The Effect of Electronic Portfolio Assessment on the Writing Performance of Iranian EFL Learners

*Mohammad Reza Khodashenas[1] & Fateme Rakhshi[2]

1. Islamic Azad University, E-Campus, Tehran, Iran

2. Imam Reza University, Mashhad, Iran

E-mail: mrkhodashenas@yahoo.com

Abstract

The present study attempted to investigate the impact of electronic portfolio assessment on performance of Iranian EFL learners' writing. To do so, 30 advanced EFL learners who participated in a TOEFL preparation course were selected as the participants of the study. After administrating a truncated version of TOEFL proficiency test, they were randomly assigned to control and experimental groups. The experimental group was given a treatment including electronic portfolio assessment, while the control group was given a placebo. To collect the required data, two instruments (a writing pre-test and a writing post-test) were administered to both groups during the experimentation. Subsequently, the learners' scores were collected and the results were statistically analyzed. Inter-rater reliability, matched t-test, and independent t-test were calculated. The findings revealed that the participants of the experimental group outperformed those of the control group and thus it was concluded that electronic portfolio assessment can improve the writing ability and can be considered as a motivating assessment strategy.

Keywords: electronic portfolio, assessment, writing assessment, writing instruction

1. Introduction

When talking about language learning and teaching, some scholars might define proficiency as listening to a foreign language audio, video or speech, others might define proficiency as speaking in a foreign language, and a few of them might define it as reading foreign language texts. But, nowadays, writing plays an invariably important role in foreign/second language education. Traditionally proficient learners were those who spoke fluently and accurately but today a person who is proficient in speaking, listening to, and reading in a foreign language, is not known to be a good language learner unless he/she has a decent writing ability in that foreign language. It is one powerful form of communication; it develops critical thinking (Tierney, Soter, O'Flahavan, & McGinley, 1989) and facilitates learning (Deshler, Palincsar, Biancarosa, & Nair, 2007). Also, language learners' academic achievement and progress across content areas are often dependent on their ability to express knowledge through written expressions (Mason, Benedek-Wood, & Valasa, 2009). Thus, writing has gained a lot of importance in learning and teaching second/foreign languages.

Weigle (2002) believed that traditional approaches to writing assessment are not complete due to some reasons. First, they are not wise enough to assess learners' writing ability based on only one draft which is written under timed conditions and about an unfamiliar topic. Second, he assumed that a single piece of writing cannot be a good indicator of the learners' overall writing ability. On the other hand, the teachers are not in a position to make appropriate judgments about their students' writing assignment. Thus, in line with Nunan (2003), Weigle (2002) believed that writing should be taught as a process rather than a product.

According to Pourverdi Vangah, Jafarpour, and Mohammadi (2016), in traditional methods of assessing writing, the teachers act like a reader and an editor, first they read the paper and then edit it for grammatical and mechanical mistakes while it contrasts with Brown (2004) who believed in incorporating both formal and informal assessment techniques for monitoring learners' progress in writing.

Because of the indispensible and undeniable role that writing as a language skill plays in foreign/second language (L2) learning and teaching, the way it is taught or assessed is of utmost importance. According to Muslimi (2015), portfolios have gained popularity among the educators and language teachers as an alternative approach both in EFL and in ESL contexts as an instructional tool for preparation of students for examinations due to the paradigm shift in writing theory from a focus on writing products to that of writing processes. Moreover, along with the emergence of technology it is necessary to integrate both computers and Internet in the process of language learning and teaching (Warschauer, 2007).

Electronic portfolios have been described as the next big thing in higher education computing. Many colleges (Abrami & Barrett, 2005, Attwel, 2005; Wade, Abrami, & Sclater, 2005) and universities have spent recent years establishing electronic portfolio systems. According to Barret (2006), schools will be more eager to implement electronic portfolios with the same enthusiasm as their counterparts in higher education if they know the effectiveness of electronic portfolios in language assessment and students' progress in language learning. Stiggings (2002, as cited in Barrett, 2006) believed that portfolios have the possibility of supporting a deeper level of engagement and self-awareness.

Regarding the effectiveness of electronic portfolios in language learning and assessment especially in the field of writing assessment, Collins (1992) believed that portfolio assessment changed the traditional scoring of writing and introduced a new scoring system whereby the teacher shares, controls, and works collaboratively with students. Based on Pourverdi Vangah, Jafarpur, and Mohammadi (2016), an electronic portfolio is an effective instructional and assessment technique which provides evidence of knowledge and skills. In addition, portfolio assessment can offer authentic information about the progress of students and can be used as a means of helping students to overcome their writing anxiety in foreign or second language learning.

1.1 Portfolio Assessment

The concept of portfolio assessment is not new. In response to the need for alternative techniques and strategies in language assessment, Mayer and Tusin (1999) believed that portfolios have become a common alternative to the traditional assessment methods. Based on Steffe and Gale (1995), portfolio assessment requires students to provide selected evidence to show that learning relevant to the course objectives has taken place. Due to the importance of portfolio assessment in language education, several studies have been carried out to investigate the students' attitudes towards this method of assessment in English as a Foreign Language (EFL) contexts. For instance, a qualitative research carried out by Marefat (2004) in Allameh Tabatabai University indicated a number of recurring themes, patterns of students' reactions. In all, it was suggestive of a general positive toward portfolio use. In another study Aly (2002) showed that using a writing workshop approach could improve the students' writing performance.

By the emergence of technology and computers in language education, electronic portfolios have become more popular among the scholars recently. According to Abrami and Barrett (2005), an Electronic Portfolio (EP) is a digital container capable of storing visual and auditory content including text, images, video, and sound. In order to develop and create an electronic portfolio, Sun (2002) stated that documentation of student learning requires collection of evidence of student learning outcomes.

According to Sun (2002), the steps of creating an electronic portfolio are:

Step 1. Saving and keeping all course work (writing assignments, projects, essays, compositions, etc.) on a disk,

Step 2. Designing and beginning to build e-portfolio,

Step 3. Creating a new file which can contain a cover page on which one can create a table of contents (indicating what is to be included in the portfolio),

Step 4. Copying all saved course work onto this new file in a sequence as desired,

Step 5. Making book marks and hyperlinking each course work assignment to its title listed in the table of contents, and

Step 6. Saving the whole file and submitting it to the instructor.

Bisovsky and Schaffert (2009) mentioned the five most important processes in working with e-portfolios as: clarifying the target and context of the digital portfolio work; collecting, selecting, and connecting artifacts with a learning target;

reflecting and managing the learning process; presenting the e-portfolio artifacts; and assessing and evaluating the learning processes of competencies.

Regarding the advantages of electronic portfolios, Heath (2005) and Barret (2000) believed that electronic portfolios are a way of showcasing and modeling technology skills for others. Love and Cooper (2004) noted that electronic portfolios are evidences of learning and provide a rich picture of student learning and they also facilitate authentic learning. Ahn (2004) believed that by using electronic portfolios, students can receive feedback quickly and regularly.

Barret (2000) described electronic portfolio as the combination of technology and portfolios that means applying technological tools to make the appropriate work for the portfolio. Based on Lorenzo and Ittleson (2005), electronic portfolios encourage students to reflect on their own work and their reasons for choosing certain pieces to be incorporated in their portfolio. Considering the psychological benefits of electronic portfolios, Canada (2002) believed that electronic portfolios foster a sense of pride in students' work, a sense of personal accomplishment, and a feeling of satisfaction.

In the context of assessment, Cambridge (2001) stated that electronic portfolios can help to put failure into context; they can also show the steps taken to redress failure, and what the student has learned from the experience. As it was stated in many studies (Ahn 2004, Canada, 2002; Heath, 2005; Young, 2002), many artifacts can be incorporated into electronic portfolios. They are easy to maintain, edit, update, carry, share with others, transport into a new system or new working environment, organize, store and search. And because of their accessibility they are viewable by students, supervisors, assessors, employers, and parents.

Regarding the types of portfolios, Danielson and Abrutyn (1997) recognized six categories as:

1. Working portfolios: which contain work in progress as well as finished samples of work. The purpose of working portfolios is to serve as a holding tank for work that may be selected later for a more permanent assessment or display portfolio.

2. Display portfolios: which may be maintained from year to year, with new pieces added each year, documenting growth over time.

3. Portfolios assessment: the major function of a portfolio assessment is to document what a student has learned. The content of a curriculum will determine what students select for their portfolios. Their reflective comments will focus on the extent to which they believe the portfolio helps them in their mastery of the curriculum objectives.

4. Online or e-portfolio: is international that is all information and artifacts are somehow accessible online. A number of colleges require students to maintain a virtual portfolio that may include digital, video, or web-based products.

5. Process portfolios: concentrate more on the process of learning rather than the final outcome or end products of the learning process. A process reflection may discuss why a particular strategy was used, what was useful or ineffective for the individual in the writing process, and how the students face the difficulty in meeting requirements.

6. Teacher portfolio: is a collection of work produced by a teacher, just as an artist uses a portfolio of collected works to illustrate his/her talents and to highlight and demonstrate their knowledge and skills in teaching.

1.2 Portfolio Assessment in Writing

Just like any other methods of assessment, portfolios assessment is also surrounded by controversy. On the positive side, as Venn (2000, cited in Scherba de Valenzuela, 2002) stated, portfolio assessment improves students' self-evaluation and expands their critical thinking abilities. Also, portfolio assessment makes it possible to measure students' performance through genuine samples of their work and makes the process of measurement more flexible. Additionally, teachers have the opportunity to measure the students' progress by utilizing different sorts of data and materials. On the negative side, the reliability of portfolio assessment is low due to the subjective scoring. Besides, managing a bulk of portfolios is not easy for teachers to handle.

Writing is a dynamic skill which is getting more and more importance in different aspects of education and communication. Many researchers have conducted studies to investigate different aspects of writing skill. For instance, Khodashenas, Kishani Farahani, and Amouzegar (2013) concluded that keeping portfolios can contribute to progress of the students in terms of writing ability and it can be used as a promising testing and teaching tool in English language classes.

In another study, Apple and Shimo (2004) investigated Japanese students' responses to portfolio assessment through a self-report questionnaire. They found that portfolio assessment had a positive effect on the students' writing performance and they favored portfolio assessment as a means of improving their expressive and compositional writing ability. Moreover, Hirvela and Sweetland (2005) reported two case studies which investigated student experiences with portfolios in two ESL writing classes. The findings showed that the subjects liked the idea of portfolios, but they did not endorse their use as employed in those writing courses.

Furthermore, in a study on the effectiveness of portfolios on reading, listening, and writing skills, Yurdabakan and Erdogan (2009) noted that portfolio assessment had an effect on reading, listening, and writing of students. They concluded that portfolio assessment had a significant effect on students' writing, but there was not any significant influence on their reading and listening. In addition, they found that portfolio assessment increased the responsibility and motivation of the students, but the participants did not favor portfolio assessment because it was time consuming and difficult.

 Masaeli and Chalak (2016) conducted a research on the impact of employing electronic portfolios on students' writing skill in an English language institute in Isfahan, Iran. After the treatment, they found that electronic portfolio can be an effective method for improving students' writing ability. They revealed that students were more satisfied with electronic portfolio and also they got better results out of their writing post-test. They believed that employing portfolios can be effective for both learners and teachers.

Moreover, Meshkat and Goli (2012) carried out a research to find the effectiveness of electronic portfolio on writing of Iranian EFL learners. After two months of treatment, they found that participants of the experimental group who were exposed to electronic portfolio assessment did better in their writing tasks. Based on their findings, electronic portfolios can be really helpful in motivating language learners. Policy makers, curriculum developers, and syllabus designers can involve e-portfolio in different EFL/ESL contexts.

According to many Iranian EFL learners, writing is the most uninteresting and tedious part of an English class. On the other hand, using portfolios, especially electronic portfolio is not common in the Iranian EFL contexts. Thus, this study aims to change the medium of instruction and assessment of writing to see if better result will ensue. The electronic portfolio may motivate language learners and increase their interest in writing essays and it may help language teachers to observe students' progress permanently.

2. Methodology

2.1 Participants

The participants of this study were 30 EFL students from an English language institute in Mashhad, Iran who were selected from a group of 40 randomly. Although both male and female participated in this study, gender was not considered as a moderator. They were advanced EFL learners who were going to be tested on the effect of electronic portfolio assessment. The participants were in the age range of 18-26. It is worth mentioning that both the classroom environment and instructor were the same. The class held three times a week with each session lasting 90 minutes.

2.2 Instruments

The following instruments were employed to gather data at different stages of this research:

1. In order to homogenize the participants of the study and to make sure that the members of both groups belong to the same population, a truncated version of TOEFL (TOEFL, published by ETS, 2010) was employed as the proficiency test. This general language proficiency test (TOEFL) included 90 multiple choice items on two sections including 40 items on structure and written expressions and 50 items on reading comprehension. The item type employed in the test was multiple-choice. To ensure the face validity, the researchers had the test being reviewed by two other teachers who were experienced in teaching TOEFL courses. The allocated time for the test was 110 minutes. It is worth mentioning that since the modified version of TOEFL proficiency test was published by ETS was near original specimen of the TOEFL test, it was not piloted and verified in terms of reliability.

2. To make sure the participants were homogeneous in terms of writing ability, a writing pre-test was administered to both groups. In order to remove the effect of topic familiarity, the participants of both groups were asked to write a paragraph on three topics.

3. To explore the utility and efficiency of the treatment, a writing post-test was administered at the end of the study. Like the pre-test, three topics were given to the participants of both groups. The topics of writing post-test were not similar to those of pre-test. The time allocated for both pre-test and post-test was 90 minutes.

The assigned textbook for this course was "Cracking the TOEFL iBT" by Vanessa Coggshal (2011) which is mostly a textbook with a process oriented approach to teaching language skills, especially writing with a focus on principles of writing paragraphs and essays. This book presents a step-by-step procedure for teaching writing strategies clearly and comprehensively in a process-oriented approach. This book is chosen because it is readily available, Iranian teachers are familiar with it, and it is adaptable to be used virtually. The book is chosen for both control and experimental groups.

2.3 Procedures

The procedures reported in three consecutive stages to better demonstrate the steps taken in testing the stated hypothesis:

2.3.1 Participants Selection and Homogenization

Since the purpose of this study was to investigate the impact of electronic portfolio assessment on writing performance of Iranian EFL learners, an experimental method was selected. In order to homogenize the participants upon their level of proficiency, first a modified version of TOEFL (described in full earlier) was administered to all the 30 available students who took part in a TOEFL preparation course in Shokouh Language Institute of Mashhad. They were then randomly divided into experimental and control groups (15 students in each group).

2.3.2 Administrating the Writing Pre-test

As it was mentioned earlier, the experimental and control groups were selected from among a population of students whose proficiency level was examined to be at the same level. However, since the study concentrated on writing ability, a writing test adapted from TOEFL iBT sample tests, was administered to both groups to ensure that they were also homogenous in terms of writing ability. In this regard, in order to remove the practice effect, three topics were given to each student to write about. All papers were scored by two raters, one was the researcher and the other one was an experienced teacher in TOEFL courses, who were subjected to inter-rater reliability measure. The scoring was based on the analytic scale for rating paragraphs and composition tasks by Brown and Baily (1984). The students were given scores from 0 to 20. The average of the students' scores on three topics and scores given by two raters for each student were considered as the score of each participant in both groups. The means of two groups were compared through a *t*-test to further guarantee the homogeneity of the students regarding their current writing ability.

2.3.3 Intervention

The participants in both groups attended an advanced writing course to be prepared for the TOEFL, three sessions (90 minutes) per week for a ten week term. The assigned textbook for this course was "Cracking the TOEFL iBT" by Vanessa Coggshal (2011) which is mostly a textbook with a process-oriented approach to teaching writing ability.

In control group, students received traditional methods of teaching and assessing writing; every session learners were given a topic to write about, the instructor read and scored the students' papers. The writing at this level was similar to that which is required in the TOEFL test of writing. But in experimental group, after signing up in a Telegram channel, learners wrote up each of their assignments in a single post in the channel and read the posts. They put comments about their classmates' writings regarding the errors. The instructor also read the posts, gave comments, and corrected the students' errors or comments.

2.3.4 Administrating the Writing Post-test

After ten weeks of teaching writing through a process oriented approach to the both control and experimental groups respectively, a writing post-test, adapted from TOEFL iBT sample tests, was administered to both groups in their final examination so that the researcher was able to verify the stated hypothesis of the study through the analysis of the obtained data.

It is worth mentioning that the writing post-test was similar to writing pre-test with three different topics. Again as the pre-test, two raters scored the students' papers analytically and finally the average of the students' scores on three topics and scores were given by these two raters for each student considered as the score of each participant in both

groups. The means of two groups compared through a t-test to examine whether there was a meaningful difference between the means of two groups on the post-test. And in order to determine the degree of improvement under two types of assessment, two matched t-test will be carried out between the pre-test and post-test of each group.

3. Results

After administrating the homogeneity test to 30 participants of this study, descriptive statistics was obtained. Table 1 represents the descriptive statistics of the homogeneity test. The mean and the standard deviation equaled 14.5 and 4.24 respectively. They were then randomly divided into experimental and control groups.

Table 1. Descriptive statistics of the homogeneity test

	N	Range	Min	Max	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Total	30	17	11	17	14.5	4.24	42.51	.03	.11	.11	0.21
Valid N	30										

To check the homogeneity of the experimental and control groups at the beginning of the experimentation and to make sure of their homogeneity in terms of writing, a writing pre-test was administered to both groups. Table 2 summarizes the descriptive statistics.

Table 2. Descriptive statistics of the two groups on the writing pre-test

	Group	N	Mean	Std. Deviation
Pre-test	Control	15	12.50	3.11
	Experimental	15	13.50	5.01

To remove the topic familiarity effect, the inter-rater reliability of the writing pre-test was calculated through Pearson Product-Moment Correlation which turned out to be 0.93 showing a high consistency between the two raters (Table 3).

Table 3. Inter-rater reliability of both groups on the writing pre-test

Raters	Mean	Standard Deviation	Variance	Pearson Product Moment Correlation
Rater 1	13.50	2.90	5.10	0.93
Rater 2	12.75	2.01	5.01	

Regarding the mean scores of two groups, there was no significant difference but in order to be sure of close homogeneity of two groups, an independent t-test was run. It showed that there was no significant difference between the experimental and control groups in terms of their writing ability. Table 4 demonstrates the results.

Table 4. Comparison between variances and means of the two groups on the writing pre-test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	t critical	Mean Difference	Std. Error Difference	Lower	Upper
Pre-test	Equal variances assumed	0.91	.001	1.05	28	2.04	1.	1.08	-1.03	2.24

As it has been shown in Table 4, the *t*-observed value for the means of two groups was 1.05 at 28 degrees of freedom, which was lower than the *t*-critical of 2.04. Thus it could be claimed that the two groups were not significantly different in terms of writing skill before undergoing the treatment. After ten weeks of treatment, both groups were given a similar post-test. Table 5 summarizes the descriptive statistics.

Table 5. Descriptive statistics of the two groups on the writing post-test

	Group	N	Mean	Std. Deviation
Post-test	Control	15	14.50	3.15
	Experimental	15	17.50	6.68

Two raters scored the papers analytically. The Pearson Product-Moment Correlation coefficient between the two sets of scores was 0.96 which indicated a high consistency between the two raters (Table 6).

Table 6. Inter-rater reliability of both groups on the writing post-test

Raters	Mean	Standard Deviation	Variance	Pearson Product-Moment Correlation
Rater 1	15.50	3.85	5.15	0.96
Rater 2	17	4.76	7.01	

To see whether the treatment was effective or not, the means of two groups were compared through a t-test. As it has been shown in Table 7, the *t*-observed value was 7.41at 28 degrees of freedom which was higher than the *t*-critical of 2.04. Thus, the null hypothesis could be safely rejected at 0.05 level of significance leading to the conclusion that the treatment was effective enough to make significant difference between two groups.

Table 7. Comparison between variances and means of the two groups on the writing post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	F critical	T	df	t critical	Mean Difference	Std. Error Difference		Lower	Upper
Post-test	Equal variances assumed	0.02	6.01	7.41	28	2.04	3	4.02		-5.15	1.26

To determine the impact of electronic portfolio assessment on the writing ability of the participants of the experimental group, a matched *t*-test was also calculated for the mean scores of the experimental group on both pre-test and post-test. As it is shown in Table 8, the *t*-observed value for the means of the experimental group before and after the treatment was 8.53 at 14 degrees of freedom which is higher that the *t*-critical of 2.14 for a two-tailed test at 0.05 level of significance.

Table 8. Matched t-test between the pre-test and post-test of the experimental Group

t-test for Equality of Means	t-observed	t-critical	Df	Sig(2-tailed)	Mean difference
Experimental (pre-test and post-test)	8.53	2.14	14	0.01	4

A matched *t*-test was also conducted on the pre and post-test of the control group. As it is shown in table 9 the *t*-observed value for means of the control group before and after the treatment was 1.91 at 14 degrees of freedom which is lower than the *t*-critical of 2.14 for a two-tailed test at 0.05 level of significance. Thus, it could be claimed that there was not any statistically difference between the pre-test and the post-test mean scores of the participants of the control group.

Table 9. Matched t-test between the pre-test and post-test of the control group

t-test for Equality of Means	t-observed	t-critical	Df	Sig(2-tailed)	Mean difference
Control (pre-teat and post-test)	1.91	2.14	14	0.01	2

Consequently, based on the above findings, the performance of the participants of the experimental group who were exposed to electronic portfolio assessment was significantly better than that of the control group who were exposed to traditional ways of assessing writing.

4. Discussion

As it was stated earlier, the aim of the present study was to investigate the impact of electronic portfolio assessment on writing ability of EFL learners. The participants of the experimental group were exposed to electronic portfolio assessment. By the use of telegram channel, they read the comments on their writing, evaluated their own writing, corrected their errors, and finalized their tasks. On the other hand, those who were in control group were exposed to

traditional ways of assessing writing. They read their writing tasks in the class and were provided by some feedbacks from their teachers. Finally, after administrating the final exam and analyzing data, the findings revealed that the participants of the experimental group outperformed better than those of the control group in terms of writing skill. Generally, using electronic portfolio as a technique of assessing writing ability not only improved the students' writing ability but also enhanced their attitude toward writing and assessment. As shown in the present study, electronic portfolio assessment assisted the less able students to promote their writing skill and got better scores on their writing tasks.

The findings suggested that electronic portfolio had a significant effect on writing ability of language learners and can be beneficial in assessing learners' skill in second language writing. In line with Masaeli and Chalak (2016), this study revealed that employing electronic portfolios can be a good technique for language teachers to make language learners more motivated and to make writing more interesting to them. Moreover, Mustafa (2011) proved that there is a significant relationship between the use of electronic portfolio as a technique of assessing writing and learners' performance in their writing homework. However, Chang et al. (2011) proved the effectiveness of electronic portfolios among language teachers as an assessment tool.

5. Conclusion

Due to the emergence of computer and indispensible role of technology and internet in communication and educational settings, moreover, the tedious and boring classes, language teachers are more interested in using technology in both language teaching and language assessing (Warschauer & Whittaker, as cited in Richards & Renandya, 2002). According to Carless (2006), Information Technology (IT) increases the learners' social awareness and confidence and changes learning to an exciting process. Writing as an undeniable skill in second language learning and teaching has always been a challenge for most of the language learners and language teachers. Traditional ways of teaching and assessing writing and uninteresting writing classes made language learners less motivated in developing their writing abilities. Thus, the present study aimed to use IT in language teaching and explore the impact of using electronic portfolio on EFL learners' writing skills.

It is hoped that more studies in case of using technology in developing language skills provide a better understanding of electronic portfolio. Some suggestions can be proposed from this study for further research. Firstly, more research should be done to explore both learners and teachers' perception and attitudes to this new method of assessment. Secondly, this study provided opportunities for language teachers to use other web-based and electronic tools such as CALL and MALL in teaching and assessing language skills. Thirdly, a similar study can be conducted to explore the effect of electronic portfolio on other language skills (listening, reading, and speaking) or sub-skills (vocabulary and grammar).

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