

Development of an Edutainment Instructional Model Using Learning Object for Electronic Book on Tablet Computer to Develop Emotional Quotient

Nuttakan Pakprod and Panita Wannapiroon

Abstract—The research aims to (1) develop and (2) evaluate the edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient. Two phases of the research will be carried out: 1) a development, and 2) an evaluation of the edutainment instructional model. Samples are experts in the field of ICT, child psychology, and 7th grade curriculum management. Five experts are selected by purposive sampling method. The obtained data are analyzed using mean and standard deviation.

The research result demonstrates the following findings:

1. The edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient is composed of four key elements: 1) Principles of the instructional model, 2) Objective of the model, 3) Learning process, and 4) Measurement and evaluation; the objective is to develop the emotional quotient; the learning process and activities have five steps: 1) Orientation, 2) Elicitation, 3) Turning, 4) Application, and 5) Review; the measurement and evaluation will be performed using a Time Series Experimental Design survey form for emotional quotient.

2. The five experts have evaluated the instructional model and commented that the developed edutainment instructional model showed high suitability.

Index Terms—Edutainment, learning object, electronic book, tablet computer, emotional quotient.

I. INTRODUCTION

Education is a vital foundation for human resources management. Application of technology to support education is therefore very critical to the national development. Above all, young generation's academic knowledge, skills, and intelligence must be developed to foster their learning capacity, knowledge expansion, as well as adaptiveness to become news literate in the context of fast evolving technological change. The technology-supported education, moreover, promotes the development of a lifelong learning approach, and moves towards the international education system in an entertaining learning setting. Sustainable and effective learning consequently happens and results in satisfactory with the study. The above statements are in line with the principles of edutainment.

The principles of edutainment focus on the utilization of entertainment as a learning booster. Media and activities are hence supporting tools. According to the study of Harnani

and Nor [1], Markus and Nor [2], Tiomyod [3] children naturally learn well through games which contribute to a more effective learning of children.

Moreover, Harnani and Nor [1] suggested about the reason why edutainment was not popular. It requires instructors with better knowledge and more skills than the narrative teaching, and incurs higher costs. Anyway, learning object can be a solution. Corresponding with the findings from a study of Brooks, Kettel and Hansen [4], Mahadevan [5] learning object with perfect composition can vastly benefit the learning.

Presentation of the learning object can be found in various forms. It stimulates attention, enhances experience, and explains the content better than conventional books. As a result, learners enjoy the study. The finding from a study of Chau [6], Korat and Shamir [7] supports the statement by suggesting that learners feel happy when reading electronic books because they have better presentation compared to the conventional ones. Besides, learners could easily exchange views with their peers.

Electronic books can be presented on many types of electronic devices, particularly tablet computer. It is a technology sponsored by the government to provide equal opportunity to students under the One Tablet per Child project. The use of tablet computer in the education field motivates attention and enhances learning capacity of students very well. The statement is supported by the study of Couse and Chen [8], Bienkowski, and other [9] revealing that tablet computer boosts learning, creates enjoyment, and promotes self-reliance.

The use of learning object in electronic books facilitates the management of learning activity in the scope of Edutainment Instructional Model. The learning object is a supplementary media with features to increase understanding of the content, knowledge, and experience of learners. The Office of the Basic Education Commission (OBEC) has indicated that tablet computer is a learning device full of content in form of electronic books and learning objects. Consequently, more learning objects are being created for installation in tablet computers. The education is therefore upgraded. In this context, instructors must prepare the knowledge management specifically for tablet computer by building an environment that encourages an appropriate use, on top of the existing knowledge management plan.

Pertaining to the outstanding feature of the edutainment learning, learning object, electronic books and tablet computer can contribute to the development of learners' emotional quotient. It is an ability to live ingeniously and happily with other people. Correspondingly, the study of

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Yusoff, and other [10], Mahyuddin, and other [11] found that emotional quotient could help developing basic skills of learners.

The above paragraphs manifest the necessity of a development of an edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient. It involves instructional model research and development including conceptualization, model formulation, and presentation of the model testing result to ensure that the developed model is valid for effective use.

II. OBJECTIVES

- 1) To develop an edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.
- 2) To evaluate the developed edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.

III. RESEARCH SCOPE

- 1) Population is experts in the field of information technology, edutainment, learning object, child psychology, and 7th grade curriculum management.
- 2) Samples are five experts in the field of information technology, edutainment, learning object, child psychology, and 7th grade curriculum management, selected by Purposive Sampling method. The selection criteria are 1) at least Ph.D. degree holder, and 2) at least three years of relevant experience.
- 3) Variables:
 - Independent variable is the edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.
 - Dependent variable is the evaluation of the model.

IV. RESEARCH METHODOLOGY

The instructional model development is carried out in two phases.

Phase 1: The development of an edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.

- 1) Relevant papers and research works are studied, analyzed, and synthesized to formulate a concept of the model development.
- 2) A model is developed based on the data obtained from the research study used in the formulation of the model development concept.
- 3) The model is presented to thesis advisor for consideration and modified it as guided.
- 4) A tool is built to evaluate the model's suitability.

Phase 2: Evaluation and certification of the developed edutainment instructional model using learning object for electronic book on tablet computer to improve emotional quotient.

- 1) The model is submitted to the experts for review and evaluates the suitability.

- 2) The model is modified according to the experts' suggestions.
- 3) After modification, the model is presented in form of narrative diagram.
- 4) Evaluation result on suitability is analyzed using mean (\bar{X}) and standard deviation (S.D.). Five Likert-type levels of measurement are identified to assess the model's suitability, namely strongly agree, Agree, Neither agree nor disagree, disagree, and strongly disagree.

V. RESEARCH CONCLUSION

The research results are presented in two parts.

Part 1: the edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.

The edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient consisted of four components as followed:

- Principles of the model
- Objective
- Learning process
- Testing and evaluation

The edutainment instructional model was shown in Fig. 1:

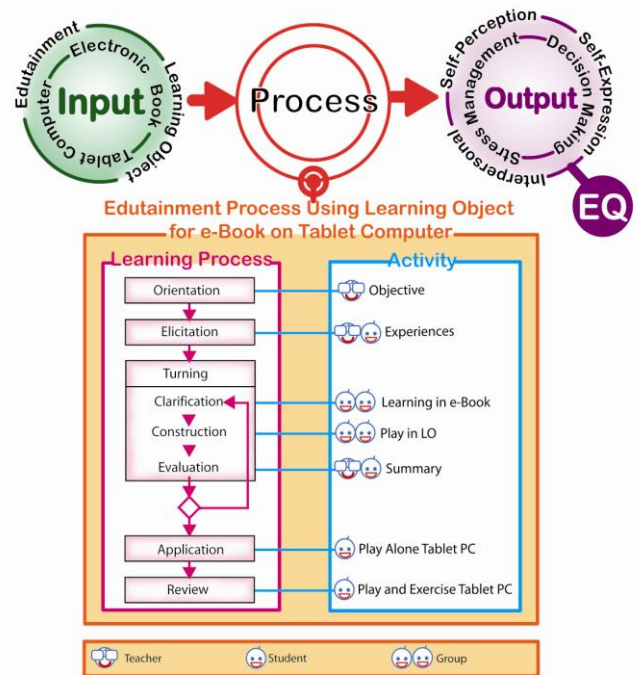


Fig. 1. The edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.

- 1) Principles of the instructional model are 1) edutainment, 2) learning object, 3) electronic books, and 4) tablet computer.
 - Edutainment was developed based on the constructivism theory of Rosalind and Beverley [12] and the entertaining education. It has four main characteristics namely: 1 (Knowledge must be suitable and meet objectives and obtained by learners through entertaining activities, 2) Enjoy with Environment creates entertainment and collaboration among learners in order to link and create knowledge

by themselves, 3) Entertainment is a relaxing activity focusing on what learners will get than its instructional outcome, 4) Learners have liberty to choose activities and perform in a way they deem suitable for themselves.

- Learning object is a small learning unit with an independent content. It covers a specific idea and has the following attributes: 1) Chunks – one object represents one key subject, 2) Reusability – it can be reused repeatedly without damaging the quality of the object, 3) Interoperability – it is applicable for various kind of media, 4) Durability – it does not wear over usage time, and 5) Accessibility – it can be used in many ways.
 - Electronic books are similar to conventional books but present the content differently in digital format that offers more diverse functions i.e. 1) Page number that helps identifying the location being used in an e-book, 2) Text that presents basic content, 3) Graphics that gives further explanation and communication about the content, 4) Sounds that capture attention and clarify the content, 5) Link that ties one point in a page to other pages of the book or even outside the book, and 6) Animation that stimulates interest and foster experience.
 - Tablet computers have similar functionality like personal computers but smaller in dimension. The key characters of tablet computer are 1) Advanced attribute both in its external appearance and internal content, 2) Mobility facilitating the usage anytime and anywhere, 3) e-Note aiding the digital information filing, 4) Personalization enabling customized recording of users’ personal information, 5) Less time consumption resulting in more productivity using less time, 6) Protect giving safety for operation and data mining, and 7) Easily when used with no complication.
- 2) The model’s objectives are as follows:
- To develop an edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.
 - To evaluate the developed edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.
- 3) Learning process consists of two parts:
- Pre EDU go to EQ has three steps, namely 1) Analysis Environment, 2) Preparation, and 3) Pre-test using EQ evaluation form set 1.
 - Learn with EDU has five steps as follows:

Orientation: Instructors explain the objectives or learning concept. It enhances self-perception skills.

Elicitation of the prior knowledge: Instructors and learners take turns to tell personal experience. Self-perception skill is improved.

Turning restructuring of ideas: It has three sub activities i.e. 1) Clarification and exchange of ideas-learners and peers study together via tablet computer, 2) Construction of new ideas-learners and peers take part in activities through learning object, 3) Evaluation of the new ideas-instructors and learners jointly test ideas. If learners fail the evaluation

activity, they have to repeat the prior activities (the clarification and exchange of ideas and the construction of new ideas). When they pass the evaluation, the learning can continue. In this step of learning, the skills for decision making, self-expression, interpersonal and stress-management are developed.

Application of ideas: Learners carry out activities on tablet computer. Decision making and self-expression skills are improved.

Review: Learners carry out activities and complete exercises on tablet computer. It enhances self-perception, self-expression and stress-management skills.

- Evaluation EQ can be divided in three parts: 1) Development 1 using EQ evaluation form set 2, 2) Development 2 using EQ evaluation form set 3, and 3) Post-test using EQ evaluation form set 4.
- 4) Measurement and evaluation assess five aspects of the emotional quotient, namely 1) Self-Perception, 2) Decision Making, 3) Self-Expression, 4) Inter-personal, and 5) Stress-Management. The measurement is performed using Time Series Experimental Design.

Part 2: Evaluation result of the developed edutainment instructional model using learning object for electronic book on tablet computer to develop emotional quotient.

The evaluation is carried out by submitting the developed model to the five experts for a certification on the suitability of its components, methodology, steps, activities, and for a test. The evaluation result by the expert has shows that the components have high suitability ($\bar{X} = 4.20$, S.D. = 0.52) see Table I, the pre-learning steps have the high suitability ($\bar{X} = 4.13$, S.D. = 0.89) see Table II, same as the learning steps ($\bar{X} = 4.05$, S.D. = 0.74) see Table III, the evaluation ($\bar{X} = 4.20$, S.D. = 0.84) see Table IV, and the overall appropriateness for a test ($\bar{X} = 4.00$, S.D. = 0.90) see Table V.

TABLE I: THE MODEL COMPONENTS

Variable	Mean	SD	Level of suitability
Principles and concepts	4.20	0.84	Good
Objectives	4.60	0.55	Good
Process	4.00	0.71	Good
Evaluation	4.00	0.00	Good
Total	4.20	0.52	Good

The expert has shows high suitability ($\bar{X} = 4.20$, S.D. = 0.52).

TABLE II: PRE EDU GO TO EQ STEPS

Variable	Mean	SD	Level of suitability
Analysis Environment	4.20	0.84	Good
Preparation	4.20	0.84	Good
Pre-test	4.00	1.00	Good
Total	4.13	0.89	Good

The expert has shows high suitability ($\bar{X} = 4.13$, S.D. = 0.89).

TABLE III: LEARN WITH EDU STEPS

Variable	Mean	SD	Level of suitability
Orientation	4.20	0.84	Good
Elicitation of the prior knowledge	4.20	0.84	Good
Turning restructuring of ideas	4.00	0.71	Good
Application of ideas	4.00	0.71	Good
Review	4.00	0.71	Good
Total	4.05	0.74	Good

The expert has shows high suitability ($\bar{X} = 4.05$, S.D. = 0.74).

TABLE IV: OVERALL APPROPRIATENESS STEPS

Variable	Mean	SD	Level of suitability
Development 1	4.20	0.84	Good
Development 2	4.20	0.84	Good
Post-test	4.20	0.84	Good
Total	4.20	0.84	Good

The expert has shows high suitability ($\bar{X} = 4.20$, S.D. = 0.84).

TABLE IV: EVALUATION EQ

Variable	Mean	SD	Level of suitability
Instruction Model	4.00	1.00	Good
Process and Activities	4.00	1.00	Good
Actual use	4.00	0.71	Good
Total	4.00	0.90	Good

The expert has shows high suitability ($\bar{X} = 4.00$, S.D. = 0.90).

VI. DISCUSSION

The research results in the following points for discussion.

- 1) The experts' evaluation demonstrates that the components, steps, and activities of the model are highly suitable. The result also aligns with the research finding of [12] suggesting that the learning management for self-development and entertaining activities consists of five key steps: 1) Orientation, 2) Elicitation of the prior knowledge, 3) Turning restructuring of ideas, 4) Application of ideas, and 5) Review.
- 2) The experts' evaluation also reveals that the model is highly suitable for the emotional quotient development. This finding corresponds to the research of [8] suggesting that the emotional quotient could contribute to learners' basic skill enhancement.

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