	0	4	False
21	1	3	False
22	0	4	False