

The Effect of Symmetrical versus Asymmetrical Scaffolding on English Reading Comprehension of EFL Learners

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Abstract: The present study was aimed at clarifying the effect, if any, of symmetrical scaffolding versus asymmetrical scaffolding on English reading comprehension of Iranian students. The research was carried out on 80 elementary male students in six classes. The six classes were randomly assigned to two inter-class groups, i.e. symmetrical group (SG) and asymmetrical group (AG). Then two parallel tests in the form of a cloze test served as the pre- and post-tests. Since the students accomplished answering the cloze tests with recourse to their similar dictionaries, the results were regarded as the potential knowledge, i.e. zone of proximal development (ZPD), of the students in reading comprehension. In each of the intra-groups of the SG, consisting of four (at times three) students, the students with similar ZPDs in reading comprehension were asked to work together. While in each of the three classes of the AG, the students with different ZPDs in reading comprehension were grouped together. After the intra-class group assignment, the students worked on ten reading comprehension texts in their groups. At the end of the study two independent and two dependent *t*-tests were run, which indicated that the SG outperformed the AG.

Key words: scaffolding; zone of proximal development (ZPD); more knowledgeable other (MKO)

INTRODUCTION

In recent years, the concept of zone of proximal development (ZPD) has come to be known as one of the cardinal features in learning from a sociocultural perspective. Thus, it has increasingly been applied to second language education. ZPD was first introduced by the Russian psychologist Lev Vygotsky in *Thought and Language* (1986). He believed that learners should be assessed not through their actual

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knowledge but through their potential knowledge. In his view, social context is the original source of knowledge. Lantolf (2007) purports that Vygotsky has proposed a wide view of cognition by considering the environment itself as the source of development. To Vygotsky, ZPD indicates “the discrepancy between a child’s actual mental age and the level he reaches in solving problems with assistance” (1986: 187). In fact, any assessment regardless of social interaction cannot be the mirror of reality. This notion has a central role in sociocultural theory applied to second language education. It should be mentioned that in this study, the enlarged notion of ZPD is meant. The “enlarged” notion of ZPD refers to “a site of potential learning that is created when participants of all ages and levels - and not just children and adults or novices and experts - collaborate in understanding a concept or solving a problem” (Wells, 1999, cited in Villamil & de Guerrero, 2005: 79-80). Furthermore, it “implies that mediation is not limited to assistance by other human beings but may come in the form of socially constructed semiotic artifacts, such as books, maps, and diagrams” (Wells, 1999, cited in Villamil & de Guerrero, 2005: 80).

Apart from the preceding definitions, ZPD can be effective in education in a number of ways. One of its important uses, if not the most important one, is its application in assessment. The other use of ZPD is its application in scaffolding. This metaphor has been defined by Schumm (2006) as “providing support for students in their learning, and then gradually diminishing the support as students become more independent” (p. 530). Verity (2005) argues that scaffolding is an important form of strategic mediation, which should be offered to a learner contingent upon his needs. In a study by Xu, Gelfer and Perkins (2005) it was found that peer tutoring, roughly synonymous with scaffolding, is beneficial not only for nonnative learners of English but also for native English speakers.

Scaffolding is an umbrella term with widespread ramifications. For example, there are two kinds of scaffolding, namely symmetrical and asymmetrical. In fact, symmetrical scaffolding rests on the fact that learners discover new knowledge through cooperation and interaction. To cast light on symmetrical scaffolding in group work, the following situation is highly probable: student A is good at using a strategy for reading comprehension, while student B is good at vocabulary. Therefore, they can help each other in the course of reading. The striking similarity between symmetrical scaffolding and cooperation is so considerable that some scholars use them interchangeably or prefer to use cooperation as it is more common. Nevertheless, in the present study, the researchers have made a distinction between them: in symmetrical scaffolding students cooperate with other students who have similar levels of ZPDs, whereas in cooperation the potential levels of the students are not taken on board.

Unlike the symmetrical scaffolding group, in the asymmetrical scaffolding group the learners with different ZPDs work in the same inter-class groups. As a matter of fact, asymmetrical scaffolding is a typical kind of scaffolding in that there is always a learner in each group who is more knowledgeable than others (MKO), and plays the role of the MKO in his or her group.

As the notions of ZPD and scaffolding are somehow abstract, most of the studies pivoting on them have been conducted on reading and writing skills so as to enhance objectivity. Given that in reading comprehension the interaction among students reaches its zenith, it could be one of the best venues for implementing scaffolding.

The aim of this study is to uncover the effect of symmetrical and asymmetrical scaffolding on English reading comprehension of elementary EFL learners. In fact, the comparison is made between two common notions of grouping, heterogeneous versus homogeneous, highlighting the potential knowledge of the learners.

In retrospect, there has been growing interest toward ZPD and scaffolding in the realm of research in social sciences. But these studies have overlooked the two key points in sociocultural paradigm. First, in most of such studies, researchers have solely focused on scaffolding students. However, scaffolding students regardless of their ZPD does not stand to reason. Besides, many teachers practicing scaffolding in their classes just assign students to different groups, regardless of their ZPD and its outcome. As Aljaafreh and Lantolf (1994) rightly mentioned, no matter how complete and sophisticated the assessment of the students might be, we are not allowed to consider any two learners as homogeneous in the absence of their potential developmental level. In sociocultural paradigm, the potential developmental levels give a more accurate picture of students’ knowledge (Vygotsky, 1978). Among studies not considering ZPD regarding scaffolding are Donato (1994), Kozulin and Grab (2002), Hayes, Janetzka and Hall (2006).

Second, most of the studies regarding scaffolding have been carried out on case studies. Therefore, the practicality of the whole-class scaffolding has been called into question. In a vast body of such, teachers have played the role of MKOs, inter alia, Aljaafreh and Lantolf (1994), Nassaji and Cumming (2000), Ohta (2000), Nassaji and Swain (2000). As there is no more than one teacher in every class, scaffolding all of the students is too difficult, if not impossible.

Thus, this study is intended to obviate the shortcomings of the previous studies and compare the two types of scaffolding based on assessment in line with ZPD. Further, this study is consistent with the construct of scaffolding proposed by van Lier (2004), which states that “this construct must be expanded to include not only an expert-novice relationship, but also an equal peer one, a peer to lower-level peer one, and a self-access, self-regulated one” (p. 162). More importantly, in this study the assessment of the students, through two cloze tests with the help of their dictionaries, refers to an enlarged notion of ZPD. In contrast, the group activities and interactions refer to the common notion of ZPD, which emerges through interaction and group activities.

The notion of scaffolding, however, is usually misinterpreted. As Ellis (2003) rightly observed, “Scaffolding is not dependent on the presence of an expert; however, it can also arise in interactions between learners” (p. 193). Since in this study the asymmetrical group revolves around the interaction between MKOs and less able learners, it is keeping with Vygotsky’s original theory regarding the importance of instruction and the role of MKO in the cognitive development. The other kind of scaffolding, which is more of collaboration, is symmetrical scaffolding. This suggests that two or more learners with virtually the same level of ability in a given language help each other to achieve something beyond their actual knowledge. Meanwhile, there is no MKO in a group. Put another way, all of the students can be considered as MKOs. Hence, this type of scaffolding is in line with Piaget’s theory highlighting peer (students with the same level) interaction and free-exploration (Fotos, 2001; Garton, 1992). “Numerous authors have recently observed that peer groups of students or work teams, for instance, are also able to construct a ZPD through joint efforts among their members, without expertise residing in any one member of the group” (Nassaji & Cumming, 2000: 98). By the same token, comparing these two kinds of scaffolding in a sense is comparing the theories of Vygotsky and Piaget in cognitive development.

In line with the aforementioned argument, this study was conducted to answer the following questions:

Frist, is there any significant difference between symmetrical and asymmetrical scaffolding in English reading comprehension of elementary Iranian EFL learners?

Second, does symmetrical scaffolding have any significant effect on the reading comprehension of elementary Iranian EFL learners?

Third, does asymmetrical scaffolding have any significant effect on the reading comprehension of elementary Iranian EFL learners?

METHOD

Participants

The study was conducted in six classes at Kish Language Institute in Tehran, Iran. Eighty-seven elementary Iranian EFL learners participated in this study. The participants were male students with an average age of 22. The study had 7 dropouts, which means that the post-test was carried out with 80 students. Each class was held for twenty one sessions (one month), five days a week and every session lasted for one hour and forty-five minutes. The six classes were intact and were randomly assigned to two different experimental conditions, i.e. symmetrical and asymmetrical.

Materials

Ten passages from the elementary level of *True To Life*, five from its workbook, and five from the class-book, were used as the reading texts in this study. Each major level of *True To Life* has two main books, the class-book and the workbook. During the course of the study, the students were supposed to read the reading comprehension passages in groups. While reading, the students were given feedback by the teacher from an implicit to an explicit mode virtually based on the simplified scale taken from Aljaafreh and Lantolf's (1994) study. Two virtually parallel cloze tests, developed by the researchers, served as pre- and post-tests. They were adopted from the elementary level of *Headway*, formerly employed as the course-book at Kish Language Institute. For the sake of obtaining a clear interpretation of the students' ZPDs, each cloze test embraced three parts beginning with every seventh-word deletions, then every-sixth word deletions, and at the end every fifth-word deletions. There were 30 blanks in each cloze passage, each receiving one mark. Therefore, the total score for each test was 30. The pre- and post-cloze tests were scored through the acceptable-response method.

Due to the following reasons the pre- and post-tests were considered to be virtually equal regarding the level of difficulty. First, they were adopted from the same elementary book and second, four experienced English teachers confirmed that these two tests were virtually parallel. Finally, the result of a pilot study indicated that the two tests were more or less parallel.

Procedure and Data Analysis

As mentioned earlier, after excluding the dropouts, 80 students served as the participants of the study in six elementary classes at Kish Language Institute. Due to institutional limitations, the teachers were not able to take six elementary classes in one term. As a result, the implementation of the study lasted for three terms. The classes were taught by two different teachers. One of the teachers took three elementary classes and the other teacher took three other classes. Two asymmetrical classes and one symmetrical class were taken by one of the teachers and the other two symmetrical classes and one asymmetrical class were taken by the other teacher in order to minimize any probable differences in teaching. This suggests that if either of the teachers had taken three symmetrical or three asymmetrical classes, the obtained results could be attributed to the teachers' differences rather than the treatment itself. However, by the aforementioned strategy in taking the classes, the researchers counterbalanced any possible effect of the teachers' differences on the result.

The intra-class group assignment was carried out in accordance with the pre-test. In the three symmetrical classes the students with similar scores were in the same intra-class groups, while in the three asymmetrical classes the intra-class groups consisted of heterogeneous students. This means that based on the results of the pre-test, each intra-class group consisted of good, moderate, and poor students. During the course of the study, the students worked on ten reading comprehension passages, five from their workbook and five from their course-book (class-book). While reading, the students were assisted from an implicit to an explicit mode based on the simplified scale of Aljaafreh and Lantolf (1994)'s study. As mentioned before, each term, lasting for one month, consisted of 21 sessions. In almost every other session, students were presented with one reading comprehension. Therefore, on the whole, the participants were exposed to 10 reading comprehension passages. In each class, the participants were divided into four or five intra-class groups of four, depending on the number of the students in each class. Needless to say, sometimes due to the absentees, there were some changes, taking the heterogeneity or homogeneity of the classes into consideration.

At the end of the treatment period, the cloze post-test, paralleled to the pre-test taken from *elementary level of Headway*, was administered. Finally, two independent samples *t*-tests were employed to compare the performance of both symmetrical and asymmetrical groups, i.e. the inter-class groups in six classes on the pre- and post-tests. Moreover, two paired *t*-tests were carried out to compare the performance of each class on pre- and post-tests.

Results

At the beginning of the study, both symmetrical and asymmetrical groups were given the pre-test. The learners were supposed to take the pre-test in 45 minutes with recourse to their dictionaries. Table 1 displays the group statistics of both symmetrical and asymmetrical groups on the pre-test.

Table 1: Group Statistics in the Pre-test

pre-test	N	M	SD
Symmetrical group	39	16.82	5.54
Asymmetrical group	41	15.17	4.74

The independent samples *t*-test showed no significant differences between the mean scores of both groups, $t(78)=1.43, p>.05$. This suggests that the two groups were homogeneous. In other words, there was no significant difference between the scores of reading-comprehension of the two groups at the outset of the research.

After one month, the students were asked to take another cloze test, similar to the pre-test, as their post-test. Table 2 shows the result of the group statistics comparing the post-test of the two groups carried out at the end of the research.

Table 2: Group Statistics in the Post-test

post-test	N	M	SD
Symmetrical group	39	19.76	5.40
asymmetrical group	41	16.29	4.85

The result of the independent samples *t*-test revealed a statistically significant difference between the mean scores, $t(78)= 3.02, p<.05$. This suggests that the participants in the symmetrical group (SG) outperformed those in the asymmetrical group (AG) and therefore the first research question was answered positively.

To answer the second and the third research questions, the researchers employed two paired *t*-tests. Table 3 indicates the improvement between the pre- and post-tests of the SG.

Table 3: Paired Samples Statistics for SG

	N	M	SD
Symmetrical pre-test	39	16.82	5.54
Symmetrical post-test	39	19.76	5.40

The result of the paired *t*-test showed that there is a significant difference between the two mean scores, $t(38)=4.26, p<.05$. Accordingly, the second question addressing the improvement in the symmetrical group was answered in the positive.

Likewise, Table 4 shows the pre- and post-tests of the AG.

Table 4. Paired Samples Statistics for AG

	N	M	SD
asymmetrical pre-test	41	15.17	4.74
asymmetrical post-test	41	16.29	4.85

This time the result of the paired *t*-test revealed no statistically significant differences between the two mean scores, $t(38)=1.56, p>.05$. Accordingly, the third research question addressing the improvement in the asymmetrical group was answered.

DISCUSSION

By recapitulating and reconsidering the statistical procedures and the results obtained, one can perceive the significant improvement of SG over AG. Interestingly enough, the results of the study are not completely in line with Vygotsky's notion of MKO, which hinges on the presence of MKO in any interaction. In contrast, the results are similar to Piaget's notion in relation to cognitive development, which centers on the role of collaboration to the exclusion of an MKO.

Moreover, the findings did not lend support to Crandall's (1999) idea regarding cooperative groups, which emphasizes the benefit of all students in a group. That is to say, in her opinion both more-able and less-able students almost equally benefit from cooperation. While in this study the homogeneous group outperformed the heterogeneous group, more specifically, the cooperation among the less-able students with more-able students in the heterogeneous group was not as effective as that of the homogeneous group.

Furthermore, Guk and Kellogg (2007) proved the practicality of whole-class scaffolding through teacher-led and student-led interaction. They came to the conclusion that each has its own pros and cons, e.g. teacher-student mediation is longer and more accurate than student-student interaction. In a similar vein, the present study supports the viability of whole-class scaffolding raised recently by merely focusing on two types of student interaction.

The study, however, was, to a large extent, in line with the case study carried out by Nassaji and Swain (2000) in which two female Korean students from among a number of ESL students were selected. One of them received feedback in line with her ZPD, whereas the other did not receive feedback contingent to her ZPD. At the end, the one with feedback tailored to her ZPD had more progress than the other. By extension, the present study can be considered in line with the aforementioned study, yet in a larger scale. In other words, the heterogeneous groups received feedback more or less untailored to their ZPDs, whereas the homogeneous groups received feedback virtually geared to their ZPDs. Hence, in both studies those receiving feedback tailored to their ZPDs were more successful than those receiving untailored feedback regarding their ZPDs.

CONCLUSION

As the data analysis indicates, the SG participants benefited more from reading comprehension than the AG participants. In other words, whenever the students were grouped with other students of similar ZPDs, they were more successful than when they were grouped with those of different ZPDs.

The causes for the aforementioned differences between the two groups can be due to several factors. First, in the AG students with different potentials (ZPDs) in reading comprehension were grouped together, which caused two problems. Second, from the more able students' vantage point, less able students might hinder cooperation and thus they might waste time. Therefore, effective cooperation did not occur well. Third, from the less able students' point of view, they should be reserved in order not to hinder the pace of the class. In other words, the primary reason that the SG participants outperformed the AG participants can be ascribed to affective factors. Additionally, in the SG the students with the similar ZPD were grouped together; therefore, they had a sense of competition, a competition which was fair in that they competed with the students with similar potential knowledge in English reading comprehension.

In line with Vygotsky's original notion regarding development, while students are interacting with each other, someone who is the more knowledgeable other should be present to guide them, otherwise development will not occur. Unlike Vygotsky's stance on cognitive development, to Piaget, cognitive development precedes instruction, and more importantly, this is the peer interaction (homogenous student interaction) which brings about progress and development. Moreover, the Vygotskian notion stresses the role of an MKO as a key to development which is absent in Piaget's notion. As already mentioned, one can attribute the concept of symmetrical scaffolding to Piagetian notion of development, though not directly,

and the concept of asymmetrical scaffolding to Vygotskian concept of development. Thus, the concept of the MKO should be re-examined in that no two learners are the same because every individual is capable of playing the role of an MKO for his or her partner in a given context.

The result of the study suggests that, dynamic assessment (DA), here ZPD-based assessment, has more to say than the orthodox type of assessment, non dynamic assessment (NDA). In other words, though prior to the given treatment all the students were placed in the same classes as virtually homogenous through traditional assessment, the ZPD-based assessment of the students through the cloze test made a huge change in the results. The point is, those students assumed to be homogeneous through NDA, found to be rather heterogeneous through the ZPD-based assessment. Moreover, if the research had been carried out without screening the students through their potential knowledge in English reading comprehension, the students' ZPDs would not have been gained and consequently the complementary concept of scaffolding might not have been met.

Furthermore, the researchers believe that assessment through the cloze test gave them a more accurate picture of the students' ability in reading comprehension, since the score of a cloze test can be interpreted in terms of reading ability as well as overall language proficiency.

The results of this study demonstrated that homogeneous groups are more successful than heterogeneous groups based on ZPD-based assessment. Therefore, it is recommended that teachers take into account students' ZPDs in certain skills while grouping them together. Although according to Crandall (1999), all of the students benefit from cooperation and group working, the present study suggests that in ZPD-based cooperation and group work, students in homogeneous groups gain more benefit than students in heterogeneous groups. However, caution must be exercised: all of the findings in this research are deeply rooted in ZPD-based assessment and generalizability of these findings to other studies based on non dynamic assessment should be regarded with circumspection.

The present study paves the way for studies considering the effect of different types of MKO on students' overall improvement in language learning. Furthermore, one may wish to carry out a similar study in order to find out how accurately a cloze test can assess students' ZPDs in English.

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