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Teacher's Scaffolding Vs. Peers' Collaborative Dialogue: Implementing an Innovation in the Sociocultural Context of Iranian Universities

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Abstract: This study investigated the extent to which the replacement of teacher's scaffolding with peers' collaborative dialogue in line with implementing an innovation in the realm of interaction patterns was perceptually welcomed by English language learners in the sociocultural context of an Iranian university. To fulfill this objective, 142 college students were selected as the convenience sample of the study and constituted the scaffolding group (n = 74) and collaborative group (n = 68). After the participants' initial level of grammatical knowledge was measured by a pre-test, they received their respective treatment and their achievement was measured by a post-test. The results of an independent samples t-test indicated no significant difference between the performances of the two groups. Then the participants' attitudes toward the possible interaction types and interlocutors were evaluated by a questionnaire. The results indicated that the participants' attitude toward peers' collaborative dialogue was not positive enough to facilitate the implementation of an innovation of this type in the sociocultural context of the study. Based on the results, it can be concluded that there is a perceptual gap between what the learners perceive as fruitful dyadic configurations and the efficiency of these interaction configurations.

Key words: Scaffolding · Collaborative dialogue · Interaction patterns · Sociocultural context

INTRODUCTION

Within the latest theoretical framework, learning is studied within the social and cultural context since human learning cannot be understood independently from the social and cultural factors that influence individuals [1]. This conceptualization of learning is attributed to Vygotsky [2] who believed that any kinds of learning occur through social interaction with significant others who are more capable than the learner. According to this perspective, individuals use physical, cultural and psychological tools to regulate their mental activities and develop in their Zone of Proximal Development (ZPD) which Vygotsky defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers".

In such interactive contexts, the more capable interlocutors who are mostly the teachers are supposed to provide assistance to the learners. This carefully attuned assistance was initially referred to as *scaffolding* by Wood, Bruner and Ross [3] and nowadays is defined more specifically as a process of setting up the situation to make the learner's entry easy and then gradually pulling back and handing the role to the child as he becomes skilled enough to manage it [4]. According to Rogoff [5], scaffolding implies the expert's active stance towards continuous revisions of the scaffolding in response to the changing capabilities of the learner. That is, as the learner begins to take on more responsibility for the activity, the expert decreases his scaffolding support.

Referring to the original notion of scaffolding, some educators like Donato [6] and Swain [7] reasoned that scaffolding may not exceed the boundary of teacher-fronted instruction when it is practically used by teachers. Accordingly to remove such a deficiency, they have proposed some other notions in order not to abandon the whole metaphor. Among the proposed notions, *collaborative dialogue* has received the most

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attention. From an interaction perspective, collaborative dialogue is defined as a dialogue in which learners are engaged in assisting one another in reconstructing linguistic forms [8]. In other words, in collaborative dialogue two learners rather than a teacher and a learner are engaged in doing an interactive activity.

The efficiency of these two interaction patterns has been a matter of debate among the educationalists because the theoretical and practical bases of both fronts enjoy a high level of credibility. From the theoretical perspective, the issue of teacher's scaffolding vs. peers' collaborative dialogue has been a large discrepancy between the leading social and cognitive constructivists, Vygotsky and Piaget. For Vygotsky [2] what is needed for learning is the presence of an expert, typically a teacher in educational settings, who helps a novice to move from being able to do something only with the help of that expert to being able to do it independently while for Piaget [9], a child's asymmetrical interactions with adults can be counter-productive to learning and hinder *intersubjectivity* or shared understanding. From the practical perspective, the research findings do not indicate a unified direction mostly because of so many variables the most important of which are the sociocultural variables.

Definitely, any innovations such as the transition from teacher's scaffolding to peers' collaborative dialogue in traditional educational settings in which knowledge is mostly disseminated by an authoritative teacher should be implemented with great care. In these settings the interaction patterns are heavily influenced by some factors rooted in the social and cultural heritage of the given society. Thus the broad scope of sociocultural theory is an appropriate paradigm in which any gaps between the perceived and actual efficiency of innovative interaction patterns are investigated. In other words, shedding some light on the learners' perceptions about the efficiency of an innovative interaction pattern should be preceded by implementing the innovation in the sociocultural context of the educational settings.

In this line of enquiry, the current study aims to investigate extent to which teacher's scaffolding and collaborative dialogue are perceptually welcomed by the learners and empirically justifiable in the sociocultural context of an educational setting. What comes out of this line of enquiry is of significant importance because what learners perceive as fruitful patterns of interaction may not be in full agreement with what is really attained out of them. Therefore, this study can shed light on both the process and the product of implementing a new pattern of interaction.

Review of Literature: In one of the most influential theoretical frameworks, Vygotsky [2] made an effort to propose a model of learning and development in which most possible variables and their relationships could be accounted for. Teacher, learner and tool are among the most important factors which interact with each other as a part of dynamic ongoing process within a unique sociocultural context [10]. Among various sociocultural contexts, the classroom culture is one of the richest contexts in which a tool-mediated interaction can occur between the teacher and learners and/or between the learners.

Efficiency of these two interaction configurations is a matter of debate among the educationalists. Some scholars believe that the expertise and knowledge within the teachers can better facilitate the process of providing assistance for the learners while some others propose that intersubjectivity or shared understandings is more obtainable between two learners where knowledge resides symmetrically in both of them. Technically speaking, intersubjectivity is defined as "the speakers' ability to decentralize themselves and to include the interlocutors' perspective within their own view" [11].

The previously mentioned interaction configurations in terms of the interlocutors involved are technically called *scaffolding* and *collaborative dialogue*. These two patterns can be actualized in educational settings in a variety of configurations. Bronfenbrenner [12] referred to these interaction patterns as *proximal processes* in his ecological models of human development. van Lier [13] has taken these patterns and noted four scenarios. In his first scenario, van Lier has verified Vygotsky's original scaffolding model in which assistance is provided from more competent partners. In the second scenario, he has proposed a symmetrical relationship with equal peers. Taking the notion of Swain's [7] *pushed output* in which a learner is forced to produce the output; he has suggested interaction with a less capable peer as his third proximal scenario. The last scenario is *learner-self interaction* which is defined as the learner's reflection on the content, learning process and his new understanding.

From similar perspectives, slightly different classifications of interaction types have been proposed. For example, Moore [14] identified three types of interaction: learner-learner, learner-teacher and learner-content. Hillman, Willis and Gunawardena [15] added learner-interface interaction as the fourth type to the previous ones. It can be defined as the interaction that takes place between the learner and the technology. Another proposed type of interaction is learner-self interaction which emphasizes the importance of self-talking when engaging with learning content [16-17].

Definitely, the quantity and the quality of these interaction patterns or proximal processes are functions of contextual factors. According to Bronfenbrenner [12], the interaction patterns should be studied in the ecological models in which interaction is studied in socially organized subsystems, ranging from the microsystem of the immediate classroom to the macrosystem of cultural and historical context. Accordingly a considerable number of research studies should be conducted to see which interaction patterns bring about the highest level of achievement and how sociocultural factors modify their efficiency.

In terms of the level of achievement and its relationship to the interaction types, research findings are highly various. In the Iranian EFL context, which is the context of the current study, two relevant studies have been conducted. The first one by Maftoon and Ghafoori [18] investigated the effect of scaffolding and collaborative dialogue on the development of EFL learners' writing skill. Their findings revealed no significant difference between the two teaching styles. The results of this study were not completely supported by those of Pishghadam and Ghadiri [19] who investigated the effect of these two styles on the reading skill of Iranian EFL learners. The results of the second study indicated that the participants in the scaffolding group which was composed of partners of unequal proficiency outperformed their counterparts in the collaborative group.

There have also been a range of studies investigating students' perceptions about the interaction types. Some of these studies have focused on the quality of interaction types. For example, Khodamoradi and Amerian [20] investigated the quality of learner-content, learner-teacher, learner-learner, learner-interface and learner-self interactions in some open and distance education courses. Their findings indicated that the quality of overall interaction was of middle quality. The results also revealed significant differences among the qualities of most interaction types. Other studies have investigated the sociocultural aspect of interaction. A study by Hwang [21] is one these studies which looked at the factors affecting Japanese, Korean and Taiwanese students' passiveness in oral interaction. The findings indicated that the student's cultural background was significantly related to the level of class participation.

While the previous studies have been pervasive in many areas of classroom interaction, there remains an area of somewhat unchartered territory. There are few articles that give account for the learners' perceptions of interaction patterns and the way they might act as barriers to better achievement. If implementing an innovative interaction pattern like collaborative dialogue in a traditional educational setting leads to higher or even the same level of attainment, investigating the learners' perception can shed light on the nature of transition from teacher-centered instruction to collaborative or cooperative one. Therefore, the current study aims at filling the gaps in this domain by answering the following questions:

- Do peers' collaborative dialogue and teacher's scaffolding result in significantly different achievement in EFL learners?
- Does experiencing a different interaction pattern result in significantly different attitudes toward the interaction type and the involved interlocutors?
- How justifiable is the application of peers' collaborative dialogue in the sociocultural context of the Iranian universities?

MATERIALS AND METHODS

Participants: One hundred and forty-two college students (82 males and 60 females) who had enrolled in an English course at Azad University in Iran constituted the convenience sample of this study. These classes were selected because a variety of learners with different sociocultural backgrounds attend these classes and implementing any innovation can be evaluated by heterogeneous groups of EFL learners. The participants ranged in age from 18 to 31 with a mean age of 20.34 (SD = 2.6). All participants had studied English as a foreign language in junior high school and high school at least for six years. The participants had been distributed in five intact classes before the study began. Two classes were randomly selected as the teachers' scaffolding group (n = 74) and the three remaining classes as the peers' collaborative dialogue group (n = 68). More classes were assigned to collaborative group due to more outliers that would likely to be in that group.

Teaching Material: The material used in this study was a pamphlet which had been developed by the researchers and contained nine English tenses. In the pamphlet, each of the nine tenses had been presented in a two-section unit. In the first section, the underlying meaning, the basic structures of the interrogative form, negative form and answering with yes and no had been elaborated on. Then in the second section, different types of exercises had been designed to provide a situation for practicing the given grammatical points.

Instrumentation: In order to gather appropriate data, three research instruments were employed: a pre-test, a post-test and a questionnaire. Each of the instruments had been designed and validated by the researchers in a pilot study before it was used in the study. The pre-test was a researcher-made diagnostic test which aimed at evaluating the participants' entry behavior in the domain of English tenses. The post-test aimed at assessing the participants' level of achievement at the end of the treatment period.

The questionnaire was the last instrument employed to assess the participants' attitudes toward different types of interaction and different interlocutors. The questionnaire consisted of two sections. The first section contained 22 five-point Likert scale items which assessed the participants' attitudes toward the four types of interaction while the second section contained an item which required the participants to rank the efficiency of the five ways of doing the learning activities. Those methods were doing the learning activities: *1) independently, 2) with teacher's help, 3) in collaboration with lower level peers, 4) in collaboration with equal level peers and 5) in collaboration with higher level peers.* They were also required to justify their choices as the most efficient and the least efficient ways.

Validity and Reliability: In order to assure the validity of the instruments, a group of four content area experts were asked to comment on development of the instruments. Based on their comments and justifications, the instruments were designed and modified in several stages. For establishing the reliability of the instruments, a group of thirty-three college students who had enrolled in an EGP course in another university participated in a pilot study. Before and after the treatment, the pre-test and the post-test were administered to them respectively and their reliability was calculated using the split-half method. Moreover, at the end of treatment period, the participants filled the questionnaire two times with an interval of two weeks and the reliability of the questionnaire was calculated by the test-retest method. The results of data analysis showed a correlation coefficient of $r = .93$, $p < .05$ for the pre-test, $r = .90$, $p < .05$ for the post-test and $r = .87$, $p < .05$ for the questionnaire.

Data Collection Procedure: The data collection procedure was done during a fall semester. In the first session, the five classes were divided into two groups of the teacher's scaffolding and peers' collaborative dialogue. The participants in each group were informed about the purpose of the study, the syllabus and their respective instructional procedure. In the second session, the pre-test was administered to all the participants to determine the participants' baseline grammatical knowledge in the domain of English tenses. In that session, the participants of the collaborative dialogue group were required to find a partner for collaboration for the rest of the semester.

In the third session through the eleventh, the intended English tenses were presented by the teacher to all participants in both groups. Then the participants of the teacher's scaffolding group studied some further explanations in their pamphlet and did the given exercises while receiving the teacher's assistance when necessary. Their counterparts in peers' collaborative dialogue group worked with their partners instead of receiving help from the teacher.

In the twelfth session, when all the tenses had been taught, the participants took the post-test. They were also asked to fill out the validated questionnaire. Before the questionnaires were distributed, some explanations had been given on how to complete the bio-data and the items. Then, the questionnaires were distributed to all the participants and were collected after completion in that session. All the exam papers and the questionnaires were scored and the collected data were submitted to a statistician for further analyses.

RESULTS

The descriptive statistics in Table 1 shows the performance of all participants in the pre-test and post-test in both teachers' scaffolding group and peers' collaborative dialogue group (henceforth referred to as *the scaffolding group* and *collaborative group* respectively).

To see whether the two groups had statistically different performances, an independent-samples t-test was conducted to compare the post-test scores of the two experimental groups. There was no significant difference in scores for the scaffolding group ($M = 55.59$, $SD = 17.5$) and collaborative group ($M = 51.49$, $SD = 18.2$; $t\ (140) = 1.36$, $p = .17$, two-tailed). Table 2 shows the relevant results.

The data collected from the questionnaire were also analyzed for the whole sample. Table 3 and Table 4 show the obtained results.

When the participants' attitudes toward the interaction types and possible interlocutors were analyzed for the scaffolding group and collaborative group, the following results were obtained. Table 5 and Table 6 show the relevant results.

Table 1: Descriptive Statistics of Both Groups

	Scaffolding Group			Collaborative Group		
Tests	M	SD	n	M	SD	n
Pre-test	46.62	13.0	74	47.38	12.8	68
Post-test	55.59	17.5	74	51.49	18.2	68

Table 2: Independent Samples Test

		Levene's Test		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Post-test	Equal variances assumed	.12	.72	1.36	140	.17
	Equal variances not assumed			1.36	137.8	.17

Table 3: Descriptive Statistics of Attitudes toward Interaction Types; Whole Sample

	Descriptive Statistics				
Interaction Type	N	Minimum	Maximum	Mean	SD
Learner-teacher	142	2.16	4.83	3.55	.62
Learner-learner	142	1.62	4.12	2.93	.46
Learner-content	142	2	4.25	3.43	.5
Learner-self	142	1.25	4.75	2.53	.635

Table 4: Descriptive Statistics of Attitudes toward Possible Interlocutors; Whole Sample

	Descriptive Statistics				
Interlocutors	N	Minimum	Maximum	Mean	SD
Self	142	1	5	2.90	1.126
Teacher	142	1	5	3.99	1.285
Lower Peer	142	1	5	1.30	.619
Similar Peer	142	1	5	3.00	1.092
Higher Peer	142	1	5	3.80	1.012

Table 5: Descriptive Statistics of Attitudes toward Interaction Types; Groups

	Interaction Type							
	L-T		L-L		L-C		L-S	
Group	M	SD	M	SD	M	SD	M	SD
Scaffolding (n = 74)	3.99	.47	2.72	.35	3.38	.52	2.58	.55
Collaborating (n = 68)	3.08	.39	3.19	.46	3.48	.48	2.49	.71

Table 6: Descriptive Statistics of Attitude toward Possible Interlocutor; Groups

	Interlocutor									
	Self		Teacher		Lower Peer		Similar Peer		Higher Peer	
Groups	M	SD	M	SD	M	SD	M	SD	M	SD
Scaffolding (n=74)	2.95	1.1	4.58	.70	1.20	.47	2.68	.98	3.59	.95
Collaborative (n=68)	2.85	1.1	3.35	1.5	1.41	.74	3.35	1.1	4.03	1.0

Table 7: Mann-Whitney U test; Interaction Types (Grouping Variable: Groups)

	Test Statistics			
	Interaction Type			
	L-T	L-L	L-C	L-S
Mann-Whitney U	297.00	963.00	2237.00	2323.50
Wilcoxon W	2643.00	3738.00	5012.00	4669.50
Z	-9.097	-6.374	-1.153	-.791
Asymp. Sig. (2-tailed)	.000	.000	.249	.429

Table 8: Mann-Whitney U test; Possible Interlocutors (Grouping Variable: Groups)

	Test Statistics				
	Interlocutors				
	Self	Teacher	Lower Peer	Similar Peer	Higher Peer
Mann-Whitney U	2377.5	1279.0	2168.5	1631.5	1812.0
Wilcoxon W	4723.5	3625.0	4943.5	4406.5	4587.0
Z	-.588	-5.469	-1.908	-3.748	-3.048
Asymp. Sig. (2-tailed)	.556	.000	.056	.000	.002

To see how the participants in each group evaluated different types of interaction, a Mann-Whitney U test was run. The results of the test revealed a significantly different attitude toward learner-teacher interaction in the scaffolding group (Md = 3.91, n = 74) and collaborative group (Md = 3.16, n = 68), U = 297, z = –9.097, p =. 000, r =.76. The results of the test obtained from the participants' attitude toward learner-learner interaction also indicated a significant difference between the scaffolding group (Md = 2.75, n = 74) and collaborative group (Md = 3.125, n = 68), U = 963, z = –6.374, p = .000, r = .53. Using Cohen's criterion of .1= small effect, .3 = medium effect, .5 = large effect, the effect sizes (r) obtained from the results are considered as large effect sizes. The results of this test revealed no significant difference in the attitudes of the given groups toward learner-content and learner-self interaction. Table 7 shows the related results.

Some Mann-Whitney U tests were also used to check the significance of the difference between the two groups in their attitudes toward the possible interlocutors. As Table 8 shows, the results revealed significant differences in the attitude of the two groups toward interaction with teacher (U = 1279, z = -.556, p = .000, r = .46), interaction with similar peers (U = 1631.5, z = -3.748, p = .000, r = .31) and interaction with higher peers, U = 1812.0, z = -2.083, p = -3.048, r = .26. The effect sizes (r) obtained from the results are all considered large or medium effect sizes. The results of the tests revealed no significant difference in the attitude of the two groups toward interaction with self and interaction with lower peer .

Based on the results, it can be stated that experiencing different interaction configurations paves the way for adopting different attitudes toward the given interaction patterns as well as taking more favorable attitude toward the most favorable interlocutors.

When the obtained results from the post-test and the questionnaire are compared, it is revealed that the equal level of achievement on behalf of those who experienced teacher's scaffolding and peers' collaborative dialogue provides ample evidence that the application of peers' collaborative dialogue is quite justifiable in the sociocultural context of the Iranian universities if some opportunities are provided for the learners to take more favorable attitudes and get some hands-on experiences.

DISCUSSION

The results obtained from the post-test indicated no significant difference between those participants who received assistance from the teacher and those participants who collaborated with their peers. Observing no significant difference between the scaffolding group and collaborative group can be regarded as convincing evidence that, in addition to the teacher, peers can also play the role of mediators for the learners in achieving higher mental functioning. Such an equal contribution can

be attributed to the fact that the cognitive distance between the teacher and the learners may prevent them from achieving the state of intersubjectivity or shared understanding.

The most notable finding is the participants' favorable attitude toward learner-teacher interaction as the most fruitful type of interaction and toward the teacher as the best interlocutor with whom the highest level of achievement can be obtained. This is not an unexpected evaluation in the sociocultural context of the study in which teachers are in authority in the educational settings. On the other hand, the least favorable interaction type turned out to be learner-self interaction and the second least effective interlocutors after low-level peers was the learners themselves. These two findings provide convincing evidence that the EFL learners view the presence of the significant others as an integral element of cognitive development in the second language acquisition.

The participants' ranking of the interlocutors from the most effective to the least effective ones is also revealing. For the EFL learners of the context of the study, the most effective interlocutor was the teacher followed by the higher peers and then the similar peers. This ranking shows that these learners view dyadic interactions as a more effective style than interaction with self and their criterion for the degree of efficiency is the degree of expertise which resides within the interlocutors. In a more specific term, for these learners, the order of efficiency in interaction with the possible interlocutors is from teachers with professional expertise to higher peers with considerable expertise, to similar peers with equal expertise, to learners themselves with varying degrees of expertise deepening on learners themselves and finally to lower peers with negligible expertise.

When the two groups were compared in terms of their attitudes toward the four types of interaction, a significant difference was observed in their attitudes toward learner-teacher and learner-learner interaction. The scaffolding group, who had experienced interaction with the teacher, had a statistically more positive attitude toward this type of interaction than learner-learner interaction, while their counterparts in the collaborative group who had experienced interaction with their peers evaluated these two interaction types in a reverse order. No significant difference was observed in their attitudes toward learner-content and learner-self interaction types. In this study, the participants of the scaffolding group prioritized their favorable interaction types from learner-teacher to learner-content, then to learner-learner and finally to learner-self. This priority for the collaborative group was from learner-content to learner-learner, then to learner-teacher and finally to learner-self. Such a different ranking for learner-teacher and learner-learner interaction types in the participants' priority shows that they found their own interaction type more fruitful than the other alternatives with which they were not so familiar.

Some significant differences were also observed between the attitudes of the two groups regarding the possible interlocutors. The participants in the scaffolding group had a significantly more positive attitude toward teacher, while their counterparts in the collaborative group had significantly more positive attitudes toward similar peers and higher peers. No significant differences were observed between the two groups in their attitudes toward self and lower peers. In this study, the list of interlocutors from the most favorable to the least ones for the participants of the scaffolding group was teacher, higher peers, self, similar peers and lower peers, while the given list of priority for the participants of the collaborative group was higher peers, similar peers, teacher, self and lower peers.

Such findings imply that the learners' perception of the efficiency of interaction types or interlocutors can be modified if they have an opportunity to experience that specific alternative. In other words, the learners view those alternatives which they have experienced as more fruitful than those which have not experienced. The only exception is interaction with lower peers which was evaluated similarly by the participants of both groups as the least effective alternative.

The findings of the study have pedagogical implications for the use of collaborative dialogue in EFL classes, suggesting that peers can resolve their linguistic problems through collaboration as a mediating tool for the acquisition of L2 grammar. Therefore, it is sensible to recommend EFL teachers to assign some part of their instructional time to collaboration between peers. The finding obtained from the comparison between the attitudes of the two groups implies that learners feel more comfortable with new forms of interaction types and interlocutors if they have an opportunity to experience them. Therefore, it seems advisable for teachers to take a more optimistic view when trying an innovative interaction configuration.

The attitudes of all participants toward the interaction types and the most desirable interlocutors have their own pedagogical implications. According to the participants' evaluation, interaction with teacher is the most favorable interaction type followed by interaction with

content and interaction with peers as the third choice. Equal achievement in the scaffolding and collaborative group implies that there is a huge perceptual gap between the actual efficiency of collaborative dialogue and its perceived efficiency. Therefore, teachers are recommended to discuss the advantages of collaboration and collaborative dialogue prior to assigning learners to work in pairs. This is a crucial measure which should be taken in the context of the study in which peers' collaboration is a relatively innovative pedagogical practice.

CONCLUSION

The findings of the study show that the interactive environment created between the peers in collaborative dialogue can contribute as much to the EFL learners' grammatical knowledge as to the supportive environment created by teacher's scaffolding. In other words, the required knowledge or expertise necessary for moving the learners ahead in their ZPD does not necessarily reside within teachers but can be constructed collaboratively by peers. But the learners' attitudes toward peers' collaborative dialogue are not positive enough to facilitate the implementation of an innovation of this type in the sociocultural context of the study because there is a perceptual gap between what learners perceive as fruitful dyadic configurations and the efficiency of these interaction configurations. Fortunately, as the findings of this study showed, providing conditions in which learners experience peer-peer interaction configurations can pave the way for adopting more positive attitudes toward these interaction alternatives.

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