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Effects of Dynamic Assessment of Speaking Skills on Learners' Oral Fluency: The Case of Higher Education

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Abstract

One of the factors that determine second language (L2) oral fluency is knowledge of grammatical structures. The purpose of this research was, thus, to examine the extent of the effects of dynamic assessment (DA) of English language structures on learners' oral fluency. To do so, an experimental study was conducted on 48 second-year English language students of Hawassa University, Ethiopia. The participants took static pretests prepared based on the International English Language Testing System (IELTS) Speaking Exam Syllabus. Then, the tests were scored in terms of speech rate, articulation rate, and mean length of utterance using PRAAT software. Next, the participants were categorized into control and treatment groups based on systematic random sampling, and the equality of these two groups was checked using Levine's Test of Homogeneity of Variance . Finally, the treatment group received DA of speaking skill and the control group got non-dynamic assessment (NDA) of speaking skill for 12 weeks. The result showed that DA had no statistically significant effect on students' oral fluency. The study calls for further investigation to identify the most determining factors of L2 learners' oral fluency.

Keywords: Dynamic assessment, Oral fluency, Speaking skill, L2

1. Introduction

Oral proficiency skills are the most crucial part of the English language teaching /learning curriculum and this, in turn, makes assessment of speaking a central issue in English Language Teaching (ELT) classroom (Luoma, 2004). The overall objective of English language instruction is to equip learners with the important skills thereby helping them use English effectively and efficiently with a greater level of accuracy and fluency; however, students even after many years of studies cannot use the language fluently and accurately (Manurung & Izar, 2019). Strengthening this view, studies conducted in Ethiopia by Desalegn (2020), and Getie (2020) show that students' English language speaking performance is drastically declining from time to time. Also, as teachers of the English language for more than a decade, the present researchers could witness that students mostly prefer to be silent and remain passive during speaking sessions. Sometimes, when obliged to speak, they repeatedly get stuck in the middle of their speech.

Students usually pause now and then during L2 conversations due to a number of factors. For example, Kormos (2006) revealed that students' speech rate and the mean length of runs are considerably

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lower in L2 than in L1 due to lack of knowledge of L2 grammatical structures. Similarly, De Jong (2016) asserts that inter-individual differences such as sex, age, and other emotional and health factors such as anxiety and pain are determining factors of oral fluency. However, the most determining factors in learners' L2 oral fluency need to be examined so as to take remedial measures in the process of English speaking instruction/assessment. This would eventually help to salvage the declining status of learners' oral proficiency. These days, second language testing/teaching experts and psychologists emphasize the application of dynamic assessment (DA) as an alternative approach of second language (L2) testing/instruction to enhance learners' oral proficiency in general and oral fluency in particular. Vygotsky (1978) and his proponents, for instance, Kozulin and Garb (2004), Poehner (2005, 2008), Feuerstein et al. (2010), and Poehner and Lantolf (2010) proposed that DA, which is one part of socio-cultural theory, is an important approach of L2 instruction/assessment. The DA approach helps L2 learners to successfully acquire the target language through provision of contingent mediation tailored to the cognitive needs of students.

Also, recent studies conducted by scholars such as Ajideh and Nourdad (2012), Naeini and Duvall (2012), Aimin (2013), Panahi et al. (2013), Kao (2015), and Yang and Qian (2017) proved that DA is an invaluable way of instructing/assessing learners in the process of second language acquisition. Perhaps most recently, studies done by Pratolo and Zahruni (2020), Ghahderijani et al. (2021), and Alshammari (2022) underscore that applying DA of speaking activities in L2 classroom can help learners improve oral fluency.

The current study, however, attempted to fill important methodological and theoretical gaps. As to the present researchers' knowledge, there have not been empirical studies that employed PRAAT software to objectively detect learners' fluency development. Previous studies used a subjective measure of oral fluency which is scored intuitively by raters or testers. Also, as far as local researches in Ethiopia are concerned, there are no studies that have focused on alternative ways or supplementary techniques of speaking assessment/instruction to enhance learners' oral proficiency. In other words, the theory of dynamic assessment of speaking skill along with ZPD (Zone of Proximal Development) has never been tried in Ethiopia.

Hence, the objective of this experimental study was to objectively look into effects of interactionist dynamic assessment of speaking skills on learners' English language oral fluency. The study specifically attempted to answer whether or not dynamic assessment of grammatical structures during dialogue helps learners improve their oral fluency during speaking. The hypotheses formulated were as follows:

Ha= DA of grammatical structures helps students improve their oral fluency.

Ho =DA of grammatical structures does not help students improve their oral fluency.

2. Theoretical Framework

This study is conceptualized within Vygotsky's (1978) socio-cultural theory (SCT) framework which dictates that the human mind is mediated and every individual's overall development should encompass both his/her actual and potential development. The concept of DA was primarily reflected in the works of Vygotsky (1978) in his noble idea of the Zone of Proximal Development (ZPD). Vygotsky (1978) explained the term ZPD 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 peers"(p. 86).

Feuerstein et al. (2010) assert that research works in the area of dynamic assessment have recently been influenced by the theory of Structural Cognitive Modifiability (SCM). The theory of SCM is very much in line with Vygotsky's theory of ZPD. Feuerstein and his colleagues state that all human characteristics such as behavior, cognition, and personality are modifiable using human mediation. The Mediated Learning Experience (MLE) model developed by Feuerstein et al. (2010) state that human mediator is an essential element during student--teacher interaction. Unlike the S-O-R (stimulus-organism-response) schemata of the

behaviorists, the MLE model adds the human being to the S-O-R schemata and places an 'H' for the human mediator between the stimulus and the organism and between the organism and response, as shown in the Fig. 1 (Feuerstein, et al., 2010).

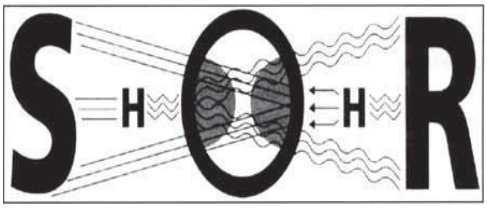

Fig. 1 Model of Mediated Learning Experience

Thus, this study was built on Feuerstein's MLE model of dynamic assessment and employs an interactionist approach where the mediations are not predesigned but rather adjusted based on the immediate cognitive needs (i.e. grammatical structures) of each student. So, in this study DA refers to a speaking assessment approach that integrates both instruction and assessment simultaneously through providing contingent hints on grammatical structures to students during conversation.

3. Conceptual Framework

Fig. 2 below depicts the conceptual framework of the study. It is sketched based on Feuerstein's model of DA where classroom teacher and students interact within the frame of the three universal mediation criteria, such as intentionality and reciprocity, meaning and transcendence. As can be seen below, Fig. 2 shows the interplay between the classroom teacher and a student in which the teacher provides a student hints on grammatical structures, and the student receiving mediation responds to the teacher. This interplay is indicated using the broad arrows above and below the boxes. The teacher's mediation and the learner's reciprocity continue until the student manages to correct the grammar error by making use of the mediations. This continuing process is indicated by the blue arrows that stretch from the teacher to student and vice versa. During such interplay, the student constructs his/her ZPD in his/her oral fluency as it is indicated by the broad arrow in the middle of the figure. That means while the teacher's mediations and learner's reciprocities are on the move, in the meantime, the learner's Zone of Actual Performance [ZAP] on oral fluency transcends step by step to his/her Zone of Proximal Development [ZPD]. In short, the conceptual framework shows how the MLE theory was employed to examine the effect of the independent variable [interactionist DA] on learners' oral fluency, that is, dependent variable.

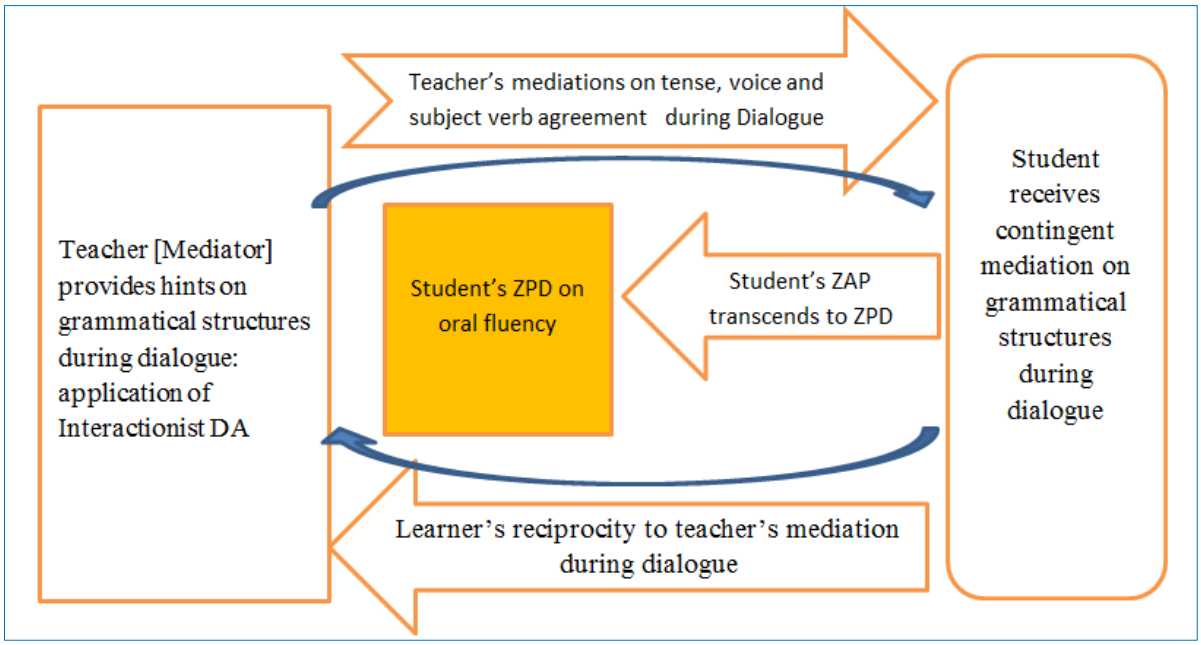

Fig. 2 Conceptual Framework of the Study

4. Review of Related Literature

4.1 Dynamic Assessment (DA) and Non Dynamic assessment (NDA)

Dynamic assessment (DA) is an active teaching process that simultaneously integrates instruction and assessment in order to optimize learners' cognitive functioning through provision of contingent mediation (Lidz, 2003, 2015 & Feuerstein et al., 2019). On the other hand, non-dynamic assessment (NDA) or static assessment (SA) is an assessment strategy employed by a teacher to record learners' independent performance (Feuerstein et al., 2019).

4.2 Models, Approaches and Formats of Dynamic Assessment

4.2.1 Models of Dynamic Assessments

There are different models of Dynamic assessments, which are represented based on their primary developers. However, most of them can be categorized under four major models. These include Feuerstein's highly intuitive and clinical approach, Budoff's standardized procedure, Campione and Brown's graduated prompts, and Lidz's curriculum-based dynamic assessment (Lidz, 2003).

The current study was based on Feuerstein's model of dynamic assessment. Feuerstein's model of Interactionist DA was developed independently from Vigotsky's work; however, many of the research works and instructions done at Feuerstein's International Centers for the Enrichment of Learning Potential in Israel are the extension of the works begun by Vigotsky and Luria some 70 years ago (Poehner & Lantolf, 2008). This model of DA helps to obtain evidences of the learner's responsiveness to interaction on a descriptive level, as well as information regarding the types of interactions and mediations that yielded positive effects and the intensity of effort involved in eliciting learner modifiability (Feuerstein et al., 2010 & Lidz, 2003).

In Feuerstein's model of DA, which is also called Mediated Learning Experience (MLE), interaction between the learner and the mediator must satisfy three universal criteria of mediation. These are mediation of intentionality and reciprocity, mediation of meaning; and mediation of transcendence. Intentionality refers to initiating learners for participation and maintaining their focus by scheduling the stimulus, and reciprocity is to mean active participation of the learner. Similarly, mediation of transcendence refers to the learners' cognitive development or what the learner has achieved due to mediations; mediation of meaning refers to the significance of what the student is learning (Feuerstein et al, 2010 ; Isman & Tzuriel, 2008 ; Poehner & Lantolf, 2008).

4.2.2 Approaches to DA

There are two approaches to DA: interactionist DA and interventionist DA . In the interactionist approach the various mediations are not prefabricated and preplanned. Instead, they are adjusted according to the learners' cognitive level and responsiveness in the course of the interactions. This approach is more relevant to classroom context. It is also very much related with Vigotsky's ZPD and Feuerstein's interactionist DA(Poehner & Lantolf,2008, 2010).

In the interventionist DA, however, mediations are standardized through a prefabricated and predetermined set of hints and prompts that are arranged in advance and provided to learners while they move from implicit to explicit scale. This approach is criticized for standardizing mediations since predetermined hints and prompts decreases learners' chances of co-constructing a ZPD (Poehner & Lantolf, 2008, 2010).

4.2.3 Formats of Dynamic Assessment

The two major structures of dynamic assessments which are used in the research and education settings are the sandwich format and the layer cake format (Sternberg & Grigorenko, 2002 , as cited in Poehner , 2008). The sandwich format is the most widely used structure to implement DA in a test-intervention-retest

procedure where dynamic assessment and mediation occur between two static tests, that is, pretest and posttest (Grigorenko , 2002 & Lidz , 2007, as cited in Phoner, 2008, 2011). On the other hand, the Layer cake format is a DA procedure where mediation is provided to students item by item whenever they face problems; if students are able to answer the first item ,then the next item is given; if not students are given graded assistance (Mehrnoosh & Rassaei, 2015; Phoner, 2008 ; Vergara et al. , 2019).

4.3 Testing Oral Proficiency

Evaluating oral proficiency is an essential element in testing overall language proficiency. Learners' level of oral proficiency is mostly measured through interview using scoring scales; the scoring scales usually measure learners' language use such as oral fluency, grammatical accuracy, intelligibility, and richness of vocabulary (Nation, 2011). Some English language proficiency tests, for instance, the International English Language Testing System (IELTS), and the Test of English as a Foreign Language (TOEFL) evaluate oral proficiency based on certain criteria such as fluency and coherence, lexical resource and grammatical range and accuracy. Park (2016) also identified important components of oral proficiency as shown in the Fig. 3 below.

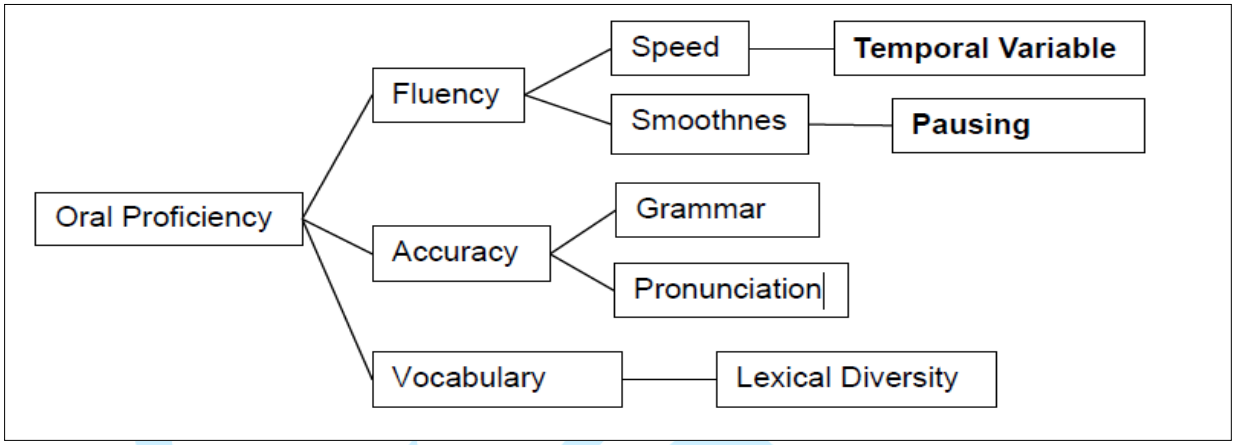

Fig. 3 Components of Oral Proficiency

The figure illustrates that fluency and accuracy are the major components of oral proficiency. Moreover, it depicts temporal variables and pauses as main variables of oral fluency. This, in turn, indicates the paradigm shift of researchers' interest from subjective to objective measures of fluency. This is because temporal variables such as speech rate, articulation rate, mean length of utterance, number of pauses and pause rate can easily and accurately be measured using machines.

These days there is a great interest among researchers to use objective measures of oral fluency and grammar accuracy than subjective scoring (Park, 2016). The recent development in computer-aided measure of oral fluency seems to be replacing the traditional approach. For instance, PRAAT software can help researchers to objectively measure learners' oral fluency.

4.4 Defining Fluency

The concept of fluency is conceived in terms of two aspects: the narrowest and the broadest meanings (Luoma, 2004 ; Kormos, 2006). In its narrowest definition fluency is associated with speech features such as pausing, repairs, hesitations and speech rate; however, in its broadest definition, fluency is to mean over all speaking proficiency (Luoma, 2004; Kormos, 2006 ; De Jong et al., 2013). This means fluency in its narrow sense is taken as one criterion to gauge the level of non-native learners' speaking proficiency (Kormos, 2006 ; De Jong et al, 2013). In this study, therefore, oral fluency refers to the narrow notion that signals the ability of L2 learners to speak English without unnecessary pauses and hesitation markers.

4.5 Determining Factors for Learners' Oral Fluency

Learners' speaking competence is affected by linguistic, cognitive, and affective factors. Linguistic factors include knowledge of vocabulary, accurate pronunciation, and lexical and grammar skills while cognitive factors refer to learners' ability to organize what to utter with appropriate words and grammar. Affective factors are related to emotional elements, for instance, anxiety, self -restriction, and worrying about making mistakes (Levelt, 1989 ; Arnold & Brown, 1999 & Brown , 2001, as cited in Wang , 2007 ; Leonard, 2015).

4.6 Measuring Fluency

Fluency can be seen from three perspectives: cognitive fluency, perceived fluency and utterance fluency (Tavakoli et al., 2016 ; Bosker et al., 2013). This study focused on utterance fluency, which is the objective acoustic measure of an utterance scored by machines like PRAAT software.

Recent research works have proved that temporal variables such as speech rate (SR) and mean length of utterance (MLR) are considered as reliable predictors of oral fluency since they can easily be extracted from a spoken data using PRAAT software (De Jong, 2016; De Jong et al., 2013; Park, 2016; Tavakoli , 2016; Ejzenberg , 2000, as cited in Farahani & Kouhpaeenejad, 2017).

5. Research Methodology

5.1 Research Design

This study adopted an experimental design. It specifically employed a Pretest-Posttest Control-Group Design in which the researchers randomly assigned students to control and treatment groups. In such design, the treatment is provided only to the experimental group (Creswell, 2014). The study followed the sandwich format in which mediation was structured in between the pretest and posttest of static assessments.

5.2 Participants of the Study

The study was conducted in Hawassa University which is one of the public universities in Ethiopia. Participants (n=48) were second-year university students who were studying English Language and Literature in the academic years of 2020/21. In the context of Ethiopia, students start learning English language as a subject beginning from grade one, and most of them do not get enough exposure to learn English outside of their classrooms.

The participants come from different regions of Ethiopia. Out of 48 students, 16 were females, and the remaining 32 were males. The students were between the ages of 20 and 24.They are second year university students. The researchers conveniently selected second-year students since they were relatively large (n=48) compared to first-year and third-year students whose total number was 17 and 21, respectively. Since the number of participants (n=48) was not appropriate to apply probability sampling, the researchers took the available sample size and assigned students to treatment and control groups using systematic random sampling.

Also, two TEFL instructors (mediators) who ran the intervention program (DA and NDA) were selected from the Department of English Language and Literature based on voluntary sampling. Similarly, the principal researcher and co-researcher conducted an observation to crosscheck whether or not parameters of MLE (Meditational Learning Experiences) and NDA procedures were implemented during the instruction process in treatment and control groups, respectively.

5.3 Instruments for Data collection

Data about learners' oral fluency were obtained from the static speaking pretests and posttests (monologues). These questions contained six speaking test items. To ensure their validity, the questions were designed in line with the IELTS Speaking Exam Syllabus . The other instrument was classroom observation. Random

classroom observations were conducted by the principal researcher and co-researcher to crosscheck how well the DA and NDA procedures were implemented in the treatment and control groups, respectively. The observers used checklists that show features of DA/MLE procedures and NDA procedures.

5.4 Validity and Reliability of Data Collection Instruments

The pre/posttests were designed based on IELTS speaking syllabus so as to get valid instruments. However, to further ensure the validity of the instruments [pretest and posttests] ,two local TEFL instructors evaluated the questions based on six guideline questions which are adapted by Muñoz et al. (2003).The experts' evaluation was made in relation to the objectives of the instructional material of this research The experts were asked to evaluate all the six speaking questions [static assessments] against the six criteria by putting a √ mark under the 'Yes' and 'No' column of each test item. The result of their evaluation showed all the test items were appropriate for the assessment of learners' oral proficiency. That is to say, the tests were valid with respect to the difficulty and proficiency level, instructional objectives, and authenticity or appropriateness to the real situations in which the students could use the language.

Regarding the reliability of these open-ended questions, ensuring the validity of an instrument seems enough to secure its reliability. This is because as Lincoln and Guba (1985) argue "Since there can be no validity without reliability (and thus no credibility without dependability), a demonstration of the former is sufficient to establish the latter" (p.316).That is to mean if the instruments are valid, they are reliable.

5.5 Procedures of the Study

Before the actual study began, the researchers conducted a pilot study on second-year English language students of Dilla University, which is about 90 kilometers away from the main study site. The purpose of the pilot study was to check the effectiveness of the data-gathering instruments and procedures in addressing the research objectives**.** Next, the main study started. The study had three phases: the pre-instruction/ assessment phase, the while-instruction / assessment phase and the post-instruction / assessment phase.

5.5.1 The Pre-instruction/assessment Phase

During the pre-instruction/assessment phase, four major activities, namely providing training to mediators on the concept and application of DA, orienting students towards the purpose of the study, administering pretests, and randomly categorizing learners into control and treatment groups were done.

After training the mediators, a letter of **ethical consent** was administered to students to ensure their willingness to take part in the study. It was found that all students put their signature confirming their interest and commitment to enroll in the experiment.

The next day, the pretest, which consisted of six speaking items, was administered in two phases. During phase I, the first, second and third questions were administered; during phase II, the fourth, fifth and sixth questions were given. The purposes of the pretest were, firstly, to measure each learner's Zone of Actual Performance (ZAP) of oral fluency level, which was used for comparison with their posttest results after the intervention. Secondly, the results of the pretest were used to create the treatment and control groups by using systematic random sampling. Scores were arranged from the highest to the lowest and then divided into two groups based on even-odd category. Thirdly, the test was used as an important means of diagnosing students' areas of difficulty during the various speaking contexts, which in turn, helped to tailor grammar instructions and mediations to learners' cognitive needs and help them improve their oral fluency. The students' monologues were recorded using Audacity Software in a WAV format.

Then, scoring learners' oral fluency began right away. Before running the PRAAT software, learners' monologues on the six speaking questions passed through two important steps. The first step was to prune

the pauses of learners' speeches that were found both at the beginning and end of the speeches. This was because the interviewer might turn on the recorder before the start of the actual speech of the interviewee. Similarly, at the end of learner' monologues, the interviewer may not quit recording at the same time the learner stopped his/her speech. The second step was minimizing distracting noise, if any, using Audacity software so as to keep the validity and reliability of learners' fluency scores.

Having done all these necessary steps for scoring fluency, the researchers started computing each learner's speech using the PRAAT software. The software produced seven outputs, such as number of syllables, total duration of speech, number of pauses, speech rate, articulation rate, phonation time, and average syllable duration. As scholars such as De Jong (2016), De Jong et al. (2013), and Tavakoli (2016) suggested , the best predictors of oral fluency namely speech rate, articulation rate and mean length of utterance were considered to determine learners' oral fluency. Mean length of utterance, which is calculated as number of syllables divided by number of utterances, was manually computed to identify each learner's mean duration of utterance between silent pauses (De Jong, 2016). Then the aggregate scores of the three variables were used to rate learners' oral fluency.

Finally, these aggregate scores of learners' oral fluency, which showed the students' Zone of Actual Performance (ZAP) in fluency, were used to classify students into two equivalent groups- control and experimental groups. To categorize subjects into control and experimental group, first, all 48 students' scores were put from ascending to descending order. Then based on an even and odd category, two categories of students were formed - those students falling under odd numbers such as 1,3,5,7, etc., and those students falling under even numbers such as 2, 4, 6, 8, etc. Then, to further check the extent of equivalence of these two groups, Leven's Test of Homogeneity of Variance was computed, and the result showed that there was no a statistically significant difference between the two groups, that is, $p = 0.98$. Next, the treatment and control groups were formed, and were made ready to experiment.

5.5.2 While-instruction Phase

After the experimental and control groups were formed using systematic random sampling, the while – instruction phase began. The two trained mediators offered the course by sharing units of the speaking material. The instructional material consisted of 12 units. That means the two instructors handled six units each. Therefore, the same contents of tasks were presented to both groups by the same instructor. Said in other words, the first instructor taught the first six units to both the control and treatment group by employing the conventional approach (non-dynamic assessment) and the new approach (MLE/DA), respectively. In the same way, the second instructor delivered the remaining parts of the contents to the control and treatment groups using the same methods as the first one. The researchers avoided teaching both groups by a single instructor and teaching both groups similar contents by two different instructors in order to control extraneous variables such as differences in teachers' teaching effort, style, and oral skills that could affect learners' performance. That is to say, different teachers may have different teaching styles, efforts, and mechanisms of teaching speaking skills. As a result, differences in learners' scores may be attributed to these teachers' qualities, which could jeopardize the validity and reliability of the experiment.

5.5.3 Post-instruction Phase

After twelve weeks of intensive instruction, posttest was administered to both the treatment and control groups, and data about learners' oral fluency was collected to examine the effects of the teachers' mediation of grammatical structures on learners' oral fluency.

5.6 Material for Instruction/Assessment

The same material was used to teach and assess the speaking skills of both control and treatment groups. The speaking tasks involved narration, description, comparison/contrast, and other problem-solving activities. The

tasks and activities were selected from Luoma (2004), Folse (1996), and other online sources. This instructional material which consists of 12 units was designed in line with the IELTS syllabus of the speaking exam. It presents different activities and language structures by integrating all language skills: listening, speaking, reading, and writing. To ensure the material's relevance and appropriateness to the intended level, that is, to second-year university students, two TEFL experts evaluated it, and the overall evaluation revealed that it was appropriate and relevant to the students.

5.7 Methods of Instruction/Assessment

The assessment /instruction process lasted for 12 weeks. The course instruction/assessment was given for 3 hours every week. That means it was a 5 ECTS course, where there were three contact hours for face to face instruction and two hours for home-take activities. The mediators were also paid fees based on the contact hours and the trends in the university.

With regard to the method of instruction, the teacher in the treatment group implemented interactionist dynamic assessment and Feuerstein's procedures of MLE to help learners did problem-solving tasks, thereby paving ways to improve their oral fluency. Similarly, the teachers conducted a conversation with students on a one-on-one basis and mediate their grammatical structures by providing graduated hints. The following is a sample excerpt taken from the data to show how the mediators provided hints during conversation:

T: Good morning students. Today, you are going to watch a video about the mini-biography of Abraham Lincoln, the 16th president of America. Then, you retell the story to your teacher. The video lasts for six minutes. You have five minutes more to organize your speech.

***Question** T: Please, Geleta retell the mini biography of Abraham Lincoln.*

*[1] **S**: Abraham Lincoln was born in America. He was born [umm… he was born] on February*

[2]12, 1809.His mother died when he was 9 years old…….

[11]S: Then he was won the election[S-produced incorrect structure]

*[12]**T**: again; Something is wrong there [T-demanded S to repeat]*

*[13]**S**; He was won…..[S-repeats the wrong structure]*

*[14]**T;** Think of the word „was"[T –gives metalinguistic clue]*

*[15]**S**: He won the election in 1861 and he assassinated in 1865[S-corrects the first structure, but [16] commits another error]*

*[17]**T**: Would you repeat, please. He…?[T-asks for repetition]*

*[18]**S:** He assassinated in 1865.[S-repeats error]*

*[19] **T**; There is something wrong here[T-informs the presence of error]*

*[20] **S**:umm… /student takes time to think of the answer/[S-no response-silent]*

*[21]**T**; make it passive [T-gives metalinguistic clue]*

*[22] **S**; He was assassinated [S- makes use of mediation and answers correctly]*

As can be seen in the above excerpt, the teacher in the treatment group provided mediation ranging from implicit to explicit scale based on the cognitive needs of the student. Since the study employed an interactionist DA, the mediation were not scripted, rather they were automatically generated by the mediator based on the immediate cognitive need of the student.

On the other hand, the teachers in the control group presented tasks in the class and briefly explained what learners do with the various tasks. The teachers asked students to discuss the problems [tasks], such as retelling stories in pairs or groups. They also provided general comments about learners' grammar accuracy and oral fluency. However, the teachers never intervened during speaking and provided mediation of grammar on a one-on-one basis. The following excerpt is an illustration taken from a student's speech from control group:

T: Would you narrate the mini biography of Abraham Lincoln?

S: Yes. Abraham Lincoln was born in America. He born [umm.. he was born] on February 12, 1809. His mother was died when he was 9 years old. And in 1842, he married. Abraham Lincoln have a good qualities. He is honest and good reader. He has good qualities Then …

As can be seen in the excerpt above, the student made some grammar errors; however, the teacher never provided mediation on the spot. In the end, however, the teacher informed the student of the presence of wrong structures and provided explicit explanation about the use of the simple past tense. That means, the mediator never intervened and provided contingent mediation to the learner during conversation. Instead, the teacher provided general comments about the errors at the end of each monologue.

5.8 Methods of Analysis

The PRAAT software was used to score learners' oral fluency level. PRAAT software can detect silent pauses from phonations and analyze number of syllables, number of pauses, speech durations, phonation time, speech rate, articulation rate, and average syllable duration. In the other part of its window, the Software also generates a Text Grid of sound file containing visual display of the silences or pauses, number of syllable and total duration of speeches of each student. The following Text-Grids in Fig. 4 and Fig. 5 are sample examples of students' speech generated by the software in their pretest and posttest of the 1st monologue.

As can be noticed in the Text-Grids of each student's sound file, it is possible to obtain important information about the learners' oral fluency performance. For example, on the right side of all the pictures, the software automatically computes the total number of syllables students produced. Moreover, the software automatically detects any silence below 25 seconds and counts it as a pause. The 25 seconds are thresholds. For instance, in Fig. 4 and Fig. 5, the number of syllables Mekdes and Abdulatif produced during their first monologue in the pretest phase was 158 and 280, respectively.

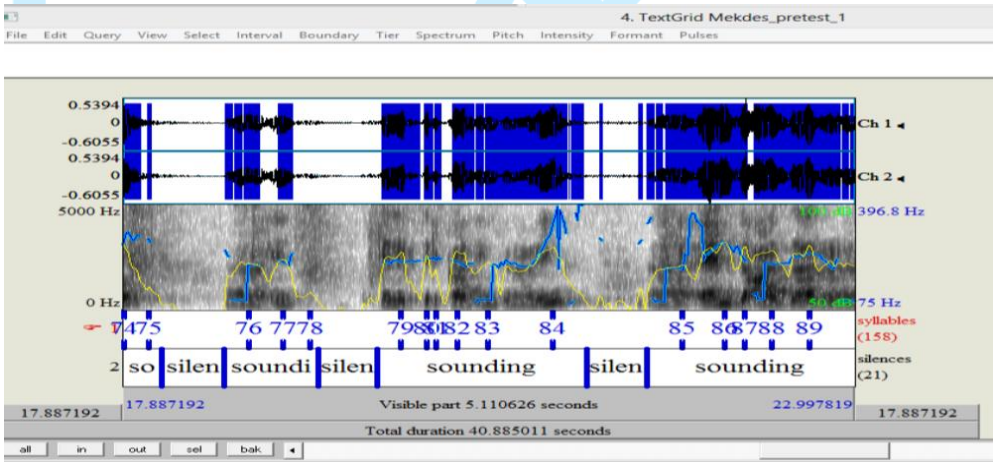

Fig. 4 *A PRAAT Sound File with Automatically-Generated Text Grid of Mekdes's First Monologue in her Post-test Phase*

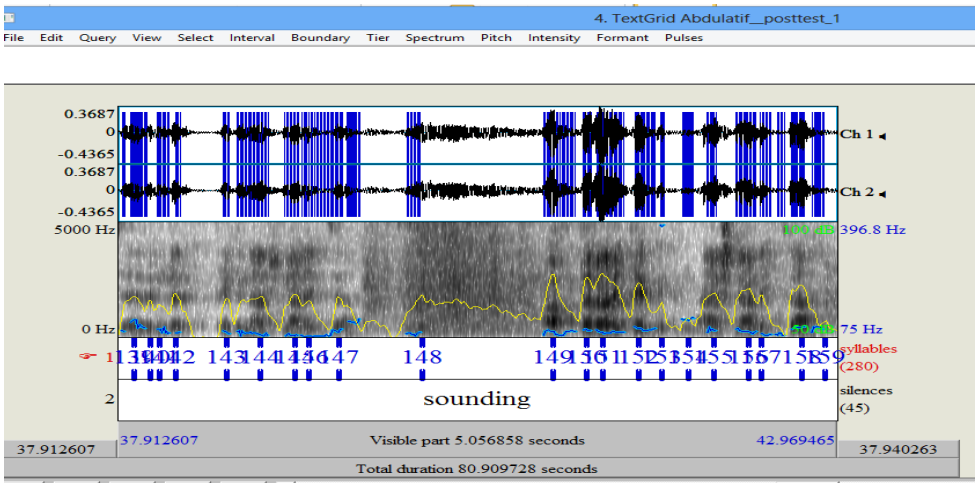

Fig. 5 *A PRAAT Sound File with Automatically-Generated Text Grid of Abdulatif's First Monologue in his Post-test Phase*

The frequency of pauses [silences] of the former and the latter students was 21 and 45, respectively.

Since this research employed an experimental approach that yielded quantitative data, the findings were analyzed and interpreted using SPSS. Accordingly, in order to investigate the impact of teachers' grammar mediation on learners' oral fluency during monologue, the following comparisons were made:

- comparison between posttest oral fluency scores of treatment and control groups
- comparison between pretest and posttest fluency scores of treatment groups
- Comparisons between control group's pretest and posttest scores of oral fluency

6. Results

6.1 Comparison between Posttest Fluency Scores of Treatment & Control Groups

As a first procedure of all the data analysis, normality test of data distribution was conducted so as to determine the type of statistical test to be used. Then, the significance test was run followed by interpretation of the result.

Table 1 Results of a Shapiro-Wilk Test to Check the Distribution Normality of Posttest Scores of the Treatment and Control Groups

Tests of Normality

Control and Treatment Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Fluency scores of control group	.096	24	.200*	.982	24	.933
Fluency score of treatment group	.189	24	.026	.933	24	.112

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

As it is observed in Table 1, the Shapiro-Wilk test has *p*-values of 0.93 and 0.11 which are greater than the cut of point, that is, 0.05. This *p*- value indicates that the data is normally distributed. Moreover, the visual inspections of the histogram and box plots of the SPSS output show that the posttest fluency scores of treatment and control group were approximately normally distributed, with a skewedness of 0.39 and 0.08, respectively. Since these skewedness values are between -1 and 1, the data are approximately normally distributed (Morgan et al., 2004). Hence, a parametric test, instead of non-parametric test, was used to see if the difference in the data is significant. In other words, an independent samples T-test, was used to see mean difference between the posttest scores of the two groups.

The hypotheses used were as follows:

- HA= There is significant difference between the means of the posttest scores of the treatment and control group.
- HO = There is no significant difference between the means of the posttest fluency scores of treatment and control group.

Tables 2 and 3 below present the independent Samples T-test result.

Table 2 Results of Descriptive Statistics of SPSS Output in the Posttest

Group Statistics

Students of control and treatment groups		N	Mean	Std. Deviation	Std. Error Mean
Fluency scores of control and treatment groups	Control	24	141.8	37.06	7.56
	Treatment	24	145.8	38.40	7.84

As it is indicated in Table 2, the mean score of the treatment group (M=145.8) is greater than the mean score of the control group (M=141.8). This shows that there was some kind of learners' progress in their level of oral fluency. However, whether or not the progress is statistically significant is indicated in Table 3 below.

Table 3 *Results of an Independent Sample T-test to Check the Effect of DA on Learners' Oral Fluency*

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference Lower	Upper
fluency scores of control and treatment groups	Equal variances assumed	0.18	0.66	-0.36	46	0.71	-3.98	10.89	-25.91	17.94
	Equal variances not assumed			-0.36	45.9	0.71	-3.98	10.89	-25.91	17.94

As can be seen from Table 3 above, the independent sample t-test rendered a *p* value of 0.71, which is greater than the cut-off point that is 0.05. This means there is no statistically significant mean difference between posttest fluency scores of control and treatment groups. Therefore, the null hypothesis cannot be rejected. The mean differences between the scores of treatment and control groups were not statistically significant. This result, however, does not mean that the learners did not show any improvement at all in their level of oral fluency. As the group statistics in Table 2 depicts, the mean score of the treatment group was greater than the mean score of the control group. This implies that the students showed some kind of improvement in their oral fluency though it was not statistically significant when compared to the mean of the control group.

6.2 Comparison between Pretest and Posttest Fluency Scores of Treatment Groups

Before running the significance test, normality of the data was checked as follows:

Table 4 Results of a Shapiro-Wilk Test to Check the Distribution Normality of Pretest-Posttest Fluency Scores of the Treatment Group

Tests of Normality

	students of treatment groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
treatment group pre/posttest fluency scores	pretest group	0.124	24	.200*	0.944	24	0.199
	posttest group	0.166	24	0.085	0.94	24	0.16

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

As can be seen in Table 4 above, the Shapiro Wilk test rendered a *p*-value greater than 0.05 (*p* = 0.19 and 0.16) for the pretest and posttest scores, respectively. Moreover, the visual inspection of their histograms, and normal Q-Q plots revealed that both pretest and posttest scores of the treatment group were approximately normally distributed. Therefore, the assumptions of t-test were met since the data were normally distributed. As a result, a parametric test (i.e. a paired sample t-test) was used to identify the significance level. The result of the test is shown in Tables 5 and 6 below.

Table 5 Descriptive Statistics of the Pretest and Posttest Oral Fluency Scores of the Treatment Group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest oral fluency scores	138.98	24	34.46	7.03
	posttest oral fluency scores	140.78	24	35.18	7.18

Table 6 SPSS Output of the Paired Samples Test for Significance Level

Paired Samples Test

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pretest fluency score posttest fluency scores	-1.79	8.87	1.81	-5.539	1.95	-.99	23	.332

As shown in Table 5, the mean of the pretest score (M= 138.99) and mean of posttest score (M= 140.78) indicate that there was a slight improvement of learners' oral fluency after the intervention. However, the *p*-value was 0.33 implying that there was no statistically significant mean difference between the two scores produced by the treatment group.

6.3 Comparison Between Control Group's Pretest and Posttest Fluency Scores

It seems worth examining the pretest-posttest performances of the control group so as to get a complete picture of the effect of NDA of speaking skills on learners' oral fluency. To do so, assumptions of normality were checked and the result is shown in Table 7 below.

Table 7 *Results of a Shapiro-Wilk Test to Check the Distribution of Normality of the Pretest and Posttest Fluency Scores of the Control Group*

Tests of Normality[c]

	pretest and posttest students of control group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
pretest and posttest scores of students	pretest group of students	.085	23	.200*	.985	23	.974
	posttest group of students	.096	24	.200*	.982	24	.933

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

c. pretest and posttest scores of students is constant when pretest and posttest students of control group = 11.00. It has been omitted.

The normality test revealed *p*-values of 0.97 and 0.93 for pretest and posttest fluency scores, respectively. Since the *p*-values are greater than the cut-off point, that is, 0.05, it could be assumed that the data were normally distributed. Moreover, the visual inspection of the histograms and boxplots of the SPSS outputs

indicated that the data were approximately normally distributed. As a result, a parametric test was run and the result is displayed in Tables 8 and 9 below.

Table 8 *Descriptive Statistics of the Pretest and Posttest Oral Fluency Scores of the Control Group*

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest scores	138.51	24	33.02	6.74
	posttest scores	141.83	24	37.06	7.56

Table 9 *Paired Sample T-test Showing Sig. Value of Pre/Posttest Oral Fluency Scores of Control Group*

Paired Samples Test

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest scores of control group - posttest scores of control group	-3.32	21.77	4.44	-12.51	5.87	-.748	23	.462

Table 8 above shows that the mean fluency scores of the pretest and posttest were 138 and 141, respectively. This indicates that the mean of the posttest fluency score was slightly larger than that of the pretest score but with no statistically significant mean difference as shown in Table 9 (p=0.46).

7. Discussions

Based on Vygotsky's (1978) idea of mediation and ZPD, scholars such as Kozulin and Garb (2004), Poehner (2005), Ableeva and Lantolf (2011), and Fahmy (2013) conducted rigorous studies on the impact of DA on L2 learning. Their results ascertain that applying interactionist DA in L2 instruction has generally a remarkable effect in enhancing learners' language proficiency. Following their footsteps, a few researchers, for example, Ebrahim (2014), Hooshang and Sajjad (2016), Safdari and Fathi (2020), Ghahderijani et al. (2021), and Pratolo and Zahruni (2020) conducted studies on L2 speaking assessment/instruction focusing on oral fluency. These studies, however, show controversial findings regarding the impact of DA of grammatical structures on learners' L2 fluency. The purpose of this experimental study was, thus, to add little evidence to the realm of the research world regarding the impact of dynamic assessment of speaking skills on learners' oral fluency development. The study specifically examined effects of DA of grammatical structures during dialogue on students' oral fluency development during monologue.

The finding of the study provides evidence that DA of grammatical structure does not predict learners' oral fluency development. The study revealed that dynamic assessment of grammatical structures does not significantly contribute to learners' progress in oral fluency. Therefore, the null hypothesis (Ho=DA of grammatical structures does not help students improve their oral fluency) was not rejected. The result implies that knowledge of grammar alone is not a determining factor for learners' oral fluency development. Strengthening this finding, scholars such as Arnold and Brown (1999) and Brown (2001), as cited in Wang (2007), Leonard (2015) and Levelt (1989) underscore that learners' speaking performance is greatly affected by linguistic factor (for example, knowledge of grammar, vocabulary, accurate pronunciation), cognitive factors (such as the ability of organizing ideas with proper language) and affective factors (for example anxiety, pain, fear of making mistakes, etc.). Therefore, in spite of the advantages DA renders to students

during speaking assessment/instruction (for example, contingent mediations on grammatical structures), students were unable to show significant progress in their oral fluency. The finding of the study suggests future researchers to examine the effect of DA of pronunciation and vocabulary on learners' oral performance. This study also suggests scholars to examine the relationship between oral fluency development and other variables such as age, sex and anxiety.

The finding of the current research coincides with Ebrahim's (2014) study. His finding revealed that DA was not helpful in improving learners' fluency development, while it (DA) had positive impact on their production of accurate and complex sentences. He investigated that the reason students were unable to improve their fluency was that they usually focus on their production of accurate and complex structures, instead of speed of their speech. The finding suggested that future researchers to focus on how simultaneously students improve their accuracy and fluency.

Similarly, the outcome of the current research is in line with Safdari and Fathi (2020) that confirmed application of DA on speaking skills did not help learners bring about substantial improvement in their oral fluency. However, their study showed that accuracy, which is the other important component of oral skills, was significantly improved due to DA. Their study involved only female participants within the age range of 18 to 30, so to improve the generalizability of the finding, they (the researchers) suggested scholars to conduct a similar study on different contexts involving both sex. As far as learners' fluency development is concerned, Maisa (2018) also conducted an experimental study to identify whether or not explicit teaching of idioms promotes language fluency of undergraduate learners. The study, however, did not employ DA as intervention; it rather used explicit instruction of idioms or vocabularies. The finding revealed that explicit teaching of idioms could not help learners improve their oral fluency level.

On the other hand, Ghahderijani et al. (2021) conducted a research on the impact of group dynamic assessment (GDA) and computerized dynamic assessment (C-DA) on the speaking CAF (complexity, accuracy and fluency) of Iranian upper-intermediate EFL learners. The study did not employ PRAAT software to compute learners' fluency change. The researchers manually computed learners' fluency gains by dividing total number of syllables to total time required to produce the syllables. This study is similar with the present one in that both of them used analytical approach instead of holistic approach to assess learners' fluency development. The result indicates that students of the DA group showed significant improvement in the three major components of oral proficiency: complexity, accuracy, and fluency (CAF). Similarly, Pratolo and Zahruni (2020) conducted qualitative study to explore the impact of Dynamic Assessment on Indonesian university EFL learners who have faced difficulties, especially in performing English speaking. The result of the students' response showed that DA significantly enhances their speaking performance. Also, Ritonga et al. (2022) conducted a study to investigate the effectiveness of both the interventionist and interactionist models of DA in L2 classroom. Their finding revealed that application of the two DA models in L2 classroom can speed up learners speaking accuracy and fluency.

These controversial findings signaled that it is deemed necessary to conduct further empirical studies in the area so as to get more tangible results regarding English language speaking instruction/assessment vis-à-vis learners' oral fluency improvement. The finding suggest that future researches should focus on the effect of DA of speaking skills in relation to other variables of oral fluency ,such as vocabulary, pronunciation, anxiety, age ,sex and other paralinguistic features. This is because oral fluency is determined by all linguistic, cognitive and affective variables (Levelt, 1989).

To sum up, the current study implies DA of grammatical structures during speaking could not appear to help students to significantly improve their oral fluency. However, this does not mean that DA of grammatical structure never totally helps learners in their fluency development. Though the results were not statistically significant ($p < 0.05$), the approach might contribute to some extent to help learners improve their

oral fluency. This is because, as already mentioned, students receiving DA/instruction on grammar items achieved higher mean (M =145) than students practicing NDA/instruction on grammar tasks (M = 141.8).

8. Conclusion and Implications

The role of DA in improving learners' oral fluency has been controversial to some degree. However, as shown by a number of researchers, the approach is generally effective in speeding up learners' L2 acquisition (Kozulin & Garb, 2004; Poehner 2005, 2008). In this study, an attempt was made to examine the effect of DA of speaking skills on learners' oral fluency. The result shows that DA did not help students bring significant change in their oral fluency development. This finding has important implications for ELT educators and students. The first point is that DA of grammatical structures alone does not seem to help learners bring substantial changes in their English oral fluency. That means improvement in grammatical structures alone does not guarantee learners' oral fluency improvement. The pedagogical implication of this study is that for oral fluency development, teachers and students should not only focus on grammatical structures but also other components of language proficiency such as vocabulary and pronunciation.

More importantly, the finding signaled that oral fluency improvement would highly depend not just only on the grammatical structures of the target language, but also on other variables such as anxiety, fear of making mistakes, lack of knowledge on the speaking topic, age, sex, etc. Therefore, this study suggests that improving L2 oral fluency demands students and educators to simultaneously focus on multifaceted issues. In other words, better oral fluency development can be achieved not only through improvement of knowledge of grammatical structures but also development of other determining factors of oral fluency.

The study has also important implications on the method of scoring learners' fluency gains. Most previous studies employed the traditional approach of measuring learners' oral fluency. That is, they used subjective or perceived evaluation to judge learners' oral performance. Unlike the previous works, the current study employed PRAAT and Audacity software to obtain more valid and reliable data about learners' speaking performance. This, in turn, helps to lay an important foundation for future researchers to objectively analyze learners' oral fluency development.

It seems advisable to offer a few suggestions for future researchers interested in this area. The same study can be conducted on a larger sample size of L2 learners to get reliable, accurate and generalizable findings. Also, it is possible to study the same topic employing a different approach of DA, that is, interventionist DA.

9. Limitation of the Study

This experimental study has limitations. It adopted a non-probability sampling technique (convenient sampling or availability sampling) since the total number of participants was very small (n=48). However, the study employed systematic random sampling to assign participants into treatment and control groups.

10. Delimitation of the Study

The study focused only on the effect of DA of structures on learners' oral fluency. Other factors that could affect learners' oral fluency, for instance, learners' knowledge of vocabulary and pronunciation were not addressed in this study.

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List of Abbreviations

DA= Dynamic Assessment
ECTS=European Credit Transfer and Accumulation System
ELT=English Language Teaching
IELTS=International English Language Testing System
L2=Second Language
MLE=Mediated Learning Experience
NDA=Non-dynamic Assessment
SCM=Structural Cognitive Modifiability
S-O-R=Stimulus - Organism-Response
TEFL=Teaching English as a Foreign Language
TOEFL=Testing of English as a Foreign Language
ZPD=Zone of Proximal Development
ZAD=Zone of Actual Development

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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