

An Effect of Levels of Learning Ability and Types of Feedback in Electronic Portfolio on Learning Achievement of Students in Electronic Media Production for Education Subject

Prakob Koraneekij, Ph.D.

Faculty of Education, Chulalongkorn University

onlineteacher2005@hotmail.com, prakob.k@chula.ac.th

Proceedings of the Ninth Distance Learning and the Internet Conference 2008, Waseda University,
Tokyu, Japan, organized by the APRU, November 19-22, 2008, Pp. 31-36.

Abstract

The purpose of this research was to study an effect of levels of learning ability and types of feedback in an electronic portfolio on learning achievement of students in electronic media production for education subject. The samples were 113 students registered in Electronic Media Production for Education Subject divided into 6 groups : 3 control groups and 3 experimental groups. The control groups received feedback type 1 (the assessment feedbacks were excellent, good, average and improving needed then scoring) while the experimental groups received feedback type 2 (the assessment feedback were similar to the type 1, with the suggestions of errors and methods of improvement). The experiment ran for 5 weeks. The instruments were the learning ability test, learning achievement test and E-portfolio management system on web. The data were analyzed by descriptive statistic, One way ANOVA and Two way ANOVA. Results indicated that there was an interaction between levels of learning ability and types of feedback on learning achievement of students in electronic media production for education subject at 0.05 level of significant. To develop an E-portfolio of the student, an instructor needs to give specific feedback to students, including scoring, specifying errors and some advice on how to improve their work. In this way, the students can use the information, which would improve their learning achievement as well.

Keywords

Electronic Portfolio, Feedback, Learning Ability, Learning Achievement

Introduction

E-portfolio, using electronic technology, allows the students to collect and organize their learning archives/evidences in various media forms. The portfolio could be a reflective tool demonstrating the growth over time (Barrett, 2000). E-portfolio, moreover, is a teacher tool for formative and summative evaluation, as well as a student tool for their self-evaluation. The underlined concept of a cooperation and a multiple evaluation from teaching/learning parties, allows students to develop their higher order of thinking: knowledge, comprehension, application, analysis, synthesis and critical thinking. (Forker and McDonald, 1996; Klenowski, 1998) E-portfolio also supports the instructor and peers to be able to give feedback about the works of students. By this way, students can use their feedbacks for learning improvement.

With feedback, students view their strong and weak points and use the feedback to improve their next works and it will also help them to improve their learning achievement. The feedback can be classified into 8 types as following: 1) Rewarding 2) Punishing 3) Approving 4) Disapproving 5) Specifying attainment 6) Specifying improvement 7) Constructing achievement 8) Constructing the way forward (Tunstall and Gipps, 1996)

From the research finding, it was found that providing feedback about the mistakes, the flaws, the ways to improvement, and giving a score will be appropriate to high and medium ability students (Rojanasai, 2005). Besides, this specific feedback can be beneficial to students more than unspecific feedback (Konold et al. 2004). However, it was also found that giving feedback and scores allow the learners to find their levels of knowledge, hence,

help them to improve their work and get the better scores (Smith and Gorard, 2005).

Many researches have been found the results of the learning feedback related to a design of computer-assisted instruction lesson. No research have been conducted on the different feedbacks in E-portfolio, in compared to the level of learning ability. Therefore, the researcher is interested in studying whether using E-portfolio in assessment and giving feedback in different ways with different students' learning level ability will increase students' learning achievement.

1 Purpose of the study

To study the effect of levels of learning ability and types of feedback in an electronic portfolio on learning achievement of students in electronic media production for education subject.

2 Research Hypothesis

2.1 If students who have different level of learning ability get different types of feedback in their E-portfolio, will they have a different learning achievement.

2.2 There was interaction between the learning ability and feedback on learning achievement of students in electronic media production for education subject.

3 Research Variables

The research variable could be presented as the following:

3.1 Independent Variables

The independent variables were the types of feedback and the levels of learning ability as the following :

3.1.1 Types of Feedback

- Feedback type 1 : Instructors will assess by using following terms excellent, good, average and improving needed then scoring.

- Feedback type 2 : Instructor will assess by using following terms excellent, good, average and improving needed then show the error and way to improve and scoring.

3.1.2 Levels of learning ability

- High ability ($\geq \bar{x} + 1S.D.$)

- Medium ability (between $\bar{x} - 1S.D.$ and $\bar{x} + 1S.D.$)

- Low ability ($\leq \bar{x} - 1S.D.$)

3.2 Dependent Variable

The dependent variable was learning achievement of students in electronic media production for education subject.

4 Research Methodology

This research was an experiment research (Control-Group Pretest-Posttest Design) as the following:

4.1 Sample

This research used purposive sampling with the 113 students registered in Electronic Media Production for Education Subject divided into 6 groups as the following:

Figure 1 Research sample

No.	Sample	Levels of Learning Ability	Types of Feedback	N
1	Control group 1	High ability	1	16
2	Control group 2	Medium ability	1	20
3	Control group 3	Low ability	1	18
4	Experimental group 1	High ability	2	19
5	Experimental group 2	Medium ability	2	23
6	Experimental group 3	Low ability	2	17
Total				113

4.2 Research instruments

This research had 3 instruments as the following :

4.2.1 The E-portfolio management system on web

The quality of E-portfolio management system on the web will be verified by 5 experts. The E-portfolio management system has detail pages as follows:

- 1) Registration system
- 2) Log in page
- 3) Introduction
 - a. Homepage
 - b. Students' profile
 - c. Objective of E-portfolio page
- 4) File and Folder management
 - a. Created folder
 - b. Uploaded files of work
 - c. Deleted folder
 - d. Deleted files of work

- 5) Work assessment and rubric system
 - a. Self-reflection and self-assessment
 - b. Recommendation from Instructor
- 6) Appendix
- 7) Presentation portfolio

- 6) Present final portfolio
- 7) Assess final portfolio

The electronic portfolio content composes of works or evidences reflecting to the completion of goals achievement by present an individual goal, interesting, and the learning style of each student. Therefore, the structure of an electronic portfolio of students is as follows.

- 1) Introduction
 - a. Homepage
 - b. Student's biography
 - c. The objective of E-portfolio
- 2) Content
- 3) Assessment
 - a. Self-reflection information
 - b. Self-assessment information
 - c. Recommendation from Instructor
- 4) Appendix

4.2.2 Learning ability test

Learning ability test comprised with the basic computer knowledge, logic, and flowchart that can be verified content validity by the 5 experts. The test was tried out with 30 students in the Faculty of Education to select the items on the range of difficulty index between 0.2 – 0.8, as well as a discrimination index with at least 0.2, and Cronbach's Alpha Coefficient at 0.78.

4.2.3 Learning achievement test

Learning achievement test which verified the content validity by 5 experts. The test's also administered to 30 students in the Faculty of Education to scrutinize the items on the range of difficulty index between 0.2 – 0.8, as well as a discrimination index at least 0.2, and Cronbach's Alpha Coefficient at 0.87.

4.3 Experimental process

The experimental process was presented as the following:

Figure 2 Experimental Process

Phases	Activities
1	- The samples did learning ability test and learning achievement test (pretest) - The introduction to E-portfolio management system and E-portfolio development process. - The samples identify electronic portfolio goals, content, and scoring rubric
2	- The learning activities and E-portfolio development process (4 weeks)
3	- Posttest

The seven steps of electronic portfolio development process are as follows.

- 1) Prepare tools and related individuals
- 2) Identify electronic portfolio goals and content
- 3) Collect works or evidences in working portfolio and self-reflection
- 4) Self-assessment
- 5) Select works or evidences for final portfolio

4.4 Methods of data analysis

4.4.1 The data were analyzed by using descriptive statistics to explain the general information of the sample.

4.4.2 The data were analyzed to find out the interaction between the feedback and learning ability on learning achievement of students in Electronic Media Production for Education Subject by using Two ways ANOVA.

4.4.3 The data would be analyzed to find out the difference of students' learning achievement, which divided into 6 groups by using One way ANOVA.

5 Research Finding

The results from researching an effect of levels of learning ability and types of feedback in electronic portfolio on learning achievement of students in electronic media production for education subject were presented as follows:

5.1 There was an interaction between levels of learning ability and types of feedback on learning achievement of students in electronic media production for education subject at 0.05 level of significant. (Figure 3)

5.2 The high ability students, who received the feedback (Type 2), had higher scores in learning achievement than the high ability students, who received the feedback (Type 1), at 0 .05 level of significant.

5.3 The high ability students, who received the feedback (Type 2), had higher scores in learning achievement than the low ability students, who received the 1st type of feedback, at 0.05 level of significant

5.4 The high ability students, who received the feedback (Type 1), had higher scores in learning achievement than the low ability students, who received the feedback (Type 1), at 0.05 level of significant

5.5 The medium ability students, who received the feedback (Type 2), had higher scores in learning achievement than the high ability students, who received the feedback (Type 1), at 0.05 level of significant

5.6 The medium ability students, who received the feedback (Type 2), had higher scores in learning achievement than the low ability students, who received the feedback (Type 1), at 0.05 level of significant

5.7 The low ability students, who received the feedback (Type 2), had higher scores in learning achievement than the low ability students, who received the feedback (Type 1), at 0.05 level of significant

Figure 3 Tests of between-subject effects

Source	SS	df	Mean Square	F
Learning ability	469.247	2	234.623	16.286*
Feedback	900.185	1	900.185	62.485*
Learning ability *	137.964	2	68.982	4.788*
Feedback				

** p < .05

6 Discussions and recommendations

In analyzing the learning achievement, it was found that there was an interaction between levels of learning ability and types of feedback on learning achievement of students in electronic media production for education subject at 0.05 level of significant. It was clearly shown that the levels of learning ability and types of feedback effected the learning achievement of the students. Likewise, the students needed specific feedback including the strength and weakness as well as giving the mistake specifically. This kind of information would benefit the student more. The quality feedback was beneficial to the student who had a lower level in learning achievement; especially it was also very important to the student who had higher learning achievement level as well (Konold et al., 2004)

In addition, the students who received feedback without being scored or graded got lower

learning achievement (Smith and Gorard, 2005). In the study of Rojanasai (2005) found out that most of the students liked to get feedback with advice in their mistakes as well as ways to improve because they could see the detail and understand their mistakes more.

To develop an E-portfolio of the student, an instructor needs to give specific feedback to students, including scoring, specifying errors and some advice on how to improve their work. In this way, the students can use the information, which would improve their learning achievement as well.

For further research development is needed to study E-portfolio that can enhance the students to develop in other fields such as problem solving, creativity, and ICT ability. Besides, this research was done with undergraduate students in the Faculty of Education only, so it needs to be researched with the students in other faculties or in different educational levels such in primary schools or in secondary schools.

7 References

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