

Effects of Dynamic Assessment on EFL Students' Reading Comprehension Achievement: An Interventionist Approach

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ABSTRACT

Dynamic assessment (DA) is a type of assessment that blends assessment and instruction. The core characteristic of DA is assessment embedded intervention. This study was designed to diagnosing EFL students' reading comprehension problem area and to enhance their reading comprehension achievement. The current study focuses on interactionist DA, which reflects Vygotsky's ZPD. The participants of this study are EFL students who majored in English at Mekelle University There were in total 60 students (30 in the experimental and 30 in the control group) who participated in the study. Quasi-experimental research designed was employed. Thus, the experimental group received dynamic mediation while the control group received .no mediation. To this end, two intact groups were used and these were randomly assigned to control and experimental groups respectively. Data based on non-dynamic and dynamic tests was collected. The data obtained from these data were analyzed through descriptive and inferential statistics. This comprised independent sample t-test, and paired sample t-test. Additionally, the data obtained from semi structured interview was analyzed qualitatively. The finding shows that DA is an effective means of improving EFL students' reading comprehension achievement. Hence, EFL teachers need to employ Dynamic Assessment as an alternative to traditional assessments in their reading classes.

The outcome of semi structured *interviews also showed that students in the experimental group had positive views on the application of Dynamic Assessment in their reading class.*

Key words: *Dynamic assessment, non-dynamic assessment, Interactionist dynamic assessment and reading comprehension*

Introduction

Globally, learning English has the objective of enabling learners to gain access to social, vocational, educational, or professional opportunities. To this end, in Ethiopian academic settings, English is taught as a foreign language at all grade levels. It is taught as a subject in the first cycle, second cycle, high school, and tertiary levels. Moreover, English is a subject for specialization at tertiary level .For this reason, the practice of the English language skills is essential in the language education; therefore, students are expected to read at a reasonable level of proficiency to perform well in the area of their specialization.

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Since English continues to spread widely both as a global language and as the language of science, technology and advanced research, ESL/EFL reading ability has become very indispensable (Grabe,& Stoller, 2002). Reading skill is often significant to academic student's professional success and personal development because professional, technical and scientific literature is published in English today. EFL learners, therefore, demands a reading ability (Alderson, 1984).

In an EFL setting like Ethiopia where English has very little or *no use in the everyday lives* of learners, they need to rely on English texts since they are the primary source of language input. Thus, reading is an essential skill for all students at all levels starts from elementary school to tertiary level because it is a major pillar upon which teaching and learning process is built. As Atkins, Hailom and Nuru, (1996) pointed out that students' success or failure is largely depending on their ability to read and comprehend various academic texts written in English. This means that students

will be on the road to academic failure unless they could read and comprehend academic texts well.

Although reading knowledge is very vital for EFL learners, EFL teachers experience that most students fail to learn to read effectively in the foreign language (Alderson, 1984). From my own experiences as a teacher in Mekelle University, I have also observed that most of our students seem to handle reading without adequate reading strategy, and this adversely affects their reading efficiency and causes comprehension deficiencies. In addition, it is common experience that EFL teachers at Mekelle University complain that most of their students have a problem of comprehending what they read. This view is also reflected in local research findings, such as Mendida, (1988) and Gessesse, (1999), Mesfine (2008) and USAID(2010) revealed that the students' reading abilities are at low level. The main reason students fail to attain the required level of reading proficiency may be associated with the teaching assessment technique which EFL Instructors employ in their reading classes.

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As foreign language instruction paradigm has been changed, the need for different approaches to assessment become crucial. In fact, as language teaching methods are changed, the assessment methods also need to be changed (Nazari, & Mansouri, 2014), such changes in language teaching orientation cannot leave the assessment orientation untouched. Currently, there is a move away from using assessment to gauge learners' performance to scaffolded assessment which can indicate not only what the pupils know and can do but also what they nearly can do (Gipps, 1994). In the same vein, with the rise of new approaches, methods and theories, language assessment/ has been influenced and moved away from static assessment to dynamic ways of assessment (Razavi & Tabatabaei, 2014).

Assessment is the key part of many educational systems. Assessment practices in the field of education have traditionally encompassed summative and formative

assessment. Summative assessment tends to occur towards the end of instructional period and it results in a mark or grade which subsequently functions as a judgment on students' performance (Torrance, and Pryor, 1998; Brown, 2003; Irons, 2008). On the other hand, "formative assessment involves using assessment information to feedback into the teaching- learning process" (Gipps, 1994, p124). That is to say, formative assessment is a process- oriented rather than a product as it focuses on assessing what and how well the learner grasps over the course of instruction (Greenstein, 2010). Additionally, in the language testing literature, formative is usually contrasted with summative assessment the former is used to provide feedback into the teaching and learning process while the latter emphasize on the outcomes of learning (Bachman, 1990: 60–61)

One of the important aspects of higher education is the assessment technique. For this reason, continuous assessment has been introduced in Mekelle University but from my experience as an instructor in this university, I have observed that most of EFL instructors use formative assessment to assigning grades. That is to say, even if EFL teachers implement formative assessments, they often do not use them for the purpose of improving their students learning. They merely focus on outcome rather than evaluating their reading instructional strategies for mediation of their students' learning deficit. With respect to this, Irons (2008) stated that in higher education, continuous assessment is a major issue and has many functions; however, much emphasis is offered to summative type of assessment which functions as instrument to measure current students' ability and understanding. The outcome of depending on summative assessment is a separation between instruction and assessment (Atkins, 2010) which has been stated as an instruction and assessment dichotomy (Poehner & Lantolf,2010).

.Nevertheless, the present study attempted to focus on a profoundly different conceptualization of assessment which is known as Dynamic Assessment (henceforth, DA), which was developed more than 80 years ago by the renowned

Russian psychologist, L. S. Vygotsky (Poehner, 2008). It is rooted in sociocultural theory, specifically in Vygotsky's notion of Zone of Proximal Development (Lidz & Ginds, 2003). The ZPD is defined as the distance between a child's "actual developmental level as determined by independent problem solving" and the higher level of "potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

As Lidz and Gindis (2003) pointed out:

IN DA, assessment is not an isolated activity that is merely linked to intervention. Assessment, instruction, and remediation can be based on the same universal explanatory conceptualization of a child's development (typical or atypical) and within this model are therefore inseparable. (p. 100)

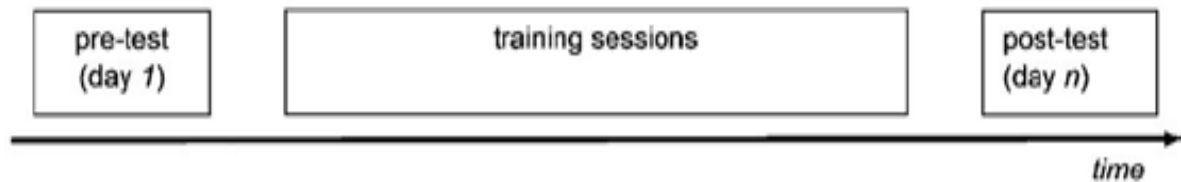
.Dynamic assessment as an alternative approach of static assessment has been developed due to the inadequacy of static assessment which tells little about learning processes and nothing about mediational strategies that facilitates learning (Tzuriel, 2001). In dynamic assessments, the tester requires having a dialogic interaction with student in order to explore students' difficulty of solving a problem or answering a question, and then the tester needs to resolve those problems by providing appropriate mediation. (Baek and Kim, 2003). The role of DA is, therefore, to identify learners' problems and find solutions to overcome those problems. Likewise, Sternberg and Grigorenko (2002: vii) described DA as:

a procedure whose outcome takes into account the results of an intervention. In this intervention, the examiner teaches the examinee how to perform better on individual items or on the test as a whole. The final score may be a learning score representing the difference between pretest (before learning) and posttest (after learning) scores, or it may be the score on the posttest considered alone.

There are two general approaches to DA. These include: 1) *interventionist* DA, which is rooted in Vygotsky's quantitative interpretation of the ZPD as a 'difference score'. It is currently implemented in either of two formats: a pretest–treatment– post-test traditional experimental approach; providing item-by-item assistance from predetermined hints during the administration of a test. Interventionist DA is strongly psychometric in its approach to assessment; (Lantolf and Poehner, 2004); 2) *interactionist* DA also finds its origins in Vygotsky' which focus on qualitative, interpretation of the ZPD (Lidz and Gindis, 2003: 105

Interventionist DA is again categorized in to two: *sandwich* or *cake* format The sandwich format has a similar form as traditional experimental research designs in which treatment is administered following a pretest which intends to establish a baseline measure), and a posttest intends to evaluate the effectiveness of the treatment with a mediation phase which is 'sandwiched' between them (Sternberg and Grigorenko,, 2002). On the contrary, the *cake* format refers to procedures in which mediation is administered during the assessment process itself. This type of mediation is offered for each test items that a student encounter difficulties to help them identify and overcome errors.

Test-Train-Test Design



Train-Within-Test Design

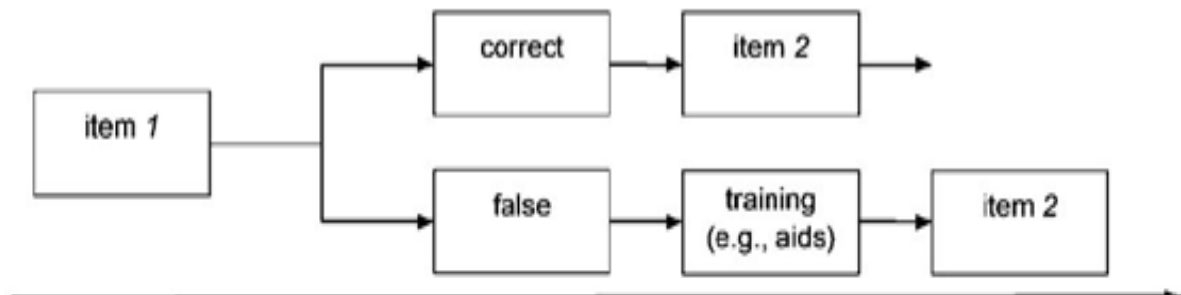


Figure 1 Schematic representation of Test-Train-Test design (**sandwich format**) and Train-Within-Test design (**Cake format**) (Dorfler, Golke, & Artelt, 2009, as cited in Shabani, 2012).

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As can be seen from the above Schematic representation, **Test-Train-Test design** (sandwich format) comprises pre-test-intervention- post-test. In this format, a pretest, which is essentially equivalent to a static test, is offered to examinees. After they complete the pretest in unassisted manner, they are given instruction in the skills or principles of problem solution involved in the pretest based on the examinee's response. The instruction is given all at once between the pretest and the posttest. After instruction, the examinees are tested again on a posttest. The posttest is typically an alternate form of the pretest. On the other hand, the **Train-Within-Test design** (Cake format), examinees are provided instruction item by item. An examinee is given an item to answer. If he/ she answer the item correctly, then the next item is presented. However, if he/she does not answer the item

correctly, a prefabricated set of hints is given. The hints are arranged from implicit to explicit.

In this study, I employed interventionist DA approach, specifically Cake format which is used to provide students with hints arranged from implicit to explicit. In this approach, the researcher determine how many and what kind of hints the students need to answer the items correctly.

In Ethiopia, as far as the knowledge of the researcher is concerned, no local research has been carried out to see the impact of dynamic assessment on students' learning. Nonetheless, globally, some researchers have implemented DA in foreign language education settings with in the last decades; for example, Kozulin and Garb (2002); Poehner (2005); Ableeva (2008), and Anton (2009). Kozulin and Garb (2002) implemented DA with academically at-risk students who failed to pass the high school English exam. The results reveal that the procedure is both feasible and effective in obtaining information on students' learning potential. They concluded that a dynamic assessment of EFL text comprehension assess the student's ability to learn, activate and use effective strategies for text comprehension. Poehner (2005) conducted a study in which he implemented DA to L2 learners of French on oral proficiency. The findings reveal that DA is an effective means of understanding learner's abilities and helping them to overcome linguistic problems. Ableeva (2010) carried out a research on the effect of interactionist DA on the development of listening ability among American university intermediate students learning French as a second language. The results of the study indicate that, through interactions in the ZPD, DA permits to establish not only the actual level of learners' listening ability but also to assess the potential level of their listening development, while at the same time enhancing this development.

Therefore, to bridge this lacuna, it seems imperative to enhance EFL students' reading comprehension achievement through dynamic assessment in our context.

What motivated me to conduct is that assessment and instruction in our educational program are currently viewed as separate activities.

In Ethiopia context, students learn English as a foreign language and as stated above most of the students at tertiary level have inadequate reading comprehension ability. These students may not be successful without aided situation of static assessment/ standardized test. Therefore, I believe that when such students are supported under interactive condition may well improve.

Objectives of the Study

The main objective of this study is to diagnosing EFL students' reading comprehension problem areas and to enhance their reading comprehension achievement. In order to achieve the objective, the following questions are formulated:

1. What is the effect of dynamic assessment on EFL students' reading comprehension achievement?
2. What are the views of EFL students towards the application of dynamic assessment in their reading class.?

Research design and methodology

Research Design

In this study, quasi-experimental research was employed and conducted to diagnosing EFL students' reading comprehension reading problem and to enhance their reading comprehension achievement. The experimental group received dynamic assessment based treatment while the control group received .no treatment. To this end, two intact groups were used and these were randomly assigned to control and experimental groups respectively. Before embarking mediation, a pretest was given to all groups (control and experimental) in order to measure students' reading achievement.

Setting and Participants

As stated above, this study aimed at examining the extent to which EFL students majoring in English at Mekelle University enhance their reading comprehension achievement when they were subjected to dynamic assessment. Sixty EFL students participated in this study. Thirty of them involved in control group and the other thirty students involved in experimental group. Out of the 30 students, 3 students from the experimental group were randomly selected for semi structured interview.

Methods

This study followed a 'mixed methods' research which research involves mixing quantitative and qualitative research techniques, methods, approaches and concepts into a single study (Creswell, 2014; Johnson & Onwuegbuzie, 2004). Hence, for the mixed methods researcher, pragmatism allows them to make use of manifold methods, and different forms of data collection and analysis methods to minimize the limitation of a single approach (Creswell, 2014). The quantitative data were collected through an experiment, while the qualitative data were obtained from semi-structured interview.

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Instruments

The study followed the pre-test, mediation and post-mediation phases. To this end, dynamic assessment one (DA1), dynamic assessment (DA1, DA2, DA3 and DA4 and non-dynamic assessment two (DA2), and semi structured interview

Semi structured interview

A semi-structured interview was conducted with students after dynamic assessment intervention. The main purpose of this interview was to get students' views regarding the application of dynamic assessment in their reading class and to examine whether or not dynamic assessment in the reading class are useful in enhancing the students' reading comprehension achievement..

Procedures

The study began with a set of the pre-test sessions, which included non-dynamic assessment (NDA1), dynamic assessment (DA1 and DA2). The students would first be given non-dynamic reading comprehension tests (static assessment) before embarking on mediation. The primary purpose of this assessment was to determine students' actual level of reading. A week later, dynamic assessment mediation session began. The DA session was used to evaluate the potential level of the students' reading achievement. To this end, the researcher functioned as a mediator who provided mediation to the participants on the questions he/she answered incorrectly in the dynamic reading tests. The mediation mainly centered on reading strategies in four areas that is, getting main ideas; finding supporting details, making inference, and guessing the meanings of vocabulary. After the four week dynamic assessment mediation sessions, the researcher offered a non-dynamic reading test. This type of test comprises the same number and type of questions as in the post test. The researcher adapted both non-dynamic and dynamic reading tests from Cambridge Preparation for the Test of English as a Foreign Language (TOEFL).

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Data analysis methods

This study used. quantitative method Hence, the data obtained from tests (i.e., quantitative data) were analyzed through descriptive and inferential statistics and these comprised means, median, standard deviations, independent sample t-test, and paired sample t-test. The Independent samples *t* test were employed to compare the test scores of the experimental and control groups at the pre and post-test, and the paired samples *t* test were employed for inter group comparison.

Quantitative Data Analysis and Findings

Table 1

Descriptive Statistics for the Participants' Performance of Control and experimental Groups on reading comprehension Pretest

Group	N	Mean	SD	SD Error Mean
Control Group	30	14.56667	2.112089	.385613
Experimental Group	30	14.60000	1.958184	.357514

As can be seen from the table 1, the results of the pre-test of the reading comprehension test indicate that students in control and experimental group obtained almost similar scores on the pre-test. The descriptive statistics indicates that the mean score of the control group on the pre reading comprehension test is 14.56667 while the mean score of the experimental group is 14.60000. This reveals that the students in both groups had the same levels of reading comprehension.

Table 2
Independent Samples T- test for equality of Means

	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Pre-test	.098	755	-.063	.950	.033333	.525845	-1.085927	1.019261

Equal variance Assume d								
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*Significance at 0.05 (p<0.05)

The data in Table 2 on the independent samples t-test also depicts t value is-.063 and the p value .950 which is higher than 0.05 alpha levels. Therefore, the independent samples t- test revealed no statistically significant difference between the scores of the control and experimental groups before intervention embarking on.

Table 3

Descriptive Statistics for the Results from the Pre-test and Post-test

Group Statistics					
Groups	N	Tests	Mean	Std. Deviation	Std. Error Mean
Control Group	30	Pre-test	14.5667	2.112089	.385613
		Post-test	14.9667	1.29943	.23724
Experimental Group	30	Pre-test	14.60000	1.958184	.357514
		Post-test	18.2000	2.78419	.50832

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As can be seen in table 1, the mean scores of the control and experimental groups are 14.9667 and 18.2000 respectively for the post-test scores. The standard deviation of the control group and the experimental group are computed as 1.29943 and 2.78419 respectively for the post-test. Hence, the experimental group has performed better on the post-test than the control group. The difference might be because of the treatment whereby the experimental group received dynamic assessment. In order to investigate whether this difference is significant, the scores are examined using the independent-samples T-test in more detail.

Table 4

Independent sample T-test on the post-test reading comprehension

Subjects	N	Mean Scores	SD	T-value	P-value
Control Group	30	14.9667	1.29943	-5.764	.000
Experimental Group	30	18.2000	2.78419		

*Significance at 0.05 ($p < 0.05$)

Shown in Table 3, the result of the independent samples t-test asserts that the control group ($M=14.9667$, $SD=1.29943$) and the experimental group ($M= 18.2000$, $SD= 2.78419$) $t(58) = -5.764$, $p=.000$. The significance value is .000 which is lower than (0.05) level. This implies that there is a highly significant difference between the control and experimental groups' achievement in reading comprehension after the intervention. The findings suggest that dynamic assessment improves students' reading comprehension achievement of students in the experimental group. The difference in the scores of the experimental and the control group on reading

comprehension test one and reading comprehension test two was tested with a paired samples t-test. This helps to see whether these results are statistically significant. Results can be seen in Table 4 and 5 respectively.

Table 5

Paired sample T-test in reading comprehension of experimental group

Experimental	N	Mean scores	SD	T-value value	P-
Pre-test	30	14.7333	2.04995	-11.192	.000
Post-test	30	18.2000	2.78419		

*Significance at 0.05 ($p < 0.05$)

The paired samples t-test in the above table shows from pre-test ($M = 14.7333$, $SD = 2.04995$) to post-test ($M = 18.2000$, $SD = 2.78419$), $t = (29) -11.192$ $p = .000$, indicating a highly significant difference between the group's pre-and posttest scores. That is, the means of the experimental group's on both the pretest and posttest performance are significantly different, which suggests that the reading achievement of the participants in the experimental group is improved after dynamic assessment intervention program. This implies that integrating assessment and instruction together have impact on students' reading comprehension achievement.

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Table 6

Paired sample T-test in reading comprehension of control group

Experimental group	N	Mean Scores	SD	t-value	p-value
Pre-test	30	14.5667	2.11209	-.065	.949
Post-test	30	14.6000	1.95818		

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Significance at 0.05 ($p > 0.05$)

The paired samples t-test in the table 6 shows for the pre-test ($M=14.5667$, $SD=2.11209$) post-test ($M= 14.6000$, $SD= 1.95818$), $t(29) = -.065$, $p=.949$, implying there is not any significant difference between the mean scores of the pre and post reading comprehension scores of the control group. Therefore, the result shows that students in the control group have not shown any significant difference in their reading comprehension performance in the posttest. The p value is greater than the significance level (0.05).

Interview Data Analyses and Finding

Student respondents were asked for their views on the application of dynamic assessment in their reading class. They said that learning reading through dynamic assessment has invaluable advantages. In DA, the tutor gives us feedback, arranging from implicit to explicit one, specifically to those questions which we answered incorrectly. This really helped us to learn from our mistakes and based on our mistakes the tutor offered us guidance by explaining how we can apply reading strategies while we were doing reading comprehension tasks.

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Discussion of the Findings

A comparison of the data obtained before and after dynamic assessment intervention indicated that the experimental group performed significantly better than the control group on reading comprehension post-test. More specifically, the mean scores of the comprehension measure suggested that the results from the pre-test to the post-test revealing that the experimental group outperformed the control group after dynamic assessment intervention.

Conclusion

The results have showed that the experimental students improved their reading achievement after receiving dynamic assessment intervention. This shows that dynamic assessment is effective approach to enhance students' reading comprehension achievement.

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