

Quantifying the ZPD of EFL Learners in DA and NDA Listening Comprehension

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Abstract

This study was an attempt to examine the role of dynamic assessment in developing the listening comprehension of EFL learners and determine the extent to which DA can foster listening comprehension development compared to NDA. This study also aimed to elucidate the potential and effectiveness of DA in diagnosing L2 learners' problems in listening comprehension and putting them right. Fifty TEFL students at Imam Khomeini International University were randomly divided to DA and NDA groups. The data analysis took into consideration the participants' mediated and unmediated recalls of the idea units contained in the texts during assessment sessions. The results indicated that the dramatic improvement in independent listening performance of the DA group may be attributed to the administration of the enrichment program. Also, there was a statistically significant difference between the performance of the DA and the NDA group. The problem areas for the participants' listening comprehension were diagnosed through DA-based instruction and it was found that, among other areas such as vocabulary and grammar, lacking L2 phonology was a serious contributor to breakdowns in listening comprehension. The results of this study were in line with the previous research on DA-based studies in listening comprehension. This study adds to the body of research on L2 research, in particular to L2 research informed by SCT.

Keywords: Listening comprehension; Dynamic assessment; Non-dynamic assessment; ZPD.

1. Introduction

Listening comprehension is undoubtedly an essential component of second language proficiency which has been considered the Cinderella skill in second language research (Nunan, 2002). The processes involved in listening comprehension are extremely complicated measuring and understanding how these processes work is mandatory for measuring it (Buck, 2001). Unfortunately, despite the high psychometric properties of validity, reliability, and generalizability of traditional tests, they failed to demonstrate test takers' individual differences and their underlying abilities (Ableeva, 2010; Aljaafreh & Lantolf, 1994; Lantolf & Poehner, 2008; Poehner, 2005). In terms of the assessment of listening skill, the attitude from research community seems to be even reproachful. Alderson and Bachman (as cited in Buck, 2001, p. x) state that "the assessment of listening abilities is one of the least understood, least developed and yet one of the most important areas of language testing and assessment". Along the same lines, Ableeva (2008) contended that listening comprehension is often assessed by traditional approaches due to the lack of research into the components and sub-skills of listening.

Quite recently testing experts have endeavored to devise a testing procedure which can delve into the more dynamic aspects of learners' underlying abilities. Dynamic assessment (henceforth, DA) has been claimed to provide a more humanistic approach to the instruction and assessment of learners' abilities. Moreover, DA introduces more interaction into learning contexts and provision of more feedback can make the second language classrooms more interactive and authentic (Lantolf & Poehner, 2004; Lantolf & Poehner, 2008).

According to Lidz (1991) DA signifies a unified conception of instruction and assessment aiming to develop learners' abilities through intervention and mediation. Recent methods of assessment such as portfolio assessment, performance testing, and even formative assessment have failed to embody this advantage, let alone the traditional static testing (Poehner, 2008). In this regard, Poehner (2005) maintained that an approach towards unifying assessment and instruction would pave the way to a clearer understanding of the entity under study, i.e., learners' potential abilities. Due to the advantages that DA introduces into the testing profession, there has been growing support for the use of DA in language teaching and research (Ableeva, 2007, 2008; Lantolf & Poehner, 2004; Poehner, 2005, 2008; Poehner & Lantolf, 2005).

Although DA has recently been introduced into educational contexts, a good number of researchers have investigated the application of DA in other fields such as mathematics, physics, etc.; however, testing experts have only recently attempted to examine the pedagogical applications of DA in EFL or ESL contexts (Lantolf & Poehner, 2004; Poehner, 2005). Ample research is required to be conducted to further expand this field and its applications to the context of second language learning which is still in its infancy. Despite the need for further research in DA, only a few studies have dealt with the application of DA in the realm of listening comprehension (Ableeva, 2010; Alavi, Kaivanpanah, & Shabani, 2012; Shabani, 2011).

According to Poehner (2008), DA provides a qualitatively different method of assessment from how it was traditionally perceived and accomplished by teachers and researchers. Not only does DA have the potential to promote the product and process of learners' development, it can also determine the conceptual and performance related problems of learners in order to enable the teacher to provide remedial instruction for the learners (Lantolf, 2005). Some scholars

maintain that by introducing DA into listening comprehension classrooms, teachers can diagnose learners' sources of difficulty and provide support and scaffolding to help them overcome their difficulties (Donato, 1994; Lantolf & Poehner, 2004; Lantolf & Poehner, 2008).

2. Vygotsky's Socio-cultural Theory (SCT) of Mind

A basic tenet underpinning SCT is the fact that human mental activity is a mediated process in which symbolic and socio-culturally constructed artifacts, the most significant of which being the language, play an essential role in the mental development of the individual (Vygotsky, 1978). Learning as a mediated process is socially rooted and then grows to be individual as a consequence of linguistically mediated interaction between the child and more experienced members of the society including parents, teachers, peers, etc. (Vygotsky, *ibid*). Lantolf (2004) proposes four types of mediation, namely *self-*, *social*, *peer* and *artifact*. He asserts that self-talk and private speech can mediate human's higher mental functioning. The more significant and proficient members of the context like teachers, supervisors, and parents can socially mediate the learners' higher mental performances.

Vygotsky's notion of instruction and assessment necessitates a mutual interdependency in a way that the potential for the realization of each binary side is dependent on the presence of the other (Lantolf, 2009). In other words, the relationship between assessment and instruction is a dialectical one, i.e., effective instruction is not possible without assessment and assessment is not possible without instruction; they occur simultaneously as one single activity and "both are moments of a single process" (Lantolf, 2009, p. 356).

From the perspective of SCT, human beings do not interact directly with the environment they live in, instead they use culturally constructed artifacts "created by human culture(s) over time and [...] made available to succeeding generations, which can modify these artifacts before passing them on to future generations" (Lantolf, 2000, p. 1). That is, the relationship between human beings and the world around them is mediated. Haywood and Lidz (2007, p. 42) argue that "mediation is what good teachers and parents do when they promote high levels of mental functioning in their children and learners". Thus, mediation in itself is a simple concept but has remarkable influences on individuals' mental development, which starts from the Zone of Proximal Development (ZPD). That is why the SCT-based DA views the ZPD as the realm of development and sets the ZPD at the heart of teaching/learning as well as socialization processes. Vygotsky (1978) referred to the difference between the child's biological age and intellectual age as ZPD and defined it as "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 others" (Vygotsky, 1978, p. 85). He brought up the ZPD in order to delineate a new approach to diagnosing learners' intellectual development. Vygotsky maintained that using this approach, researchers can obtain greater insights into individuals' intellectual development and "penetrate into the internal causal-dynamic and genetic connections that determine the process of mental development." (Vygotsky, 1987, p. 203)

To determine what the learner can do independently, the previous or actual level of learners' development should be explored. But to investigate what the learner is able to do with a

more-skilled person (e.g., parents, peers, teachers, etc.), learners' potential development should be determined. Therefore, what learners can do only with the support of more skilled others and the next day without them, encompasses the ZPD, which emerges when learners are involved in a learning activity (Leontiev, 2001).

2.1 Definition and Scope of Dynamic Assessment

It can be argued that DA simultaneously serves evaluative and instructional purposes. In its assessment purposes, it aims to understand learners' abilities; in its instructional objectives it aims to support learners' development. In other words, assessment and instruction are integrated activities. This pedagogical approach helps language practitioners diagnose learners' specific areas of difficulty and help them develop to reach the state of ripening (Poehner, 2009; Poehner & Lantolf, 2005; Vygotsky, 1978). Lantolf and Poehner (2004) defined dynamic assessment as a procedure for "simultaneously assessing and promoting development that takes account of the individual's (or group's) zone of proximal development." (p. 50)

According to Sternberg and Grigorenko (2002, pp. 28-29), DA can be distinguished from NDA in three perspectives. Regarding assessment goals, NDA focuses on "products formed as a result of pre-existing skills." In terms of assessment administration, the non-dynamic paradigm does not authorize "feedback from examiner to test-taker regarding quality of performance" during the test procedure. Finally, regarding the examiner's standpoint in NDA, it is important "to be as neutral and as uninvolved as possible toward the examinee."

From these three perspectives, DA is sharply distinct from NDA. First and foremost, from a DA viewpoint, there is no need to assess content as well as abilities that are already mastered by learners. Likewise, there is no necessity to test abilities that are not formed yet or to test content that exceeds learners' present level and, therefore, to engender frustration and "create problems with motivation and perseverance" (Haywood & Lidz, 2007, p. 43). Second, in DA, assessment and instruction are not separate entities. For this reason, within the framework of DA, the tested abilities and the content used for pretest and posttest activities should be within learners' ZPD and, therefore, teachers are supposed to find and create learners' ZPDs. Finally, DA rejects teachers' neutral position during the testing session. Quite on the contrary, DA requires a teacher to be involved and to function "as a mediator who reacts to learners' responsiveness" (Lantolf & Poehner, 2004, p. 59).

This paper aims to examine the role of DA in developing the listening comprehension of EFL learners and determine the extent to which DA can better foster listening comprehension development than NDA. This study also endeavors to illustrate the potential and effectiveness of DA in diagnosing L2 learners' problems in listening comprehension and putting them right through mediational strategies. To achieve the realization of the goals delineated, the following research questions are formulated:

1. To what extent can DA enhance the development of L2 listening among freshmen EFL learners?
2. Is there any significant difference between L2 learners' listening comprehension development in the DA group and the NDA group?
3. To what extent can DA diagnose L2 learners' listening comprehension difficulties?

3. Method

3.1 Design of the study

The principal aim of this study is to investigate the diagnostic capacities of DA as well as the effects of DA-based instruction on the development of listening comprehension in beginning EFL university learners in Iran. In the light of Poehner's (2009) study, the present study has a pre-test/enrichment program/post-test design. Each pre-test/post-test/transfer session normally includes two stages: (1) independent (unassisted) performance, conducted non-dynamically, and (2) mediated performance carried out dynamically.

Table 1
The schematic representation of the design of the present study

Time	Group 1 (mediated)	Group 2 (non-mediated)
Week 1-2	pretest (NDA + DA) (4 texts)	pretest (NDA)
Week 3-5	enrichment program (EP)	-----
Week 6-7	Post-test (NDA+DA) (4 texts)	Post-test (NDA)
Week 8	transfer (transcendence) (2 texts)	-----

3.2 Participants

The participants of this study are fifty first-year-students of English at Imam Khomeini International University (IKIU), ranging in age from 18 to 22. They were enrolled in a compulsory English language conversation course where they met twice a week. To achieve the purposes of this study the students were randomly divided into two groups of mediated and non-mediated. The students in the two groups were approximately at the same English language proficiency level.

3.3 Materials

Richards' (2010) *Tactics for Listening* was used in this study. The book contains interesting and authentic texts useful for most beginning or intermediate language courses. All the texts used in the study were authentic and similar in terms of topic, pace of delivery and level of difficulty. The texts were authentic interviews with different people talking about their weekends. Recent research has shown that authentic texts, in particular authentic audio texts, have a considerable influence on developing communicative competence in second or foreign language learners (Ableeva, 2010; Mori, 2002). Another criterion considered in text selection, besides authenticity, is related to Poehner's (2009) caveat that tasks should require a level of functioning beyond what an individual can reach independently but that he or she may reach with mediation. To meet this requirement, efforts were made to select the listening texts which were a bit difficult for the participants but surmountable with mediation.

3.4 Procedure

Two classes (N=50) at IKIU approximately at the same level of proficiency based on their official nationwide university entrance exam were selected. The participants in the first group performed on the four pre-test texts first independently (NDA) and then dependently through mediational strategies (DA). In fact, the independent performances (IPs) showed the participants' actual level of development (ZAD) and the MPs (mediated performances) were indicative of the participants' ZPD. The NDA elicitation stage served as a diagnostic procedure to gain insights into the students' independent performance abilities. Upon the participants' failure to provide correct answers, the researcher intervened and mediated in the participants' understanding of the text providing some mediational strategies such as offering a choice, translation, asking the words, and replay of the passage. The decision to administer the NDA and DA simultaneously in the post-test sessions draws on Poehner's (2005) suggestion that in DA it is not necessary to administer an NDA test separately since the DA procedure has the dual function of determining students' ZAD and ZPD.

The participants in the second group were administered the same pre-tests, but they only performed on the tests independently without receiving any mediation. Then, the first group (DA group) received the enrichment program for three weeks during which time the second group (NDA group) was on its own. During the EP sessions conducted in a group format, the participants repeatedly mediated each other; helping their friends to overcome problematic areas. These problems were encountered throughout the text discussions, mainly lexical difficulties. In brief, the instruction provided throughout the enrichment program was sensitive to the participants' L2 ZPDs and sought to broaden, and in some cases create their ZPD regarding L2 listening comprehension. Then, during the post-test sessions, which lasted for two weeks, both groups were presented the same four texts used in the pre-test. Again the first group performed independently and dependently on the texts, but the second group performed on the tests only independently. Finally, the performances of the participants are reported in the two TA sessions.

The changes in the percentage of the recalled IUs were considered a quantitative measure of the participants' listening performances. This study, similar to that of Ableeva's (2010), followed a one-on-one mediator-learner tutoring design. According to Ableeva (2010), during the interaction with the learner, the mediator had two main goals. First, the mediator diagnosed the sources of the problem impeding the comprehension. Second, she offered the learner an opportunity to improve his/her listening comprehension ability. That is, every individual received mediation based on his/her own level and the hints were personalized. This way the zone of proximal development will be improved for every learner since no two learners have exactly the same problems.

3.5 Data Analysis

Pausal unit analysis (PUA) or idea unit (IU) analysis was used to assess comprehension of L2 aural texts. L2 research considers text recall tasks an effective quantitative and qualitative gauge of reading comprehension (Appel & Lantolf, 1994; Bernhardt, 1991; Carell, Devine & Eskey, 1991; Lee & Ballman, 1987;) and listening comprehension (Elkhafaifi, 2005; Jung, 2003, 2007; Long, 1990; Mueller, 1980; Sadighi & Zare, 2006; Schmidt-Rinehart, 1994; Vogely, 1995). Appel and Lantolf (1994) argue that text comprehension and recall are tightly related in that

readers can only recall what they understand from texts. The recalls were scored against the list of IUs and only the information explicitly stated in the aural text was counted. Paraphrases were allowed because the participants could also produce the recalls in Persian, the participants' L1. The number of recalled idea units was considered evidence of text comprehension.

4. Results and Discussion

4.1 Tracking Micro-Gains of Listening Development: Descriptive Statistics

This study aimed to investigate the effects of DA-based instruction during the pre-test and enrichment program on the participants' listening performance in terms of changes in the number of the IUs recalled successfully. The data analysis took into consideration the participants' mediated and unmediated recalls of the IUs contained in the texts during assessment sessions. It is worth mentioning that since there were 20 participants involved in each group, the mediated and non-mediated group, the mean of the number of the IUs recalled individually during the assessment sessions was taken as the performance of the whole class. Furthermore, since the number of IUs in each text was not the same, the percentage of the mean of the IUs recalled for each text was considered to make comparisons more understandable and calculations easier.

The comparison of the percentages provided in Figure 1 indicates that the percentage of the idea units recalled in each of the post-test texts was generally higher than those recalled in the same texts in the pre-test sessions. For example, the percentage of independent recall of IUs in text 1 was 47% in the pre-test, while 59% of the IUs was recalled in the same text in the post-test. The same is true about the other texts.

It can be said that the total percentage of IUs recalled independently by the participants in the post-test (approximately 62%) was generally higher than that recalled in the pretest (approximately 52%). However, the comparison of the assisted performance indicates that the participants' reliance on the teacher's support was more in the pre-test sessions than that in the post-test sessions (a decrease from 22.54% to 14.62% recalled IUs). This improvement appears to be primarily the result of the mediation and enrichment program tuned to the participants' ZPDs. According to Poehner (2005), it is assumed that after the enrichment program the learners who need only implicit mediation to accomplish the task have taken responsibility on their performance and have approached a point where they are able to independently complete it. The participants' drastic departure from a low level of independent ability and a high level of reliance on the teacher's support in terms of IU recalls in the pre-test to a higher level of independent ability and less reliance on the teacher's support in the post-test can be graphically demonstrated in Figure 1.

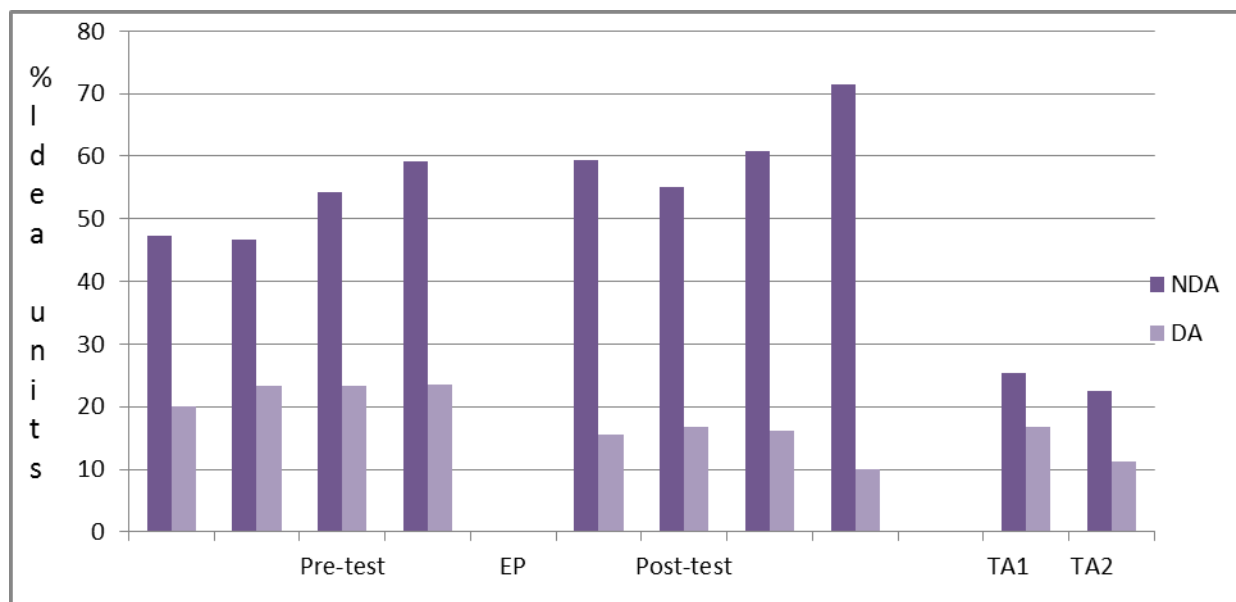


Figure 1. Graphic representation of un/assisted recalled Idea Units for pre/post-test and TA sessions (mediated group).

A better look at Figure 1 makes it clear that besides the improved performances observed, the participants sometimes encountered problems insurmountable for them. For example, they had difficulty comprehending a certain number of IUs not only in the pre-test but also in the post-test where they had received the pre-test mediation and the EP since not all the units could be recalled by the participants. The observation of such failures in comprehension demonstrates that sometimes the problems they face may lie way beyond their ZPD in such a way that even explicit mediation does not help to set their developmental processes in motion.

4.2 Tracking Micro-Gains of Listening Development: Inferential Statistics

Paired samples t-tests were administered to determine the extent to which the learners improved their listening ability following DA-based mediations and the enrichment program (research question 1). The paired t-test analysis was chosen for this task because it allowed the comparison of the pre-test and post-test scores of each individual and the exploration of whether the means of the pre-test and post-test results are significantly different from one another or not.

Regarding the present paired t-test analysis, PreT1NDA in the pre-tests was termed pre-mediated condition (PMC) since this session was conducted before any mediation and the enrichment program. That is, PreT1NDA results represent the baseline of independent performance before any mediation was offered to the learners. PreT2NDA termed very near transfer was conducted following the first DA intervention (in PreT1DA); and near transfer (PostT1NDA) was carried out following the enrichment program and four DA-interventions (in PreT1DA, PreT2DA, PreT3DA, and PreT4DA); Thus, paired t-tests were run to explore the significance of the mean differences for the following two combinations:

1. Mean difference between PMC (PreT1NDA) and very near transfer (PreT2NDA).
2. Mean difference between PMC (PreT1NDA) and near transfer (PostT1NDA).

The mean difference between pre-mediated condition (PreT1NDA) and very near transfer (PreT2NDA) is presented in Table 4.2.

Table 2
Paired t-test for PreT1NDA - PreT2NDA

pair	Mean	t	df	Sig. (2-tailed)
pretest1NDA - pretest2NDA	0.109	0.338	19	0.73

As Table 2 depicts there was no significant difference between pre-mediated condition (M=9.45, SD=3.83) and very near transfer [M=9.34, SD=3.10, $t(19)=0.33$, $p < 0.73$]. This result was somehow expected because the participants had only received one mediated session before PreT2NDA and more importantly both PreT1NDA and PreT2NDA were held before the enrichment program.

Table 3 illustrates the mean difference between pre-mediated condition (PreT1NDA) and near transfer (PostT1NDA).

Table 3
Paired t-test for PreT1NDA - PostT1NDA

pair	Mean	t	df	Sig. (2-tailed)
pretest1NDA - posttest1NDA	2.41	10.52	19	0.000

As Table 3 displays, there was a significant difference between pre-mediated condition (M=9.45, SD=3.83) and near transfer [M=11.86, SD=3.34, $t(19)=10.59$, $p < 0.0005$]. The eta squared statistic (0.85) indicated an extremely large effect size. This result confirms that a dramatic improvement in independent listening performance may be attributed to the administration of the enrichment program and the four DA-based interventions during PreT1DA, PreT2DA, PreT3DA, and PreT4DA.

4.3 Comparison of the Development of the Mediated and Non-Mediated Group

In order to further consolidate the results and find more support for the effect of DA-based instruction and intervention, a comparison was made between the mediated and non-mediated group in terms of their performance on the post-test (research question 2). The mediated group received 4 mediated sessions and an enrichment program before the post-test sessions while the non-mediated group received no mediation while performing on the post-test. The mean of the performances of the participants in the four post-test sessions for both groups was calculated and then an independent samples t-test was conducted. The results of the independent samples t-test is shown in Table 4.

Table 4
Comparing performances of mediated and non-mediated group in post-test

Levene's Test for Equality of Variances				
F	Sig.	t	df	Sig. (2-tailed)

Post-test	Equal variances assumed	4.044	0.049	2.429	48	0.019
	Equal variances not assumed			2.429	45.84	0.019

As illustrated in Table 4, an independent-samples t-test was conducted to compare the listening performance of the mediated and non-mediated group. There was a significant difference in the scores of the mediated group ($M=12.46$, $SD=2.93$) and the non-mediated group [$M=10.86$, $SD=1.87$; $t(48)=2.43$, $p< 0.05$]. The magnitude of the differences in the means was somehow large ($\eta^2=0.10$). The results presented here confirm the fact that mediating the participants' performance during assessment sessions greatly and significantly influences their development in listening comprehension.

4.4 Diagnosing Problem Areas

Recent L2 listening researchers have been concerned with the current lack of diagnostic tests aimed at better informing instructional contexts. The present section responds to Buck's concern, cogently expressed in Buck (2001, p. 97), i.e., "there are currently few diagnostic tests of listening, largely because we still do not fully understand what the important sub-skills of listening are; nor are we sure what information educators need to teach [and to assess] listening better". Dynamic assessment, employed in this study, is referred to as the dialectic unity of instruction and assessment, allowing for a fine-tuned diagnosis of what otherwise would most likely remain as hidden abilities (in Vygotsky's terminology, abilities that are 'ripening'). It reveals problem areas, while endorsing development.

One frequent problem almost all learners faced was confusion of one familiar word with another when heard in rapid speech. This phonological confusion constituted a big challenge in text comprehension. When the confused segment was focused on through mediational moves, some of the participants were found able to disambiguate their confusion. An example can be the confusion of the word [all] with the word [are]. The reason may be the similar place of articulation of liquids /l/ and /r/. Another example apparent in the transcripts is the confusion of the word [write] with [ride] or [right]. This problem seems to lie in the fact that in American English the phoneme /t/ is pronounced flap and this results in confusion. The following excerpts from the participants' transcripts, presented in Figure 2, illustrate the points. As the last excerpt shows, the participant could understand the problem after being mediated and corrected the confusion.

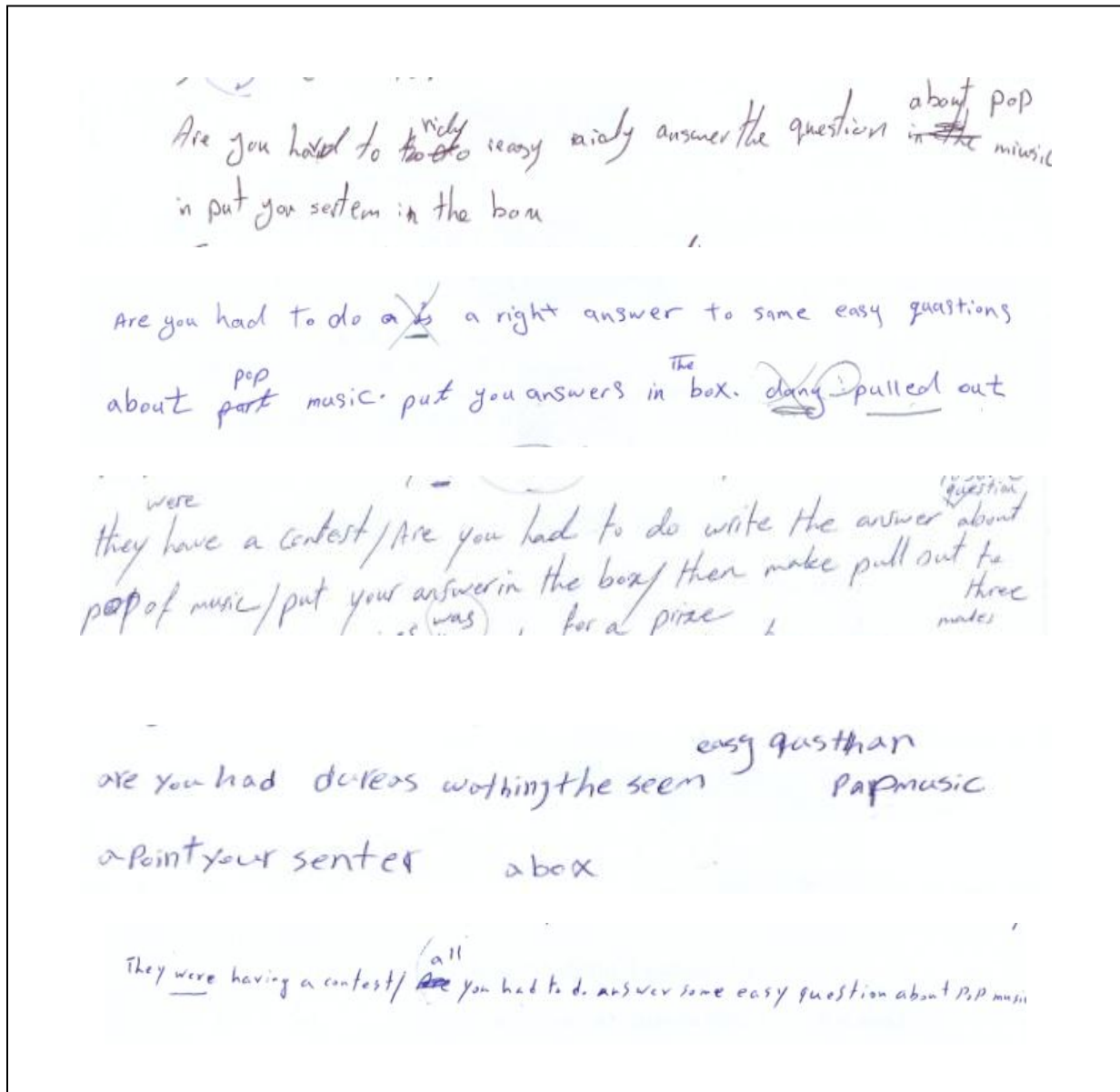


Figure 2. An example of the participants' transcription of the sentence [All you had to do was write answers to some easy questions about pop music.]

Another problem usually observed in the participants' performances was not recognizing a known word. This problem seems to be the result of their inability to decode one of the sounds or syllables in the word. The following excerpts in Figure 3 demonstrate the role of mediation in surfacing this phonological problem

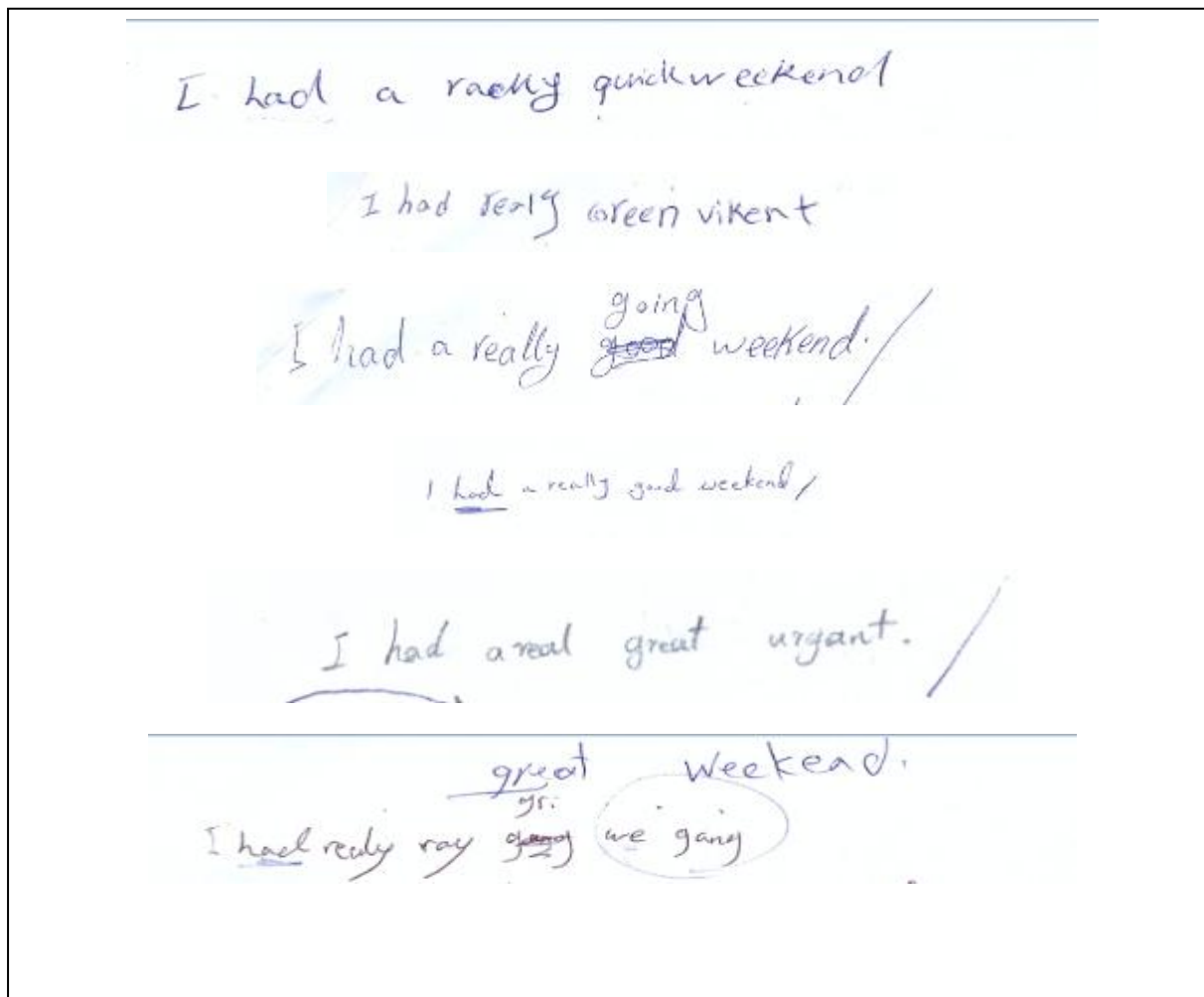


Figure 3. An example of the participants' transcription of the sentence [I had a really great weekend.]

As Figure 3 shows, the participants tried to replace the words with some other ones when they could not decode the sentence. One of them replaced the word [weekend] with [urgant]. The other participants replaced the word [great] with [good], [quick], [going], or even [coreen] which is nonexistent in English. In the last script the mediator had to provide the correct answer. The words [great] and [weekend] do not seem to be beyond the ZPD of the participants; however, the participant had difficulty decoding them. This shows that they were not familiar with English phonology and American Accent.

Some research in SLA has rejected the significant effect of grammatical knowledge on listening comprehension in favor of lexical knowledge (Mecartty, 2000; Vandergrift et al, 2006). However, some other researchers have found convincing support for the contribution of grammar knowledge to text comprehension (August, 2006; Gascoigne, 2005; Lopez, 2008; Taheri, 2009). For example, through step-wise multiple regression analysis, Taheri (2009) found that grammar knowledge predicted approximately 21 percent of the variation in reading comprehension.

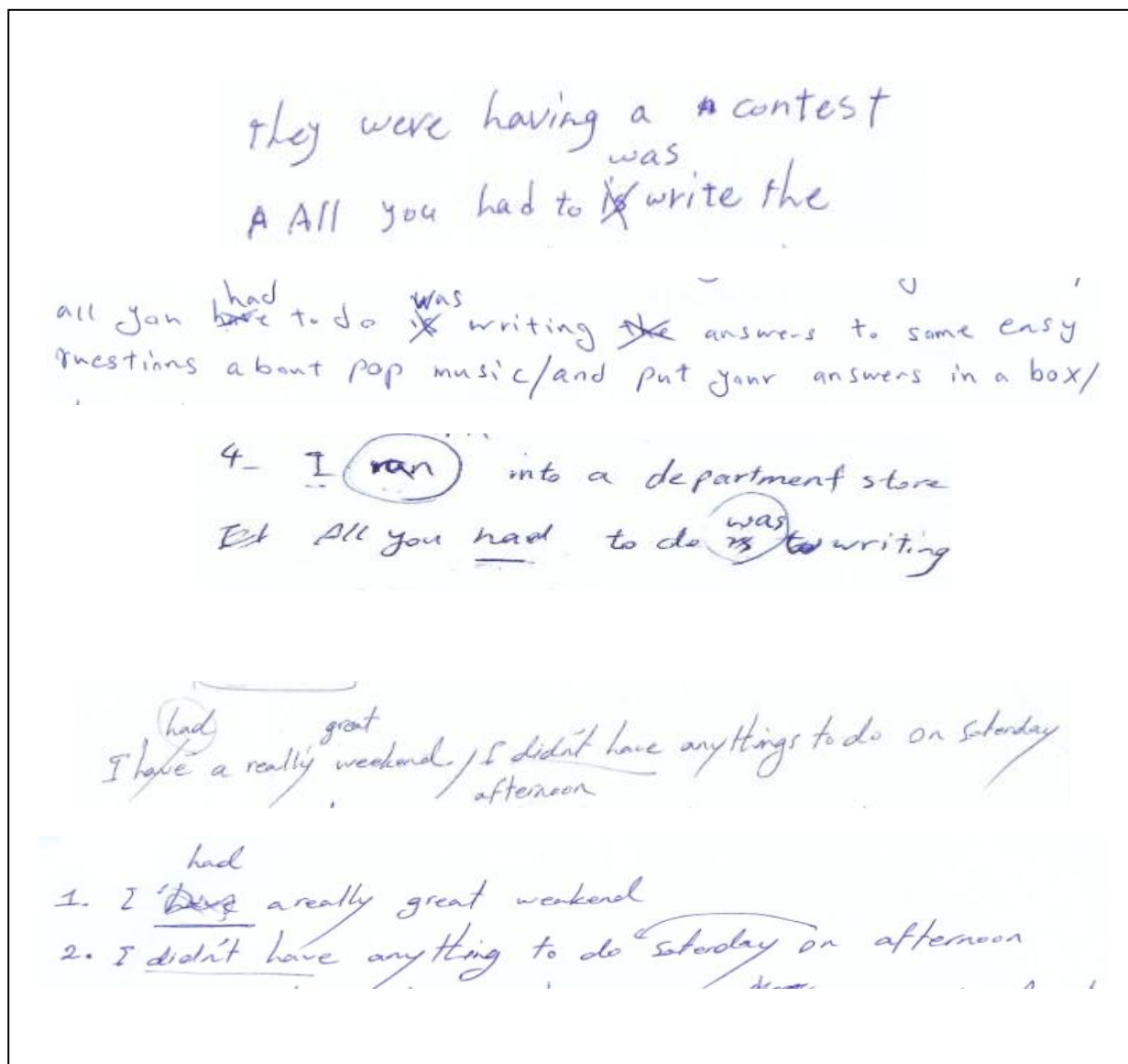


Figure 4. Transcripts of the participants indicating their improvement in grammar knowledge

The results provide evidence for the effect of grammar knowledge on the participants' listening comprehension. The excerpts, presented in Figure 4, indicate how mediation helped participants understand their grammatical problems and try to solve them.

4.5 Discussion

This study aimed to address the concerns articulated in L2 listening research and add to the body of knowledge on L2 listening processes through conducting a DA-based approach to listening

assessment. The study also illustrated how listening comprehension could be diagnosed and further promoted through DA within the ZPD.

The analysis provided insights into the participants' assisted and unassisted listening performance through the counts of the recalled IUs. Then, the analysis proceeded to indicate the potential role of mediation in bringing to light the underlying causes of the participants' listening difficulties. A number of factors affecting listening comprehension such as phonological, lexical and grammar related factors were identified. The results illustrated that lacking L2 phonology was a serious contributor to breakdowns in listening comprehension.

5. Conclusions and Implications

In order to answer the first research question, that is, the extent to which DA can enhance the development of EFL listening among freshmen EFL students, a comparison was made between the performances of the participants in the pre-test and post-test sessions. The comparison of the percentages indicated that the percentage of unassisted idea units recalled (IU) in each of the post-test texts was generally higher than those recalled in the same texts in the pre-test sessions. This improvement in the number of recalled IUs from the pre-test to the post-test may indicate the influence of the DA-based interactions and more importantly the EP. This may also be proof for the participants' self-regulation and their independence, the outcome of mediation and scaffolding (Wood et al., 1976). The comparison of the assisted performance indicated that the participants' reliance on the teacher's support was more in the pre-test sessions in comparison to the post-test sessions. The participants' drastic departure from a low level of independent ability and a high level of reliance on the teacher's support in terms of IU recalls in the pre-test to a higher level of independent ability and less reliance on the teacher's support in the post-test indicated their development as a result of the mediation sessions and the EP. To track the microgenetic development that the participants underwent after the mediation sessions and the enrichment program, two t-tests were run to find the significant differences between the mean scores of PMC (PreT1NDA) and very near transfer (PreT2NDA), and near transfer (PostT1NDA). Except for the first combination, the other combination was found to be significantly different, indicating the effect of the enrichment program on the development of the participants' listening comprehension.

In order to answer the second research question, that is, whether there is any significant difference between L2 learners' listening comprehension development in the DA group and the NDA group, a comparison was made between the mediated and non-mediated group in terms of their performance on the post-test. To this end, an independent-samples t-test was conducted to compare the listening performance of the two groups. There was a significant difference in the scores of the mediated group and the non-mediated group.

To answer the third research question, i.e., the extent to which DA can diagnose L2 learners' listening comprehension difficulties, the exchanges between the mediator and the participants were analyzed. The analysis revealed that the participants' listening comprehension was influenced by the lack of phonological, grammatical, lexical and cultural knowledge. It was also found that phonology was the most problematic area, creating considerable breakdowns in the participants' listening comprehension.

The results of this study were in line with the previous research on DA-based studies in listening comprehension (Ableeva, 2007, 2008, 2010; Ableeva & Lantolf, 2011; Alavi *et al.*,

2012; Poehner, 2008, 2009; Shabani, 2011). The findings were also in concert with the other studies investigating speaking, grammar, and reading comprehension within the framework of DA (Donato, 1994; Gibbons, 2003; Kozulin & Garb, 2002; Poehner, 2005; Shopina, 2002). All the research conducted in this field unanimously found support for the application of DA in different fields of applied linguistics.

The data collected in this study amplifies our knowledge of the ZPD, one of the fundamental concepts proposed by Vygotsky. First, this study adds to the body of research on L2 research, in particular to L2 research informed by SCT (Lantolf & Aljaafreh, 1995). The conduction of a longitudinal study brought more insights into the regressive and progressive nature of L2 listening ability within the ZPD. Second, the study contributes to those SCT-based studies that try to examine the characteristics of the ZPD. Finally, one of the most important findings of this study is that during the last assessment sessions the learners produced more progressive than regressive moves.

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