

THE EFFECT OF SCAFFOLDING AND PORTFOLIO ASSESSMENT ON JORDANIAN EFL LEARNERS' WRITING

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Abstract

This study examines the potential effect of scaffolding-based instruction and portfolio-based assessment on Jordanian EFL tenth grade students' overall writing performance and their performance on the sub-skills of focus, development, organization, conventions and word choice. The study uses a quasi-experimental experimental/control group, pre-/posttest design. In the experimental group, 15 female tenth grade students from the North-Eastern Badia Directorate of Education (Jordan) were taught to generate ideas, structure, draft, and edit their written pieces using agency scaffolding, the scaffolding principles of contextual support, continuity, intersubjectivity, flow, contingency and handover, and a slightly adapted version of Hamp-Lyons and Condon's (2000) Portfolio Model of collection, selection and reflection. A control group of 28 students were instructed conventionally per the guidelines of the teacher's book. Using descriptive statistics and ANCOVA to analyze the students' scores on the pre- and the posttests, the results showed that the group taught through scaffolding-based instruction and portfolio-based assessment outperformed the control group (at $\alpha \leq 0.05$) in their overall writing performance and in their performance on the five writing sub-skills.

Key words: Jordan; portfolio assessment; scaffolding; writing performance; Zone of Proximal Development

The literature (e.g., Johns, 1991; Song & August, 2002) suggests the writing skill is the most challenging for students in the EFL classroom. Jordanian learners of English as a foreign language (EFL) have been reported to be weak writers despite the tremendous efforts made by educators to overcome this weakness (e.g., Toubat, 2003).

Scaffolding-based instruction is a process by which a teacher supports students with a provisional framework for learning. When scaffolding is applied correctly, students are encouraged to capitalize on their own creativity, motivation, and resourcefulness. As students gather knowledge and increase their skills on their own, the scaffold is removed altogether as students no longer need it (Lawson, 2002).

Even though Vygotsky (1978) did not expressly use the term scaffolding, it is grounded in his Zone of Proximal Development (ZPD) which he defined as the distance between the actual development level of the learner, as determined by independent problem solving, and the level of potential development, as determined by teacher-assisted problem solving, collaboration and interaction with more capable peers (Doolittle, 1997).

Holton and Clarke (2006) suggested two types of scaffolding: domain and agency. Domain scaffolding is further divided into conceptual and

heuristic. Conceptual scaffolding concerns the development of concepts whereas heuristic scaffolding concerns finding approaches to solve a problem. In turn, agency scaffolding, particularly addressed in this study, consists of three types: expert scaffolding which refers to the support offered by an expert to a novice, reciprocal scaffolding which refers to an activity where students work in groups, and self-scaffolding which occurs in a situation when someone is scaffolding oneself.

A plethora of research (e.g., Hamp-Lyons & Condon, 2000; Nezakatgoo, 2011; Song & August, 2002) reported that portfolio-based assessment is a promising alternative to the traditional timed-essay test in foreign language teaching. The literature sports numerous definitions of a portfolio, but a portfolio is seen mainly as a purposeful collection of student work that exhibits his/her efforts, progress and achievement in one or more areas (Arter, 1989; Bataineh, Al-Karasneh, Al-Barakat & Bataineh, 2007; Leeman-Conley, 1998; Niguidula, 1993; Obeiah & Bataineh, 2016; Paulson, Paulson & Meyer, 1991).

This study is grounded in Hamp—Lyons and Condon's (2000) Portfolio Model, Holton and Clarke's (2006) agency scaffolding and Van Lier's (1996) Principles of Scaffolding. The Portfolio Model consists of the three procedures of collection,

selection and reflection, and the six Principles of Scaffolding are (a) continuity, repeated occurrences over time with interconnected variations; (b) contextual support, manifested in a safe but challenging environment in which errors are expected and accepted as part of the learning process; (c) intersubjectivity, the mutual engagement and support between an expert and a novice; (d) contingency, manifested in providing support per the learners' reactions; (e) handover/takeover, increasing the learner's role as his/her skills and confidence increase, and (f) flow, manifested in natural, rather than forced, communication between participants.

An extensive review of the literature on portfolio-based writing assessment and scaffolding writing instruction has only produced research conducted abroad (e.g., Barootchi & Keshavarz, 2002; Baradaran & Sarfarazi, 2011; Chen, 2006; Schwieter, 2010) and research by the current authors on the respective effect of scaffolding-based instruction and portfolio-based assessment on writing performance (Obeiah & Bataineh, 2015; 2016). No research on the use of scaffolding-based instruction and portfolio-based assessment in the Jordanian classroom in general and the EFL classroom in particular has been found. Thus, this study seems to be the first to examine the combination of portfolio-based writing assessment and scaffolding-based writing instruction and their potential gains in the EFL writing classroom.

Thus, this review is limited to foreign research which seems to provide empirical evidence that portfolio-based writing assessment and scaffolding writing instruction do significantly contribute to the improvement of EFL students' writing performance. Apple and Shimo (2004) concluded that Japanese EFL university students' believed that portfolios helped them improve their expressive and compositional writing ability. Marefat (2004) reported that the portfolio was a positive opportunity for Iranian EFL learners' writing performance, not to mention for developing a personal understanding of their leaning process. Similarly, Caner (2010) explored opinions of Turkish EFL university pre-school students towards portfolio assessment in their writing courses. He reported that the subjects generally prefer to be evaluated by traditional paper and pencil tests and they also believed that portfolio assessment contributes to their English learning processes. Khodadady and Khodabakhshzade (2012) explored the effect of portfolio and self-assessment on writing tasks and self-regulation ability of Iranian EFL freshmen students. The results showed that the use of portfolio and self-assessment was beneficial to students in terms of both writing tasks and self-regulation. Fahim and Jalili (2013) concluded that portfolios can be beneficial in training Iranian EFL learners on editing their own writing.

In the case of scaffolding writing instruction, Bodrova and Leong (1998) reported that the use of scaffolding supports children emergent writing and changes in the use of scaffolded writing gave the participants insights into the mechanisms of transition from assisted to independent performance within the ZPD. Eickholdt (2004) reported that a teacher's scaffolding could support the development of young writers. Similarly, both Baradaran and Sarfarazi (2011) and Hayati and Ziyaeimehr (2011) reported significant gains in Iranian EFL university students' writing performance as the result of scaffolding instruction.

In the Jordanian EFL classroom, writing instruction is traditional in essence, which has been documented as the major cause for student weakness (e.g., Al Omari, 2004; Al-Quran, 2002; Al-Sharah, 1988). As portfolio-based writing assessment and scaffolding writing instruction have been reported to allow prospective gains for EFL students (e.g., Apple & Shimo, 2004; Bodrova & Leong, 1998; Eickholdt, 2004; Marefat, 2004; Schwieter, 2010), this research examines its potential effectiveness, possibly for the first time, in the EFL context. Thus, the study investigates the potential effect of scaffolding-based instruction and portfolio-based assessment on Jordanian EFL tenth grade students' overall writing performance and their performance on the writing sub-skills of focus, development, organization, conventions, and word choice. More specifically, it attempts to answer the following questions:

1. To what extent do scaffolding-based instruction and portfolio-based assessment affect Jordanian EFL students' writing performance?
2. To what extent do scaffolding-based instruction and portfolio-based assessment affect Jordanian EFL students' writing performance on the sub-skills of focus, development, organization, conventions and word choice?

The questions were further expressed in the following statistically tested hypotheses:

- H₀1. Scaffolding-based instruction and portfolio-based assessment has no significant effect (at $\alpha \leq 0.05$) on Jordanian EFL tenth grade students' overall writing performance.
- H₀2. Scaffolding-based instruction and portfolio-based assessment has no significant effect (at $\alpha \leq 0.05$) on Jordanian EFL tenth grade students' writing performance on the sub-skills of focus, development, organization, conventions and word choice.

This study is also meant to inform Jordanian EFL teachers, who are seeking alternative instructional strategies for developing EFL students' writing proficiency. The findings reported in this study may also inform curriculum designers and policy-makers about the potential utility of the combination of portfolio-based writing assessment and scaffolding writing instruction for teaching writing to Jordanian EFL students.

METHOD

The study uses the quasi-experimental design with two intact tenth grade sections, randomly divided into an experimental group and a control group. The study has three variables: the independent variable of scaffolding-based instruction and portfolio-based assessment and the two dependent variables of overall writing performance and writing performance in the sub-skills of focus, development, organization, conventions and word choice.

The participants of this study were 43 female Jordanian EFL tenth grade students purposefully chosen from the public schools in the North-Eastern Badia Directorate of Education, Jordan. The experimental group (n=15) was taught through a combination of portfolio-based assessment and scaffolding instruction, while the control group (n=28) was taught conventionally per the guidelines of the Teacher's Book.

To achieve the purpose of the study, the researchers made use of the following instruments:

1. A pre-test in which the participants were asked to write a 75-100-word essay about trees,
2. A posttest in which the participants were asked to write a 75-100-word essay about rainforests, and
3. The Portfolio Assessment Model, put forth by Hamp-Lyons and Condon's (2000), was adopted to collect data from the experimental group. The Model consists of three procedures: collection (in which the learner is expected to collect the final draft in a portfolio), selection (in which the learner is expected to select the best three final drafts for summative grading), and reflection (in which the learner is expected to reflect upon the first and the final draft).
4. An Analytic Scoring Rubric adapted from Wang and Laio's (2008) Scoring Rubric to assess the sub-skills of focus, development, organization, conventions and word choice.

The validity of pre-test, posttest and rubric was established by an expert jury of Jordanian university professors in education, measurement and

evaluation and curriculum and instruction. The jury's recommendations for the tests and the rubric were all taken into account and reflected in the final versions of the three instruments.

To establish the reliability of the pre-test and the posttest, they were both administered to two groups of tenth grade students from the North-Eastern Badia Directorate of Education, which were excluded from the sample of the study. Three weeks later, the same students sat for the same tests. The reliability coefficients amounted to 0.96 for the pre-test and 0.89 for the posttest, which are considered appropriate for the purposes of this research.

The participants' essays were assessed by two experienced EFL instructors: the second researcher, who is an EFL supervisor, and an instructor of English language and literature at a Jordanian university, using an adapted version of Wang and Laio's (2008) scoring rubric which consists of the five sub-skills of focus, development, organization, conventions and word choice. The researchers have trained the other rater on using the scoring rubric before entrusting him with scoring the students' responses.

To establish the inter-rater reliability, the two raters scored 15 students' responses on the pre-test using the same rubric. Then, the reliability coefficient was calculated using Holsti (1968) formula, as follows:

$R = \frac{2M - N1 + N2}{N1 + N2}$ (Where M is the total number of items agreed upon, N1 the total number of items selected by coder 1, and N2 the total number of items selected by coder 2).

The inter-rater reliability was found to be 0.92, which is appropriate for the purposes of this research.

The data collection was done per the following procedures:

1. The school respondents and the principal's consent to carry out the study was obtained.
2. Two sections were purposefully selected from a public school for girls to comprise the sample of this study.
3. The participants of the experimental and the control groups were pre-tested (75-100-word-essay about trees).
4. To instruct the experimental group, lesson plans were designed based on Hamp-Lyons and Condon's (2000) Portfolio Model, Holton and Clarke's (2006) agency scaffolding and Van Lier's (1996) scaffolding principles. The instructor/second researcher scaffolded the students' writing, according to the following principles:
 - a. *Contextual Support*. The instructor/second researcher constructed students' understanding of the context in which

- the target language was used. In this stage, he sought to establish the purpose of the text, the roles and relationships of those who will use it and mostly shaped an understanding of the social activity in which it is used. One of the first points to be emphasized was the need for audience awareness; were made constantly reminded that what they write was intended to be read, not only assessed, by their group members, other students in the class, and the instructor.
- b. *Continuity*. The instructor/second researcher organized a schedule for posting assignments. Furthermore, students were given a deadline for submission and shown how to submit their written pieces with comments, questions or points for further discussion. While these were addressed to, and answered by, the instructor/second researcher, all postings were read by other students in the class. Students were helped to consider which roles to take for each assignment. As the students became comfortable within the routine, elements were added or modified. The extent and type of feedback varied according to the students' skill development and the increased range and difficulty of the target text genre.
 - c. *Intersubjectivity*. Students were asked to write collaboratively on a topic relevant to their learning elsewhere in the school, and general outlines were discussed in class. In the following lesson, the group members engaged in exploratory talk, building on each other's ideas to work towards a common goal. Before they left the class, they were encouraged to agree on what was to be done in the next phase of the assignment. Individuals then drafted and posted their written pieces for within-group revisions (face to face and/or online, whenever possible). The structure of the course, thus, made students collaborate amongst themselves, as the instructor created a pleasant atmosphere for them to do so.
 - d. *Flow*. Opportunities were provided for students to meet informally to discuss issues arising from their work. Moreover, the large number of postings, in which students and instructor/second researcher discussed content (at text, sentence and word levels) and negotiated procedural issues was clearly evidence of the natural flow in a free give-and-take written dialog.
 - e. *Contingency*. The instructor/ second researcher scaffolded students' learning by monitoring their drafts in-progress and in face-to-face sessions. Thus, elements of the writing process were added, deleted or adapted for individuals, groups, or the whole class according to their development through the ZPD.
 - f. *Handover*. The co-constructed drafts were edited and proofread by the instructor/second researcher. Once this was done to their general satisfaction, students made modifications and submitted their final drafts. They also met the instructor/second researcher, individually or in groups, to discuss their work.
 - g. *Expert Scaffolding*. The instructor/second researcher scaffolded the composition process through different types of actions, such as providing information, encouragement, suggestions, remedial measures, and reminders.
 - h. *Reciprocal Scaffolding*. Students worked collaboratively to construct knowledge (Holton & Clarke, 2006). Unlike expert scaffolding, reciprocal scaffolding involves a two-way discourse between all engaged. The instructor/second researcher provided students with reciprocal scaffolding through five types of action: (1) providing information, (2) making suggestions, (3) reflections, (4) confirmations, and (5) explanations.
 - i. *Self-Scaffolding*. Students constructed knowledge within themselves. They compared incoming information and adjusted their current knowledge structures in light of the new information (Holton & Clarke, 2006). Self-scaffolding was provided through: (1) providing information, (2) confirmation, and (3) raising awareness.
 - j. At the end of each tutorial session, students were asked to reflect upon their final drafts and gather them in portfolios.
 - k. At the end of the treatment, the students in the experimental group were each asked to choose three of their best essays for final assessment. A student's score is the average of the scores of these three essays, based on the five criteria of the Rubric (viz., focus, development, organization, conventions

and word choice) which were each divided into five sub-levels. Every student received a composite score of 25 (further made of the average of the two raters' scores).

On the other hand, the control group was instructed conventionally per the Teacher's Book. The instructor/second researcher followed the procedures outlined in the Teacher's Book of the textbook, *Action Pack 10*, as follows:

1. Students were taught how to make their statements in the introduction and how to support their beliefs in both the introduction and the conclusion
2. They learned how to state the purpose of the essay and how to generate ideas, structure, draft, and edit their essays.
3. They wrote individually (no pair/group work as they wrote their essays in the classroom).
4. Their writing performance was assessed through the posttest (they were asked to write an essay of about 75-100 words about rainforests).

Statistical analyses were performed using Pearson's Correlation Coefficient for the test-retest reliability of the pre- and posttests, Holsti (1968)

formula was used to calculate the inter- and intra-rater reliability, and descriptive statistics were used to compare means and standard deviations of the experimental and control groups. ANCOVA was also used to control the differences between the groups before the treatment and to detect potentially significant differences (at $\alpha \leq 0.05$) between the experimental and control groups after the treatment.

FINDINGS

Each research question is addressed by testing its relevant hypothesis, drawing on information from the relevant sources of data obtained in the course of the study.

To test the first hypothesis, the combination of portfolio-based assessment and scaffolding instruction has no significant effect on Jordanian tenth grade EFL students' overall writing performance (at $\alpha \leq 0.05$), means and standard deviations of the students' scores on the pre-test and the posttest were calculated, along with adjusted mean scores and the standard errors of the posttest scores based on the differences between the two levels of instructional delivery, the combination of portfolio-based assessment and scaffolding instruction and the conventional method, as shown in Table 1.

Table 1. Means and Standard Deviations of Students' Overall Writing Performance

Group	N	Pre-test		Posttest		Adjusted Mean	Standard Error
		Mean	S.D	Mean	S.D		
Control	28	6.46	1.91	8.03	2.00	7.23	0.46
Experimental	15	2.66	1.44	14.06	2.86	15.56	0.71

Table 1 shows differences in the means and standard deviations of the experimental and the control group which are 2.66 with standard deviation of 1.44 for the experimental group and 6.46 with standard deviation of 1.91 for the control

group. There were also differences in the adjusted mean scores of the experimental group and the control group on the posttest and the portfolio assessment in favor of the experimental group.

Table 2. ANCOVA of Students' Overall Performance

Source	Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta Squared
Overall pre	47.26	1	47.26	10.70	0.002*	
Way	323.51	1	323.51	73.26	0.000*	0.64
Error	176.63	40	4.41			
Corrected Total	579.16	42				

n=43

*Significant (at $\alpha \leq 0.05$)

Table 2 shows a statistically significant difference in students' overall writing performance in the portfolio assessment group ($F= 73.26$, $df= 42$, $1 P= 0.000$). Thus, the first null hypothesis, portfolio assessment has no significant effect (at $\alpha \leq 0.05$) on Jordanian EFL tenth grade learners' overall writing performance, is rejected.

To test the second hypothesis, the combination of portfolio-based assessment and scaffolding instruction has no significant effect (at $\alpha \leq 0.05$) on Jordanian EFL tenth grade learners' writing performance on the sub-skills of focus, development, organization, conventions and word choice, descriptive statistics were used, as shown in Table 3.

Table 3. Means and Standard Deviations of Students' Performance on the Writing Sub-Skills

Group	Skills	Pre-test		Posttest		Adjusted Mean	Standard Error
		Mean	SD	Mean	SD		
Control	Focus	1.39	0.68	1.92	0.60	1.85	0.10
	Development	1.03	0.42	1.50	0.63	1.33	0.14
	Organization	1.10	0.41	1.50	0.57	1.18	0.14
	Conventions	1.03	0.33	1.21	0.41	1.17	0.09
	Word Choice	1.89	0.41	1.89	0.31	1.77	0.08
Experimental	Focus	1.00	0.37	3.26	0.70	3.40	0.15
	Development	0.06	0.25	2.66	0.61	2.97	0.22
	Organization	0.06	0.25	2.66	0.81	3.25	0.22
	Conventions	0.46	0.51	2.80	0.56	2.86	0.13
	Word Choice	1.06	0.45	2.66	0.61	2.88	0.13

Table 3 shows differences in the means, standard deviations and the adjusted mean scores on the posttest and the portfolio assessment between

the experimental group and the control group performance on the sub-skills of writing in favor of the experimental group.

Table 4. ANCOVA of the Students' Performance on the Portfolio Writing Assessment and the Posttest on the Writing Sub-skills by Mode of Instructional Delivery

Skills	Source	Sum of Squares	Df	Mean Squares	F	Sig.	Partial Eta Squared
Focus	Focus pre	4.13	1	4.13	13.04	0.001*	
	Way	21.18	1	21.18	66.92	0.000*	0.62
	Error	12.66	40	0.31			
	Corrected Total	34.27	42				
Development	Development pre	1.36	1	1.36	3.63	0.06	
	Way	10.18	1	10.18	27.20	0.000*	0.40
	Error	14.97	40	0.37			
	Corrected Total	29.62	42				
Organization	Organization pre	4.16	1	4.16	11.75	0.001*	
	Way	14.41	1	14.41	40.67	0.000*	0.50
	Error	14.17	40	0.35			
	Corrected Total	31.62	42				
Conventions	Conventions pre	0.21	1	0.21	0.94	0.33	
	Way	18.86	1	18.86	84.76	0.000*	0.67
	Error	8.90	40	0.22			
	Corrected Total	33.67	42				
Word Choice	Word Choice pre	1.19	1	1.19	6.99	0.012*	
	Way	6.30	1	6.30	36.99	0.000*	0.48
	Error	6.82	40	0.17			
	Corrected Total	13.86	42				

n=43

*Significant at ($\alpha \leq 0.05$)

Table 4 shows statistically significant differences on students' performance on the writing sub-skills of conventions, focus, organization, word choice and development respectively. Thus, the null hypothesis, the combination of portfolio-based assessment and scaffolding instruction has no statistically significant effect (at $\alpha \leq 0.05$) on Jordanian tenth grade EFL learners' writing performance on the sub-skills of focus,

development, organization, conventions and word choice, is rejected.

DISCUSSION AND RECOMMENDATIONS

The hypotheses of the study assumed no significant effect for the combination of portfolio-based assessment on the participants' overall writing performance and their performance on the sub-skills of focus, development, organization, conventions

and word choice (at $\alpha \leq 0.05$). The results showed that students in the experimental group were superior to their counterparts in the control group in their overall writing performance and in their performance in the sub-skills of focus, development, organization and word-choice.

Many writing instructors believe that one-on-one writing conferences with students are more effective than handwritten comments and corrections no matter what aspect of student writing the instructor and the student discuss, be it content, organization, or errors (Zamel, 1985). In this study, one-on-one conferences were really advantageous for a number of reasons. The instructor saved more time and effort than he did when he gave written feedback, it had more space for interaction and negotiation, and it was an influential means of communicating with students.

Using the combination of the portfolio-based assessment and scaffolding instruction gave students the opportunity to choose three out of six of their best written pieces for final evaluation. The students' portfolio scores comprised the average score of those three final drafts. Unlike those in the control group, participants in the combination of scaffolding instruction and portfolio assessment group felt more comfortable and had faith in their writing, and they had the freedom to choose their best written pieces to be evaluated, which may have contributed to their superiority in their overall writing performance and their performance in the writing sub-skills.

Another potentially valid interpretation of the superior performance of the experimental group was the element of reflection. Reflection was achieved through reciprocal scaffolding. Students compared what they had not known before and what they later knew after some teaching/learning activities. This was done through providing confirmation and explanations for the purpose of building collective expertise.

Self-scaffolding and expert scaffolding may also be two important elements which led to the superiority of the students in the combination of scaffolding instruction and portfolio assessment group. Self-scaffolding took place as students dynamically built knowledge within themselves. They compared received information and then modified their current knowledge structures in light of that new information. In expert scaffolding, the instructor/second researcher scaffolded the construction of knowledge about how to write through various actions such as providing information, encouragement, suggestions, raising awareness, remedial measures, and reminders. These actions helped participants in planning, drafting, re-drafting and writing their essays.

In light of the findings of the research, further examination is recommended on the combination of portfolio-based assessment and scaffolding

instruction to allow for better comparisons and more credible generalizations of results. Future research might involve a larger sample in other EFL contexts and other research instruments such as observation, learner diaries and focus group interviews.

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