Dynamic Assessment: An Indication of Diagnostic Approach in Reading Comprehension of Iranian EFL Learners

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Abstract: The present study attempted to investigate the effectiveness of dynamic assessment on EFL students’ reading comprehension. The subjects included 60 female and male students of two different classes that were passing general English course at Alaodole Semnani Institute of higher education as control and experimental groups. In the experimental group, the intervention took place during four sessions. Some mediation like strategies were taught each session while going through a teacher made reading text. Meanwhile, the students’ development of reading comprehension was dynamically assessed. In the control group a traditional type of assessment was utilized; in other words, only a summative test was given to the participants. At the end of the experiment, the posttest was administrated to the both groups and then the result of the tests were compared and analyzed. The analyzed data showed that dynamic assessment had significant on reading comprehension of Iranian EFL learners.

Index Terms: Dynamic assessment, EFL learner, reading comprehension

1. INTRODUCTION

Dynamic assessment (DA) has recently been under the deep consideration of so many researchers (e.g. Ableeva, 2010; Lantolf & Poehner, 2004; Poehner, 2005, 2007, 2008) and indeed the teachers who care how to best evaluate themselves and also the learners in their zone of proximal development. Therefore, the need of the unification of assessment and instruction which is rooted in famous Russian psychologist, L.S. Vygotsky’s perception of development was raised (Poehner, 2008).

In sociocultural theory (SCT) that shows how an individual’s development is related to cultural, social and historical framework (Vygotsky, 1978), the development of higher consciousness forms, such as control of memory, perception, and attention, happens through a process of internalization. First, this development path starts from interaction between people and; then, it is transformed into cognitive abilities for them concluding that “the social nature of people comes to be their psychological nature as well” (Luria, 1979, cited in Poehner, 2005, p. 45). This study challenges the effectiveness of DA to assess students in their zone of proximal development to show their best and the strongest performance with the needed scaffolding in the process of teaching and specially assessing. As Poehner (2005) argues, DA addresses fairness through mediation process which indeed cares about the learner needs and thus diagnoses how to support the learner’s ongoing de-
Learners are scaffolded for what they cannot do by themselves this is what to Wood, Bruner and Ross (1976 cited in Poehner, 2008) refers to as intermental functioning. Indeed, to Poehner and Compernolle (2011), the scaffolding concept is present in recent discussions on formative assessment and curriculum and instruction, and it is often equated with the ZPD.

Teaching reading strategies through a mediation phase is considered as a necessity because achieving a better reading comprehension result of assessment is our end. As Poehner and Compernolle (2011) discuss, an indication of good teaching is perceived as scaffolding locates thoroughly with the teacher, who acts on the learner by administering mediation and becoming increasingly explicit until the task is successfully completed.

2. REVIEW OF THE RELATED LITERATURE

Theoretical background

This section gives definition and a brief background for DA, which is apparently defined as “an interactive approach to conducting assessments within the domains of psychology, speech / language, or education that focuses on the ability of the learner to respond to intervention” (Haywood & Lidz, 2007, p. 1). DA is mostly referred to because of being beyond a simple assessment. Poehner (2008) believes that identifying the students’ ZPD and giving mediations are some of the shining parts which make a big difference between this type and all other traditional types of assessment. According to Kozulin and Garb (2001), DA is grounded on the theory of development expressed by Vygotsky, supporting their belief by confirming that Vygotsky investigated what a child is able to do independently while he was studying the development of children’s mental ability. According to Kozulin and Garb, this represents only some part of the child’s whole ability. The reason, to Vygotsky, as they cite is the child can often do more when just a bit of help, or mediation, is provided by someone. They further pin point that this highlights the importance of results taken from an intervention.

Sociocultural theory is an emerging theory in psychology that looks at the important contributions that society makes to individual development (Cherry, 2014). This theory, as Chak (2001) puts it, stresses the interaction between developing people and the culture in which they live. Sociocultural theory grew from the work of Vygotsky, a psychologist who believed that parents, caregivers, peers and the culture at large were responsible for the development of higher order functions.

Zone of Proximal Development

According to Vygotsky (1978), ZPD is “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable others” (p. 86). In fact, to Poehner and Lantolf (2005), the application of ZPD in language learning has recently been shaped in a new way by presenting the concept of DA. In all of the ZPD centered studies, they argue that, a suitable assistance helps the learner move from his/her actual to proximal level of development. DA, as a subcategory of interactive assessment, is an attempt to perform the gist of Vygotsky’s sociocultural theory, i.e. ZPD, to measurement, which does not accept the traditional gap between assessment and instruction. Poehner and Lantolf (2005) believe that Vygotsky’s notion of the ZPD was constructed according to his observation that taking participate at school classes increases the IQ score of some of the children. They also reached this point that in order to assess an individual’s development completely, it is not enough to determine his/her intra-psychological capability. In fact, they argue that the child’s inter-psychological ability must be assessed too. In other words, observing a person’s actual level of development, is considering the history of the learner which presents only some part of the capacity and in order to gain the full capacity we must consider the learner’s future.

The present study attempted to answer the following research question:
Does dynamic assessment have any statistically significant effect on Iranian EFL learners’ reading comprehension?

3. METHODOLOGY

3.1 Participants
The participants included 60 university students who were passing General English course in spring 1393 at Alaodole Semnan Institute of higher education. They were between 18 to 21 years old. They were divided into two groups of experimental and control. In this study, the learners’ gender was not controlled; therefore, the participants were both male and female Iranian students.

3.2 Instruments
The following four testing instruments were utilized in order to investigate the research question:

3.2.1 Question list.
First, a list of questions including some short and brief questions to elicit some mediation guide was given to the students (Appendix A). The questions were given to explore what is really helpful for participants of the experimental group to overcome successfully in a reading comprehension test while receiving teacher’s help. In order to ascertain the suitability of the questions in eliciting the desired replies, the questions were studied by some experts in the field.

3.2.2 Nelson test.
The researcher conducted Nelson English Language Tests (Fowler & Coe, 1976), Test 050 B. This included 50 multiple choice items. The items tried to assess the learners’ knowledge on English vocabulary and structure. The Test consisted of two parts: a cloze passage and some discrete-point items. These two parts were some modified versions of the original Nelson Test of Language Proficiency, and is included in Appendix B. They were modified due to the following reasons: The intermediate original Nelson Test administered was consisted of a cloze test with ten items, and forty other discrete-point items. First, the reliability of the pilot test was calculated by the SPSS program.

The IF (Item Facility) and CD (Choice Distribution) of the items were also calculated. The items whose IF and CD were between .37 and .63 were selected. The other items, which violated the required range, were changed through the addition, deletion, and substitution procedures. Moreover, all the alternatives of the items were checked and the ones which were not selected by any of the subjects or which were selected by half of the subjects were replaced by new alternatives.

3.2.3 The reading comprehension tests.
In order to achieve the objectives of the study, two reading comprehension tests were constructed. These tests were used to estimate the participants’ reading comprehension at different stages of the study. Each test consisted of four passages and each passage was followed by six reading comprehension questions. The tests extracted from Naeini (2013) were used.

3.3 Procedure
To accomplish the objectives of the present study, a pilot study preceded the main study. In this pilot stage, the adequacy of the instruments used in the study was examined. In the main study, there was an attempt to collect the appropriate pieces of data that could answer the research question.
In particular, the objectives of the pilot study were to field test the data collection and the assessment instruments. Thirty students participated in the pilot study. The written interview questions was developed and used as a framework to direct the conducted in this study. That was consisted of a set of questions designed to obtain more indebt information on the
learners’ perceptions and knowledge of reading comprehension strategies. It is worth mentioning that the interview questions intended to function only as a framework for the interviewing, and the real meaning was to be discovered by building on what the participants were willing to talk about as long as it was close to the topic of the study.

The Nelson English Language Tests taken from Fowler and Coe (1976) was firstly studied to investigate the reliability. In addition, two reading comprehension tests which were applied in the current study were extracted from Naeini (2013) were also investigated for the reliability estimate. The tests included 4 reading passages each. She selected a few domains of the reading comprehension components to construct the reading comprehension tests: Finding the main idea, guessing the meaning of the new words and inferencing.

The passages were selected from Birjandi and Mosallanejad (2010a, and 2010b). Following Alderson and Urquhart (1985), the researcher used Fog index to examine the readability of the passages. According to the test developer, the content validity of the tests was assessed by careful and critical examination of the same expert judges. However, since all the tests should be tested for the different population; then, the tests were piloted for the reliability analysis. To make sure about the appropriateness of the pre-test (a teacher made test) for the subjects under investigation, the test was piloted with a parallel group of 30 university students. The reliability of the total pretest and posttest were estimated through Cronbach Alpha formula.

4. RESULTS AND DISCUSSION

Four assumptions of interval data, independence of subjects, normality and homogeneity of variances should be met before one decides to run parametric tests (Field, 2009). The first assumption is met because the present data are measured on an interval scale. Bachman (2005, p. 236) believes that “the assumption of independence of subjects is met when the performance of any given individual is independent of the performance of other individuals”. The third assumption concerns the normality of the data which is tested through One-Sample Kolmogorov-Smirnov Test. Table 1 displays the results of normality test.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Kolmogorov-Smirnov Z</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>15.63</td>
<td>.615</td>
<td>.843</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>15.27</td>
<td>.603</td>
<td>.861</td>
</tr>
<tr>
<td>Experimental</td>
<td>30</td>
<td>18.43</td>
<td>.594</td>
<td>.873</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>16.10</td>
<td>.660</td>
<td>.777</td>
</tr>
</tbody>
</table>

The table shows that the p value was .84 and .86 for the experimental and control groups, respectively on the reading pretest. The results also indicated that the p value was .87 and .77 on the reading posttest of the experimental and control groups, respectively. Since the p value for all sets of scores are greater than the selected significant level, .05, their normal distribution was proved.

The main objective of the Homogeneity Test was to assess the participants’ initial comparability. To achieve this goal, an Independent T-test was conducted. The results are presented in Table 2. The results show that the average mean score was 35.87 with the standard deviation of 6.18, and the mean score of 35.53 with the standard deviation of 6.37 for the experimental and control group, respectively. The two groups did not score significantly different. Therefore, it can be con-
cluded that the two groups were almost in the same level of language proficiency.

Table 2

**Descriptive Statistics of the Nelson Test for Both Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>6.185</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>6.377</td>
</tr>
</tbody>
</table>

Table 3 depicts the results of Independent Sample Test for comparing experimental and control groups’ scores on the Nelson Test. It shows that the hypothesis of equal of variances was met since p value of Levene's Test, .75 was well above .05 (p > .05).

Table 3

**Independent Samples Test to Compare Experimental and Control Groups’ Scores on the Nelson Proficiency Test**

<table>
<thead>
<tr>
<th>Levene's Test for Variances</th>
<th>T-test for Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variance assumed</td>
<td>.100</td>
</tr>
</tbody>
</table>

The results of t-test in Table 3 indicates that there was no significant difference in scores obtained in experimental and control groups on the Nelson test with (t = .206, p = .83, p > .05), in which the t value was lower than the t critical, 2.02, and the p value, .83 was larger than .05 level of significance. Therefore, it can be concluded that the two were almost at the same level prior to the treatment.

The null hypothesis of this study predicted that there is no effect of DA on EFL learners’ reading comprehension. In order to analyze the data to investigate null hypothesis, first the participants’ performances in experimental and control groups on reading pretest and posttest were calculated.

Table 4

**Descriptive Statistics of the Pretest for Both Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>2.684</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>2.625</td>
</tr>
</tbody>
</table>

Table 4 shows that in the pretest, the average mean score in experimental group was 15.63 with the standard deviation of 2.68, and control group showed the mean score of 15.27 with the standard deviation of 2.62. The two groups did not score significantly different. That means the two groups are almost in the same level of reading comprehension proficiency.

The results of Independent Sample TTest for comparing experimental and control groups’ scores on reading pretest are set forth in Table 5.
Table 5

Independent Samples Test to Compare Experimental and Control Groups’ Scores on the Reading Comprehension Pretest

<table>
<thead>
<tr>
<th>Levene's Test for Variances</th>
<th>T-test for Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variance assumed .007</td>
<td>.934</td>
</tr>
</tbody>
</table>

It shows that the hypothesis of equal of variances was proved since p value of Levene's Test, .93 was above .05 (p > .05). The results of t-test in Table 4.6 indicates that there was no significant difference in scores obtained in experimental and control groups on the pretest of reading with (t = .535, p = .59, p > .05), in which the t value was lower than the t critical, 2.02, and the p value, .59 was more than .05 level of significance. That means the two groups have almost similar reading ability before facing the treatment of this study, i.e. dynamic assessment. Based on these results, it can be concluded that the homogeneity assumption among the groups was met.

In order to investigate the effect of DA on EFL learners’ reading comprehension, the reading comprehension posttest was conducted. An independent sample TTest was used to compare the mean scores of both groups. The results are shown in Table 6 below.

Table 6
Descriptive Statistics of Reading Comprehension Post Test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>SD</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>2.956</td>
<td>18.43</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>3.100</td>
<td>16.10</td>
</tr>
</tbody>
</table>

According to the table, the mean score in experimental group was 18.43 with the standard deviation of 2.95. The mean score in control group was 16.10 with the standard deviation of 3.10 on reading posttest. Then, as the results indicate, the experimental group and control group scored differently on the reading posttest. In fact, the experimental group outperformed the control group.

Afterward, another Independent Sample Test (see Table 7) was run to compare the experimental and control groups’ scores on the posttest of reading. Table 7 shows that since the p value of Levene's Test, .56 exceeded .05, the assumption of equal of variances was supported.

Table 7

<table>
<thead>
<tr>
<th>Levene's Test for Variances</th>
<th>T-test for Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variance assumed .088</td>
<td>.768</td>
</tr>
</tbody>
</table>

An Independent Samples TTest was run to compare the scores on the posttest. A statistically significant difference in scores of the two groups on the reading posttest was reported applying the Independent Sample TTest: (t = 2.98, p = .004, p < .05). Fortunately, the p value of .004 was less than the selected level of significance, .05, and our t value, 2.98 was higher...
than the t critical, 2.02. Accordingly, it is quite safe to reject the null hypothesis as there is no effect of DA on EFL learners’ reading comprehension.

The experimental and control groups have scored differently on the reading posttest; and the difference is statistically significant. This supports the claim that DA affects EFL learners’ reading comprehension. As the results show, the mean scores are almost the same at pretest, but the mean scores considerably goes down in the control group in the posttest comparing with those of experimental group.

5. CONCLUSION

The major objectives of the current study were to explore the effect of applying DA the EFL learners’ on reading comprehension ability as well as diagnosing their problems.

The results of the study indicating the highly effect of DA on EFL learners’ reading comprehension, are in accordance with a number of studies which found that “DA is an approach to understanding individual differences and their implications for instruction that embeds intervention within the assessment procedure” (Lidz & Gindis, 2003 p.99). This study may support that principals of DA, according to Poehner (2007), have newly been started to be used in assessing learner’s language proficiency, especially for classroom purposes. As the research was conducted in a classroom environment with EFL students. Haywood and Lidz (2007) explain that DA is not a single method of assessment, but a wide range of exercises that depart from traditional, or NDA by including intervention and learner responsiveness to intervention as crucial elements to understand the learner abilities. The same as the process which was conveyed in this article for the experimental group while intervention; meanwhile, the learners responses were gathered in a teacher’s checklist which showed positive impressions.

The findings of the study corroborate the findings of Gibbon’s (2002, cited in Gibbon, 2003) study which breaks all the research done in ZPD. Gibbon explores the possibility of constructing a ZPD with a group of learners. He points out that this view was mentioned by Vygotsky himself and operates in much the same way as one-on-one ZPD interactions, with a mediator. Gibbon concludes that assisting the learners to the responsiveness of them is the target. The difference is that in this case multiple learners are engaged with the mediator in collaboratively going through an activity or any task.

Our study shows that according to Kozulin (1986), DA is helpful to discover individual differences while decreasing the influence of students’ previous background. As the researcher did in this article by conducting a questionnaire asking leading questions for a better understanding of the individuals in the intervention process. Feuerstein’s (2000) study proved that children with different education background could overcame very well in tests which examined their learning potential. Campione and Brown (1984) explain that students who suffer kinds of difficulties developed dramatically in collaborative learning situations, after conducting DA procedures, and these experiments have positive impressions in the groups under treatment. DA has been applied in different models or formats.

The results of the current study give further support to the argument by Poehner (2005) who devotes much attention to the relation of assessment and instruction from a Vygotskian perspective. He pinpoints that mixing the assessment and the instruction is one of the DA targets to follow the next targets. Poehner argues that DA is not related to a single methodology but to a set of approaches that takes the mediation in to account in the assessment procedure.

In addition, the current results lend support to the suggestion made by Kozulin (1998) who pinpoints that Vygotsky’s aim is not fulfilled unless performing assessment functions in a collaborative or assisted plans. As he holds these functions are referred to the ZPD as the counterpart of the zone of actual development. He continues that the statistic assessments data gives us the current ability of the learner while, putting the learners in their ZPD best evaluates the ability of student to learn from the interactions with teacher or a classmate. In fact, as Kozulin emphasizes, Vygotsky aimed to reveal that this learning ability for sure predicts the student’s needs in the educational environment better than any statistic scores.

In this regard, (Kozulin & Garb, 2002, p.113) name actions such as “modeling, asking leading questions, starting to solve a task and then asking the student to continue, and so on”, as possible interactive interventions which are used during
the ZPD assessment.

Based on the results, we can support the idea that Ableeva (2010) investigated the effects of interactionist DA on the promotion of listening comprehension ability in an EFL environment of intermediate French language learners. The results of this study showed that DA provides a measure of the actual level of the learners and an estimation of learners’ potential for learning and development. Therefore, we may contribute to the learners’ development if the interactions are within learners’ ZPD.

We interpret the current results as giving support to Anton (2009) that implemented a diagnostic assessment in an advanced Spanish language program at university level. She applied DA practices as a way to assess the language abilities, intervene in learning, and document the learners’ growth. She conducted the assessment procedures with third-year Spanish language majors in order to illustrate the potential of DA for the L2 contexts. The participants took a five-part diagnostic test. Two parts of the test, the writing and speaking sections, followed DA procedures. The qualitative analysis of the results showed that DA allowed for a deeper and richer description of the learners’ actual and emergent abilities. Anton’s study contributes to emergent research on DA in L2 learning contexts.

Furthermore, our results are in agreement with researchers such as Birjandi, et.al who despite the contribution of the recent studies, Birjandi, Estaji, and Deyhim (2013) argue that, there are still very few studies examining the relationship between reading and DA. They maintain that a more detailed account of the students’ strengths and weaknesses can be provided by using a DA approach to assess their reading abilities. This information would lead to more effective instructional programming during remediation, resulting in improved reading abilities for the student.

Birjandi, Estaji, and Deyhim (2013) further state that evaluating the effectiveness of the DA techniques can help teachers make better decisions in their classes and they gain better result from successful English learners. They conclude that DA is an effective means of understanding learners, helping them to overcome the linguistic and cognitive problems. The purpose of their study was to determine the usefulness of DA for the evaluation of high school students’ reading comprehension. In order to examine the level of meta-cognitive awareness of reading strategy required to improve the students’ reading skills in an Iranian context. Overall, it is expected that DA can provide more precise and detailed information about reading comprehension skill than traditional assessment for Iranian learners.

REFERENCES

Zarinkamar & Naeini (2015)


