A Sociocultural Perspective on Second Language Acquisition:
The Effect of High-structured Scaffolding versus Low-structured Scaffolding on the Writing Ability of EFL Learners

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ABSTRACT

Vygotsky's sociocultural theory on the innovative idea of the relation between thought and language has created a broad line of research in second language acquisition (SLA). From among numerous sociocultural concepts, scaffolding has formed the cynosure of a wealth of studies. But the practicality of this type of assistance in a whole-class format has been called into question, and thus most of the research on scaffolding has focused on individual scaffolding through some case studies; the results though of interest to teachers, are not applicable to typical language classrooms. Broadly speaking, two requirements should be met in exercising scaffolding. First, scaffolding needs a more knowledgeable other (MKO) wrongly believed to be only a teacher. Second, it needs mediation, mistakenly assumed to be only direct. To unravel the aforementioned problem, the present study was carried out to compare different types of scaffolding and help, i.e., high-structured scaffolding, low-structured scaffolding, and non-structured help on the writing ability of EFL learners. To this end, 114 students served as the subjects of the study, and the findings revealed that the low-structured scaffolding group outperformed the other groups. The conclusion provides support for the notion of gradual help, one of the key mechanisms of ZPD.

There is many a theory regarding assisting second language learners in the learning process, one of which is sociocultural theory in which learners are considered as active agents in the learning process and are seen as individuals who become part of the L2 community. Historically, scholars like Vygotsky (1987), Leontiev (1981), and Wertsch (1985) have offered a set of new metaphors of viewing learning which is gradually becoming an alternative paradigm in SLA. This new paradigm has been called sociocultural SLA by Lantolf (2000). In this

paradigm, a teacher or a more knowledgeable other (MKO) tries to activate and make use of students' potentials by scaffolding students within their zone of proximal development (ZPD).

The two cardinal concepts in sociocultural theory, as the aforementioned sentence illustrates, are the ZPD and scaffolding. Therefore, not surprisingly, these concepts have been scrutinized and defined from different perspectives by many sociocultural scholars. Lantolf (2000) as one of the leading scholars in this remit provided a virtually unanimous definition of ZPD as the difference in performance on a task between what a learner can do alone and what he or she can do when working with an expert. Unlike the clear cut definition of ZPD, the interpretation of scaffolding has been a matter of opinions. For instance, Donato (1994) defined scaffolding as a "situation where a knowledgeable participant can create supportive conditions in which the novice can participate, and extend his or her current skills and knowledge to higher levels of competence" (p. 40), and Schumm (2006) construed scaffolding as "providing support for students in their language, and then gradually diminishing the support as students become more independent" (p. 530), while Verity (2005, p. 4) defined it as "the cognitive support given to a novice learner to reduce the cognitive load of the task." Verity also elaborated on this metaphor mentioning that "successful scaffolding depends upon precise judgments as to what pieces of the task the expert can take over without pushing the learner from the center of the activity" (2005, p. 4). In a similar attempt, Van Lier (2004) defined scaffolding generally as assisted performance which embodies three levels, namely macro, meso, and micro.

More importantly, there are many scholars and teachers who practice different types of scaffolding, yet do not take account of degrees of guidance or help which might bring different effects on second language learning. For example, Stetsenko (1999) believes that the quality rather than quantity (i.e., content) of the adult's help has the decisive influence on a child's development.

So far, a host of studies have been conducted on the nature and consequently the effect of individual scaffolding in the form of peer collaborating or tutor-student working or dialogue journal writing (Aljaafreh & Lantolf, 1994; De Guerrero & Villamil, 2000, Nassaji & Cumming, 2000; Nassaji & Swain, 2000; Swain, 1997). However, teachers who favor sociocultural theory in pedagogy are more interested in whole-class scaffolding because as Mercer and Fisher state, "the practical circumstances force most teachers to plan activities on the scale of classes or groups, not individuals" (1997, p. 209). To get around this obstacle, several techniques, namely peer teaching (Guk & Kellogg, 2007), collaborative learning (Donato, 1994), and simplifying a task through a template (Verity, 2005), have been put forward or employed.

Thus, in this study, scaffolding is operationally defined as using the supportive templates by which guidance is offered to the students through a semiotically mediated situation in order to achieve higher level competence and regulation.

Given templates as one of such techniques, elaboration should be provided on the notion of More Knowledgeable Other (MKO), which is an inextricable part of scaffolding. This term generally refers to an expert who often directly

helps students achieve their potentials but the point is, there is a possibility of helping students through indirect mediation, for example, utilizing templates designed by an expert. And this could be a good instance of what Ellis means by stating that "scaffolding is not dependent on the presence of an expert" (2003, p. 193).

Meanwhile, mediation is defined as indirect activity which "is not limited to assistance by other human beings but may come in the form of socially constructed semiotic artifacts, such as books, maps, and diagrams" (Well, 1999 as cited in Villamil & Guerrero, 2003, p. 80). Not dissimilar to the aforementioned definition, Lantolf and Thorne state that "speaking (and writing) activity can function as a meditational artifact to control thinking because of what Vygotsky called the reversibility of the linguistic sign" (2006, p. 60).

In a similar vein, Verity (2005) believes that a prime example of scaffolding when the MKO indirectly helps students could be a template for a guided composition. The template provides the generic structure and part of the rhetorical content in order to direct the learner's effort to the details of the writing task, which are within his or her capabilities. For example, a template for a letter of invitation offers the learner the basic structure and the frame of the task so that he or she can focus on the details of the invitation.

Finally, the concept of internalization, though peripheral, is inseparable from scaffolding and ZPD and should be taken into account. Lantolf and Thorne (2006) define it as the "means of developing the capacity to perform complex cognitive and motor functions with increasingly less reliance on externally provided mediation" (p. 266).

Given the sociocultural viewpoint, there are various kinds of templates which can be used as scaffolding from a very high-structured (guided) one to a very low-structured one. Therefore, the present study constitutes an effort to probe further into the mechanisms of scaffolding by applying two different types of templates as indicators of different types of scaffolding to the betterment of the writing ability.

Thus, the present study is intended to answer the following questions:

1. Is there a difference between the effect of high-structured and low-structured scaffolding on the writing ability of Iranian EFL learners?
2. Is there a difference between the effect of high-structured scaffolding and non-structured help on the writing ability of Iranian EFL learners?
3. Is there a difference between the effect of low-structured scaffolding and non-structured help on the writing ability of Iranian EFL learners?

Method

Participants

The participants of this study included 114 elementary Iranian EFL learners in eight classes in Kish Language Institute in Tehran.[1] Forty-four students in three classes

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[1] All procedures were performed in accordance to institutional guidelines and the relevant institutional committees have approved these procedures.

served as the control group, and they were provided with non-structured help including exercises in *True To Life* (their course book) plus some free paragraph writing. Thirty-eight students in three classes served as the high-structured group, and they were given high-structured templates providing the whole frame of the writing task intended to help the students complete the task by just filling in words of their choice. Finally, 32 students in two classes served as the low-structured group, and they were provided with low-structured templates with at least one complete example of a similar writing task and some key words for writing the task without a definite frame. Each class took a 21-session course (over one month), five days a week and every session took one hour and 45 minutes. All the subjects were male, native speakers of Farsi, with an average age of 24 years. The participants were E4 (Elementary 4) learners preparing for KET (Key English Test) for the next course, Elementary 5 (E5), the last course at elementary level. Since the subjects were in eight intact classes, convenience sampling was employed.

Instruments and teaching materials

In this study 12 passages from two elementary books *True to Life* and *Pace Setter* were used. These passages were adapted by the researchers to develop two different types of templates, namely high-structured and low-structured, which served as the teaching materials for the writing activities of the two experimental groups. Additionally, the original passages, without adjustment, were used as non-structured help for the writing activities of the control group. To cast light on the distinguishing features of the two types of templates and the non-structured help, the following points are constructive. While both types of the templates were designed to lower the cognitive load of the writing activity, they differed in the degree of such cognitive help and free exploration on the part of the students. In the high-structured template, the cognitive help was high but the degree of free exploration was low; the low-structured one had a low degree of cognitive help but a high degree of free exploration; in the non-structured help, the degree of free exploration and cognitive load were not determined because of its jumbled structure.

Procedure

A total of 114 students, out of 127 elementary (level 4) students taking the course, served as the subjects of the study. In other words, this study had 13 dropouts. During the course, the students attended 21 sessions. The first and the last sessions were specifically for the pre- and post-tests. In the other 19 sessions, 12 passages in the form of high-structured scaffolding, low-structured scaffolding, and non-structured help were given to the high-structured scaffolding group (HSSG), the low-structured scaffolding group (LSSG), and the control group, respectively.

In the first session, the students in all the three groups were asked to write two paragraphs in class which served as the pre-test of the study.

In the second session, the instruction for all the three groups began. These three groups of students (in eight classes) were taught by two experienced teachers,

who were MA students of TEFL at the time of the study. In order to minimize the teachers' effect, each teacher taught four classes such that all three groups were included. In other words, as both of the teachers taught all the three groups (CG, HSSG, and LSSG) the teachers' effect to a large extent was counterbalanced.

In almost every other session, the students were asked to write one or two paragraphs on a given topic with the help of a template or non-structured help depending on their groups. The passages in the form of high-structured scaffolding were given to the HSSG, and those in the form of low-structured scaffolding to the LSSG. The topics of these pieces of writing were taken from the students' course-book, *True to Life*, plus *Pace Setter*. Specifically, the students in the high-structured scaffolding group were given the topic plus the high-structured template of the same topic providing the whole frame of the passage so that they could complete the writing activity by just writing their own sentences or paragraphs in the pre-determined lines. On the other hand, the students in the low-structured scaffolding group were provided with the low-structured template comprising one complete passage on a topic similar to the given topic plus a list of key words for the writing activity. The original writing activities from *True to Life* and *Pace Setter* were used as non-structured help for the control group.

During the course, the students were asked to write 12 in-class paragraphs. Every session, when the students read out their paragraphs, the teacher gave the appropriate feedback to the students. The type of feedback given to the HSSG and LSSG was the same. It was based on a simplified model of Aljaafreh and Lantolf (1994) that was adapted by the researchers. This simplified model could be roughly categorised into six levels of feedback from implicit to explicit as follows: (a) indicating the wrong phrase, (b) narrowing down its location, (c) indicating the nature of the error, (d) providing clues, (e) providing the correct form, and (f) providing explanation. The third and fourth levels were omitted due to time constraints. Additionally, the type of feedback provided to CG, the control group, was the typical feedback frequently used by Kish teachers. It should be noted that the time allocated for feedback in the experimental and control groups was equal.

After working on the 12 writing activities, in the twenty-first session, the students in all the three groups were asked to write two paragraphs on given topics, which served as the post-test. Due to the nature of scaffolding, which aims at helping students reach their potential and act independently, the post-test (similar to the pre-test) was conducted as free paragraph writing without any help or guidance, unlike the during-course paragraphs which were guided by the templates in the case of the two experimental groups and non-structured help in the case of the control group.

Finally, the paragraphs written for the pre-test and the post-test were scored holistically by three independent raters. To obtain a highly reliable result, the three raters had several sessions to discuss the method for scoring the papers. Since the students were supposed to write two paragraphs for each test, each paragraph was scored separately, and then the inter-rater reliability for this holistic scoring was estimated using the Pearson product-moment correlation adjusted by the Spearman prophecy formula. The inter-rater reliability for the first and second paragraphs of the pre-test was separately estimated to be .90. Therefore,

the inter-rater reliability for the pre-test was estimated to be .90. Also the inter-rater reliability for the first and second paragraphs of the post-test was separately estimated to be .91 and .92, respectively. Therefore, the inter-rater reliability for the post-test was estimated to be .91. These calculations were done in order to make sure the scoring was highly reliable.

Data analysis

At this stage, three statistical procedures were used. The first procedure mentioned above was performed at two different times in order to measure the inter-rater reliability between the three raters, one for the pre-test, and the other for the post-test; the second procedure comprised two one-way ANOVAs between the three groups, one at the outset of the study in order to estimate whether the three groups were homogeneous and from the same sampling distribution, and the other at the end of the study in order to see whether there was any significant difference between the three groups after the treatment; finally, for the sake of a thorough interpretation and comparability between the performance of each group on the pre- and post-tests, the third procedure comprising three paired t-tests was employed which confirmed the results of the second procedure and thus is not included in the following section.

Results

Table 1 shows the means and standard deviations for all the three groups.

The first one-way ANOVA was administered to determine whether there was any significant difference between the three groups with regard to their English writing ability at the outset of the study. This test was also used as a base to estimate the improvement of each group by comparing it with the post-test. The result of the test is as shown in Table 2.

Table 1
Descriptive Statistics for Control and Experimental Groups at the Outset of the Study

Group	n	M	SD
CG	44	4.88	2.15
HSSG	38	4.85	2.27
LSSG	32	4.70	1.79

Table 2
One-way ANOVA for Writing Scores on the Pre-test

Source	df	SS	MS	F	Sig
Between groups	2	.64	.32	.07	.930
Within groups	111	4.42	4.42		

$p > .05$

The result of a one-way ANOVA indicated that there is no statistically significant difference between the groups, $F(2, 111) = .07$, $p = .930$. Therefore, the participants of the three groups on the pre-test are homogeneous.

The result of a one-way ANOVA indicated that there is a statistically significant difference between the groups, $F(2, 111) = 7.81$, $p = .001$. Table 3 presents the related statistics.

In order to pinpoint the difference between the groups, a post-hoc Scheffe test was used. Table 4 displays the differences between the groups.

The results obtained indicate that the mean score of the group that benefited from low-structured scaffolding (LSSG) was significantly higher than the mean score of the group that enjoyed high-structured scaffolding (HSSG) (mean difference = 1.78) and the group that used non-structured help (CG) (mean difference = 1.84). Moreover, the students of high-structured scaffolding (HSSG) outperformed those of non-structured help (CG) (mean difference = .05). The mean difference, though higher, is not significant, $p = .993$. This suggests that high-structured scaffolding did not meaningfully improve the writing ability of the students.

Accordingly, the results of this one-way ANOVA answered the three questions of this study as follows:

There are significant differences between CG and LSSG, and also between HSSG and LSSG. But there is no significant difference between CG and HSSG. To put it simply, the low-structured scaffolding templates, unlike the high-structured scaffolding templates and the non-structured help, were remarkably effective for the improvement of the students' writing.

To safeguard the result of the parametric statistic, the parallel nonparametric statistic was adopted which unanimously confirmed the parametric result.

Additionally, in order to determine the strength of association in the data, the eta squared was run. Hatch and Lazaraton (1991) regarded the eta squared as a good yardstick to determine the strength of association in the data. To them,

Table 3

One-way ANOVA for Writing Scores on the Post-test

Source	df	SS	MS	F	Sig.
Between groups	2	76.17	38.08	7.81	.001
Within groups	111	540.65	4.87		

$p < .05$

Table 4

Mean Differences between the Groups

Between group comparisons	Mean difference	Sig.
CG vs HSSG	−.05	.993
CG vs LSSG	−1.84	.002
HSSG vs LSSG	−1.78	.004

$p < .05$

Table 5

Measures of Association of the One-way ANOVA on the Post-test

	R	R^2	Eta	η^2
Scores • Groups	.305	.093	.351	.123

it indicates the proportion of the variability in the dependent variable which can be accounted for by the independent variable.

As can be seen in Table 5, η^2 = .123. This strength of association according to Dornyei (2007) shows a fairly large effect of relationship between the variables.

Discussion

By recapitulating and looking back at the statistical procedures and the results, one can clearly observe the sharp differences in the improvements of the three groups. In fact, the two one-way ANOVAs and the three paired t-tests all indicated that the LSSG significantly outperformed the other groups and greatly benefited from the treatment. In contrast, the improvements of the CG and the HSSG were not significant.

Interestingly, the results of the present study correspond to the general paradigm of scaffolding and cast more light on the nature of ZPD, stressing the importance of contingent and graduated help. Aljaafreh and Lantolf (1994) already underscored the importance of scaffolding within the students' ZPDs. Also, Nassaji and Swain (2000) highlighted the concept of negotiated help, i.e., structured scaffolding in regard with ZPD. More specifically, they compared the effect of random help with negotiated help on the learning of English articles. Their findings revealed the outperformance of the ZPD student, the student receiving negotiated help, over the non-ZPD student, the student receiving the random help. Accordingly, the present study confirms the effective co-occurrence of the two inseparable concepts, scaffolding and ZPD.

More importantly, the findings revealed the construction of ZPD while scaffolding and shed more light on the process of a ZPD construction described by Nassaji and Cumming (2000). The students in the LSSG greatly benefited from the treatment because they received the treatment within their ZPDs. On the other hand, the students in HSSG were not cognitively challenged within their ZPDs since they were provided with the key structures of the writing activities. Therefore, the results are completely in consonance with the notion of internalization, which highlights performing complex cognitive functions while relying less on external mediation (Lantolf & Thorne, 2006).

Furthermore, the study supported the notion of whole-class scaffolding raised by some recent researchers. Guk and Kellogg (2007) 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 in a whole-class format since Vygotsky's main concern was about classroom age grouping. In fact, their 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, revealed that these two types of scaffolding constructed different ends of the same whole-class ZPD. Similarly, the present study illuminated the nature of whole-class scaffolding from a different perspective by using two types of structured templates.

This study was also in line with Villamil and Guerrero's (2003) study regarding mediation through the form of socially constructed semiotic artifacts. They carried out their study based on metaphor as a meditational tool in helping teachers progress in their view on writing. Not dissimilar to their study, in the present study, the mediation was also done through semiotic artifacts, i.e., the two different types of templates. Giving the students enough assistance to achieve their writing potentials, the templates in the study had the indirect role of an MKO.

Lastly, the outperformance of LSSG specified the degree at which the cognitive load of an activity should be, without diminishing the central role of the student in that activity. Prior to this study, Verity (2005) had posed the importance of the student's centrality in scaffolding. In this regard, this study paves the way for more elaboration on the cardinal concept of the student-centeredness in the process of scaffolding.

Conclusion

The outperformance of LSSG provides support for the notion of minimum level of guidance in graduated intervention, i.e., one of the three mechanisms of effective help in the ZPD. Aljaafreh and Lantolf (1994) noted that "it is essential to know the degree to which other-regulation, or mediation, impacts on the learner's production of the particular forms".

On the other hand, the insignificant improvement of HSSG confirms the impact of other-repair on the learning process. Van Lier (1988) believed that too much guidance may hinder or slow down the development of self-repair, which he viewed as an important learning activity.

The insignificant improvement of HSSG also revealed that the students should not be spoon-fed with too many hints. In other words, the students should not be deprived of free exploration while performing a task.

By the same token, the insignificant and marginal improvement of CG indicated that the help offered to the students should be structured and thus, geared to the students' ZPD in order to lower the cognitive load of the task.

In conclusion, the cognitive load of a task plays a paramount role in the students' performance. It should not be too high to the extent that the students become frustrated, yet it should not be too low to the extent that the students lose the sense of challenge. It should be right within the students' ZPD.

This study has some valuable pedagogical implications. In light of the sociocultural paradigm regarding scaffolding mechanisms, practitioners and syllabus designers might easily apply the low-structured scaffolding to textbooks. The advantages of low-structured scaffolding texts are that they provide students with free exploration, yet in a guided way and students can enjoy the challenge of activities just within their zone of proximal development.

EFL teachers can gain considerable insights from applying scaffolding mechanisms to their classes. Although research along the line of ZPD has been reported in the area of EFL reading (e.g., Zhang, 2008), much more needs to be done so that such mechanisms can be applied to illuminate a new paradigm in teaching as well as learning. These necessary insights can pave the way for the occurrence of teaching in line with the learning process.

Moreover, teachers might also benefit from low-structured scaffolding, in that teachers do not need to put a lot of energy and efforts to provide students with too many hints and guides during writing activities. In fact, they should just give students an example of a writing activity and then leave them on their own; in this way students will be able to utilize self-exploration.

In what follows, some suggestions for further research are put forward:

One may wish to duplicate the present study on subjects with different genders or proficiency levels to see which group benefits more from different types of scaffolding.

One might do a similar study to compare the low-structured and high-structured scaffolding with dynamic scaffolding. To put it simply, the two fixed scaffolding, the low- and high-structured scaffolding, might be juxtaposed with a new type of variable scaffolding, starting with the high-structured and going smoothly toward the low-structured scaffolding.

In light of the findings of this study, one might carry out research on the relationship between scaffolding mechanisms with different levels of ZPD. Due to the limitation of the research design, the quality of the writing the EFL students in the experimental groups, and how the quality differs from that by the control group, were not examined (see e.g., Ong & Zhang, 2010). Also, though much of the ZPD-oriented learning and teaching activities concerns students' metacognitive knowledge (metacognition), including learners' sociocultural metacognition (e.g., Zhang, 2010), the study did not examine this aspect.

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