

## Effectiveness of an E-Portfolio-Based Writing Method Using Analytic Traits on Writing Performance of EFL Students

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### Abstract

The major focus of this study was on the effect of an alternative method of writing instruction on the writing ability of Iranian university students in a public Malaysian university. The writing method introduced and implemented in this study was developed based on the four dimensions of process, genre, electronic portfolios, and analytic traits of writing. The data were sequentially collected by collecting the major and prior quantitative data through conducting an experimental study. The selected sample for the study was randomly assigned to two Experimental Groups and one Control Group. The first treatment group (WE1) incorporated the use of an on-line e-portfolio system with the analytic traits of writing while the second (WE2) only used the on-line system. The results of the research showed that although the observed difference between the two treatment groups was not significant, the learners in WE1 expressed a difference in the attitudes towards the use of analytic traits of writing. Both groups, however, showed a significant difference when compared to the performance of students in the control group. Multiple Analysis of Variance (MANOVA) also showed significant differences between both WE1 and WE2 compared to the control group in performance on the five traits of writing (Content, Organisation, Vocabulary, Language Use, and Mechanics). Although the learners in WE1 were expected to have higher writing performance compared to WE2 due to their exposure to the analytic traits of writing, this outcome was not observed. Nevertheless, the respondents of WE1 expressed satisfaction with the learning strategies they learned and applied in the course. From a teaching perspective, it was found very crucial to scaffold the writers and provide them with a framework and a pattern to know what to do and how to cover the different stages of writing.

**Keywords:** Effectiveness, E-Portfolio-Based Writing, Analytic Traits, EFL Students

### Introduction

Considering the general agreement about the significance of learning to write in EFL, it is worrying to see that, as most scholars and instructors agree, learners are unable to write well

(Amiran & Mann,1982). Gray (2004) believes that EFL learners usually find it difficult to express their intended meaning through writing in English as a result of ineffective instruction and direct grammar correction of teachers. The conditions become worse for EFL students as they move to continue their studies in English speaking or ESL contexts. This sudden change of context along with the lack of appropriate means of English learning in their home countries (Hasani, 2003 as cited in Alifatemi, 2008) is typically putting these learners in an anxiety-provoking situation, where they are unable to communicate effectively in the new setting resulting in their inability to improve their performance in different skill areas, especially in writing (Matsuda & Gobel, 2004).

Research has shown that using an e-portfolio in the classroom overcomes the difficulty of learning writing under the ESL/EFL language environment and brings positive effects on students' learning of writing skills while increasing interests in the learning activities (Wick, 2004; Sutherland & Powell, 2007; Kennedy, 2010; Erice & Ertaş, 2011; Joyes & Smallwood, 2012). However, as Shin (2013, p.2) claims thus far, "there has been little or no guidance on how best to utilize specific online resources such as e-portfolios as research, instruction, and assessment tools". Although the development and organization of tasks in an e-portfolio follows certain procedures, so far no definite 'framework' for evaluating the performance of the students systematically has been provided, especially in using electronic portfolios as a tool for formative evaluation (Shin, 2013) which could be done by both teachers and students.

In EFL writing instruction and in writing portfolios, a lack of teacher modeling is observed. Instructors require students to do writing assignments without actually demonstrating the writing process to them (Kowalewski et al., 2002) and providing them with an applicable model of instruction. In writing e-portfolios, students are asked to be involved in the writing process through peer- and self-assessment, but they are not given any specific criteria or scale to do so. At the same time, although instructors evaluate learners' writing drafts, they seldom do so in a way that guides instruction in the writing process or reflects all traits of the writing.

The lack of formative evaluation and feedback is one other aspect of the problem in writing classes. As the learners seldom have any feedback on their writing other than the summative assessment of the instructor, it causes the learners not to experience recursive practice and learning, and focus mainly on the conventional aspects of writing ignoring the other qualities of it, which finally ends in their inability to write well through rethinking and making the necessary changes in their writing.

Teachers and learners in a writing e-portfolio model need to find out 'what' to revise, and in the process of writing 'how' to revise. Initially, they do not have a concept of all qualities of writing that need to be assessed. The only typical trait of writing noticed by teachers and students in writing classes is 'conventions' including grammar and mechanics, the practice of which does not always result in comprehensive learning or mastery of the writing skill. In addition, both teachers and students have no idea about how to do the assessment even if they know about all traits of writing.

Tutors and students in an e-portfolio model call for guidelines, planning tools, and scoring rubrics (Abrami & Barrett, 2005). It is very important to give directions to students in an e-portfolio model on how to deal with their own writings and that of their peers, and this job

could be done by introducing the writing traits to them and providing them with the appropriate learning strategies to review and comment on the writings. Analytic writing traits provide both the teacher and the students with some teaching and learning strategies emphasizing not only the mechanical aspects of writing but also the other equally important qualities of it as content, organization, and vocabulary. It is especially true in EFL classes of writing, where according to Ghanbari et al. (2012), there is no reference made to any of the analytic traits or rubrics of writing. However, "the incorporation of e-portfolio systems in colleges is still at an early stage" (Tzeng & Chen, 2012, p.163), and there has not been conducted enough studies on the suitable teaching and learning strategies for writing e-portfolios.

The main objective of this study was to examine the effectiveness of a method of writing e-portfolios using analytic traits to improve the writing skills of Iranian university students in Malaysia. The specific objectives were:

1. To examine the effectiveness of the implementation of a method of writing e-portfolios using analytic traits among Iranian graduate students in a Malaysian public university
2. To examine the effectiveness of the implementation of a method of writing e-portfolios using analytic traits on each of the different traits of writing among Iranian graduate students in a Malaysian public university.

## **Literature Review**

### *Research on Writing Skill of Iranian EFL Learners*

In the EFL context of Iran and at school level, the written exam involves segments on grammar, reading comprehension, vocabulary, and spelling. According to Farhady et al. (2010), just recently instructors have been asked to perform constant formative assessment' on learners' writing performance and development on language skills and document and keep the results of their evaluations in their learners' educational records. Similarly, it is necessary for instructors to consider the outcomes of both summative and formative evaluations. But the English instruction at Iranian academic centers is typically translation-oriented because the central goal is to enable learners to read and comprehend English books in their specific fields of study (Farhady et al., 2010).

'Content' and 'form' are also found to be the main problematic areas encountered by Iranian EFL learners (Mousavi & Kashefian-Naeeni, 2011). Yarmohammadi (2002) got the same result about the 'form', claiming that many of the problems of the EFL students in writing may be related to their lack of mastery of their grammatical competence. According to Yarmohammadi (2002), in EFL context, learners may make errors rooted in their mother tongue, hence the negative L1 interference with grammatical errors was revealed to be the other hindrance in EFL learning.

In one other study by Mousavi and Kashefian-Naeeni (2011), 'vocabulary' and 'conventions' of writing were documented to be the most common places of errors in the writings of Iranian EFL learners. In their study, spelling, verb tense, preposition, subject-verb agreement, word choice, and word order were identified to be the main problems in their writing skill. Interlingual and intralingual transfers were also found to be the major sources of errors. Having such an understanding of the language learning problems in the EFL context is

definitely useful for practitioners and researchers whose objective is to make prediction and decrease the difficulties of learning English.

### **Definition of Portfolio**

Although in the literature about portfolio, several definitions are provided by different researchers, "certain underlying principles are evident, namely the emphasis on a collection of work, chronological organization, and a purposeful construction" (Azarfam & Kalajahi, 2012, p.143). The following are the definitions of portfolio by some scholars:

*"A purposeful collection of student work that illustrates efforts, progress, and achievement in one or more areas [over time]. The collection must include: student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of self-reflection" (The Northwest Evaluation Association as cited in Barret, 2005, p.4)*

*"A chronologically sequenced collection of works that records the evolution of artistic thinking" (Adams & Hamm, 1992, p.103)*

### **Three Aspects of Portfolios**

According to Allen and Yancey (1997), portfolios are classified into three sets based on the number of objectives associated with their application: teaching tools, professional development, and assessment purposes.

#### **Teaching Tools**

It is documented in the literature of portfolios that most instructors and scholars agree with the application of portfolios as a teaching tool, as signified by Allen and Yancey (1997). They referred to the experience of one instructor with portfolios in his own writing class, and discussed his implementation of portfolio in the form of learner-tutor conferences to encourage the weak students. According to Allen and Yancey (1997), his finding from portfolio application in his class was that portfolios were efficiently applicable mainly as teaching tools. In his concluding remarks, Schuster (1994) maintains the learners were inspired through the application of portfolios since "they presented their best work at the time of the conference and subsequently were made aware of the progress they had made during the course of the class" (p.319).

#### **Professional Development Tools**

Portfolios can also be used as instruments for professional development as well as teaching tools, as claimed by Allen and Yancey (1997). Portfolios are used in educational settings to model the professional development of the learners (Barnett, 1995; McLaughlin et al., 1998). Through collection, selection, and reflection, educational managers are able to model the portfolio procedures and proper portfolio evaluation for instructors and learners. Murphy (1996), researching the application of portfolios in educational settings of school and college, concluded that portfolio provides different models of performance that gives profile of instruction and course, and these different models and the collected data as well as learner response tells teacher of the amount of usefulness of teaching and learning strategies used in classroom for writing skill development.

### **Assessment Tools**

Educators may also use portfolios in their classes as assessment instruments. Belanoff and Marcia (1991), for instance, chose to apply portfolios as an appropriate and effective way to evaluate the writing ability of college learners. As a result, they found a change in their own viewpoints towards scoring and assessment. Belanoff and Marcia (1991) claimed that before using portfolios, assessment was just considered as tests which evaluate particular abilities. They believed that portfolios were helpful in causing learners to gain self-awareness, and to know about their strong and weak points.

What is more, portfolios cause a change in the perception of assessment, and educators view portfolios as preferred means of assessment which could replace the traditional tools. Smith (1991) emphasizing the prevalence of portfolios stated that in the last decade of twentieth century, portfolios started to replace classic assessments, and a lot of educational writing courses set aside the traditional one-shot assessment in support of a system of writing assessment based on portfolios.

### **Studies on Writing E-Portfolios in ESL/EFL Contexts**

With a thorough look at the literature on e-portfolios, one can witness the scarcity of studies in this area, particularly in writing e-portfolios, and more specifically in ESL/EFL contexts where according to Zhang (2009), the practice of e-portfolios is in its infancy.

Valdez (2010) conducted a research on digital portfolios in academic writing in a Philippine university. The results of his study showed that the application of e-portfolios acknowledged the development of learners as writers, showcasing their work for specific viewers and purposes. This research informed reflections in advancing the writing instruction as observed in the setting of a transformative learning. Valdez (2010) concluded that daring to do this study in his university opened up opportunities for further explorations in different strands in applied linguistics using e-portfolios.

Kuo (2008) used e-portfolios as section of an online system of writing that backs ESL learners through their writing course. The planned system offered learners a friendly helpful writing atmosphere on Moodle during writing process, peer assessment, and e portfolios which included a learning record and a learning journal. Within the journal, learners were able to check and retrieve original drafts along with the revised ones in order to make comparison. In the record part, all the drafts of writings along with the time spent on each task were kept as files. The different drafts showed a learner's revising strategies in addition to writing progress. At the same time, the writing reflections were presented in the learning journal in which the learners were supposed to reflect over their writing or revising process after the writing task was done.

Gerbic et al. (2011) in another study explored the attitudes of students on e-portfolios. His survey results across four semesters indicates (1) considering e-portfolio for learning in the areas of assessment, reflecting in the course of learning, and recording the learning experiences and (2) reducing anxiety about the application of technology as an obstacle. A constant rise in interest and constructive feelings, and a decline in feeling uncertain and anxious were also observed.

In one other study by Erice and Ertas (2011) on the impact of e-portfolios on the writing abilities of Turkish language students, a group of learners developed online portfolios working on word processing files in an online classroom environment. During the classes, two questionnaires, one about the computer attitudes of the students and the other about the motivated strategies for learning were implemented along with a computer literacy survey. The results of the surveys on e-portfolio emphasized its advantages such as being easy to carry, collect and share; immediate access; instant reflection; and having a variety of reviewers. It was also claimed that e-portfolio has been a challenge to encourage learners on writing in an online environment.

Motallebzadeh and Babaee (2010) conducted a research in Iranian context on e-portfolios and their effect on developing syntactic component of writing proficiency of Iranian English learners. While learners in e-portfolio group were asked to post their writing tasks to a pre-designed weblog, those in control groups wrote their compositions inside and after the class using pen and paper. The results of this research showed a significant progress in English syntactic factor of writing skill among the digital portfolio group. It was found that if e-portfolio assessment is integrated into EFL curriculum, it might create a learner-centered environment where ease of posting compositions, online evaluation, and self and peer assessment are among the advantages of it.

### **Studies on the Application of Analytic Traits of Writing**

Analytic scales as more reliable tool for assessment than holistic scales are criterion referenced and do not follow impressionistic approach to writing evaluation. The appropriateness of analytic scales is acknowledged for second language context because different aspects of writing are developed differently and based on that the components of writing are differently rated.

A research in the Lebanese American University conducted by Bacha (2001) on freshmen L2 learners was conducted to see if holistic scoring or analytic scoring of writing could be used for promotional decisions. The results revealed that analytic measure is better as a criterion to make decisions concerning promoting the learners to higher levels. Holistic scoring focuses on strong points rather than weak points of the writings. But analytic scales as criterion-referenced not norm-referenced evaluation zoom on the weak points of the writers and are therefore better for promotional purpose rather than holistic ones.

In another study by Ahour and Mukundan (2009), some 128 writing samples of university students were analytically scored so as to realize the strong and weak components or traits of writings. The mechanical errors of students were found to be the first weak point observed and 'organization' and 'content' were the strongest components of the writings in ESL context in Malaysia. By and large, 'grammar' made the highest contribution and 'cohesion' the second and 'organization' the least. It revealed that learners do not have enough knowledge of language use because of the teaching of conventions of writing through the model paragraphs. So, analytical scoring scales were found to be "more useful in diagnosing problematic areas that EFL/ESL students have in writing so that the teachers can tailor their instruction to meet the students' needs and improve their writing quality" (Ahour & Mukundan, 2009, p.204).

The research showed that the Six-Trait Model of writing instruction has been found effectual in guiding learners both to make use of this criteria to assess their own writing consistently, and to improve their awareness of their own writing skills (Smith, 2003). According to NWREL (2010), learners become thoughtful students when they use the traits accurately and reliably to their portfolios, and they can comment on their writings drafts making use of a shared vocabulary with their instructors.

As stated by NWREL (2002), two collections of students obtained classic product oriented training whereas the other two groups were trained according to the Six-Trait Model. They decided to apply the new model focusing on language expression (ideas, organization, word choice, voice, sentence fluency) and conventions. The students took part in a pre and post-test writing tasks, and the degree of writing improvement was measured. The results showed a considerable amount of progress in the writing skills of the groups who received the treatment.

### **Methodology**

This study investigated the writing skill area of English language instruction using a quantitative research design that is essentially in the form of a pre-test, post-test control group design in order to investigate the effectiveness of a method of writing e-portfolios using analytic traits among Iranian university students in a public Malaysian university.

The quantitative part of this study was based on an experimental research scheme with random assignment of subjects, pretest-posttest, control group design. Subjects in this study were randomly assigned to two Experimental Groups and one Control Group. The reason to include two treatment groups was the incorporation of online learning system and analytic traits of writing as two levels of an independent variable – i.e. ‘method’ in this study. Since these two factors function in an integrated manner, the only way to learn about the effect of incorporating each of them on the writing skills of students was to investigate them separately in two different treatment groups; one group incorporating both the ‘online learning system’ and the ‘analytic traits of writing’ (WE1), while the other group incorporated only the ‘online learning system’ (WE2). After selecting the sample of the study from among the Iranian EFL learners, all chosen sample took part in a pre-test. Then, the first treatment group followed the method of writing e-portfolio using analytic traits, while the other experimental group experienced the method of writing e-portfolio not using analytic traits.

All three groups in this study were tutored by the same English instructor – the researcher. In order to avoid the threat of potential experimenter bias in this study, the researcher made an attempt to remove himself from any personal interest in the subject by following a strict discipline. In addition, the two independent raters, neither of whom was told the purposes of the study beyond that it was designed to measure changes in students' writing skill, were asked to rate students' responses.

A post-test was also conducted at the end of the classes in order to compare the results and see if there was any substantial improvement and change made in the writing skills of the learners in the two Experimental Groups in comparison with each other and the Control Group. The comparisons was based on one within subjects variable (test), with two levels (pre

and post), and one between subjects variable (method) in 3 different contexts as portfolio, e-portfolio, and e-portfolio using analytic traits.

## **Results**

### *Exploratory Data Analysis (EDA)*

The first step after collecting the quantitative data was to do the exploratory data analysis for which the main assumptions to be met were the normal distribution of data and the homogeneity of variance.

### **Normality Assumption**

Levene's test of equality or homogeneity of variance was conducted to determine the normality of distribution. , The p value for each of the variables was found to be greater than 0.05 with 0.120 for pretest and 0.122 for post-test, thereby not violating the normality assumptions.

The next instrument to check the normality assumption was Box's Test of Equality of covariance matrices. Again, the significance value needed to be greater than the criteria which was a p value greater than 0.001 as Box's test requires a low value(Huberty and Olejnik,2006), The value that was obtained was 0.059 which was greater than 0.001, and showed that the second assumption was not violated as well. Before looking at the main effect, the last assumption examined was the interaction effect to determine if there were some changes in scores over time for the three different groups.

The value of interest was the 'Wilks Lambda', and the time (pre-post) by group interaction. It was observed that the significance value was 0.421 which was greater than 0.05 and it showed that the interaction effect was not statistically significant resulting in the third assumption to be met.

### **Inter-Rater Reliability**

Inter-rater reliability was conducted to determine the consistency in grading of the two raters relative to one another on average from one test score to the other. A typical value for intra-class correlation coefficient is above 0.7, while a value greater than 0.8 is an optimal value, and anything about 0.9 is excellent. According to Cohen (1988), a correlation of 0.1 – 0.29 is considered as small, while 0.3 – 0.49 is taken as medium, and the range of 0.5 – 1.0 as large. At the same time, Drost (2011) believes that a correlation larger than 0.5 is acceptable. Hence in this study, a class correlation coefficient of 0.960 was obtained which indicated an excellent agreement between the two raters of the results of the experiment. Of course, it was not perfect but it was very high. Therefore, there was not a lot of variability between the two raters, and they seemed to be very consistent relative to one another.

The confidence intervals were also looked at in this analysis output, and they showed the 95 percent confidence intervals for this coefficient and we can see again that 95 percent of all samples had an Intra-class correlation coefficients somewhere between 0.93 and 0.98 which is considered as very acceptable with a very good reliability. At the same time, the researcher generated scatter plots to check for the violation of assumptions of linearity and homoscedasticity in order to acquire better understanding of the nature of relationship between the scores given by the raters. No violation was shown, and a positive correlation

was observed between the two raters' scores in all three groups based on the Composition Profile of Jacobs et al. (1981).

### Descriptive Statistics for Whole-Group Differences

The descriptive results showed the mean of each of the groups in pre- and post-tests. Table 1 gave the researcher a basic grasp on how the groups might be behaving relative to one another. The main differences were observed between the post-test results of both treatment groups and WP. The descriptive results and the better results of treatment groups showed that the learners in both WE1 and WE2 groups were more influenced by the teaching and learning strategies and hence performed better in comparison with the learners of WP. However, it was not obvious if the documented differences among the groups were statistically significant.

Table 1.

#### *Descriptive Statistics*

	Group	Mean	Std. Deviation	N
Pretest	WE1	71.2955	4.61276	22
	WE2	70.9318	5.50821	22
	WP	70.1364	3.56298	22
	Total	70.7879	4.58430	66
Posttest	WE1	81.3409	4.27726	22
	WE2	80.3182	3.85618	22
	WP	74.8409	2.95758	22
	Total	78.8333	4.67015	66

### Analyzing the Main Effects using Repeated Measure ANOVA

The pairwise comparisons of the pre- and post-tests scores of the three groups showed that there were statistically significant differences between the pre- and post-test of each of the methods, as  $p$  value in all cases was less than 0.05 ( $F=5.509$ ,  $p = 0.006$ ). So, it was determined that there existed statistically significant differences in writing skill score between the two time-points of all three groups. Post hoc pairwise comparison between WE1 and WP showed a significant difference ( $p=0.008$ ) in the writing performance of the learners. Also, the writing performance of WE2 made a significant difference ( $p=0.04$ ) with that of WP. Hence, both treatment groups showed significant differences in their writing performance with that of WP. However, the difference between WE1 and WE2 in terms of their writing performance was found to be insignificant ( $p=1.00$ ).

Table 2.

*The Results for Post Hoc Test in Repeated Measure ANOVA  
Multiple Comparisons*

**Bonferroni**

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
WE1	WE2	.6932	1.22948	1.000	-2.3308	3.7172
	WP	3.8295*	1.22948	.008	.8055	6.8536
WE2	WE1	-.6932	1.22948	1.000	-3.7172	2.3308
	WP	3.1364*	1.22948	.040	.1124	6.1604
WP	WE1	-3.8295*	1.22948	.008	-6.8536	-.8055
	WE2	-3.1364*	1.22948	.040	-6.1604	-.1124

Based on observed means.

The error term is Mean Square (Error) = 16.628.

\*. The mean difference is significant at the .05 level.

### **The Effect of Methods on Aggregate Score of the Writing Traits**

In Table 3, five separate rows represent the five levels of dependent or outcome variables. The significance value for the aggregate score of each of the analytic traits of writing indicated that there were significant differences among the 3 groups in terms of the scores for analytic traits of writing. Also, in order to compare the extent of the effect of the 3 methods of writing instruction on improving the 5 writing traits of the learners, the 'Partial Eta Square' values in this table representing the effect sizes were analyzed. According to the guidelines suggested by Cohen (1988) for partial eta square, anything greater than 0.14 is considered a large effect size. As indicated in Table 3, large effect sizes were observed, indicating that the treatments had a large effect on the improvement of writing skills of the learners in terms of the five distinguished qualities of writing.

In addition, comparing the different traits in terms of their amount of effect size, showed that the trait of 'Organization' with a very large effect size of 0.404 had a meaningful difference with the other traits in this respect. In other words, it was influenced by the mode of practice more than the other traits causing the learners to have a better performance in following the principles of organized writing. The traits of 'Mechanics' and 'Language Use' with 0.239 and 0.269 values respectively were also considered as the next two qualities of writing which were better improved following the guidelines of the treatment. The results revealed that these two traits as the conventions of writing were relatively more cared about and concentrated on in the treatment, but it was not yet clear which group of learners had gained better scores in terms of these qualities of writing. Although the other two traits of 'Vocabulary' and 'Content' had relatively lower values and were therefore less influenced by the treatment, they still had a large effect size based on the scale of Cohen (1988).

Table 3

Test of Between-Subjects Effects in MANOVA Analysis

*Test of Between-Subjects Effects*

Source	Dependent Variable	Type III Sum of Squares	df	F	Sig.	Partial Eta Squared	Observed Power
Group	CONTENT	33.091	2	6.155	.004	.163	.876
	ORGANIZATION	32.144	2	21.311	.000	.404	1.000
	VOCABULARY	14.371	2	5.938	.004	.159	.863
	LANGUAGE_USE	33.303	2	9.889	.000	.239	.980
	MECHANICS	3.644	2	11.610	.000	.269	.992

In summary, the MANOVA technique was used to examine the effect of the treatments on 5 outcome variables. The next step was to determine which writing traits and in which groups were influenced more by the treatment in comparison with the other writing traits. Since there were equal group sizes in this study, Tukey HSD test for *post hoc* was chosen and performed.

#### Post Hoc Analysis in MANOVA

The Post Hoc analysis helps to determine which groups and which methods of instruction were significantly different from the others and to understand the impact of the treatment on any of the analytic qualities of writing. The results of the Post Hoc analysis are listed in the table as 'multiple comparisons' (Table 4).

Table 4:

The Results for Post Hoc Test in MANOVA

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Analytic Traits Results	(J) Analytic Traits Results	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
CONTENT	WE1	WE2	-.0909	.49434	.982	-1.2775	1.0957
		WP	1.4545*	.49434	.012	.2680	2.6411
	WE2	WE1	.0909	.49434	.982	-1.0957	1.2775
		WP	1.5455*	.49434	.007	.3589	2.7320
	WP	WE1	-1.4545	.49434	.012	-2.6411	-.2680
		WE2	-1.5455*	.49434	.007	-2.7320	-.3589

ORGANIZATION	WE1	WE2	.3182	.26184	.449	-.3103	.9467
		WP	1.6136*	.26184	.000	.9851	2.2421
	WE2	WE1	-.3182	.26184	.449	-.9467	.3103
		WP	1.2955*	.26184	.000	.6670	1.9240
	WP	WE1	-1.6136	.26184	.000	-2.2421	-.9851
		WE2	-1.2955*	.26184	.000	-1.9240	-.6670
VOCABULARY	WE1	WE2	-.1818	.33168	.848	-.9780	.6143
		WP	.8864*	.33168	.026	.0902	1.6825
	WE2	WE1	.1818	.33168	.848	-.6143	.9780
		WP	1.0682*	.33168	.006	.2720	1.8643
	WP	WE1	-.8864	.33168	.026	-1.6825	-.0902
		WE2	-1.0682*	.33168	.006	-1.8643	-.2720
LANGUAGE USE	WE1	WE2	.4545	.39125	.480	-.4846	1.3937
		WP	1.6818*	.39125	.000	.7427	2.6209
	WE2	WE1	-.4545	.39125	.480	-1.3937	.4846
		WP	1.2273*	.39125	.007	.2882	2.1664
	WP	WE1	-1.6818	.39125	.000	-2.6209	-.7427
		WE2	-1.2273*	.39125	.007	-2.1664	-.2882
MECHANICS	WE1	WE2	.2045	.11944	.209	-.0822	.4912
		WP	.5682*	.11944	.000	.2815	.8549
	WE2	WE1	-.2045	.11944	.209	-.4912	.0822
		WP	.3636*	.11944	.009	.0769	.6503
	WP	WE1	-.5682	.11944	.000	-.8549	-.2815
		WE2	-.3636*	.11944	.009	-.6503	-.0769

Based on observed means.

The error term is Mean Square (Error) = .157.

\*. The mean difference is significant at the .05 level

### Content

Looking at the mean differences of the three different groups in Post Hoc results, it was observed that the mean difference between WE1 and WE2 for 'Content', as the first writing trait according to Composition Profile of Jacobs et al. (1981), was not significant, but the mean difference between WE1 and WP was significant with a value of 1.454, and a significance value

of 0.012. The results also meant the difference was significant between WE2 and WP in 1.545. So, WE1 and WE2 differed significantly from WP in terms of the writing trait of 'Content', and the two treatment groups of WE1 and WE2 were numerically different, but not statistically significant from each other in their differences. Therefore, again in choosing which method would be most effective, it appeared that both WE1 and WE2 were more effective when compared to WP.

It should be noted from Table 4 that in the analytic trait of 'Content', there was a separation between the two confidence intervals, meaning that in ninety-five percent of all the other samples collected from this population, there would be a difference between the two treatment groups with that of the control group in terms of this quality of writing. Therefore, the magnitude of the difference was formed confirming the consistency of the difference, implying that the same sort of results could be gained in other sample groups out in the population.

### **Organization**

The results of Post Hoc test for 'Organization', the second writing trait according to the Composition Profile of Jacobs et al. (1981), revealed that the mean differences between the two treatment groups were once again numerically different but not statistically significant. However, the mean difference between WE1 and WP was significant with a value of 1.614, and significance value of 0.000. The results also showed that the mean difference between WE2 and WP in terms of 'Organization' was also significant at 1.296.

As is shown in the table results, WE1 group members were much more influenced by the treatment in comparison with the other groups. They also gained the best improvement level in the trait of 'Organization' as compared to the other analytic writing traits. Therefore, again in choosing which method would be most effective, it appeared that both WE1 and WE2 were the most effective when compared to WP, but again, the strategies introduced to the learners in WE1 were considered the main reason for the learners in this group to gain better results in organizing their writing pieces.

Checking the lower bounds of both WE1 and WE2 and the upper bound of WP, the researcher found that the lower and upper boundaries did not overlap. Therefore, in ninety-five percent of all the other samples collected from this population, there would be a difference between the two treatment groups with control group in terms of this quality of writing.

### **Vocabulary**

The third analytic trait of writing, which was investigated in the post hoc analysis of the experiment, was 'Vocabulary'. It was the third quality of writing in the Composition Profile of Jacobs et al. (1981), and the two parameters of mean difference and significance level of 'Vocabulary' scores in three different groups according to the results of the analysis were taken into account to interpret the data.

The results signified that the mean differences between the two treatment groups were numerically different at 0.182, but this difference was not statistically significant. The largest difference; however, was observed in the mean difference between WE2 and WP with a value of 1.068 with a significance level of 0.006. The results of the comparison between WE1 and

WP also revealed a statistically significant difference, and a mean difference at 0.886. So, the trait of 'Vocabulary' in comparison with the other two traits of 'Content' and 'Organization' was relatively less influenced by the first and second e-portfolio methods. It could imply that, unlike the trait of 'Organization', the analytic quality of 'Vocabulary' or word choice was not as much influenced by the teaching and learning strategies used in an online environment for both treatment groups. It could also suggest that the peer review strategies were targeted at improving the organizational and conventional aspects of writing rather than ideas and word choice.

The 95 percent confidence interval in the results of lower and upper bounds for 'Vocabulary' trait were also indicative of a consistent difference in terms of the trait of 'Vocabulary', as the results indicate that the lower and upper boundaries did not overlap.

### **Language Use**

'Language Use' as the fourth quality of writing introduced by Jacobs et al. (1981), was analyzed in the writing drafts of the learners to see if the three different methods had any effect on improving the writing skills of the learners in terms of grammatical features.

According to the table of 'Multiple Comparisons', the mean change for the trait of 'Language Use' was the greatest at 1.68 among all five traits of writing, and this change occurred between WE1 and WP with a significance level of 0.000. As for the treatment groups of WE1 and WE2, a non-significant numerical difference was found in their posttest scores for 'Language Use'. However, the second Writing E-portfolio group as WE2 and Writing Portfolio group as WP showed a statistically significant difference in grammar score with a mean difference of 1.23. Hence, both treatment groups as WE1 and WE2 differed significantly from WP in terms of the writing trait of 'Language Use', and WE1 had a greater impact on this quality of the students' writings.

### **Mechanics**

'Mechanics' included the technical aspects of writing, such as spelling, punctuation, and capitalization. It was also examined using the post hoc results of the experiment as the fifth and last trait of writing according to the Composition Profile of Jacobs et al. (1981). Regarding the 'Mechanics' of writing, the two parameters of the statistical significant difference, and the mean difference in three different groups were taken into account so as to interpret the data. .

The largest mean difference among the groups was found to be between WE1 and WP with a value of 0.568 in the significance level of 0.000. At the same time, comparing the means of WE1 and WE2 in 'Mechanics' score resulted in a non-significant difference between these two treatment groups at 0.204 for mean difference score.

### **A Comparison of Analytic Traits in Three Different Groups**

As mentioned in the methodology section, for the purpose of determining the relative writing performance of the three groups, their pre- and post-test scores were compared.

The results of MANOVA analysis regarding the analytic traits of writing showed the relative within-group and between-group differences in the experiment. The largest differences

among the three groups could initially be observed in the results related to the writing trait of 'Organization'. It means that by comparing the different traits of writing in terms of their amount of effect size, it was documented that 'Organization' made a better improvement with the largest effect size, and a mean difference of 1.614 between WE1 and WP. It is the second writing trait of Composition Profile of Jacobs et al. (1981), and was emphasized in the online writing courses as a component of good writing. It was especially emphasized in WE1 through implementing the Peer Checklist which required the students to do peer reviews while considering the specific traits of writing.

The next largest effect size among the analytic traits of writing belonged to 'Mechanics', followed by 'Language Use'. The mean difference between WE1 and WP groups in terms of the trait of 'Language Use' was 1.682 which could mainly be because of the emphasis in e-portfolio groups on considering the conventions of writing. Regarding the trait of 'Mechanics', the relative high score in the post-test of WE1 was probably due to the emphasis on indirect correction of those errors through the repeated review of peer and teacher. Hence, the peer reviewers were suggested to use specific symbols to comment indirectly on the writings of their peers in the areas of 'conventions', 'meaning', 'word choice' and 'verbs'.

Therefore, the second significant change in the writing drafts of the learners in the main treatment group occurred in the conventions of writing which were mainly dealt with in the editing of a draft. The students were able to differentiate the revising of a draft from editing of it in the process of writing, since they were taught the differences through the analytic writing traits. They then knew that traits like Content, Vocabulary, and Organization were mostly focused on in the revising stage of writing a draft, but Language Use and Mechanics were addressed in the Editing stage. Based on this awareness, they practiced following the order in using the writing traits for making the required corrections.

The trait of 'Content' was the next analytic writing quality in terms of the amount of effect size with a Partial Eta Square of 0.163. In addition, a mean difference of 1.454 existed between WE1 and WP in their writing performance regarding the trait of Content as the first writing trait of Composition Profile of Jacobs et al. (1981), which is emphasized in the online writing courses as a component of good writing. The specific emphasis on Content or Ideas in WE1 group was also observed in the application of Process Scale of Akef and Maftoon (2010) and through applying the Peer Checklist which expected the learners to do peer assessment while taking into consideration the specific traits of writing.

The quality of writing with the least amount of effect size was 'Vocabulary' which is considered the third analytic trait of the Composition Profile of Jacobs et al. (1981). The Partial Eta Square of 0.159 for this writing quality meant that the choice of words in writing in the post-test of the groups made a significant difference after the exposure to treatment. The mean difference between WE1 and WP in terms of the trait of 'Vocabulary' was also 0.8864 which was less than the other traits. However, this difference between the second experimental group and WP was 1.068 which was larger than the difference between WE1 and WP.

### **Comparing the Writing Performance of the Learners in WE1 with WE2**

The presence or absence of teaching and learning strategies with a focus on the analytic traits of writing was the only differentiation between WE1 and WE2 Groups. So, the instructor of WE1 conducted the course by applying the teaching strategies based on the Process Scale of Akef and Maftoon (2010). In addition, the learners followed the learning strategies mainly based on the principles and components of e-portfolio like self, peer, and teacher assessment, and adopting the Peer Checklist for peer review.

On the other hand, the learners in WE2 adopted the writing e-portfolios following merely the principles of process-genre approach, and they were not supplied with teaching and learning strategies based on analytic writing traits. Hence, going through the mean differences of the two treatment groups, the researcher made an attempt to make inferences about the effect of different teaching and learning strategies in both treatment groups on the writing performance of the learners.

The main differences between these two groups were in the traits of 'Language Use' and 'Organization' with the largest amounts of mean difference. It meant that the application of teaching and learning strategies and Peer Checklist was useful in WE1 causing better writing performance among learners in terms of grammatical correctness and following the organizational patterns.

It was, therefore, concluded that the conventions of writing and cohesiveness or word relatedness were the segments which were noticed and relatively better improved by the learners in WE1 as a result of following the strategies and revising and editing of their peers' drafts. Consequently, this could refer to one distinctive feature of peer review which is not dealing with the content and ideas of the writer, but mainly with the other qualities of writing like 'Organization' and 'Language Use'. The main purpose of peer review was to remind the writers to notice the mistakes they may have ignored while writing their drafts. However, the findings in this study were indicative of the relatively better performance of WE2 in the traits of 'Vocabulary' and 'Content' as compared to WE1, which confirms the ineffectiveness of using peer review strategies to improve these qualities of writing.

### **Comparing the Writing Performance of the Learners in WE1 with WP**

The writing performance of the learners in WE1 was also compared with that of WP. There were two main differences between these two groups. One was using specific teaching and learning strategies based on the analytic traits of writing, and the other was the online environment of learning in WE1 which were absent in WP.

Looking at the mean differences of these two groups in terms of the analytic traits of writing, the researcher noticed the effects of two distinguishing factors on the writing performance of the groups. There existed almost equal differences between groups regarding the three main traits of 'Content', 'Organization', and 'Language Use' with just a 2-3% tolerance or range of variation in the values for these traits. It means that the learners in WE1 had relatively better writing performance in terms of the three qualities of writing in comparison with the learners in WP. The two groups had also experienced a relatively smaller mean difference regarding the two other traits of 'Vocabulary' and 'Mechanics'. Therefore, the existence of main differences in the three main traits between WE1 and WP was indicative of

the impact of the additional teaching and learning strategies in addition to the online learning system in WE1.

As it was documented in the MANOVA results and illustrated earlier, all five qualities of writing in WE1 made significant differences in comparison with the amount of these five traits compared to WP. It meant that we had significant improvement in the writing performance of WE1 in terms of all five qualities of writing in comparison with that of WP. At the same time, since the main difference between WE1 and WE2 was documented in just the traits of 'Organization' and 'Language Use', the higher mean difference for the trait of 'Content' in WE1 could be attributed to the application of e-portfolios in the online system. So, the writing traits of 'Language Use', 'Organization' and 'Content' with 27%, 26%, and 24% of mean difference respectively caused the significant difference to be formed between WE1 and WE2 in an equal range, and the trait of 'Vocabulary' with 14% and 'Mechanics' with 9% of mean difference were the two traits which were relatively less influenced by the application of teaching and learning strategies in the LMS.

### **Discussion**

As it was mentioned earlier, the experimental groups practiced writing in the online environment of Folioclaro adopting process-genre approach and using teaching and learning strategies in the process of writing. The first experimental group or WE1 made use of the analytic traits of writing and Peer Checklist, but the learners in the second experimental group or WE2 were not provided the trait-based learning strategies and Peer Checklist. The participants of the Control Group or WP, on the other hand, did their writing tasks not in the electronic environment but in classic paper portfolio format.

### **Online Environment of E-Portfolios & Previous Literature**

The significant difference which was documented in the group comparison between WE1 and WP was reminiscent of previous studies on writing e-portfolio in online writing environment. It was mentioned in the literature about e-portfolio practice in ESL and EFL environment that the majority of the experimental studies conducted in this area generated positive outcomes and highlighted their usefulness in improving the writing skills of the learners.

Therefore, by applying the online system of e-portfolios to improve the writing performance of EFL learners, this study generated almost the same results which were obtained in the research of scholars like Gerbic et al. (2011), Valdez (2010), and Kuo (2008) in ESL context, and Erice and Ertaş (2011), Motallebzadeh and Babaei (2010), and Chang and Tseng (2009) in EFL context. However, the findings of this research were not in line with the results of studies done by researchers like Aliweh (2011), Tosun and Baris (2011), Montgomery and Wiley (2008), and DiBiase (2002). These scholars were mainly focusing on the demerits of electronic portfolios in language education referring to their being time-consuming, complicated, and unreliable to be applied in high-stake settings.

### **Application of Analytic Writing Traits & Previous Literature**

As indicated by Al Kahtani (1999), an e-portfolio consists of learner's work, feedback from peers, and teacher assessment. In writing e-portfolios which are dealt with in this study, the peer and teacher evaluations are accompanied with the application of some strategies which take into consideration the analytic traits of writing. So, regarding the teaching strategies of

WE1, the Process Scale of Akef and Maftoon (2010) came to the stage to allow the learners to distinguish the different qualities of writing and become aware of all its traits.

Concerning the learning strategies, the students were briefed on the application of the analytic traits of writing, and had practice to increase their own awareness of these qualities, and improve them. They also had some instructions on how to apply a Peer Checklist to check the mentioned qualities of writing in the writing drafts of their own friends both in their peer groups and with other course members.

In the literature on the rating scales of writing, two different formats were referred to as holistic and analytic assessment and scoring of writing drafts. Holistic assessment is mainly an individual impression of a rater of the quality of the writing (Hamp-Lyons, 1990), but analytic assessment, on the other hand, is the appraisal of the quality of writing focusing on and judging each analytic trait, and hence coming to more accurate scores. The literature on the application of the analytical scoring procedure shows that because of multiple scoring of a piece of writing in this method, a greater amount of reliability is obtained.

One instance of the application of e-portfolios using analytic traits as a means of instruction and assessment was observed in a model by North West Regional Education Laboratory or NWREL (2010) in a native English context. It was called Six-Trait Model which made use of analytic traits for both formative and summative assessment of writing in native language contexts. It means that specific lessons were planned to teach the use of any of the analytic traits of writing to the learners. It was claimed by NWREL (2010) that through sharing the language of the writing traits with the learners, they could become reflective learners gaining the ability to better review and become self-aware of their own writing.

The current study, by considering the use of an analytic-trait-based method of instruction in a Native language context, was an attempt to examine the application of trait-based writing instruction method in EFL contexts. So, the teaching and learning strategies in the main experimental group were all formulated in a way to compose an e-portfolio method using the analytic traits of writing. The findings of this mixed-method research were found to be in line with the results gained in the previous research on online methods using analytic traits in native language context.

Although writing e-portfolios were investigated in an ESL/EFL context in the past, the application of e-portfolios has not so far been explored in such a context while using the analytic traits of writing. Therefore, the findings of this study could be of significance to the practitioners and language instructors who are willing to experience this new format which has proved to be feasible and relatively useful in improving the writing skills of the learners in foreign language context.

According to Hyland (2002), in the balanced writing pedagogy of process-genre, writing is considered as a problem-solving activity that comprises a cognitive process, process approach, and a socially oriented proposal, genre approach. So, the online system of portfolios by having these features was able to prove useful in EFL writing instruction.

**Conclusion**

The implementation of electronic portfolios can promote language learning, and in particular cause improvement in the writing skills of EFL language learners. While it has always been a challenge for language instructors to motivate students to write, the writing method presented in this study could be a powerful means to engage the learners in interactive writing activities and tasks leading to an improvement in their writing skills.

Although the documented difference between the two treatment groups – WE1 and WE2 – was not significant in this study, the expressions of the learners showed a difference in the attitudes towards the analytic traits of writing. The learners in WE1 talked about a sort of awareness of the different qualities of writing. They claimed that knowing about the analytic traits of writing caused them to understand and be convinced that they need to pay attention to all aspects of writing and not just its usage and mechanical correctness. It was a new look at writing ability causing the learners to pay attention and be sensitive to these required features of writing. They referred to the role of the Peer Checklist in reminding them of the writing qualities to be considered in their self- and peer-assessment.

As it was the first experience of most of the learners in dealing with the electronic portfolios in LMS and the analytic qualities of writing, they were more motivated to be involved in the course activities. However, perhaps because of being inexperienced in dealing with the new environment, the learners in the main treatment group did not perform as expected; nevertheless, the respondents of WE1 were mainly satisfied with the learning strategies they learned and applied in the course. It was very crucial to scaffold the writers and provide them with a framework and a pattern to know what to do and how to cover the different stages of writing following the writing method instructions.

Additionally, in this study, the electronic environment of e-portfolios proved to play a significant role in facilitating the writing task performance of the learners and consequently improve their writing skill in both WE1 and WE2 groups. The findings of this study proved to be satisfactory in terms of the impact of online environment on the writing performance of the learners. The significant difference was observed in comparing both the total gained scores of the learners and the obtained scores of the learners in certain traits of writing. It meant that the electronic environment of portfolios was an effective means to facilitate the writing activities and help the EFL learners to achieve their desired goals through making improvement in their own writing.

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