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Microgenetic Analysis in an EFL Context: The Effects of Teacher and Peer Scaffolding on Reading Comprehension Pedagogy

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ABSTRACT
In this study, the researchers examined the possible effects of a sociocultural model of teaching reading comprehension on the learners' performance using a mixed-method approach. The authors relied on Vygotsky's theory of learning and his notion of the zone of proximal development (ZPD) to analyze scaffolding behaviors among two experimental groups (teacher scaffolding and peer scaffolding) and a control group contributing to reading comprehension using both qualitative and quantitative analyses. The learners were intermediate-level students participating in a 15-session private reading comprehension course. At every session, individual learners received scaffolding helps provided by the teacher in teacher scaffolding and the peer in peer scaffolding groups while performing reading comprehension tasks. Each group of peers included one low and one high intermediate student. In the quantitative phase, the data collected through pretest and posttest were analyzed using ANOVA test. Moreover, the qualitative part, the data including audio recorded talks between the teacher and students (teacher scaffolding), were analyzed through a microgenetic approach. In the qualitative phase, the applicability of the teacher's scaffolding instructions in different levels was presented. The levels and variety of guidance required by the learner to successfully perform a given task were analyzed applying Lidz's (1991) scaffolding instructions. The results in the quantitative phase supported the benefit of the practicality of scaffolding techniques in teaching reading comprehension.

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1. Introduction

Since many people in most countries use English to communicate, many second language researchers and teachers have tried to come up with different ways to teach English language skills. Anderson (1999) stated that reading is an essential skill for EFL students and is the most significant skill to master since EFL readers with powerful reading skills will make more advancement and achieve educational development in all academic areas. He also highlighted reading is an active, fluent process that involves the readers and the reading materials in constructing meaning. Suk (2016) pointed out that "reading ability is an important second-language (L2) skill in academic settings, where L2 learners are required to read to learn and complete related tasks" (p. 73).

Reading comprehension is a skill that must be learned and practiced through formal instruction and experience and it is not feasible to acquire it naturally or automatically (Day, 2005 p.2). In the last decades, reading has been viewed differently, from seeing it as primarily receptive processes from text to the reader to interactive processes between the reader and the text, and approaches to the teaching of foreign language reading have attempted to reflect this development through interactive exercises and tasks (Day, 2005 p.2). Socio-cultural teaching (SCT) views reading as a social skill that entails active participation, interaction, and involvement of learners (Vygotsky, 1978). Roosevelt (2008) claimed that for Vygotsky, the major goal of education is keeping learners in their ZPDs by supplying them with motivating, culturally meaningful, and problem-solving tasks that are slightly beyond what they can do alone. Consequently, they can get help from a more knowledgeable peer, a teacher, or an adult to accomplish the task. The idea is that after doing the task in cooperation with others, the learner will possibly be able to do the same task individually without help in the future, and that process will increase the learner's ZPD for that specific task.

Wood, Bruner, and Ross (1976) coined the term scaffolding as a metaphor to define the process by which an adult, a peer, or a competent person supports a child to accomplish a task beyond their current competence. According to them, scaffolding was defined as an adult controlling those elements' of the task that are essentially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. Lidz (1991) defined scaffolding as the mediator's adjusting the complexity and maturity of the teaching interaction to facilitate the child's mastery of the task; providing support when necessary; and providing encouragement and prompts to the child to move ahead when ready. Wells (1999) defined Scaffolding as a way of operationalizing Vygotsky's (1987) concept of working in the zone of proximal development. He presented three features of educational scaffolding as follows; 1) the essentially dialogic nature of the discourse in which knowledge is co-constructed; 2) the significance of the kind of activity in which knowledge is embedded; and 3) the role of artifacts that mediate knowing.

Scaffolding can be provided by experts or more experienced people around the student; teachers, parents, and even peers in the same class. Peer interactions have also been considered significant for scaffolding in classrooms. Applying pair or small group work in classrooms,

particularly in second/foreign language classrooms, accords with a social constructivist view of learning. The teacher has always had the role of a mediator between the learner and the knowledge to be acquired. It is the teacher's responsibility to acquaint the learner with novel ideas and aid them to promote them. However, this is not new because teachers have been doing this for centuries. The contribution of the SCT to the field of education is to make the role of the teacher much more interactive, cooperative, dialogic, and visible (Nieto, 2007).

In traditional teacher-centered classrooms, the only classroom interactions are the display questions teacher asks, the responses students provide, and the teacher's feedback. In the previous model, the display questions presuppose a controlled answer from the students, and they cannot ask a question and give creative answers. However, as a result of upcoming studies on the relationship between teachers and learners in SCT that encourages interaction in the classroom; there have been remarkable changes in the viewpoint (Nieto, 2007). Anton (1999) argued that the teacher-student interaction is central to students' cognitive development and that the meaningful and situated content results in learning and development. According to Rockoff (2004), teachers play a significant role in the academic achievement of students and affect the learning outcomes. Teachers can mediate learning and direct learners through the learning process by interacting with students, facilitating student-student interaction, developing interactive tasks and activities, and providing constructive and motivating feedback.

The microgenesis terminology was coined by Heinz Werner (1956) for the first time as a means of providing a genetic characterization of any psychological process. Microgenesis, or the study of the origin and history of a specific phenomenon, as defined by Wertsch (1985) as a very short-term longitudinal study. The microgenetic approach has been defined by three characteristics: (a) observations span the entire period from the beginning of the change to the time at which it reaches a relatively stable state. (b) the density of observations is highly relative to the rate of change of the phenomenon. (c) observed behavior is subjected to intensive trial-by-trial analysis, to infer the processes that give rise to both quantitative and qualitative aspects of change (Siegler & Crowley, 1991). As Siegler (2006) stated that microgenetic method has the potential to help SLA researchers expand their understanding of L2 acquisition and is appropriate in both laboratory and classroom contexts. Microgenetic research enables tracing change over time within the same system.

Accordingly, the researchers implemented a microgenetic analysis which has rarely been implemented in the Iranian context to investigate the application of the concept of scaffolding for measuring mediated instruction. The goal of the present study was to explore microgenetic analysis of teacher scaffolding in reading comprehension pedagogy in an EFL context following Lidz's (1991) scale.

This study was mainly to address the following research questions:

1) Is there any significant difference between the performance of Iranian intermediate EFL learners in scaffolding groups (teacher and peer scaffolding groups) and non-

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scaffolding groups regarding their reading comprehension?

2) How do learners in the teacher scaffolding group react to scaffolding techniques used by the teacher to regulate their reading comprehension?

2. Literature Review

Empirically, scaffolding techniques have been applied in ESL and EFL educational contexts. There have been many national and international studies on scaffolding. Aljaafreh and Lantolf (1994) developed a criterion to determine the frequency and quality of help that the learner elicited from the tutor in the process of performing the task. They identified the mechanisms of effective intervention from Vygotsky's viewpoint including two main characteristics. First, it should be graduated which means the more experienced member in a joint activity should estimate the minimum level of guidance required by the novice to perform a given task. Second, help should be contingent which should be offered only when it is needed. However, Later, they introduced a regulatory scale in three phases that specified the amount of help provided by the tutor during the movement from other regulation to self -regulation and finally to self -generation which included 12 levels from the most indirect, or implicit to the most direct, or explicit help. Lidz (1991) constructed a scale for evaluating mediating behavior of an adult while interacting with a child in a learning experience. This scale is a presentation of scaffolding based on Vygotsky's notion of ZPD and Feuerstein's work on Dynamic Assessment. Lidz's (1991) scale encompasses 12 components. Table 1 shows Lidz's (1991) scale.

Table 1. Lidz's (1991) Twelve Component Behaviors of Adult Mediating Instruction

1. *Intentionality*: Consciously attempting to influence the child's actions. This involves making efforts to keep the interaction going, engage the child's attention, inhibit impulsive behavior, and maintain goal orientation
2. *Meaning*: Promoting understanding by highlighting for the child what is important to notice, marking relevant differences, elaborating detail, and providing related information
3. *Transcendence:* Helping the child make associations to related past experiences and project themselves into the future
4. *Joint regard*: Trying to see the activity through the child's eyes; looking at an object that has been brought into focus by the child; using "we" to talk about the experience
5. Sharing of experiences: Telling the child about an experience or thought that the mediator had and of which the child is not aware
6. *Task regulation*: Manipulating the task to facilitate problem-solving; stating a principle of solution or inducing strategic thinking in the child.
7. *Praise/Encouragement*: Communicating to the child, verbally or nonverbally, that he/she has done something good; keeping high the child's self-esteem.

8. *Challenge*: Maintaining the activity within the limits of the child's ZPD. This implies challenging the child to reach beyond his current level of functioning, but not so much that the child will feel overwhelmed and get discouraged.
9. *Psychological differentiation*: Keeping in mind that the task is the child's and not the mediator's, that the goal is for the child to have a learning experience, not the adult. Avoiding competitiveness with the child
10. *Contingent responsivity*: The ability to read the child's behavior and to respond appropriately. It can be compared to a well-coordinated dance between two partners who are very much in tune with one another
11. *Affective involvement*: Expressing warmth to the child; giving the child a sense of caring and enjoyment in the task
12. *Change*: Communicating to the child that he or she has made some change or improved in some way.
Note. This table represents a synthesis of information from *Practitioner's Guide to Dynamic Assessment*, by Carol S. Lidz, 1991, New York: Guilford Press. Copyright 1991 by The Guilford Press (Source: de Guerrero & Villamil, 2000, p.53)

De Guerrero and Villamil (2000) also carried out a study to investigate the effect of scaffolding on peer collaboration in the English as a second language writing classroom. Their purpose was to observe the mechanisms by which strategies of revision take shape and develop in the inter-psychological space created when two learners are working in their receptive ZPDs. They analyzed their interaction using a microgenetic approach as they worked collaboratively in revising the narrative text written by one of them. The results showed that in second language peer revision scaffolding might be mutual rather than unidirectional. In other studies, Shrestha and Coffin (2012) examined the dynamic interactions between a tutor-researcher and two students across various writing drafts. Their findings showed that mediation helped to identify the participants' emerging writing abilities, different from their actual abilities. More importantly, each participant required different levels of assistance due to their ZPDs.

Kusumawati (2018) studied the application of scaffolding learning in improving reading comprehension skills and writing skills as the output of reading comprehension. It was concluded that scaffolding learning was an effective method to improve the English proficiency of the students of the Mechanical Engineering Program in the first semester. Moreover, Wassie, Mekonnen, and Gashaw (2018) examined English teachers' scaffolding practices on students' reading comprehension skills. The results indicated that English teachers had good knowledge of applying scaffolding techniques in reading comprehension teaching.

In the Iranian EFL context, the effect of implementing sociocultural teaching techniques (scaffolding and non- scaffolding) on the reading comprehension development of learners was investigated by Dehghan and Ghafar Samar (2014). The result revealed that scaffolding techniques led to better reading comprehension

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development. It also showed that the proficiency level of the participants played a determining role in their development. That is to say that low proficiency learners outperformed the high proficiency ones. Amirian and Ramazanian (2017) investigated the effect of teacher- and peer-scaffolding on the reading comprehension abilities of Iranian EFL learners. The participants' interactions were collected and then analyzed according to Lidz's (1991) 12 component behaviors of adult mediating instruction. The results indicated that teacher- and peer-scaffolding improves students' reading comprehension abilities. Moreover, dynamic assessments were found to be an efficient way of teaching reading comprehension.

To the best knowledge of the researchers, only a few studies demonstrated what really occurs in a mediational course informed by principles of SCT, particularly in reading comprehension classes. Many of these studies have examined the method of language teaching and learning with models other than socio-cultural principles (Khamesan & Baradaran Khaksar, 2011, Marzban & Movahedi, 2015, Bagheri Masoudzadeh, Rostami Abousaeedi & Afraz, 2020). Therefore, following a mixed-method approach, the researchers aimed to investigate the effect of implementing scaffolding techniques in teaching reading comprehension using both qualitative and quantitative analysis. In the quantitative phase, the authors investigated the concepts of peer and teacher scaffolding as they applied to facilitate students' reading comprehension, and they were interested in investigating how language learning resulted from the internalization of social interaction processes. Then, in the qualitative phase, they examined the interactive talk between the teacher and individual learners while she was scaffolding them in performing reading comprehension tasks.

3. Methodology

Participants

The participants of this study were university students of Foreign Languages in Gorgan. They were about 100 male/female students and their ages ranged from 18 to 27. To have homogenous groups and to determine the English language proficiency level of the participants, all the learners took the Oxford placement test (OPT) as a proficiency test. Based on their performance on the test, intermediate-level participants were chosen for the study. Those who scored one standard deviation above and below the mean were chosen as participants. Then, they were divided into three groups of participants as one control (non -scaffolding group) and two experimental groups teacher-scaffolding and peer scaffolding groups. The first experimental group including 20 students were supported by the teacher to receive scaffolding instructions in tutorial sessions. The second scaffolding group included 10 pairs (two students in each pair) in which one high intermediate and one low intermediate scaffolded each other in reading comprehension sessions.

Quantitative Study

The design of this study followed a quasi-experimental pre-test post-test format in which there were two experimental groups and one control group. The first experimental group including 20 students received teacher scaffolding instructions in tutorial sessions. All of the participants underwent a reading comprehension test, (PET) reading test, as a pretest to determine their current level of proficiency. After the pretest, the experimental

group received reading comprehension instructions using scaffolding techniques by the teacher based on the sociocultural theory of learning. The teacher was expected to scaffold every individual learner in fifteen 60- minute sessions. The supportive help by the teacher was provided whenever needed during pre-reading, while- reading and post-reading activities in every session based on learner's performance according to the scales in Lidz's (1991) model. The second experimental group, peer scaffolding, including ten pairs (one high intermediate and one low intermediate) participated in 15 session instructions. The sessions, held once a week for each pair, included two students who scaffolded each other in comprehending and performing reading comprehension tasks. It was expected that the supporting bits of help were more from a high intermediate learner to a low intermediate one. At the end of the study, the participants in both experimental groups took the same test as the posttest of reading comprehension.

Participants in the control group received traditional instruction on reading comprehension. A typical traditional class is mainly teacher-centered and students do not have many interactions. Excessive emphasis is placed on single word recognition and simple comprehension skills are practiced. All groups were taught the same material (the book, *Inside reading 1*). Participants in the control group underwent the same tests as experimental groups as a pretest at the beginning of their classes and a posttest at the end. To investigate how students' performance in reading comprehension was affected by scaffolding techniques in teacher and peer scaffolding groups, the data collected from pretests and posttests of three groups (two experimental and one control group) were analyzed using ANOVA. Before the use of ANOVA, to homogenize and determine the level of proficiency of groups (control and experimental) participating in this research study, a version of the OPT (Oxford placement test) was administered to all learners. The result of the OPT test was also used for grouping the learners in the experimental groups. The normality of distribution and homogeneity of variances were checked. Table 2 indicates the descriptive statistics of the experimental and the control groups on OPT test.

Qualitative Study

Data Collection Procedure: Incidental Microgenetic Development

To achieve what was expected, a thorough moment-by-moment analysis of interactions was needed. To that end, the interactions of all sessions including every teacher scaffolding session with individual learners (teacher scaffolding sessions) were audio recorded. The transcripts based on audio recordings provided us with some naturalistic classroom data regarding the mechanisms of teacher intervention.

Data Analysis

Following Ohta (2001) and Compernolle (2010), methods of discourse and conversation analysis (CA) were used to analyze the data. As Markee (2000) points out, CA has attracted recent attention as a tool for second language research. All transcripts were reviewed with careful attention to the potential occurrence of scaffolding talks. The researchers observed the nature of interactive tasks and the teacher and the learner roles in interaction. In the teacher scaffolding group, the researcher examined the processes that occurred in teacher assistance with a great diversity of learners across a range of reading comprehension tasks. The concept of

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scaffolding was finally investigated following Lidz (1991).

4. Results, Argument, and Analysis

Quantitative Study

Table 2 indicates the descriptive statistics of the experimental and the control groups on OPT test.

Table 2. Descriptive Statistics of the Participants on OPT test

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Control	20	16.3000	1.78001	.39802	15.4669	17.1331	13.00	20.00
Teacher	20	16.8500	1.42441	.31851	16.1834	17.5166	15.00	20.00
Peer	20	16.6500	1.56525	.35000	15.9174	17.3826	14.00	20.00
Total	60	16.6000	1.58596	.20475	16.1903	17.0097	13.00	20.00

As it is shown in Table 2, the mean score and standard deviation of the proficiency test in the control group are (M=16.30, SD= 1.78), in teacher group are (M=16.85, SD= 1.42), and in the peer group are (M=16.65, SD= 1.58). Having ensured that the assumptions for parametric tests were met and no violation was detected, the researcher ran a one-way ANOVA to ascertain the homogeneity of the participants on OPT test, the results of which are presented in Table 3.

Table 3. ANOVA Results of the Three Groups on OPT Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.100	2	1.550	.608	.548
Within Groups	145.300	57	2.549		
Total	148.400	59			

As Table 3 shows the difference between the groups in their OPT test results was not statistically significant *(*F=.60, p = .54). Therefore, it was concluded that there was no statistically significant difference among the groups before the study. Table 4 indicates the descriptive statistics of the experimental and the control groups on the reading pre-test.

Table 4. Descriptive Statistics of the Three Groups on Reading Pre-test

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Control	20	26.4500	4.82837	1.07966	24.1903	28.7097	19.00	35.00
Teacher	20	27.2500	3.93199	.87922	25.4098	29.0902	22.00	35.00
Peer	20	26.9000	3.71200	.83003	25.1627	28.6373	21.00	35.00
Total	60	26.8667	4.12708	.53280	25.8005	27.9328	19.00	35.00

Having ensured that the assumptions for parametric tests were met and no violation was detected, the researcher ran a one-way ANOVA to ascertain the homogeneity of the participants on reading pre-test, the results of which are presented in Table 5.

Table 5. ANOVA Results of the Three Groups on the Reading Pretest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.433	2	3.217	.184	.833
Within Groups	998.500	57	17.518		
Total	1004.933	59			

According to Table 5, F=.18 and p=0.83. The results show that the difference among the three groups' mean scores on reading pre-test was not significant ($p > .05$). It was concluded that the three groups were not significantly different in the reading pre-test. The next step was finding the post-test homogeneity of the data. Table 6 presents the descriptive statistics of the participants' scores on reading post-test.

Table 6. Descriptive Statistics of the Three Groups on Reading Post-test

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Control	20	25.9500	3.88621	.86898	24.1312	27.7688	21.00	35.00
Teacher	20	32.5000	2.85620	.63867	31.1633	33.8367	26.00	35.00
Peer	20	29.8000	3.03662	.67901	28.3788	31.2212	25.00	35.00
Total	60	29.4167	4.21977	.54477	28.3266	30.5068	21.00	35.00

After ensuring the normality of the distribution of scores and homogeneity of variances on reading comprehension post-test, the participants' scores on this test were analyzed. To answer the first research question and maintain or reject the hypotheses, a second ANOVA was used to compare the results of the three groups' performance on the post-test. The results of ANOVA for the participants' post-test are seen in Table 7.

Table 7. ANOVA Results of the Three Groups on the Reading Post-test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	433.433	2	216.717	20.016	.000
Within Groups	617.150	57	10.827		
Total	1050.583	59			

Table 7 shows that there was a statistically significant difference among the results of the groups' performance on the posttest $p < .05$. It can be seen that $F (2, 57) = 20.01$, $p = .000$. Therefore, the three groups' post-test results were statistically different. To find out where the difference lay, Tukey HSD post hoc comparison was employed. The Tukey HSD results are presented in Table 8.

Table 8. Post-Hoc Tukey HSD Test of the Three Groups' Scores on the Reading Post-test

Multiple Comparisons						
Group (I)	**Group (J)**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Control	Teacher	-6.55000*	1.04054	.000	-9.0540	-4.0460
	Peer	-3.85000*	1.04054	.001	-6.3540	-1.3460
Teacher	Control	6.55000*	1.04054	.000	4.0460	9.0540
	Peer	2.70000*	1.04054	.032	.1960	5.2040
Peer	Control	3.85000*	1.04054	.001	1.3460	6.3540
	Teacher	-2.70000*	1.04054	.032	-5.2040	-.1960

The results of Tukey post hoc, Table 8, revealed that the experimental groups had a significant difference from the control group as the p-value for them was lower than the predetermined value ($p < .05$). Moreover, comparing the experimental groups together, the results show that there was a statistically significant difference between the teacher and peer groups ($p = .03$). In other words, the mean differences show that the teacher group had a better performance than the peer group on the post-test. In fact, according to mean differences, the teacher group outperformed the peer group and the control group. Thus, based on the findings, it can be cautiously concluded that both teacher and peer scaffolding improved Iranian EFL learners' reading comprehension skills. However, based on the findings, teacher scaffolding was significantly more effective than peer scaffolding in the improvement of the reading comprehension skill of the participants.

Qualitative study

Regarding the second question, microgenetic analysis of the data made it possible to observe a vast array of scaffolding mechanisms in the interactions between a teacher and learners. In the subsequent section, there are three episodes, comprising the interactions between the teacher and three students in their individually held sessions that were subjected to microgenetic analysis. The interactions in each episode were scrutinized following Lidz's (1999) model to observe moment-by-moment changes in the behavior that might lead to the development in the learners' skills.

Table 9: Microgenetic analysis of Episode 1

Sequence of Talks	Teacher- Student Interactions	Type of Mediating Instruction (MI) by Lidz (1991)
1	T: Now let's read and answer the questions in the previewing part. S: Ok…. [She started reading] …where are segways used? Anywhere	MI (4)
2	T: Everywhere S: Everywhere	
3	T: [After some seconds of hesitation] In shops, in parks, for fun things. S: In shops, in parks	
4	T: Say whatever you guess, no matter if it is right or wrong. So take a look again. Read Preview questions and see if you can answer. [the teacher added two sentences in Persian that are the translation of what she just said to make sure that the student got what she meant.] Where are segways used? What do you think? S: …[Silence]	MI (1) MI (11)
5	T: Maybe it means in which countries, so you can look at headings again, for example; this heading or this one. [pointed to the headings in the text] S: provide transportation	MI (1) MI (2) MI (10)
6	T: Yes, right. And question number 2? S: [read from the text] Who will ride Segways? [answered] people, like children	
7	T: children? S: children can't do it.	MI (10)
8	T: So, people you mean. S: yes	MI (10)
9	T: [read from the text] Do Segways look like bicycles or look different? S: They are very different, yes, because just stand on it, and think what you want and move, just move.	MI (10)
10	T: you mean there is no pedaling. S: no pedaling, no.	MI (2) MI (10)

After talking about previewing a reading text in the previous session, now the teacher and the student are doing some activities presented in the book about this technique. In this episode, the teacher consciously tries to influence the student's behavior and way of thinking by pointing to what is significant to notice and regulating the task to facilitate solving the problems. In T4 (Say

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whatever you guess) and T5 (Maybe it means in which countries), the teacher attempts to manipulate the task to direct the learner's attention to the right answer. Furthermore, she sees the need to intervene deliberately in the task by providing the learner with some Persian comments. Also, she employs *joint regard* in T1 (let's read and answer….) and affective involvement in T4 (no matter if it is right or wrong) to emphasize her mediating role and to give her the courage to take risks. Besides, it is remarkably important to notice some pieces of evidence of elaboration on the intended meaning by the teacher in turns T5 and T10. Moreover, she uses contingent responsivity in turning T5 to T9 by predicting the student's thinking route.

Table10: Microgenetic analysis of Episode 2

Sequence of Talks	Teacher- Student Interactions	Type of Mediating Instruction (MI) by Lidz (1991)
1	T: Number 3? S: True	
2	T: Right, which line? S: Line 14. It says *the frameworks were made of solid steel tubes.*	MI (3)
3	T: Yeah, that's right. Number 4? S: I think it is false.	
4	T: Why? Where is the answer? S: Because it says….it says *for solid tubes*… but it is for steel tubes. (In Persian) I don't know what the answer is. I couldn't find the answer exactly. I looked it up a lot but I couldn't find anything about solid steel.	MI (3)
5	T: What about Americans? S: (In Persian) There was somewhere that said *framework s were made of solid steel* but…	
6	T: (In Persian) So, you should read the question carefully again and see how many key words we have in this question and try to locate them. Another keyword in this question was the word American. S: Here? *American manufacturers….!!*	MI (3) MI (6)
7	T: Yes. Good effort. S: [She started reading the correct line] *American manufacturers once again tried to design a better bicycle. …They substituted a small wheel….*	MI (8)

8	T: What does it mean? S: [pause, no answer]	MI (2) MI (6) MI (8)
9	T: Do you know what substituted means? S: Substituted?	MI (6) MI (8)
10	T: Replaced. It means replaced. S: Replace, replace hollow steel tubes for the solid tubes.	MI (2) MI (6) MI (8)
11	T: Alright then, it means there were solid steel tubes at first and then, they put them aside and substituted hollow steel tubes. S: Aha,	MI (2) MI (3) MI (6) MI (7) MI (8)
12	T: Now, the answer is…? S: True	MI (6) MI (8)
13	T: True. Yeah. Good!	MI (6) MI (7) MI (8)

The student had read the text and answered the following true-false questions in her book. Now they are checking the answers and discussing if they are correct or incorrect. They had already talked about how readers should locate the questions in the reading text. Firstly, the teacher tries to draw on *transcendence* to direct the learner's attention to what they have already discussed in the previous session. They have already practiced locating information and the keywords of the questions in the text. Secondly, in several turns, she mainly makes use of *meaning* by asking either "what does it mean?" in turn T8 or "Do you know what substituted means." in turn T10 or even "it means there were solid steel tubes…" in Turn 11 brings what is significant to notice to the student's attention. In turn 11, she even clarifies more by saying "they put them aside and substituted for hollow steel tubes." when she receives turn S11 "Aha,.." from the learner which means I got it, evidencing she understood the question. Thirdly, through the use of her scaffolding role, in some parts she regulates some tasks to help the student deal with the tasks more easily; for example, in turn T6 when she remarks on the task in Persian and mentions the word American. Later, fulfilling her scaffolding role, she attempts to provide the learner with appropriate responses whenever the learner signals her uneasiness with the task. Fine examples are turns T5 and T10. Finally, in turns T8 to T11, providing a challenge for the student, the teacher tries to manage and maintain it until it can turn into a task in which the tutee can perform beyond her current level of functioning, ending up the correct answer. Last but not least in this episode, the tutor praises and encourages the learner in turns T7 and T13 to keep her enthusiastic about the task and hopeful to continue.

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Table11: Microgenetic analysis of Episode 3

Sequence of Talks	Teacher- Student Interactions	Type of Mediating Instruction (MI) by Lidz (1991)
1	T: Let's start. Please preview before you read the text. What should you do? S: Look at the titles, pictures, words under pictures,..	MI (9)
2	T: Captions S: Captions,	
3	T: Well, please take a look and tell me what the text is about? What can you predict? [After some seconds] S: It's about Malaria. It says where they…. [paused]	MI (11)
4	T: Yeah, which parts of the world S: Which parts of the world and how you can keep yourself and…	MI (7)
5	T: how you can keep yourself safe. Yeah, right. Now, let's read about Malaria.	MI (7) MI (11)

The teacher requires the student to preview the reading text and say what she can guess about the text. They had already talked about previewing and what the student is expected to notice and how helpful it can be (Episode 1 discussed the first time the learner was expected to do some tasks of previewing.). Utilizing *psychological differentiation*, the tutor invites the tutee to involve in the task more actively in turn T1 which is accepted by the learner, performing more independently compared to the previous session in turns S1 to S4. Then the student's performance is followed by the teacher's praise and effective involvement in turn 5, expressing her enjoyment and giving the learner a sense of caring.

Argument, and Analysis

The first question of the study was addressed by an in-depth ANOVA analysis, and it showed that students in both scaffolding groups outperformed the participants in the control group. It was also noticeable that teacher scaffolding proved significantly more effective than peer scaffolding in participants' reading comprehension skill improvement. As there were more efficient interactions and bits of help provided by the teacher as a more knowledgeable partner were apparent compared to peers, the outperformance of learners in teacher scaffolding groups seems justifiable. To be more precise, the researchers claim that provided support by the teacher was better tuned with the needs and level of understanding of the learners. It can be because a peer's support might lack the features of contingency and graduation as proposed by Aljaafreh and Lantolf (1994). That is to say that,

peers might not be able to identify the right levels of needed help. In addition to that, the quality of peers' support may lack the necessary features to enable learners to take steps toward self–control and independence in the process of learning. In contrast, provided support by a teacher or a more knowledgeable trainer can be different as it is graduated considering the learner's ZPD and planned to direct the learner to independence.

The results in the current study were in agreement with some previous studies. Findings were in line with De Guerrero and Villamil (2000) who showed that peer revision scaffolding in a second language may be mutual rather than unidirectional. Similarly, the learners in peer scaffolding groups supported each other mutually, although they were slightly different in their reading comprehension levels (one high and one low intermediate student). Also, similar to Ghafar Samar and Dehqan (2014) and Kusumawati (2018) who confirmed the practicality of scaffolding techniques, this study revealed that implementing them can lead to better learning of language skills in both teacher and peer scaffolding groups. In the present study, most of the learners signaled pieces of evidence of development in dealing with reading comprehension tasks. Their performances in the final sessions were noticeably different from what they did in the first sessions. As the findings suggest, collaborative interaction can pave the way for learners to apply the tools at hand to interactive and linguistic problems while working on assigned tasks, learning language through using it. The results were also in line with Wassie, Mekonnen, and Gashaw (2018) since both studies indicated that English teachers had good knowledge of utilizing scaffolding techniques in teaching reading comprehension. The teacher in this study applied different levels of help according to the learner's ZPD. Shrestha and Coffin (2012) revealed that learners needed different levels of supportive help based on their ZPD's. Language acquisition happens through learners' interaction in the zone of proximal development (ZPD) (Ohta, 2001). The teacher in this study, employed a range of mediating roles, displaying several supportive behaviors following Lidz's (1999) model. The results were consistent with Amirian and Ramazanian (2017) in that teachers and learners in both studies employed different scaffolding behaviors. In the current study, the teacher attempted to skillfully handle the utilization of various components of the model, maintaining the effectiveness of the help and preserving the learners' self-esteem. She mainly used a) task regulation, b) meaning, c) contingent responsivity, d) intentionality in the first sessions, whereas e) transcendence, f) challenge, g) affectionate involvement, and h) praise was applied in final sessions. It might be because learners were stepping toward some changes in their comprehension level and were more able to take responsibility for the given task. The teacher wanted to keep them on the route and supported them with the steps at the bottom of lidz's (1991) list. Furthermore, she tried to handle using the learners' mother tongue and to manage the provision of supportive help. That is to say, she mainly used their mother tongue, where it was hardly possible to keep the process of interaction going in English, causing some gaps in performing the task. It is noticeable that the use of the student's native tongue was more frequent in the first sessions, and little by little, it became easier for the students to communicate in English during the last sessions.

5. Conclusion

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Over the past decades, a rising number of researchers have been advocating language teaching and learning as a socio-cultural activity, investigating how language learning results from the internalization of processes that are visible in social interaction. They provided remarkable insight into how SCT and its related constructs work in EFL/ESL contexts. The ultimate purpose of this study was to examine the practicality of applying teacher and peer scaffolding on the development of students' performance in reading comprehension using the mixed method.

This study of teaching English in the domain of socio-psycholinguistics investigated whether scaffolding instruction (peer and teacher), taken from the sociocultural theory of learning and the notion of ZPD from Vygotsky (1978), was effective in developing the performance of learners in reading comprehension. The findings from the quantitative phase (ANOVA analysis) and Qualitative phase via microgenetic analysis using Lidz'model (1991) indicated that scaffolding instruction was beneficial in learners' performance in experimental groups. Moreover, the results suggested that according to the sociocultural theory of learning, classroom environment is an excellent example of a social context full of interactions among participants and it can be a rich and effective environment for learning if the amount of support from the others are regulated and ZPD is estimated.

Applying microgenetic analysis taken from developmental psychology and cognitive development represented the significance of every minor moment in teaching including questions and answers in the learning environment and the possibility of change and mental development in these give and takes. Considering the findings of this study, English teachers can review their talks in class settings and regulate the amount of support that is provided for the learners. They can even analyze and evaluate students' responses. Finally, education policymakers can set goals to create a more dynamic atmosphere enriched with more interactions among peers and teachers.

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