

## تأثیر حمایت از طریق ساختاردهی و مسئله‌سازی بر روی مهارت‌های خودسازمان‌دهی

### نوشتار، توانایی نوشتن مقاله و زمان برنامه‌ریزی کلی زبان‌آموزان

محبوبه مرتضوی<sup>1</sup>، منوچهر جعفری گهر<sup>2\*</sup>، افسر روحی<sup>3</sup>، حسن سلیمانی<sup>4</sup>

1. دانشجوی دکترا، گروه آموزش زبان و ادبیات انگلیسی، دانشگاه پیام نور

2. دانشیار، گروه آموزش زبان و ادبیات انگلیسی، دانشگاه پیام نور

3. دانشیار، گروه آموزش زبان و ادبیات انگلیسی، دانشگاه پیام نور

4. استادیار، گروه آموزش زبان و ادبیات انگلیسی، دانشگاه پیام نور

تاریخ دریافت: 1394/07/21 تاریخ پذیرش: 1395/10/18

## The Effect of Scaffolding through Structuring and Problematizing on EFL Learners' Writing Self-regulatory Skills, Essay Writing Skill and Global Planning Time

M. Mortazavi<sup>1</sup>, M. Jafarigohar<sup>2\*</sup>, A. Rouhi<sup>3</sup>, H. Soleimani<sup>4</sup>

1. Ph.D. Candidate, Post-graduate Center, Payame Noor University

2. Associate Professor, Department of TEFL and English Literature, Payame Noor University

3. Associate Professor, Department of TEFL and English Literature, Payame Noor University

4. Assistant Professor, Department of TEFL and English Literature, Payame Noor University

Received: 2015/10/13 Accepted: 2017/01/07

### Abstract

This study scrutinized the effect of structuring and problematizing scaffolding mechanisms and the possible moderating effect of the proficiency level on writing self-regulatory skills, essay writing ability, and global planning time among one hundred and twenty pre-intermediate and one hundred and twenty advanced Iranian English learners. Using two-way ANCOVA tests and taking the pre-test scores as covariates, the researchers compared the pretest and post-test results of the participants' performance on a writing test and a writing self-regulation questionnaire. They also compared the time the participants spent planning the content and organization in the two administrations of the writing test. The results revealed that scaffolding mechanisms led to significant improvements in self-regulatory and writing skills. In addition, scaffolding mechanisms significantly increased the time the participants spent on global planning. On the whole, according to the results, scaffolding mechanisms have best effect when offered simultaneously. Besides, no significant moderating effect was detected for the proficiency level.

### Keywords

Scaffolding Mechanisms, Self-Regulation, Writing Skill.

### چکیده

تحقیق حاضر به بررسی تأثیر سازکارهای ساختاردهنده و مسئله‌سازی حمایت کننده بر روی مهارت‌های خودسازمان‌دهی نوشتار، توانایی نوشتن مقاله و زمان برنامه‌ریزی کلی در مرحله پیش نوشتار از مراحل نوشتن مقاله و همچنین بررسی نقش سطح زبان‌آموزان به عنوان متغیر تعدیل کننده در میان صد و بیست زبان‌آموز سطح پیش متوسط و صد و بیست زبان‌آموز سطح پیشرفته پرداخته است. پس از فرض نمرات پیش‌آزمون به عنوان همگام، محققان نتایج پیش‌آزمون و پس‌آزمون شرکت‌کنندگان را در یک آزمون مهارت نوشتار و یک آزمون مهارت خودسازمان‌دهی و همچنین زمان گزارش شده برای برنامه‌ریزی پیش از نوشتن مقاله در پیش‌آزمون و پس‌آزمون را مقایسه کردند. نتایج سه آنالیز کوواریانس دو سویه نشان داد که سازکارهای حمایت کننده به تغییرهای چشمگیری در مهارت‌های خودسازمان‌دهی نوشتار و توانایی نوشتن مقاله انجامیدند. همچنین بر اساس نتایج به دست آمده سازکارهای ساختاردهنده و مسئله‌سازی حمایت کننده به طرز چشمگیری زمانی را که زبان‌آموزان برای برنامه‌ریزی قبل از نوشتار صرف می‌کنند، افزایش داد. نتایج نشان داد که در کل هنگامی که دو سازکار حمایت کننده با هم ارائه شدند، بهترین تأثیر را داشتند. همچنین هیچ تأثیر تعدیل کننده‌ای برای سطح زبان‌آموزان بر روی متغیرها مشاهده نشد.

### واژگان کلیدی

سازکارهای حمایت، خودسازمان‌دهی، مهارت نوشتار.

\* نویسنده مسئول: منوچهر جعفری گهر

ایمیل نویسنده مسئول:

\*Corresponding Author: [jafari@pnu.ac.ir](mailto:jafari@pnu.ac.ir)

Writing tasks are reportedly among the most daunting tasks for language learners (Gilmore, 2009). Since learners of English as a foreign language (EFL) often do not share the same cultural and linguistic backgrounds as those of the English language speaking communities (Kamimura, 2000), this intricacy is manifested even more in EFL contexts. In order to handle the demanding task of writing in another language successfully, second/foreign language writers need to regulate their learning process (Graham & Harris, 2000; Kanlapan & Velasco, 2009). Kanlapan and Velasco (2009, p. 79), regarded self-regulation as “any thought, action, or feelings towards attaining educational goals”. Poorasghar, Kiamanesh, Sarmadi (2016) deemed self-regulatory strategies as those focused on controlling and monitoring one’s cognitive and behavioral activities. Kanlapan and Velasco (2009) stated that in the writing skill, sub-functions of self-regulatory skills, such as self-monitoring and strategy selection, promote learners’ writing skills. However, the self-regulatory dimension of writing has not received the attention it warrants (Ruan, 2005). This aspect of writing is reportedly challenging for learners who can derive benefit from external assistance from instructors’ side to gain more self-regulatory skills in writing tasks (Hamman, 2005). One way instructors can adapt their practices in classrooms to promote and facilitate learning is offering scaffolds (Azevedo & Hadwin, 2005). Scaffolds can also be presented in writing classrooms to aid learners to not only achieve outcomes of higher quality, but also develop the required regulatory skills to approach and traverse the writing process with more awareness of the significance of each stage. Thus, with the intention of providing empirical evidence on how scaffolds can be exploited to help foreign language writers, this study aimed at investigating whether educators could increase learners’ essay writing ability and writing self-regulatory skills and could

draw their attention to the significance of the pre-writing stage and planning by implementing certain mechanisms of scaffolds. In other words, in the current study, the impact of two scaffolding mechanisms of structuring and problematizing on a cohort of Iranian EFL learners’ writing self-regulatory skills, essay writing ability, and planning time was examined. The study targeted at finding the answers to the following questions:

1. Do structuring and problematizing scaffolds significantly improve the participants' writing self-regulation skill?
2. Do structuring and problematizing scaffolds significantly improve the participants' argumentative essay writing ability?
3. Do structuring and problematizing scaffolds significantly improve the participants' global planning time?
4. Do structuring and problematizing scaffolds function more effectively in terms of increasing the participants' a) argumentative essay writing-ability b) writing self-regulation and c) global planning time when offered simultaneously?
5. Does the participants’ level of proficiency moderate the impact of structuring and problematizing scaffolds on the participants' a) writing self-regulatory skills, b) argumentative essay writing ability, and c) global planning time?

#### A Historical Overview and Previous Studies

##### Scaffolds and the Writing Skill Scaffolding

The notion of scaffolding was derived from the ideas proposed by Wood, Bruner, and Ross (1976) to whom learning necessitated the provision of assistance by a more knowledgeable person in one-on-one interaction. Vygotsky’s (1978) socio-constructivist model of learning also resulted in the formation of the scaffolding concept. Vygotsky argued that learners should be presented with adequate assistance which needs to be gradually removed as learners’ skill develops and they

are able to take more responsibility. Believing in some common assumptions underlying all different ways in which scaffolds can assist learning, Reiser (2004) argued for the existence of two mechanisms by which learners can benefit from scaffolds, namely structuring the task of problem solving, and problematizing subject matter through provoking more attention to certain issues. Reiser (2004) maintained that scaffolds, in general, have two functions: first, they simplify the process of problem solving by decreasing the complexity through reducing the number of options, providing explicit directions and models, decomposing a task, assisting learners in detecting and setting vital goals, and directing them to scrutinize the learning process and the achievement of goals; second, they make some aspects of learners' work more problematic by helping them detect some aspects of learning. They would otherwise not pay the required attention.

Despite the significant role of scaffolds in facilitating students' learning (Azevedo & Hadwin, 2005), the impact of scaffolds on writing process and product as well as their impact on writing self-regulatory skills, particularly in EFL contexts, is under-researched. Most assistance offered in writing classrooms has been in the form of feedback on the final product (e.g., Miao, Badger, & Zhen, 2006; Rollinson, 2005). Not only does such feedback lack the characteristics of scaffolds as originally meant by Wood et al. (1976) and Vygotsky (1978), but also it does not take into account the process of composing through which meaning and ideas are generated, formulated, and refined (Zamel, 1982).

Hassan and Akhand (2010) viewed the process approach to writing as comprising eight stages of brainstorming, planning/structuring; mind mapping/ outlining, writing the first draft, peer feedback, editing, writing the final draft, and finally receiving teachers' feedback. Hayes and Flower (1980), viewed planning as entailing goal setting, content generating

and organizing. This view towards planning necessitates inclusion of brainstorming, structuring, and outlining within the planning phase. Erfani (2016) also deemed planning strategies as including goal setting and predicting the required time to achieve the task. Sasaki (2000) regarded longer times spent on global planning in the pre-writing phase of the writing process as a characteristic of good writers and "a manifestation of writing expertise" (p. 259). Hence, assisting the learners to understand the significance of each stage of the writing process can be regarded as having a pivotal role in writing instruction studies.

Among the few empirical studies taking the process of writing into account while examining the role of scaffolds is the one conducted by Lai and Calandra (2010). They examined the effects of two computer-based scaffolds on 65 pre-service teachers' reflective journal writing. Results showed that the computer-based scaffolds significantly enhanced the participants' reflective journal writing measured based on a reflection writing rubric, as well as the length of their written artifacts. Although Lai and Calandra's study was innovative in terms of the recognition of the role of scaffolds offered while the learners were still in the midst of the writing process, the limited scope of its focus, the impact on reflective writing skills, prevents generalization to any other form of writing and the essay writing ability.

Focusing on how technology could be adopted as scaffolding tools, Cho and Schunn (2005) reported the exploitation of an on-line peer review system called scaffolded writing and rewriting in the discipline (SWoRD), designed to assist learners in the acquisition of both content knowledge and writing and reviewing skills through. SWoRD provided the opportunity for the learners to benefit from reviewers' comments on their drafts and to rewrite their papers in the light of the feedback they received. Cho and Schunn maintained that through simulating the process of journal publication and providing assistance to the

participants throughout the process of writing a paper, SWoRD improved the writing quality in content classes.

Veerappan, Suan, and Sulaiman (2011) investigated the impact of scaffolds on a cohort L2 college students' journal writing skills in terms of their knowledge of grammar and vocabulary and explored how second language learners acquired the use of English language through journal writing. The scaffolds were in the form of several interactive writing techniques and instructions in writing a journal. The results of their study revealed that scaffolds increased the learners' knowledge of grammar and vocabulary. Their study, however, did not illuminate how scaffolds could improve the learners' writing ability at the paragraph and discourse level.

Iranian educators are not adequately acquainted with the concept of scaffolding, and "little attempt has been made to apply this concept to the Iranian educational context, especially in writing classes" (Riazei, 2012, p.78). Besides, Iranian learners are reportedly not familiar with activities in different phases of the writing process particularly the pre-writing phase. They "have not been trained to practice pre-writing activities in their L1 and L2. Even, they do not know how to use the planning time to plan their writings before or during the task performance" (Salimi & fatollahnejad, 2012, p. 2310). Thus, it is assumed that scaffolds provided by teachers regarding the use of pre-writing activities in the writing process can aid Iranian English language learners to acquire regulatory skills in various stages of the writing process. Yet the question as to whether certain scaffolding mechanisms enjoy an advantage in improving the learners' writing ability and increasing the planning time has not been answered by the previous studies.

Among the few attempts made to investigate scaffolds in Iran are that of Riazei's (2012) who, with the intention of identifying the scaffolding behaviors applied by the teacher and peers in helping students to reach self-reliance, conducted a

study in which the participants received either teacher or peer scaffolding. The results indicated that the teacher used more scaffolding behaviors and strategies. Nevertheless, the difference between the behaviors displayed by the teacher or peers did not prove significant. In Riazei's (2012) study, besides the fact that the scaffolds were only provided to a number of participants based on the teachers' judgment with regard to who needed to revise her/his paper, the teacher had not predetermined the proportion of various scaffolding techniques as the aim was to explore and report the frequency of the application of each technique. Hence, the results gained in her study did not illuminate the impact of scaffold on the writing skill.

#### **Scaffolds and Self-regulation in Writing**

Given that "the development of writing competence depends on high levels of self-regulation" (Graham & Harris, 2000, p. 3), and teachers' practices have proved to contribute to learners' self-regulated behaviors in writing tasks (Hamman, 2005), exploring ways in which teachers can adapt their behavior to foster their learners' regulatory skills should be a focal point in writing studies. Nevertheless, the largest part of the studies on the effect of scaffolds has been carried out in computer mediated learning environment (e.g., Molenaar, Roda, van Boxtel, & Slegers, 2012). Besides, the studies in which human tutors offered scaffolds focused on the effects of scaffolds on self-regulatory skills in science learning contexts (e.g., Azevedo, Moos, Greene, Winters, & Cromley, 2008). On the whole, the results of studies on the impact of scaffolds on self-regulated learning (SRL) revealed that scaffolding could promote SRL which could in turn lead to improvements in students' learning and motivation (Devolder, van Braak, & Tondeur, 2012).

Azevedo et al. (2008), for instance, investigated how SRL and externally regulated learning (ERL) facilitated by scaffolds provided by a human tutor

differentially affected adolescents' learning about the circulatory system while using hypermedia. According to the findings of their study, learners in the ERL condition activated their prior knowledge, engaged in several monitoring activities, deployed several effective strategies, and engaged in adaptive help seeking while, these self-regulatory behaviors were either absent or less frequently used in the SRL condition.

In an unpublished master's thesis, Galvis (2014) conducted a qualitative study to investigate how scaffolding strategies such as learning logs encouraging reflection could foster self-efficacy and monitoring among six graders engaged in descriptive writing. Using the grounded theory and various tools to gather data, they found scaffolding strategies to improve the participants' monitoring skill and self-efficacy while writing.

Jafarigohar and Mortazavi (2015) also studied the impact of scaffolds on a cohort of Iranians' metacognition, a sub-component of self-regulation, and reported that metacognitive, procedural, conceptual, strategic, and unfocused scaffolds could significantly improve the participants' ability to regulate their cognition and increase their knowledge of cognition.

### **The Present Study**

The literature does not offer satisfactory empirical evidence on the effectiveness of scaffolds in fostering the second/foreign language writers to regulate their behaviors while engaged in writing tasks in environments not enhanced by such technology. Furthermore, the issue of how writing instructors can employ scaffolding techniques to assist their learners in advancing their writing skills and in navigating throughout the writing process has not been adequately addressed so far. In particular, the impact of scaffolds on the process of writing in general and the pre-writing phase in particular has not received enough attention. Thus, the present study was designed to make a contribution to the field in terms of highlighting the possible

effects of different scaffolding mechanisms on the time learners spend on planning in the pre-writing phase. Besides, unlike previous studies, this study has chosen its participants from various proficiency levels in an attempt to enhance the generalizability of the claims which might be made about the impacts of the scaffolding techniques on learners.

### **Method**

#### **Participants**

Eight groups, each consisting of 30 female Iranian EFL learners studying general English in a language school, participated in this study. As the number of the learners in each class did not exceed 18, learners were chosen from sixteen different classes in a way that learners of each condition would be taught by the same teacher. From these eight groups, four were chosen from eight intact classes of pre-intermediate learners and four were selected from eight intact classes of advanced learners. The first experimental group was labeled the structuring scaffolds for advanced learners condition (SSC-A) in which advanced learners received structuring scaffold as explained in the procedures section. The learners in the second experimental group comprised advanced learners who were offered problematizing scaffolds. This group of learners was consequently called the problematizing scaffolds for advanced learners condition (PSC-A). The third experimental group in this study was provided with both structuring and problematizing scaffolds and was, therefore, named the structuring and problematizing scaffolds for advanced learners condition (SPSC-A). The fourth group of the participants in this study comprised the control group for advanced learners who did not receive any scaffolds. This group was, hence, labeled the control group for advanced learners (CG-A). The fifth group was called the structuring scaffolds for pre-intermediate learners condition (SSC-PI) in which thirty pre-intermediate learners received structuring

scaffolds. The learners in the sixth group were chosen from pre-intermediate classes and received problematizing scaffolds, thus they were labeled the problematizing scaffolds for pre-intermediate learners condition (PSC-PI) was given to them. The seventh group comprised pre-intermediate learners who were offered both structuring and problematizing scaffolds. Hence, the seventh group was named the structuring and problematizing scaffolds for pre-intermediate learners condition (SPSC-PI). The control group for pre-intermediate learners participating in this study did not receive any scaffolds and thus was labeled the control group for pre-intermediate learners (CG-PI).

#### **The English Course and the Materials**

The course was designed to increase learners' general English proficiency with emphasis on all the four skills. In the Advanced classes the Advanced book from the Landmark series and in the Pre-Intermediate classes the pre-intermediate book from the Total English series were taught throughout the term which consisted of 42 hours of instruction. During these 42 hours eight 90-minute sessions were dedicated to practicing the writing skill.

#### **Instruments**

The self-regulation scale developed by Kanlapan and Velasco (2009) and contextualized in writing was employed to measure the participants' writing self-regulatory skills. The scale includes 115 items and is based on self-regulation processes included in Zimmerman's (2002) model. In the present study, the reliability of the scale was estimated as  $\alpha=0.94$ .

To measure the quality of learners' essay writing skill, the researchers adopted the argumentative essay rubric from Elson (2011) (Min=5, Max=20). This rubric was designed to rate learners' argumentative writing in terms of argument, logical

presentation of viewpoint, style and handling of topic, conclusion, and grammar and spelling on a scale of 1 to 4. "Argumentative writing has long been regarded as an essential mode of written discourse", and yet a difficult type of text for EFL and ESL students (Qian, 2013, p. 213). Hence, this discourse mode was focused on and chosen for the current study.

#### **Procedure**

On the first day of the term, the participants were asked to answer Kanlapan and Velasco's (2009) self-regulation scale contextualized in writing. Then, they were assigned to write an argumentative essay prior to the treatment. The participants were given three topics from which they were free to choose one. After the treatment, 90 days after the pretest, the learners were once more required to answer Kanlapan and Velasco's (2009) writing self-regulation scale and write another argumentative essay. In both the pre and the posttests, the learners were asked to record and report the amount of time they had spent before writing on the prompts sheet. This planning time was defined as the time following the learners' reception of the prompts sheets to the beginning of the learners' writing on the sheets. In the essay writing pretest, two raters (the second author and a TEFL Ph.D. candidate) rated 12.5% of the papers and the inter-raters' reliability estimate was calculated (Cohen's Kappa=0.76).

#### **Intervention**

Scaffolds should be withdrawn gradually as the learners signal ability in progressing on their own (Bruner, 1983; Veerappan, et al., 2011; Wood et al., 1976). Therefore, scaffolds in the six experimental conditions were gradually dismantled throughout three phases. SSCs, PSCs, and SPSCs in both proficiency levels differed with regard to the type of scaffolds provided in the first phase. However, the second and third phases remained similar across all the experimental conditions.

**Table 2.** Tests of Between-Subjects Effects, Test of Essay Writing by Groups\* Proficiency

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
pretest	1685.96	1	1685.96	861.19	.00	.78
Groups	1133.51	3	377.83	192.99	.00	.71
Prof	.84	1	.84	.42	.51	.00
Groups * Prof	5.75	3	1.91	.97	.40	.01
Total	40944.00	240				

During the first phase of offering scaffolds, the SSCs learners received structuring scaffolds, at each of the five stages of the writing process, as defined by Hassan and Akhand (2010), namely brainstorming, mind mapping/outlining, writing the first draft, editing, and writing the final draft. Peer and teacher feedback stages were not included in the study to control the possible impact of feedback on the results. One whole session was dedicated to each stage of the writing process. In this phase, explicit explanations regarding the purpose of each stage of the writing process as well as a model for each stage were given to the participants. In addition, the learners were provided with directions designed to narrow down choices in their further moves. In the drafting phase, Hyland's (1990) model of argumentation was presented to the learners. Besides, essay models as well as explanations regarding the functional aim of each paragraph were presented to the participants in SSCs.

Nevertheless, in the first phase of offering scaffolds, the learners in the PSCs were provided with very brief explanations of the stages preceding the prompts which aimed at eliciting the learners' plans regarding the moves required at each stage. These prompts also intended to trigger monitoring and evaluation of performance while the learners were writing an argumentative essay. The learners were not required to answer the prompts in oral or written forms. They, however, were asked to read the prompts quietly to themselves and think about the answers. The prompts offered in the drafting phase were designed in a way that they would elicit the moves noted in Hyland's (1990) model of argumentation. Like their counterparts in SSCs, at each of

the five stages of the writing process, the participants in SPSCs received structuring scaffolds as explained earlier. Further, they were offered problematizing scaffolds similar to those given to the learners in PSCs in the first phase of offering the scaffolds.

During the second phase of offering the scaffolds, the instructor presented merely an explanation of each phase and required the learners to complete the writing of a complete paper without a model in one session in SCCs, PSCs, and SPSCs in both proficiency levels. However, in the third phase, merely the names of the 5 stages were put on the board for the learners in the six experimental conditions who were asked to write a complete argumentative paper with neither explanations nor a model.

While the learners in the six experimental conditions received scaffolds during the aforementioned phases, the control groups only received brief explanations regarding each stage of the writing process and were not provided with models, explicit directions, or problematizing prompts.

### Result

The data were analyzed through a series of two-way ANCOVA tests. Since the participants were chosen from intact classes, the learners' pretest scores were used as covariates to control for the possible effects of initial differences among the learners. Firstly, a two-way ANCOVA was run to investigate the effect of the two scaffolding mechanisms as well as the level of proficiency on the participants' self-regulatory skills. Table 1 displays the results of the between-subject effects for the writing self-regulatory skills test.

As Table 1 depicts, the results of the two-way ANCOVA on the writing self-regulation test yielded significant differences among the performances of the learn-

$F(3, 232)=2.20, p>.05; \eta^2=.02$ . Thus, it was concluded that the proficiency level did not moderate the effect of scaffolding mechanisms on writing self-regulation.

**Table 1.** Tests of Between-Subjects Effects, Test of Writing Self-regulatory Skills by Groups\* Proficiency

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
pretest	155485.60	1	155485.60	2335.85	.00	.91
Groups	1161585.28	3	387195.09	5816.81	.00	.98
Prof	56.35	1	56.35	.84	.35	.00
Groups* Prof	439.29	3	146.43	2.20	.08	.02
Total	34431198.00	240				

ers in SSCs ( $M=368.16, SD=26.59$ ), PSCs ( $M=367.50, SD=29.22$ ), SPSCs ( $M=471.05, SD=26.16$ ), and GCs ( $M=279.98, SD=27.85$ ) in the posttest,  $F(3, 232)=5816.85, p<.05; \eta^2=.98$ .

The results of the post-hoc Scheffe's tests further indicated that the SPSCs significantly outperformed the other experimental conditions as well as the control groups. The post hoc test results also revealed that the other two experimental conditions namely the SSCs, and the PSCs could gain writing self-regulatory skills scores significantly higher than the ones obtained by the CGs. However, no significant differences were found between the performances of the learners in the SSCs and the PSCs in the posttest run to measure the participants' ability to regulate their learning process in the writing skill.

Moreover, as it can be seen in Table 1, the results of the self-regulation two-way ANCOVA indicated no significant difference between the performance of the advanced ( $M=370.66, SD=72.76$ ) and pre-intermediate ( $M=372.68, SD=73.72$ ) learners,  $F(1, 231)=.84, p>.05; \eta^2=.00$ . Finally,

Next a two-way ANCOVA was run to investigate the effect of the two scaffolding mechanisms when offered separately and simultaneously and the level of proficiency on the participants' essay writing skill. Table 2 displays the results of the between-subject effects for the essay writing test.

As it can be seen in Table 2, significant differences were detected among the performances of the learners in the SSCs ( $M=12.63, SD=3.28$ ), the PSCs ( $M=12.31, SD=3.16$ ), the SPSCs ( $M=15.60, SD=3.55$ ), and the GCs ( $M=9.31, SD=2.86$ ) in the essay writing test,  $F(3, 232)=192.999, p<.05; \eta^2=.71$ .

The results of the post-hoc Scheffe's tests further indicated that the SPSCs significantly outperformed the other experimental conditions and the control groups. The results also proved that the scores obtained by the SSCs and the PSCs in the essay writing test were significantly higher than those gained by the control groups. However, no significant differences could be detected between the performance of the learners in the SSCs and the PSCs in this test.

**Table 3.** Tests of Between-Subjects Effects, Global Planning Time by Groups\* Proficiency

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	$\eta^2$
Pretest	1114.38	1	1114.38	1579.49	.00	.87
Groups	1598.77	3	532.92	755.34	.00	.90
Prof	.35	1	.35	.49	.48	.00
Groups * Prof	4.18	3	1.39	1.97	.11	.02
Total	29995.00	240				

no significant interaction was detected between the groups and proficiency levels in the posttest of writing self-regulatory skills,

Besides, as Table 2 suggests, the results of the essay writing two-way ANCOVA yielded no significant difference between



the performance of the advanced ( $M=13.60$ ,  $SD=3.80$ ) and pre-intermediate ( $M=11.33$ ,  $SD=3.67$ ) learners,  $F(1, 232)=.42$ ,  $p>.05$ ;  $\eta^2=.00$ ), and no significant interaction between the groups and proficiency levels,  $F(3, 232)=.97$ ,  $p>.05$ ;  $\eta^2=.01$ , which indicated no moderating effect for the learners' proficiency level.

Next, a two-way ANCOVA was run to investigate the effect of the two scaffolding mechanisms on the time learners spend on global planning and to see whether the learners' proficiency level moderates the impact of scaffolds. Table 3 displays the results of the between-subject effects for the global planning.

As Table 3 illustrates, significant differences were detected among the performances of the learners in various groups,  $F(3, 232)=755.348$ ,  $p<.05$ ;  $\eta^2=.90$ .

The results of the post-hoc Scheffe's tests further demonstrated that the experimental conditions namely the SSCs ( $M=11.51$ ,  $SD=2.22$ ), the PSCs ( $M=12.25$ ,  $SD=1.97$ ), and the SPSCs ( $M=12.45$ ,  $SD=2.77$ ) significantly outperformed the control groups. ( $M=6.36$ ,  $SD=2.35$ ). However, no significant differences were found among the performances of the learners in the experimental conditions.

Furthermore, as shown in Table 3, the results of the two-way ANCOVA test pertaining to the global planning time indicated no significant difference between the performance of the advanced ( $M=10.50$ ,  $SD=3.19$ ) and pre-intermediate ( $M=10.79$ ,  $SD=3.64$ ) learners,  $F(1, 232)=.49$ ,  $p>.05$ ;  $\eta^2=.00$ . Finally, no significant interaction was found between the groups and proficiency levels in the global planning posttest when the pretest was taken as the covariate,  $F(3, 232)=1.97$ ,  $p>.05$ ;  $\eta^2=.02$ . Thus the proficiency level was found not to moderate the effect of scaffolding mechanisms on the amount of time the learners spent planning before stating their first draft at the pre-writing stage of the writing process.

## Discussion and Conclusion

Firstly, the study aimed to answer whether structuring and problematizing scaffolds affect the participants' writing self-regulation skill. The results demonstrated significant improvements for the experimental groups in terms of self-regulatory skills. Both structuring and problematizing scaffolds were found to be equally effective in provoking self-regulatory behaviors even when not offered simultaneously. This chimes with the results gained by Azevedo et al. (2008) who found human tutors' scaffolds could provoke monitoring activities, exploitation of various effective strategies, engagement in adaptive help seeking and other self-regulatory behaviors. The obtained results regarding the effectiveness of scaffolds in promoting self-regulation are also in line with Devolder et al.'s (2012) reports regarding the role of scaffolding in improving students' learning and motivation.

Secondly, the study investigated the impact of scaffolding mechanisms on the participants' argumentative essay writing ability. Panahi, Birjandi, and Azabraftari (2013) recommended a three-stage approach to teaching writing comprising orientation, execution, and control, which includes scaffolds offered to learners at each stage in the form of thinking prompts, exploratory talks, and task simplification. Although they provided a relatively detailed set of guidelines as to how this approach could be adopted in practice, they did not provide any empirical evidence on the effectiveness of their suggested approach. The findings of this study provides empirical backing for Panahi et al.'s (2013) recommendations regarding the exploitation of scaffolds in the form of prompts and task simplifying techniques in a three-staged approach to teaching writing comprising. The results of the current study indicated that handling the demanding task of writing argumentative essays (Qian, 2013) can be made more effortless if throughout the stages of the writing process, problematizing and structuring scaffolds are given to learners. The results also confirm the find-

ings of the previous studies reporting the effectiveness of scaffolds in improving the writing skill (e.g., Cho & Schunn, 2005; Veerappan, et al., 2011)

Thirdly, the impact of scaffolds on global planning was investigated in this study and structuring and problematizing scaffolds proved to positively influence the time learners' spend on global planning in the pre-writing phase of the writing process. The results gained in this study with regard to the impact of structuring scaffolds which were designed to explicitly explain various stages of the writing process are in line with those obtained by Deatline-Buchman and Jitendra (2006, p. 52), who reported that the explicit instruction of planning/ writing/ revising method "not only led to increases in number of words, planning and composing times, but also to improvements in essay quality". The results also yield support to the ones reporting the positive impact of scaffolds in facilitating learning in general (e.g., Azevedo & Hadwin, 2005; Chi et al., 2001). Given that spending longer planning time indicates "writing expertise" (Sasaki, 2000, p. 259), the empirical evidence provided in this study can motivate writing instructors to employ the two scaffolding mechanisms in the pre-writing phase of the writing process to encourage learners to pay this phase of the writing the attention it deserves.

Next, the paper investigated whether two scaffolding mechanisms functioned more effectively in terms of increasing the participants' a) writing self-regulation b) argumentative essay writing-ability and c) global planning time when offered simultaneously. The results of the two-way ANCOVAs run revealed that with regards to writing self-regulation and essay writing ability, a combination of the two scaffolding mechanisms work more effectively. This echoes Reiser's (2004) ideas that the two scaffolding mechanisms are complementary and should be offered simultaneously. Nevertheless, regarding the impact of scaffolds on global planning time, no significant superiority was observed when a

combination of scaffolds was offered. It appears that either prompts eliciting thoughts and reflections regarding the required activities prior to writing the first draft or explicit directions demanding pre-writing tasks are sufficient to prompt learners to acknowledge the necessity of planning for a better essay. However, this might have been due to the fact that with the sample in this particular study, the planning time in the pretest was very low, indicating unawareness of the significance of pre-writing stage. Thus, any form of scaffolds triggering thought about number and the content of paragraphs might have drawn the learners' attention to the inevitability of planning before drafting. With regard to the impact of structuring scaffolds, the observed superiority of the structuring scaffolds learners to the control groups is in line with the finding of a study by Troia and Graham (2002). They investigated the impact of direct instruction in three planning strategies and reported that such explicit instruction benefited elementary children more than the incidental learning environment did. The results of this study are also consistent with those gained in the studies reporting the use of software tools to provide models and prompts in improving learning (e.g., Bell & Davis, 2000).

The last research question concerned the possible moderating impact of proficiency on the effectiveness of the scaffolding mechanisms on writing self-regulatory skills, essay writing ability, and global planning time. The gained results suggested no moderating effect for the proficiency level, which shows that scaffolds can be adopted at any levels to promote learners' skills in writing in another language. This means that even low proficiency learners can benefit from scaffolds even in their most abstract mode in the form of decision and reflection eliciting prompts. The results, thus, chime with those obtained by Galvis (2014) who reported the effectiveness of scaffolding strategies in promoting self-efficacy and monitoring, two compo-

nents of self-regulations, for descriptive writing of the learners in beginning levels.

Despite its contributions to the field, this study suffered from a number of limitations. First of all, the participants included only female learners, which renders generalizations to male learners as needing caution. Secondly, the researchers merely re-

lied on the participants' answers to the self-report questionnaire to measure their writing self-regulatory skills. Further studies are, hence, required to use multi-methods to gather data on learners' skill to regulate their writing tasks. Such studies will shed more lights on the effect of scaffolds on self-regulation.

## References

- Azevedo, R. & Hadwin, A.F. (2005). Scaffolding self-regulated learning and metacognition – implications for the design of computer-based scaffolds. *Instructional Science*, 33, 367–379.
- Azevedo, R., Moos, D.C., Greene, J.A., Winters, F.I. & Cromley, J.G. (2008). Why is externally-facilitated regulated learning more effective than self-regulated learning with hypermedia? *Educational Technology Research and Development*, 56(1), 45–72.
- Bell, P. & Davis, E.A. (2000). Designing method: scaffolding students' reflection and argumentation using a cognitive software guide. In S. O'Connor-Divelbiss (Ed.), *Proceedings of the 4th International Conference of the Learning Sciences* (pp. 142–149). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Cho, K. & Schunn, C. (2007). Scaffolded writing and rewriting in the discipline: A web-based reciprocal peer review system. *Computers and Education*, 48(3), 409–426.
- Deatline-Buchman, A. & Jitendra, A. K. (2006). Enhancing argumentative essay writing of fourth-grade students with learning disabilities. *Learning Disability Quarterly*, 29(1), 39–54.
- Devolder, A, van Braak, J, & Tondeur, J. (2012). Supporting self-regulated learning in computer-based learning environments: systematic review of effects of scaffolding in the domain of science education. *Journal of Computer Assisted Learning*, 1–17.
- Elson, J. M. (2011). A process-genre approach to teaching argumentative writing to grade nine learners, (a master's thesis), University of Rhodes, Grahamstown, South Africa.
- Erfani, N. (2016). developing measurement model of cognitive and metacognitive learning strategies. *Journal of Research in School and Virtual Learning*, 12, 7–16.
- Galvis. L.A.P. (2014). Fostering self-efficacy for descriptive writing in a group of participants from the six grade in A1 level through scaffolding strategies, (a master's thesis), University of Sabana, Chía, Colombia.
- Gilmore, A. (2009). Using online corpora to develop students' writing skills. *ELT Journal*, 63(4), 363–372.
- Graham, S. & Harris, K. R. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist*, 35, 3–12.
- Hammann, L.A. (2005). Self-regulation in academic writing tasks. *International Journal of Teaching and Learning in Higher Education*, 17(1), 15–26.
- Hassan, M. K., & Akhand, M. M. (2010). Approaches to writing in EFL/ESL context: balancing product and process in writing class at tertiary level. *Journal of NELTA*, 15 (1), 77–88.
- Hayes, J.R. & Flower, L.S. (1980). Identifying the organization of writing processes. In L. W. Gregg, & E. R. Steinberg (Eds.). *Cognitive Processes in Writing* (pp. 3–30). Hillsdale, NJ: Erlbaum.
- Hyland, K. (1990). A genre description of the argumentative essay. *RELC Journal*, 21(1), 67–78.
- Jafarigohar, M., Mortazavi, M. (2015). The differential impact of focused and unfocused oral scaffolds on EFL learners' cognitive knowledge and cognitive regulation. *Research in School and virtual learning*. 2(7), 101–114.
- Kamimura, T. (2000). Integration of process and product orientations in EFL writing instruction. *RELC Journal*, 31(2), 1–28.
- Kanlapan, T. C. E., and Velasco, J. C. (2009). Constructing a self-regulation scale contextualized in writing. *TESOL Journal*, 1, 79–94.
- Lai, G., & Calandra, B. (2010). Examining the effects of computer-based scaffolds on novice teachers' reflective journal writing. *Edu-*

- cation Tech Research Development, 58, 421-437.
- Miao, Y., Badger, R., & Zhen, Y. (2006). A comparative study of peer and teacher feedback in a Chinese EFL writing class. *Journal of Second Language Writing*, 15, 179-200
- Molenaar, I., van Boxtel, C., & Slegers, P.J.C. (2011). The effects of scaffolding metacognitive activities in small groups. *Computers in Human Behavior*, 26, 1727-1738.
- Molenaar, I., Roda, C., van Boxtel, C., Slegers, P. J. C. (2012). Dynamic scaffolding of socially regulated learning in a computer-based learning environment. *Computers and Education*, 59, 515-523.
- Panahi, P., Birjandi, P., & Azabdaftari, B. (2013). Toward a sociocultural approach to feedback provision in L2 writing classrooms: the alignment of dynamic assessment and teacher error feedback. *Language Testing in Asia*, 3(13), 1-10.
- Poorasghar, N., Kiamanesh, A.R. Sarmadi, M. R. (2016). The prediction model of academic performance of students of distance education based on individual variables self - regulation strategies and motivational beliefs. *Research in School and Virtual Learning*, 2(14), 7-22.
- Qian, L. (2013). A comparative genre analysis of English argumentative essays written by English major and non-English major students in an EFL context. *Arab World English Journal*, 4(1), 213-223.
- Reiser, B. (2004). Scaffolding complex learning: the mechanisms of structuring and problematizing student work. *The Journal of the Learning Science*, 13(3), 273-304.
- Riazei, M. (2012). Mediated learning experience: Teacher vs. peer scaffolding modes in L2 writing classes. *The Iranian EFL Journal*, 8(1), 71-96.
- Ruan, Zh. (2005). A metacognitive perspective on the growth of self-regulated EFL student writers. *Reading Working Papers in Linguistics*, 8, 175-202.
- Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal*, 59(1), 23-30.
- Salimi, A., & Fatollahnejad, S. (2012). The effects of strategic planning and topic familiarity on Iranian intermediate EFL learners' written performance in TBLT. *Theory and Practice in Language Studies*, 2(11), 2308-2315.
- Sasaki, M. (2000). Toward an empirical model of EFL writing processes: An exploratory study. *Journal of Second Language Writing*, 9(3), 259-291.
- Smit, J., A. A., van Eerde, H., & Bakker, A. (2012). A conceptualization of whole-class scaffolding. *British Educational Research Journal*, 39(5), 817-834.
- Troia, G. A., & Graham, S. (2002). The effectiveness of a highly explicit, teacher-directed strategy instruction routine: Changing the writing performance of students with learning disabilities. *Journal of Learning Disabilities*, 35, 290-305.
- Veerappan, V.A.L., Suan, W.H. & Sulaiman, T. (2011). The Effect of scaffolding technique in journal writing among the second language learners. *Journal of Language Teaching and Research*, 2(4), 934-940.
- Vyotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Woo, M., Chu, S., Ho, A. & Li, X. (2011). Using a wiki to scaffold primary-school students' collaborative writing. *Educational Technology and Society*, 14(1), 43-54.
- Wood, D., Bruner, J. S., & Ross, G. (1976). Role of tutoring in problem-solving. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 17(2), 89-100.
- Zamel, V. (1982). Writing: the process of discovering meaning. *TESOL Quarterly*, 12(2), 195-209.
- Zimmerman, B.J. (2000). Attaining self-regulation: A social-cognitive perspective. In M. Boekaerts, P. R. Pintrich, and M. Zeidner, (Eds.), *Handbook of Self-Regulation*, (pp. 13-39). San Diego: Academic Press.
- Zimmerman, B.J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 42(2), 64-72.