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Pishghadam, R., & Ghardiri, S. (2011). Symmetrical or asymmetrical scaffolding: Piagetian vs. Vygotskian views to reading comprehension. *Journal of Language and Literacy Education* [Online], 7(1), 49-64 .

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## **Symmetrical or Asymmetrical Scaffolding: Piagetian vs. Vygotskian Views to Reading Comprehension**

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*This study seeks to investigate the impact of symmetrical (S) and Asymmetrical (AS) scaffolding, which are two types of scaffolding, on students' reading comprehension achievement of English as a Foreign Language (EFL). The study was done in two phases: In the first phase after administering a Pre-test, 52 homogeneous intermediate students were selected, and they were divided into two experimental groups. The experimental group (A) received instruction according to S strategy whereas the experimental group (B) was instructed via the AS strategy. A Post-test was administered, and its results were analyzed through t-test. The results indicated that although S scaffolding has significant effect on learners' performance in reading comprehension, enhancing it but AS scaffolding is a more effective strategy in improving reading comprehension achievement. In the second phase, the qualitative data consisted of a total of 60-minute recording of 28 participants' interviews. The results have been more consistent with Vygotsky's theories than with those of Piaget in cognitive development.*

*Key Terms: Asymmetrical, Piaget, Reading Comprehension, Scaffolding, Sociocultural Theory, Symmetrical, Vygotsky*

Following the innovations in the theories of learning and teaching and their radical changes from the positivistic ideas to the constructivist ones, foreign language reading has also undergone a radical change from the reader's passive role to the reader's active role in reading comprehension. Positivistic definitions of reading mainly focus on the text to be read rather than on the reader, while the constructivist view emphasizes the active role of the reader in the process of reading comprehension. Therefore, this constructivist process-oriented approach gave rise to the development of lots of reading strategies for reading comprehension (van Lier, 2004).

One of these strategies which have received great attention during the past two decades is cooperative reading technique. This technique was developed to shift attention and control in the reading classroom from correct answers toward the joint negotiation and co-construction of meaning from text (Jay & Salisbury-Glennon, 2000). Cooperative reading, emphasizing the constructivist principles, is grounded in the works of Piaget (1960) and Vygotsky (1978). Although to both Piaget and Vygotsky, interaction with others can hasten the development of cognition, there is a substantial difference between their theories of interaction. In the Piagetian tradition, cognitive development is contingent on individuals confronting those who hold contradictory thoughts and claims, thereby creating conflicts that spur higher levels of reasoning. In sharp contrast to this view, Vygotsky, coining the term Zone of Proximal Development (ZPD), holds that learning occurs faster when individuals interact with more able peers. In fact, Piaget believes in symmetrical relationship between peers, while Vygotsky espouses the asymmetrical relationship between peers.

As the literature of second language teaching reveals, the idea of ZPD has gained more momentum during the last decade and lots of studies (e.g. De Guerrero & Villamil, 1994; Ohta, 1995) have been conducted to buttress Vygotsky's notion of interaction. The studies have shown that asymmetrical interaction is more conducive to language learning than symmetrical interaction. The analysis of classroom interaction shows that learning appears in collaboration with more knowledgeable individuals. However, it seems that sometimes collaborating with more able and competent peers can result in de-motivation on both sides.

In this study, we have attempted to examine Piaget's and Vygotsky's theories of interaction in English reading classes in a Foreign Language (FL) setting. Thus, using quantitative and qualitative research, we have tried to determine the efficiency of these theories.

### **Background of the Study**

#### **Theoretical Issues**

As pointed out by Roebuck (2000), "Sociocultural Theory (SCT) is a theory of mind, based on Vygotsky's belief that the properties of the mind can be discovered by observing mental, physical, and linguistic activity, because they are intrinsically related" (p.80). It can also be defined as an approach to the human sciences whose purpose is to explain and develop the connection between mental functioning and the cultural, institutional, and historical condition in which mental functioning happen (van Lier, 2004).

Williams and Burden (1997) stated that mediation is used by psychologists of the social interactionist school to refer to the role of other significant persons in learner's lives. The reason

of effective learning is in the nature of social interaction between people with different levels of skill and knowledge. The role of more knowledgeable one is to support the other to learn. This significant person in the learning of the child is known as mediator, and the role of this person is considered as a key factor in effective learning.

According to Lantolf (2000), activity theory comprises "a unified account of Vygotsky's original proposals on the nature and development of human behavior" (p. 8). Activity in Leontiev's (1978) theory is doing something that is motivated by a biological and a culturally constructed need. Needs become motives once they become directed at a specific object. Motives are understood in certain goal-directed actions and done under specific spatial and temporary conditions by suitable mediational means. So, an activity consists of three levels: levels of motivation, action, and conditions. Activities can be observable directly by others at the level of operations. But, the motives and goals of specific activities cannot be determined only from the level of concrete doing because the same observable activities can be related to different goals and motives and different concrete activities can be related to the same motives and goals (Lantolf, 2000).

Vygotsky's (1978) most known concept is Zone of Proximal Development (ZPD). This term refers to the level of skill or knowledge that is solely beyond that with which the learner is able to copy. The best suggestion for a learner to move to a higher level is cooperation with another person who is either an adult or a more knowledgeable peer at a level that is just above a learner's abilities at that time. ZPD supplies a specifically clear and simple message about how to support learners when they are at each stage of their learning. It suggests that the teacher should provide tasks that are at a level just higher than the learners are currently able to do, and teach rules that will help them to make the next stage without help. As pointed by Lantolf and Thorne (2006) and Vander veer and Valsiner (1991), ZPD was first limited to intelligence testing and then slowly expanded to the general problem of the relation of education and cognitive development. To Vygotsky (1978) it is a fact that learning should be matched in some way with the developmental level of the child. In order to discover the real relations of the developmental process to learning abilities, we must determine at least two developmental levels. The first, actual developmental level, is the developmental level of a child's mental abilities that has been made as a consequence of specific early completed developmental periods. The second, mental development, supposed that just those things that children can do without the assistance of others show their mental abilities. ZPD is the discrepancy between what a child can do independently and what he/she can do under adult guidance or in collaboration with more capable peers. To summarize, it is the difference between actual and potential developmental level of a child. The actual developmental level defines abilities that have already completed and the child can do independently. However, ZPD defines those abilities that are now in an initial state, but will mature in future.

To help learners progress into their ZPD, teachers are expected to scaffold learners in a way to actualize their potentialities. Scaffolding refers to supportive behaviors, chosen by an expert in cooperation with the novice learner, that facilitate the learner's achievement to higher levels of regulation (De Guerrero & Villamil, 2000). According to van Lier (1996), pedagogical scaffolding is strategic behavior determined by close and continuous scrutiny of what is easy and difficult for the learner, guided by "a long-term sense of direction and continuity, a local plan of

action, and a moment-to-moment interactional decision-making" (p.199). van Lier (2004) mentioned Wood's (1988) observation that "research on scaffolding assumes the existence of a ZPD by implying performance alone would be inferior" (p.147). According to this view, scaffolding and contingent teaching are identical, and it takes place of necessity in a ZPD (Vygotsky, 1978). Field (2004) stated the relation between scaffolding and ZPD in this way: An adult provides assistance to a developing child by way of prompting his attention in a task, guiding him toward proper goals, marking salient features of a task and showing related strategies. Scaffolding has a significant role in supporting a child to progress into his ZPD.

The research of Piaget and Vygotsky has a great effect on the methods and approaches of teaching. Both have offered opinions to the field of education by presenting explanations for children's cognitive learning styles, intelligence and competence. Even though Piaget and Vygotsky may have different opinions about cognitive development in children, both educators present good ideas on how to teach certain material in a developmentally appropriate manner. As determined by Piaget (1960), learning is a phenomenon that results from mental and physical maturation and also experience. That is, development precedes learning. In opposition, Vygotsky noticed that learning processes lead development. Vygotsky maintained that learning is an essential and widespread aspect of the process of developing culturally organized, specifically human, psychological functions. In other words, learning is what leads to the development of higher order thinking (Dahms, Geonnotti, Passalacqua, Schilk, Wetzel, & Zullkowsky, 2009). Vygotsky (1978) suggested that learning and development are sociocultural activities that people engage in together, rather than, considering them as an internal, individualistic process. Also, he believed that learning should lead development.

### **Empirical Studies**

Donato's (1994) study extends the scaffolding framework to peer interaction. The study included second language (L2) learners of French working on a familiar open-ended task. The learners were involved in a one-hour planning session as a preface to an oral activity. This session was audiotaped and transcribed. Over the course of the class session, 32 instances of scaffolded help were documented. Nine of the 24 co-constructed pieces of linguistic knowledge were later used in independent performance by the students when help was no longer available. He suggests that learners can scaffold one another, or 'mutually construct' assistance, in the same way experts scaffold the performance of novices. Also, he explains dialogic interaction has the potential to develop appropriation of linguistic knowledge by individuals who together form to some extent a collective expert, and who after that are able to accomplish tasks collaboratively that they might not have the ability to perform individually. These findings argue for extending dyad and group work from "simple opportunities to exchange linguistic artifacts to that of the collective acquisition of the second language" (p. 53).

Ohta (2000) investigated the interactional cues to which peers oriented in order to provide developmentally appropriate assistance. Analysis focuses upon the participation of two learners of Japanese. Three language learning tasks are connected to the analysis, a role-play task, a translation task, and a communicative interview task that finished the lesson. Analysis focuses on the translation task, which was more difficult for one of the participants. All three tasks existed during a part of class devoted to introduction and practice of a desiderative construction. The data were audio and video recordings of a second year university-level Japanese language class.

Data were transcribed for analysis using conventions from conversations analysis and first-language acquisition research. A Vygotskian analytic framework was used to illuminate the nature of the language development processes in the data set. The analysis made use of Vygotsky's general genetic law of cultural development which considers the transformation of cognitive constructs from the interpsychological to intrapsychological plane, and the ZPD, which makes a suggestion as to how this transformation happens through a process of developmentally sensitive assisted performance. These constructs illuminate the role of collaborative interaction in L2 development, especially during the examination of assistance and internalization processes. Obviously, the nature of effective assistance in the ZPD varies depending upon a variety of factors, consisting of the skill and knowledge of the helper, the nature of the task, the aims of the participants, and the developmental levels of the learners. Both of the participants improved dramatically, developing the ability to produce the sentences fluently and correctly. While the task at first seemed unsuccessful, these students achieved a great deal.

In the same vein, De Guerrero and Villamil (2000) conducted a study aimed at observing the processes by which strategies of revision take shape and develop in the interpsychological space created when two learners are working in their respective ZPDs. The subjects were two male, intermediate ESL college learners, native speakers of Spanish, who registered in an ESL communication skills course that focused the development of writing. The students took part in two revision sessions during which two students together revised a composition written by a member of the group. The students started their interaction with the writer reading aloud his paper to the reader before revising the text. As soon as the required reading aloud was finished, the students began to use the task to deal with revisions. This process was observed in their implicit acceptance of a role as reader or writer. The pair's conversation was audiotaped and transcribed in sixteen episodes for analysis. A microgenetic analysis was used. Interactions were examined closely in order to observe a moment-to-moment changes in behavior that might signal development of revision skills through mediated assistance and the scaffolding mechanisms used by the students in helping each other revise the composition. Also, the students' interaction was in Spanish, with English used occasionally for reading or referring to different parts of the written text. As a whole, results of the study showed that in second language peer revision scaffolding may be mutual rather than unidirectional.

Moreover, Xu, Gelfer & Perkins's (2005) study was conducted to examine the effects of classwide peer tutoring (CWPT), a peer-mediated teaching approach, on social interaction behaviors of English language learners and native English speakers in second-grade classrooms. Findings of the study pointed out that because of the reciprocal influence during the tutor-tutee procedure, English language learners and native English speakers from both classrooms benefited from this positive interaction. Questionnaires from the teachers and students indicated that both groups enjoyed the CWPT process, and they intended to continue using CWPT. The results also show that the appropriate preparation of learning environments is essential for children's social interactions. The situations provided for social interactions contributed greatly to the educational success of English language students despite their limited English proficiency.

Ohta (1995) also studied peer scaffolding in the ZPD. Her analysis of classroom interaction between a pair of Japanese language learners, one more advanced than the other, evidences the beneficial effects of peer collaboration on language development. Not only did her less advanced

learner profit from the other's assistance, the more advanced learner had an opportunity to adjust, refine, and experiment with her own language through the interaction.

Even more, Kohn and Vajda (1975) believed in the heterogeneous grouping of learners. They believed that small group organization should be similar to a natural, real world setting in which students of varying degrees of capabilities communicate, and this heterogeneity increases interaction. Kohn and Vajda (1975) further stated that in heterogeneous grouping, more proficient students who have already internalized some knowledge try to perform it, and those who are less proficient attempt to internalize that knowledge. In this way, both more proficient students and less proficient students benefit from it.

Bargh and Schul (1980), cited in Cotterall (1990), compared the achievement of students studying material to learn for their own purposes and students studying to teach it to others. Students in the teaching condition scored higher than students in the non-teaching condition. The experiments explained the result by suggesting that preparing to teach material to another person could produce a more highly organized cognitive structure than simply trying to learn the material for one's self.

### **Purpose of the Study**

As the review of literature reveals, lots of studies have been done on the role of ZPD in learning. However, it seems that there is a contradiction of results in finding out which is right: Vygotsky and unequal interaction or Piaget and equal interaction. Therefore, the main purpose of this study is to compare the effect of Symmetrical (S) and Asymmetrical (AS) scaffolding on reading comprehension of adult learners in an English as a foreign language (EFL) setting in Iran. The comparison is between the theory of Vygotsky (1978, 1986) and Piaget's (1960, 2000) in cognitive development.

Thus, this study is seeking to answer the following questions:

1. Does scaffolding have any significant effect on the reading comprehension of Iranian intermediate EFL learners?
2. Is there any significant difference between symmetrical and asymmetrical scaffolding on reading comprehension of Iranian intermediate EFL learners?
3. What are English Learner's attitudes toward pair work

### **Method**

#### **Participants**

This study was conducted on 52 participants, who were learners in one of the English language institutes in Mashhad, Iran. They consisted of 17 males and 35 females within the age range of 18 to 30 who had several years of experience of studying English at Ferdowsi College. One of the qualifications needed for the English learners to be chosen as the subjects of this study was their level of proficiency, in other words, they needed to be at the intermediate level. The researchers relied on either the institute's placement tests (designed by institutes to place the learners at the right level of language proficiency) and an interview or achievement tests (final examinations from previous courses) in determining the learners' level of proficiency. Through their performance on a pre-test devised by the researchers, they were divided into two homogeneous groups: experimental group A, who covered their English reading passages in homogeneous pairs and are labeled as the S group with 24 students in two classes, and the

experimental group B, who covered their English reading passages in heterogeneous pairs and are labeled as the AS group with 28 students in the other two classes. Also, the interviewed learners included 28 participants (9 males and 19 females, within the age range of 18 to 30).

### **Instrumentation**

Two types of instrumentation were used in the process of the development of the present study. First, in the quantitative phase, the pre-test utilized in the process of the research was a reading comprehension test consisting of 38 multiple choice items for four passages and two other passages from *Interchange* (Richards, Hull, & Proctor, 2005) that is practiced at Ferdowsi College. The reason for administering this test at the outset of the study was twofold: First, the subjects were divided into S and AS pairs according to their scores on this test, and second, the test was needed to confirm the homogeneity of the groups. To standardize the test, the researchers administered the test to a group of 25 students who had registered for the same class and who had approximately about the same language proficiency level as the subjects of the study; however, these students were not selected for the study. Once the test papers were corrected, the item discrimination and item difficulty of all the test items were calculated. All the items had an acceptable level of difficulty and suitable power of discrimination. The reliability of this test was calculated through the application of Cronbach's Alpha ( $r = .773$ ), which can be acceptable. As for the validity of this test, a sample test was checked by some experts in the field of TEFL. Also, a post-test was administered to the students at the end of the study in order to compare the students' performance after treatment.

Second, to delve into the learners' emotions and feelings, qualitative research was also conducted. To this end, one set of questions were designed and used to interview the learners. The questions were designed in proper consultation with pertinent experts, and based on the guidelines laid down by the key figures of SCT, which were already presented in the literature review of this study. There were five questions which were about learners' attitudes, feelings, and experiences towards the way they learned in the groups. The questions were:

1. Do you prefer to work individually? Why?
2. How do you feel about working in pairs?
3. Do you like to have a more capable peer to work with? Why?
4. How do you feel about working with less capable peers?
5. Do you like to work with equal partners? Why?

### **Procedure**

The data collection was started in July 2009 and took around five months. As stated earlier, at the outset of the study, a pre-test was applied to ensure groups' equality with reference to their EFL proficiency. Based on the results of the experimental subjects' performance on this test, they were assigned to S and AS pairs. The S involved those students whose scores on the pre-test did not differ from one another more than one standard deviation. The AS involved those students whose scores on this test differed from one another more than one standard deviation. Then, the subjects were placed in pairs. It should be noted that all pairs remained constant throughout this study. The students in the experiment groups were instructed by the same teacher who had an M.A in TEFL and 9 years of teaching experience. Each term lasts about three months in Ferdowsi College, and it consists of 21 sessions, two days a week and each session is one hour and thirty minutes. A set of reading tasks in the form of short reading passages was employed in

this study for a total of eight sessions. In both groups (S and AS), the participants covered the same materials. They included eight passages from the subjects' course book, *Interchange*. The passages were followed by true false, multiple choice, matching, and open-ended questions. All the subjects in the S and AS groups covered these eight passages. The rationale behind employing their course book, *Interchange*, in this study was that the students may take the experiment more seriously if the materials they were to cover was from their own course book. The eight passages were taught cooperatively to the subjects in both S and AS pairs. This cooperative teaching formed the treatment of the study. At the first session of treatment (in all four classes), about 20 minutes of the class time was spent on introducing the concept of scaffolding by the teacher. The students were told the purpose of scaffolding: that by discussing the material with each other and helping each other, they would improve their own comprehension. Emphasis was placed on both asking for and giving help, and the need to reach shared knowledge. It was also emphasized that both pairs must participate equally in the activities.

At the beginning of each passage, some new words and structures were presented to the students. Then, the students worked cooperatively in pairs while the teacher observed the interaction between the pairs to note problems they may have to help and scaffold them. One member of the pair read the first part of the passage to the other, and the second member read the second portion. The pairs discussed their understanding of the passage. They were also required to answer the questions following the passages together and support their answers. Because the students were working together in pairs, the teacher was free to provide instruction to those who might need more assistance. When all pairs finished reading and discussing the passage, some of the students, who were selected for this study, were asked to summarize the passage in English. Their comprehension of the passage was also checked by asking questions at the end of the passage. Based on the answers of each one of the pairs, a score was given to the pair as part of the pairs' mid-term exam score (pair score). At the end of the study, the S and AS groups took the post-test in order to compare the subjects' performance on this test after treatment.

As for the interviews, the subjects were interviewed based on the set of questions exploring their attitude, feeling, and experience toward the S and AS scaffolding. The data consisted of 60 minute audio-recordings of students' interviews. Students' interviews were conducted in Persian (mother tongue) in order to get them to express themselves more exactly and easily as well as to remove their stress due to the presence of the tape recorder. These interviews were, then, transcribed and analyzed, for example, reading and re-reading transcriptions and looking for similarities and differences between students' learning preferences.

### **Data Analysis**

The scores were entered into Statistical Package for the Social Sciences (version 15). Since there were two groups of scores in the study, two independent t-tests were conducted, one at the beginning of the study in order to estimate whether the two groups were homogeneous and from the same sampling distribution, and the other was used at the end of the study to answer the second research question in order to see whether there was any significant difference between two groups after the treatment. To answer the first research question, two dependent t-tests were employed in order to compare the performance of each group on the pre-test and the post-test to see whether or not the students in both classes benefited from the treatment.



**Results**

**Phase 1**

First, the students' scores on the pre-test were collected. The mean and standard deviation of both groups are presented in Table 1. Results showed that the groups' means were similar on the test though the degree of dispersion varied between the groups.

**Table 1.** Descriptive Statistics for Groups' Performance on the Pre-test

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Symmetrical	24	24.1250	4.72102	.96367
	Asymmetrical	28	25.0357	4.13192	.78086

**Table 2.** Results of t-test for the Groups' Performances on the Pre-test

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Pretest	-.742	50	.462	-.9107	1.227	-3.376	1.554

As the results of Table 2 reveal, there is no significant difference between the groups ( $t = -.74$ ,  $p > .05$ ). This implies that the two groups were equal with reference to EFL proficiency before the treatment.

Next, the mean and standard deviation of both groups for the reading comprehension achievement test were calculated. The groups' performance varied on reading comprehension and results indicated better performance of students who received instruction through the AS scaffolding strategy, whereas the students of the S group had the lower mean on the post-test. Table 3 displays the groups' results.

**Table 3.** Descriptive Statistics for Groups' Performance on the Post-test

	Group	N	Mean	Std. Deviation	Std. Error Mean
Post-test	Symmetrical	24	26.6667	5.30518	1.08292
	Asymmetrical	28	30.1786	4.79238	.90568

As the results of Table 4 show, there is a significant difference between two groups ( $t = -2.5$ ,  $p < .05$ ). It implies that the AS group outperformed the S group.

**Table 4.** Results of t-test for the Groups' Performances on the Post-test

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Posttest	-2.508	50	.015	-3.51	1.400	-6.324	-.698

Moreover, two dependent t-tests were utilized to determine the effect of each treatment. The sharp difference between the two means indicates that the students improved substantially (see Table 5).

**Table 5.** Descriptive Statistics for Symmetrical Group Performance

		Mean	N	Std. Deviation	Std. Error Mean
Symmetrical Group	Pre-test	24.1250	24	4.72102	.96367
	Post-test	26.6667	24	5.30518	1.08292

**Table 6.** t-test between Pre and Post-test of Symmetrical Group

	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
Symmetrical Group Pretest & Posttest	-2.541	2.620	.534	-3.64	-1.43	-4.75	.00

As Table 6 exhibits, there was a significant difference between pre-and post-tests in S group ( $t=-4.75$ ,  $p<.05$ ). It implies that scaffolding has improved the learners' scores in this group. Moreover, as the results of Tables 7 and 8 show, there is a significant difference between pre and posttests in the AS group ( $t=9.4$ ,  $p<.05$ ). The result shows that this type of scaffolding is effective in enhancing learners' scores.

**Table 7.** Descriptive Statistics for Asymmetrical Group Performance

		Mean	N	Std. Deviation	Std. Error Mean
Asymmetrical Group	Pre-test	25.0357	28	4.13192	.78086
	Post-test	30.1786	28	4.79238	.90568

**Table 8.** t-test between Pre and Post-test of Asymmetrical Group

	Paired Differences				t	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower			Upper
Asymmetrical Pretest							
Posttest	-5.142	2.88	.546	6.26	4.02	9.4	.00

To summarize, in both tables, P value is lower than the level of significance 0.05. This finding suggests the value of interaction and pair work and that both types of scaffolding can be effective. But the  $T_{obs}$  in the asymmetrical group is greater than symmetrical group;  $-9.418 > -4.751$ . The findings of this study illustrate that AS scaffolding is more effective than S scaffolding in promoting English reading comprehension achievement.

**Phase 2**

**learners' interviews.** The results of these interviews illustrated that most of the respondents highly preferred to have a partner and read in pairs since they believed that, all in all, reading in pair is superior to reading in isolation, and, most interestingly, the main reason they all referred to this model as superior had to do with a psychological aspect.

In addition, most of the respondents were highly motivated to cooperate with more capable students since they believed that the presence of such a partner would enhance their progress. However, some respondents took a more moderate view, stating that it is ok to work with a less capable peer to share information and experience with them. They explained the reasons:

*"I like to help my weak classmate."*

*"I am eager to act as a teacher and prepare myself to help my classmate."*

*"I have a review while give lessons to her."*

As evident in such statements, it seems that they benefit by having the opportunity to serve as teachers to their peer.

Moreover, some students who were less knowledgeable in the AS group stated that working with more knowledgeable individuals could motivate them to improve their knowledge, expediting their learning. They said:

*"I feel I gain more knowledge from her assistance."*

*"I have the chance to speed up my learning."*

*"I learn faster and better."*

One of the interviewees expressed that there is essentially no difference: *"I just feel relaxed to work with my intimate friend."* Obviously, the student had totally disregarded the ability of her partner.

Finally, some of the students preferred to interact with an equal classmate. They provided noteworthy explanations:

*"Helping each other makes reading less challenging and more enjoyable."*

*"I perform with more confidence".*

*" It is important to find opportunity for participation and contribution."*

*" working and thinking together is not boring."*

All in all, the results gained from the interviews- the parts indicative of the students' beliefs in the superiority of pair-work and the idea that more capable students are better partners- were in line with the results of the quantitative data.

### **Discussion**

As stated earlier, the obtained results from the scores of the pre-test and post-test showed that the scaffolding teaching strategy resulted in higher reading comprehension scores. In other words, we found that scaffolding has a significant effect on reading comprehension scores.

These findings are in line with general paradigm of scaffolding. The results of the current study indicate that the scaffolding teaching strategy improved the reading comprehension of the students, and this finding is consistent with Guk and Kellog's (2007) findings, which showed the practicality of whole class scaffolding through teacher-led and student-led interaction. They believed that the very notion of scaffolding should be applied to a whole-class format since Vygotsky's main concern was about classroom age grouping. They conducted a study on the comparison of two types of scaffolding, one between the teacher and the student and the other between the student and his classmates. The findings of their study revealed that the two types of scaffolding constructed different ends of the same whole-class ZPD.

The results are also compatible with Mattos's claim (2000). He stated that it is perfectly possible for an L2 learner to internalize, that is, to learn, what s/he has heard from another learner in a mutually collaborative situation. More importantly, Xu, Gelfer & Perkins's (2005) findings indicated that both the children who were native English speakers and the children who were English language learners in two elementary classes enjoyed peer tutoring in class and gave credit to the role of social interaction.

Additionally, van Lier (1991) stated that interaction, participation, and negotiation create learning opportunities in the L2 classroom (cited in Anton, 1999). Also, Aljaafreh and Lantolf (1999) mentioned that learning is not something an individual does alone, but is a collaborative endeavor involving other individuals.

Ohta's (2000) study in connection with peer scaffolding illuminated that mutual sensitivity and teamwork are necessary in assisted performance. The learners were capable to do some tasks together that they were incapable to do them on their own. In the same vein, Donato (1994) explored the notion of mutual scaffolding among L2 learners. His findings showed that the three learners, regardless of their linguistic abilities, were not only able to offer each other scaffolded help but were also able to grow linguistically beyond their own independent performance.

According to the results demonstrated through examination of the data in the preceding sections, it was found that the participants in the AS group achieved more. This may imply that AS scaffolding instruction is vital to improving EFL learners' reading comprehension. The results were more compatible with Vygotsky's theories than with those of Piaget's on learning. They are compatible with Vygotsky's findings (1978) that learning appears first on the social plane, in collaboration with more knowledgeable individuals.

Moreover, the results corroborate Bruner's (1983) notions on the nature of a joint collaboration between more knowledgeable and less knowledgeable individuals (cited in Pishghadam & Mirzaee, 2009). Besides, evidence from Mercer's (2004) sociocultural discourse analysis illustrated that in a supportive group environment, children who are the more able in a subject may enable the progress of less able partners.

### **Conclusions**

As the data analysis indicated, the AS scaffolding teaching classes benefited considerably more in understanding the passages than the S scaffolding teaching classes. It is concluded that S scaffolding teaching has less efficiency than the AS scaffolding method. That is, after eight weeks, using S scaffolding teaching has less effect on learners' reading score. The positive effect of AS scaffolding teaching becomes evident after eight weeks; the mean of these scores has a considerable and meaningful increase when compared to the other group scores that were taught through the S scaffolding method.

Our study also shows that interaction reduces anxiety, because when students work with each other, they have more of a chance to arrive at the correct answer. They have enough time to think, rehearse, and receive feedback. It promotes interaction among students since it is in contrast to teacher-centered classes; here they have several opportunities to rehearse before they are evaluated.

When pairs are AS, learners are able to function in a role more typically restricted to the teacher, providing scaffolding to assist the other. It provides comprehensible input and output, that is to say when students cooperate with each other, they modify and adjust the sentences in a way that other students have almost no difficulty in understanding. It increases self-confidence, self-esteem, and motivation since it encourages peer interdependence. Several positive points lie in peer support, one of which could be the motivation of shy students.

Based on our findings, we recommend that teachers, learners, and materials writers take scaffolding more into account. Materials developers should utilize a significant amount of pair work in textbooks, and curricula should be designed to emphasize interaction between learners and learning tasks. Moreover, English teachers can implement the scaffolding teaching strategy regularly in their natural classroom settings and apply pair work among their students. It is the teacher's responsibility to provide opportunities for the students to practice and develop pair work. The role of the teacher is to create conversational contexts that invite students to interact in ways that extend one another's learning. It is suggested that teachers form AS pairs instead of S pairs. When high ability students are asked to give explanations, it helps them clarify and organize their own learning, while low-ability students who are receiving these explanations get help in correcting misconceptions and learn appropriate learning strategies. Further, co-construction helps the students improve and build many skills which will be helpful for them in their reading comprehension. Interactions effectively involve learners in classroom activities and successfully transfer responsibility from the teacher to the learner. In fact, learner-to-learner mediation is closer to what Vygotsky (1978) termed internalization, which means learners come to full understanding of the issues.

As is clear from any scientific research, nothing can be self-evident unless verified by observation or experimentation. To do any type of observation or experiment, one may face some limitations and problems. This study could have come to different results if it were not confronted with the following limitations. First, because the study was conducted in Mashhad, the obtained findings cannot be safely generalized to other situations. Second, the study was concerned with homogeneity and heterogeneity of peers in terms of language proficiency level; other criteria, such as age, sex, and personal variables were not controlled can be used as topics for further research.

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