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## The Role of Problem-Based Learning (PBL) E-portfolios on Writing Skill: The Experience of Iranian Intermediate EFL Learners

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### Abstract

The aim of this study is to improve students' syntactic component of writing by implementing problem-based learning (PBL) e-portfolios. It also investigates the role of students' perceptions of the learning contexts as well as their conceptions of the PBL e-portfolios on their deep learning which is associated with higher learning outcome. In order to achieve these goals, a PBL e-portfolio based unit at the Faculty of Education in a university in Iran was examined through mixed method. A quasi-experimental intact group was utilized in order to examine 60 EFL participant's perspectives. In the control group (N=30) received conventional classroom instruction while those in the experimental group (N=30) received PBL e-portfolio-based learning. A couple of instruments were employed to collect data including: the Interchange Placement Objective Test in 2005, IELTS Writing Module, Interviews, and Weblog-based e-portfolio assessment. The qualitative phase of the study was analysed through the use of Grounded theory displayed high perceptions of the contexts and high conceptions of PBL e-portfolios had a significant role on students' learning outcomes. In particular, it indicated that students with high perceptions and conceptions were able to adopt a deep approach to learning. The quantitative analysis was run through t- test, and it displayed a great growth in English syntactic component of writing proficiency among the experimental group.

**Keywords:** E-portfolio assessment; Problem-based learning; PBL e-portfolio; Perception; Conception.

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## **1. Introduction**

According to new trends of teaching, alternative assessment has gained a great popularity and also is considered as a kind of teaching. Chen and her colleagues in [1] defined e-portfolios as a kind of electronic assemblage that is made by students' own work and reflections describing their experience of learning as a professional accomplishments. Electronic learning has shown in varied forms of education such as online courses, web-based learning and distance education. According to Tastle and his colleagues in [2], e-portfolio-based learning is considered as a kind of web learning which is accessible by the internet. The advantages of web-based learning is emphasized by the authors in [3], who believed web-based technologies have a big impact on modifying new ways of measuring students' ability and knowledge. Moreover, in a web-based context the assessment process is carried out through the use of instructional technologies where participants undertake a variety of activities such as self-and-peer assessment, peer portfolio reviews and teacher evaluation [4]. Therefore, e-portfolios are gaining popularity as an alternative assessment [5] as they have the potential to align teaching to assessment and showcase the process of students' learning rather than their final products. In the same line some scholars in [6] believe that viewing performances of learners' writing ability can be judged more informatively by instructors and assessors rather than a single sample of writing. The portfolio movement makes real change and growth in writing assessment [7]. The integration of technology into education suggests that portfolios have benefits over traditional assessment [8] because it helps learners to understand their own learning process, and offers teachers a holistic picture of students' abilities [9]. According to Edutopia journal (2016), the role of students/teacher is changed by the use of technology in which students are responsible for their own outcomes, and teachers act as guides and facilitator. The benefits of technology is emphasis by authors in [10], who argued that technology implementation makes possible learning experiences that are open, flexible, interactive and efficient; it also has become an integral part of teaching and learning. Furthermore, as an author in [11] mentioned that integration of technology into classroom and curricula is necessary. Moreover, information on L2 learners' strengths and weaknesses which prescribe interventions to support learners' achievements is prepared by digital learning and assessment program [12]. Process-based strategy in writing instruction is preferred to use by teachers. As an scholar in [13] stated, many educational programs have shifted their emphasis from content and results to process and learners' capacity to self-direct his/her acquisition of knowledge. As a result, in the current research PBL as a process-oriented method is recommended to incorporate into e-portfolio to teach and assess writing skill, as a kind of support for knowledge construction, documentation of students' learning, also, facilitation of collaboration and evaluation is possible as well.

### ***1.1 Theoretical and Empirical Background***

The theoretical framework that was implemented is constructed by combining students approaches to learning (SAL) and the 3P model of learning ( Presage, Perception, Product) that follow constructivism because the assumptions and principles in these learning model is supported by constructivism. This theoretical framework was run to understand how students use PBL e-portfolios in order to achieve great improvement.

### ***1.2 E-portfolios***

The expansion usage of technology leads to enhancement of e-portfolios [14]. In view's of some authors in [15] e-portfolio assessment are considered as a powerful, valid and trustworthy approach. E-portfolio is defined by the National Learning Infrastructure Initiative (NLII) as a collection of authentic evidence representing learning of a person or organization over time, which has been reflected by the person or organization in order to be presented to audiences for a specific rhetorical purpose [16].

Furthermore, through using e-portfolio assessment, learners are able to make choices that will be beneficial by selecting their best work and think to recognize why it is their best work [9].

E-portfolios provide easy access to the weblog, web, and other technological media like the video, or CD-ROMS. An e-portfolio brings the opportunity for more flexibility by allowing to cross link among all kinds of work [17]. Further to this, it can cross reference works without needing to make multiple copies for different categories [18]. It is stated they are different in terms of update, storage as well as management, also documentation of different kinds of information is difficult [19]. The authors in [16] have introduced four types of e-portfolios including assessment portfolio works as a kind of evaluation where learners provide evidence of their competence in particular subject areas. The other one is showcase portfolio in which students' work with different subjects are depicted. The development portfolio as, the third one, used to collect students' personal works as well as a means for tracking progress of students over time. The fourth one is reflective e-portfolio supports students to demonstrate their meta cognitive ability which helps them to recognize what worked, what is not, and why during learning process [20]. In this research, the assessment portfolio was used due to its benefits such as clarity of goals, explicit criteria for evaluation, work samples connected to those goals, appropriateness of assessment.

### ***1.3 PBL-based E-portfolios***

In order to facilitate e-portfolio-based learning PBL as an alternative teaching method is recommended. PBL enables to provide a real-world context. In PBL, knowledge construction happens through interaction and cooperation. PBL as a student-center environment pays a lot of attention to problems, since it is considered as an effective way of learning by making opportunity to think and learning is occurred by thinking [21]. Moreover, this kind of knowledge which is gained by effort is kept in a long term memory. However, ready-made information are easy to be forgotten. Therefore, problems empower learners to analyze facts by gathering, comparing, sorting out, and evaluating.

There are several reasons for incorporating e-portfolios into PBL. E-portfolios are suggested to use as appropriate assessment for PBL according to the PBL' s goals to compare with traditional assessment [22, 23]. Most importantly, e-portfolios go beyond serving as an assessment because of its potential to be used as a supporter of learning process [24]. Furthermore, reflective thinking as one of the important strategies of PBL, has received great attention in e-portfolios as well. As a result of this integration, learners are supported and guided during PBL e-portfolios and they could share their opinions about their process with their partners. Finally, two crucial skills of communication and organization skills are developed through PBL e-portfolios [25]. Besides, during PBL e-portfolios learners find themselves more responsible for their learning [26].

Therefore, some skills such as reflection, collaboration, and documentation of learners' work are achieved as a result of this integration [23].

#### ***1.4 PBL E-portfolios and Writing Instruction***

Weblog is known as a free and friendly technological tool [27]. There are some reasons why the weblog technology has developed. Firstly, it is easy to use since it does not need specific software [28]. Consequently, ease of posting writing assignment could cause more confidence, enthusiasm and interest among learners. Another major reason is the possibility for having social networks and learning communities through blogging in which interaction and sharing ideas can be done easily by users, also, visualizing learning, contextualizing course content, encouraging meta-reflective practices, and practicing collaboration is possible [27]. Thus, the weblog-based writing course may aware learners of the process-driven nature of writing because it has shown a great effect on learning environment as well as supporting learners' self-reflection and self-evaluation of their learning.

The effectiveness of PBL for writing courses is supported by an author in [29], who indicated that PBL could provide the opportunity for creative writing activity by the use of problem-solving, active response, and reflection. This idea is echoed by authors in [30], they noted that PBL activities make students to behave more like real and successful writers. Thus, the emergence of PBL weblog-based e-portfolios seems to meet the learners' needs for collection of written pieces, increase of self-reflection, self-assessment, autonomy, collaboration, and sense of responsibility for learning process.

#### ***1.5 Theoretical Framework***

In order to integrate e-portfolios with PBL some authors in [31] theoretical framework for e-portfolio-based learning is adopted to frame this research. These researchers developed a theoretical framework for e-portfolio-based learning for the first time through conducting a research in an Australian University context. Their theoretical framework is a combination of 3P (presage, process & product) model of learning including presage refers to the students' prior knowledge, and process in which adoption of surface or deep approach to learning is occurred, finally product that is considered as students' learning outcomes. It also includes students' approaches to learning (SAL). SAL discusses the role of students' conceptions of e-portfolio, and their perceptions of PBL-based e-portfolios on adoption of a deep or surface approach to learning.

The deep approach to learning is caused by engaging subject matter and learning activities in a way that enhance progress, bring conceptual change, development and understanding. During deep approach to learning, students adopt different strategies for learning, understanding and development. For example, these strategies in PBL e-portfolios include critical thinking, self-assessment, independent learning, reflection, and also ongoing monitoring. It seems that these activities result in higher-quality outcomes. In addition, some other activities that encourage deep learning are conceptual change, freedom of choice, relating previous knowledge to new knowledge [32]. The idea of using some strategies leads to adopt deep approach to learning is emphasized by authors in [33] who identifies strategies such as reflection, comprehending the main ideas, hypothesizing, and

arguing. Most importantly, PBL e-portfolios has the potential to provide the opportunity to practice these activities.

According to an author in [34] a surface approach is defined as an unrelated set of ideas and procedures, that are not coherent in the mind of learners. A number of researchers identifies the main reason behind selecting a surface approach by students: accomplishing tasks with minimal trouble, rote memorization, low cognitive level, meeting the course requirements, low assessment demand, task that are not integrated, and lack of relationship to other courses (Biggs & Tang, 2011; Prosser, 2012; Prosser, 2004)[33,35,34].

Constructivism pays close attention on students' learning, and it shares some principles with SAL, the 3P model, and PBL. As for SAL, traditional approaches to teaching are not as appropriate as constructivist teaching because it enables to change students perceptions about the world they engage in [36]. According to her, a vital principle in the development of meaning is conceptual change which occurs during learning activities in which students try to cope with arised obstacles. A formal constructive approach is developed by conceptual change, that defines learning as a process of personal construction of meaning. According to 3P model, learning occurs by linking prior knowledge to current knowledge. This idea is supported by constructivism as it believes individuals knowledge constructions depends on the interaction of their prior knowledge and the idea which are engaged in[37]. Constructive principles can be applied to support PBL as well. These principles including: knowledge building, active and self-directed learning, collaborative learning, and practice [38]. In PBL, student-centered environment is possible in which students are responsible for their learning and meaning is constructed by learners. This belief is supported by constructivism as well.

## **2. Research Question**

As mentioned previously, this research aims to focus on the role of students' perceptions of the teaching and learning contexts and their conceptions of PBL e-portfolios on the writing proficiency of EFL learners by addressing the following major questions:

RO1: To see whether integration of e-portfolios into problem-based learning affect

EFL students' syntactic component of writing

RO2: It displays the effect of PBL-based e-portfolio on adoption of deep or surface approach to development of syntactic component of writing. To come up with a reasonable result the following null hypothesis was proposed:

HO: The integration of PBL-based e-portfolios does not have any effect on the syntactic component of writing among Iranian EFL learners.

### **2.1 Methodology**

This research used mixed methods research methodology.

## **2.2 Participants**

The present study was conducted at University in Iran. There were 60 female participants. The groups were intact. Students were divided in two groups of experimental and control. According to IT questionnaire, those who were familiar with the Internet technology joined the experimental group.

## **2.3 Instrumentations**

The following instruments were employed in order to collect the required data in this study:

### **2.3.1 Interchange/Passage Objective Placement Test**

In order to evaluate the homogeneity of the participants the Interchange Objective Placement Test, version A (IPOPT/A) developed by Lesley and his colleagues in [39] was administrated. This test had three main sections including listening (20 items), reading (20 items), and language use (30 items). Participants were supposed to gain scores between 24 and 35 out of 70 to be suitable according to the scoring guidelines of this instrument. The reliability of IPOPT/A, computed through cronbach' s Alpha, was relatively high ( $r=.79$ ). Out of 100 participants who took test, 60 were selected for the study.

### **2.3.2 Information Technology (IT) Inventory**

Since the treatment in the experimental group included composing and uploading tasks via weblogs, the researcher had to determine learners' degree of familiarity with the Internet. To serve this purpose, all participants ( $N=60$ ) were asked to fill out an IT inventory. This inventory consisted of three with the total number of 58 items. Those participants who proved to be IT illiterate were assigned to the control group and those with IT knowledge to the experimental group.

### **2.3.3 English Writing Test as Pretest and Posttest**

These were writing tasks presented at the first and last sessions for the purpose of determining participants' level of writing proficiency at the outset of the study and their achievement throughout the course. All participants in both experimental and control groups were asked to perform the task. The topics were chosen from Cambridge IELTS Practice Test (2007). To avoid subjectivity, two raters were asked to independently score the papers employing error count method which measured students' structural component of writing, this was deduced from a maximum total of 20.

### **2.3.4 Interviews as Pre-interview and Post-interview**

These interviews presented at the first and last sessions for the students in the experimental group to determine their perceptions of teaching and learning context and their conceptions of PBL e-portfolios. Students were asked some questions about the conceptions of PBL-base e-portfolios, their approaches to learning, their perceptions to teaching and learning context, and their learning outcomes.

### **2.3.5 Weblog**

It was used by the students in the experimental group to make their e-portfolios. They posted their writing on the weblog, and they revised their tasks after receiving their instructor's comments then rewrite them and resend them.

### **2.4 Procedure**

In the control group the students worked on syntactic component of writing in a conventional method. They wrote eight writing assignments inside the classroom using pen and paper throughout eight weeks, and received feedback from instructor. In the experimental group, students worked on syntactic component of writing using PBL-based e-portfolios learning. First, students were asked to make groups of four or five and they all had their own laptops in class. Then the whole PBL process which involved eight weekly face-to-face sessions started. It corresponded to the five stages of an author in [40] PBL process, including: First Stage: Meeting the Problem. Students made groups of four or five, then the teacher presented two topics and asked students to choose one of them. After that, they started working on their groups. In this stage, they gained a clear understanding of the topic and reached a group agreement on the problem. To do so, students read the topic on their own, underlined key words and main points. After that, they started to discuss in their groups to get the same understanding. Then, the teacher asked the team members to each describe the topic on their own words and also linked it to their own experiences and prior knowledge. To guide the discussion, some questions provided by the teachers in the weblog. All the questions asked by the teacher as a guidance during PBL provided in the weblog. Examples of the questions in stage one include:

\_ What do you think of this topic? After discussion, some other questions were asked to help students summarize the problem. For example: -Can you summarize what the group discussed? Second Stage: Problem Analysis and Learning issues. At this stage, brainstorming and generating possible explanations about the problem they had chosen to write were provided by each groups. To gain the aim of this stage, each individual students presented her explanations. Then, all team members' inputs were combined. Accordingly, each group members had an active role in this process. The example of the questions that were provided for students are: \_What kind of information do you need to know? After that, the most important part of the PBL process which is identification of learning issues and formulation of learning objectives started. The following questions were asked:

-What is important to you to solve the problem? During this process, self-directed learning tasks were assigned by the groups. Accordingly, each group member compiled a set of notes from her self-directed learning to share with others and to teach at the next stage.

Third Stage: Discovery and Reporting. Considering self-directed learning, group members shared their discovery. They integrated information as a group and made sure the accuracy, reliability, and validity of the information. In order to help students, some questions were presented:

- what you have learned about this particular task...?

Fourth Stage: Solution Presentation. During this stage, groups presented solution to the problem and clarify doubts through questions and answer. Each group presented their findings for the final presentation. To help students some questions were posted in their e-portfolios:-What is your solution? why? Fifth Stage: Overview, Integration, and Evaluation. Teacher rounded up the PBL process in a verbal review and evaluation session with the students. Then, students were asked to reflect on their own learning process. The following questions were asked to aid students.-Can you name three key things that you have learned? Finally, students started to write their paragraphs on the weblog which formed by the instructor. However, they did not comment on each others' posts in the weblog to make sure that their learning outcomes were based on their participations in the PBL-based e-portfolios unit not receiving peer feedbacks.

### 3. Result

#### 3.1 Qualitative Result

Having collected the required data based on the above mentioned data collection instruments and procedures, the researchers analyzed the data and respond the question formulated for the present study.

##### 3.1.1 Categories and Main Themes in the Pre and post –Interview

According to Grounded theory, these themes and categories were provided through students' answers in both pre and post-interview.

**Table 4**

List of Four Categories	Themes
1 The Participants' Conceptions new methods of teaching.	Collecting evidence, meeting
2 The Participants' Perceptions role	Their role, and their teacher's
3 The Participants Approaches to Learning learning	Surface and deep approach to
4 The Participants' Learning Outcomes learning new paragraph writing, learning vocabulary, self-assessment, reflecting, and learning about PBL e-portfolio.	Learning group-working,

##### 3.1.2 Category One: Participants' Conceptions of PBL e-portfolios

This category discussed what the participants think of PBL e-portfolios. A significant number of participants



were actively involved in the adoption of PBL e-portfolios. Also, participants used the PBL e-portfolios to achieve different goals. It is concluded according to the participants' different definitions of PBL e-portfolios. In one of the definitions, PBL e-portfolio was considered as an electronic collection while in another definition, it was considered as a new method of teaching writing through collaboration. Thus, this category comprised two themes according to the variation in the participants' definitions of PBL e-portfolio as well as the goals they tried to achieve. Their responses revealed that the majority of students had no pre-conceptions of PBL e-portfolios and a few of them considered it as a way of teaching through technology. Their post-conceptions of the PBL e-portfolios changed significantly. For example, participants 2 mentioned "It is a kind of collection of required information for writing a paragraph by discussion and collaboration with other students during class. Also, it is a kind of online collection of our works".

### ***3.1.3 Category Two: Students' Perceptions toward the Use of PBL E-portfolios***

The interview questions related to students' perceptions of the PBL e-portfolios tend to emphasis on important theme including their role and their teacher' s role. According to students' responses, there was a significant variation in emphasis in the participants' pre-and post-perceptions of the PBL e-portfolios. In pre-perception: students considered their role as passive learners who follow teacher' s rules and also as online writers. However, in post-perceptions: students mainly focused on themes including active learners who collaborate with their team members, independent learners who can correct themselves, the ones who are able to develop group discussion, and preparation of an online collection as well as reflection to develop e-portfolios. Some example of the participants' responses are presented below. Pre-perception:" Within the course I think my role is listening to teacher and following what she says, and I must work with a weblog to write my writings". (participant4) Post-perception: "I worked in a team to share our ideas, information, and collecting enough information to write my paragraph. I was also used my teacher' s previous comments to correct myself as I finished my paragraph. Finally, I used a weblog to do my writing". (participant3). Pre-perception: "I think my role is to learn how to use technology in writing classroom, and to write my paragraph according to what my teacher says". (participant6) Besides these comments, only 18 tudents out of 30 indicated that post-perceptions of their role involved reflection while none of the students mentioned it in the pre-interview. Post-perception: "I got together some of my past work and put it in there so that I could use it when I wanted to write". (participant7 ) As for teacher' s role, responses in this category demonstrated that in the pre-interview the students perceived the role of the teacher as the one in the traditional writing classroom who talks all the time and says to students what the rules are, what to write about and how, also they mentioned that their teacher is going to learn them how to use a weblog. However, in their post-perceptions participants indicated that the teacher mainly focused on working collaboratively and she acted as a guide, a supervisor who checked all the groups and helped when it was required. Some examples are as follows:

"She will teach us about paragraph and its different parts, also she will teach grammar to help us write better and she is going to learn us how to use a weblog instead of pen and paper". (participant10)

"My teacher acted like a guide. She was walking during class and checked groups one by one. She listened to us and corrected us. Also, she helped us in our discussion by presenting some questions". (participant12)

### **3.1.4 Category Three: Students' Approaches to Learning**

This section presents the students' general approaches to study both prior to and after their engagement in the PBL e-portfolios. Approaches to learning are divided in two parts surface and deep approach. The surface approach is reproduction and collection of evidence for the sake of doing the assignments, this is associated with surface approach to learning [31]. A deep approach to learning is associated with active engagement, conceptual change, identification of the strength and weaknesses of the students in meeting the teaching standards, and setting clear goals to develop teaching competency [31]. A deep approach to learning is associated with active engagement, conceptual change, identification of the strength and weaknesses of the results in meeting the teaching standards, and setting clear goals to develop teaching competency [31]. In pre-interview, almost all of the students had no idea about what they were going to do during PBL e-portfolios. However, a significant change in post-interview was seen. Responses of the students in post-interview indicated that this category included themes: reflection, self-assessment, independent learning, and motivation. , 31, students mentioned that, they reflected on their learning.

"I look back at the kind of students I was in my old writing classes, to see the development in my writing". (participant16) "Although I have joined different writing classes, I have not learned and enjoyed as much as I did in this class". (participant17)

### **3.1.5 Category Four: Students' Learning Outcomes**

This section presents a variety of responses from the participants about their pre and post-conceptions of the learning outcomes in the PBL e-portfolio-based context after nine weeks. the category describes three qualitatively themes the participants reported about their learning in the pre and post-interviews. These themes include: collaborative learning, learning new vocabulary and paragraph writing, learning about technology and education. Some examples are as follows:

Post-interview: "I think the most important thing to learn was working in groups. In fact, what we did during class was group working". (participant20)

Pre-interview: "I think I will learn some new words to help me write better, also I guess different parts of a paragraph will be introduced". (participant22)

Post-interview: "I learned new vocabulary during the discussion from my partners as well as my teacher. I also learned about three different parts of a paragraph theoretically and practically both. I mean it was introduced on the first session by the teacher after that we practiced them during class through our group work. For example, at the end of the discussion everybody made a conclusion, also we supported our general idea during our discussion in our groups for our partners". (participant23)

Pre-interview: "I think I will learn how to use computer, internet or technology in writing classes". (participant24) Post-interview: "I learned about the effectiveness of integrating technology into classroom. It helped me to write faster, to receive my teacher's feedback easier, I mean there was no need to meet her in order

to receive her comments". (participant25)

### 3.2 Quantitative Result

#### 3.2.1 Results for Test of Homogeneity

To check the homogeneity of the total participants (N=100), the Interchange Objective Placement Test, version A (IPOPT/A) was administered. Table1: illustrates the descriptive statistics of participants' scores.

**Table1:** Result of Descriptive Statistics for IPOPT/A as Homogenizing Test

Test	Mean	SD	N
IPOPT/A	7.46	0.66	60

As indicated in Table1, mean is 7.46, and the standard deviation is 0.66. Sixty students whose scores fall within one standard deviation below and above the mean, i.e. between

6.80 and 8.12 were selected. As the result of this analysis indicate, mean 7.46, the median 7.50 and the mode 7.50 are almost the same, indicating that the students' scores on the homogenized test enjoy an almost normal distribution.

#### 3.2.2 Results for Test of Writing as Pre-test

To compare the participants' scores on syntactic component of writing test in the control and the experimental groups at the outset of the study, an independent-sample t-test was run.

**Table2:** Results of T-test Analysis for Syntactic Component in Test of Writing (Pre-test)

Groups	N	M	SD	t	df	P
Cont.	30	10.26	2.42	20	38	62
Exp.	30	10.40	2.04	20		

According to these results, the experimental and the control groups were homogenous in terms of their ability on syntactic component of writing.

#### 3.2.3 Results for Inter rater Reliability in Pre-test

The inter rater reliability index was calculated for all scores given by the two raters for the pre-test (test of writing) in this study. The researchers employed Pearson Coefficient to calculate any probable significant difference raters. The results indicated a high correlation (R=949, P.0) between the two raters in pre-test, showing no significant difference between their ratings.

#### 3.2.4 Results for Test of Writing as Post-test

As mentioned in instrumentations, participants in the control and the experimental groups took a writing task as post-test. A t-test analysis was conducted to compare their scores on the syntactic component of the writing task. Table 3 shows the result for this analysis.

**Table3:** Result of T-test Analysis for Syntactic Component in Test of Writing (Post-test)

Groups	N	M	SD	t	df	P
Cont.	30	12.00	1.54	7.82	52	.00
Exp.	30	15.43	1.25			

Accordingly, it can be claimed that there was a significant difference between the experimental and the control groups mean scores on the post-test of syntactic component of writing, since the observed t-value of 8.82 exceeded its critical value.

### **3.2.5 Results for Inter rater Reliability in Post-test**

The inter rater reliability was also estimated for all scores given by the two raters for the post-test (test of writing) in this study. The Pearson Correlation Coefficient was run to measure any probable significant difference between the scores given by different raters in the post-test. The result revealed a relatively high correlation ( $R=802$ ,  $p.05$ ) between the two raters in the post-test, showing no significant difference between their ratings.

## **4. Conclusion**

As the data in the qualitative phase of this study indicated, the participants' perceptions and conceptions of the context of teaching and learning plays an important role on their learning as well as adoptions of their approaches and their learning outcomes. It is concluded, therefore, that most of the students could achieve high perceptions and conceptions of the context through PBL e-portfolios. Moreover, these students with high perceptions and conceptions were able to adopt deep learning and they had a dramatic improvement on their syntactic component of writing. In other words, having perceptions and conceptions can positively affect Iranian upper intermediate EFL learners' performance in writing test, particularly the syntactic/structural components. This confirms results found by author in [34] that students' perceptions are the key factor in how they learn which leads to adopt deep approach to learning. Findings of the quantitative phase displayed that participants in the PBL e-portfolio group significantly outperformed those in the conventional group on the syntactic component of writing.

It is concluded, therefore, that the PBL e-portfolio initiated a meaningful increase in the mean score of the experimental group. In other words, PBL weblog-based e-portfolio can positively affect Iranian intermediate EFL learners' performance in writing test, particularly the syntactic component. Besides, the results show that the participants in the experimental group developed more self-monitoring and regulation by producing more reflective writing pieces at the end of the study.

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## APPENDICES

### Appendix A: Pre-interview Questions

Social Private Tasmania Tel: Fax: Human.ethics@utas.edu.a	Science Bag 7001 (03) (03)	Ethics 01 6226 6226	Officer Hobart Australia 2763 7148	
HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK				

### Conception

1. What do you think a PBL e-portfolio is?

### Perception

2. What do you think your role, as a student would be when using PBL e-portfolio?

3. What do you think your teacher’s role would be when using the PBL e-portfolios?

- How do you think PBL e-portfolio will fit in this Unit?

### Approaches to Learning


1. What sort of things you will do when using a PBL e-portfolio?

- Do you think you will reflect on your learning when using the PBL e-portfolio?
- Do you think PBL e-portfolio will promote your independent learning?
- Do you think PBL e-portfolio promote your motivation to learn?
- What kind of things your teacher will ask you to put in your e-portfolio?

**Learning Outcomes**

5. What sort of thing you think you will learn through using PBL e-portfolio?

**Appendix B: Post-interview Questionnaire**

Social	Science	Ethics	Officer	
Private	Bag	01	Hobart	
Tasmania		7001	Australia	
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Human.ethics@utas.edu.a				
HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK				

**Conception**

1. What is a PBL e-portfolio?

**Perception**

1. What was your role when using PBL e-portfolio in this Unit? Why? How?
  - How did PBL e-portfolio help you engage with learning activities? How? Why?
2. What was your teacher's role when learning through PBL e-portfolios? Why? How?
  - How did she provide feedback about your work in the PBL e-portfolio? Why?
3. Did PBL e-portfolio implementation fit this Unit? Why? How?
  - Was PBL e-portfolio integrated well with this Unit? Why? How?

**Approaches to Learning**

4. What sort of things did you do when using PBL e-portfolios? Why? How?
  - Did you work with other students?
  - Did you reflect on your learning when using PBL e-portfolio?
  - Did you do self-assessment when using your PBL e-portfolio?



Did PBL e-portfolio promote independent learning?

- Did PBL e-portfolio promote your motivation to learning?

### Learning Outcomes

5. What sort of things did you learn through PBL e-portfolios? Why? How?

### Appendix C: Internet & Computer Questionnaire (IT Questionnaire)

This is a confidential questionnaire. We ask for your name and email only so that we can match the questionnaire with future questionnaires. Information will not be used for any other purposes. The questionnaire asks you about your use of the Internet.

The internet can be defined in many ways but for the purpose of this questionnaire, please take the internet to mean, world wide web, e-mail and communication between computers. This is not a test and there is no right or wrong answers.

1. Name:.....
2. Date of birth:.....
3. Your e-mail address and phone number: (required).....
4. Sex: .....
5. Degree: .....
6. Age:.....
7. Year you first entered university: .....
8. Do you own a computer? Yes No
9. Do you have your own personal e-mail address? Yes No
10. Do you have your own personal webpage? Yes No
11. Where do you access the internet? (You may circle more than one).

Home/study bedroom      library      internet café      computer laboratory

**If you have used the World Wide Web or e-mail please could you answer the following questions? Please don't leave any blanks. Each statement is followed by five numbers 1, 2, 3, 4, and 5, and each number means the following:**

1' means that "I strongly disagree with this statement".

2' means that "I disagree with this statement".

3' means that "I am neither agree nor disagree with this statement".

4' means that "I agree with this statement".

5 ' means that "I strongly agree with this statement".

- |   |           |
|---|-----------|
| 12. I find the World Wide Web difficult to use. | 1 2 3 4 5 |
| 13. I find the World Wide Web useful.           | 1 2 3 4 5 |
| 14. I find email difficult to use.              | 1 2 3 4 5 |
| 15. I find e-mail useful.                       | 1 2 3 4 5 |
| 16. I find MSN /Yahoo/Google difficult to use.  | 1 2 3 4 5 |
| 17. I find MSN/Yahoo/Google useful.             | 1 2 3 4 5 |

**If you have used the World Wide Web or e-mail for school /college work please could you answer the following questions?**

- |   |           |
|---|-----------|
| 18. I found the World Wide Web useful in my college work.                     | 1 2 3 4 5 |
| 19. I found the World Wide Web difficult to use in my college work.           | 1 2 3 4 5 |
| 20. I found e-mail useful in my college work.                                 | 1 2 3 4 5 |
| 21. I found e-mail difficult to use in my college work.                       | 1 2 3 4 5 |
| 22. I found MSN/Yahoo/Google useful in my college work.                       | 1 2 3 4 5 |
| 23. I found MSN/Yahoo/Google difficult to use in my college work.             | 1 2 3 4 5 |
| 24. I would describe myself as an internet user.                              | 1 2 3 4 5 |
| 25. I feel very emotionally attached to other internet users in general.      | 1 2 3 4 5 |
| 26. I feel a part of an internet user's community.                            | 1 2 3 4 5 |
| 27. When there is an opportunity I always get involved in using the internet. | 1 2 3 4 5 |
| 28. Whenever I can, I tell people I am an internet user.                      | 1 2 3 4 5 |
| 29. I like the people who use the internet frequently.                        | 1 2 3 4 5 |
| 30. I am very similar to other internet users.                                | 1 2 3 4 5 |
| 31. Using the internet is a very important aspect of being a student.         | 1 2 3 4 5 |

32. I always feel anxious when using the internet. 1 2 3 4 5
33. I go out of my way to avoid using the internet. 1 2 3 4 5
34. It is easy for me to use the internet. 1 2 3 4 5
35. It is important for me to be able to use the internet. 1 2 3 4 5
36. Other internet users are very like me. 1 2 3 4 5
37. My anxiety about using the internet bothers me. 1 2 3 4 5
38. I'm more anxious about using the internet than I should be. 1 2 3 4 5
39. I'm very different from internet users. 1 2 3 4 5

**Please estimate the number of times you used the following applications in an average week.**

**Please don't leave any blanks. Each statement is followed by five numbers 1, 2, 3, 4, and 5, and each number means the following:**

1 ' means that "I never use the mentioned application".

2 ' means that "I use the mentioned application once a week".

3 ' means that "I use the mentioned application several times a week".

4 ' means that "I use the mentioned application once a day".

5 ' means that "I use the mentioned application several times a day".

40. E-mail. 1 2 3 4 5
41. Chat. 1 2 3 4 5
42. Newsgroups/discussion groups. 1 2 3 4 5
43. Game web sites. 1 2 3 4 5
44. Other specialist web sites (e.g. sports web sites). 1 2 3 4 5
45. Surfing the web with no set purpose. 1 2 3 4 5
46. Downloading (e.g. pictures, games, music, and software). 1 2 3 4 5

- |   |           |
|---|-----------|
| 47. Listening to radio stations over the world wise web.                              | 1 2 3 4 5 |
| 48. Shopping.   | 1 2 3 4 5 |
| 49. Searching the library web sites for references.                                   | 1 2 3 4 5 |
| 50. Contacting staff via e-mail for information.                                      | 1 2 3 4 5 |
| 51. Contacting external experts via e-mail for information.                           | 1 2 3 4 5 |
| 52. Contacting other students via e-mail concerning college work.                     | 1 2 3 4 5 |
| 53. Contacting other students via MSN concerning college work.                        | 1 2 3 4 5 |
| 54. Using the college web pages.  | 1 2 3 4 5 |
| 55. Using the web, excluding college web pages, for searching for relevant materials. | 1 2 3 4 5 |
| 56. Posting to newsgroups and message boards.   | 1 2 3 4 5 |
| 57. Online assignments.   | 1 2 3 4 5 |
| 58. Downloading college materials from the college web pages.                         | 1 2 3 4 5 |

*Thank you for completing this questionnaire about our attitudes and uses of the Internet. We appreciate your views*

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