THE DEVELOPMENT OF COMPUTER MULTIMEDIA ON VOCATIONAL AND TECHNOLOGY SUBJECT BY PACKAGING DESIGN FOR DEMONSTRATON SCHOOL OF SUAN SUNANDHA RAJABHAT UNIVERSITY'S STUDENTS.

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ABSTRACT

There was objective of this research to developing the Computer Multimedia on vocational and technology subject Packaging Design for Demonstration School of Suan Sunandhra Rahabhat University's students with effectiveness that reached the 80/80. Compare the learning achievement before and after learning with the Computer Multimedia on Vocational and Technology Subject Packaging Design for Demonstration School of Suan Sunandha Rajabhat University's Students and study of satisfaction of student by learning with the Computer Multimedia on Vocational and Technology Subject Packaging Design for Demonstration School of Suan Sunandha Rajabhat University's Students. The samples used in this research were 70 Students grade 9 in Demonstration School of Suan Sunandha Rajabhat University, during the sconce semester, academic year 2019, selected by Multi - Stage Sampling technique. The research tools utilized in this study were. 1) Computer Multimedia on Vocational and Technology Subject Packaging Design for Demonstration School of Suan Sunandha Rajabhat University's Students. 2) The achievement test. 3) A satisfaction questionnaire. The results was as follows: Efficiency of Computer Multimedia on Vocational and Technology Subject Packaging Design for Demonstration School of Suan Sunandha Rajabhat University's Students were more than the standard criteria of the research. The students satisfaction Computer Multimedia on Vocational and Technology Subject Packaging Design for Demonstration School of Suan Sunandha Rajabhat University's students was at the most level.

Keywords: Computer Multimedia, Packaging Design.

INTRODUCTION

The Basic School Core of Demonstration School of Suan Sunandha Rajabhat University according to Basic Curriculum, B.E. 2560 (2017) determined the essences and standards to be a criteria in determining learner quality by utilizing student-centered learning; therefore, the management of basic education, vocational and technology, Demonstration School of Suan Sunandha Rajabhat University, took such idea to develop the curriculum and created academic standard learning essence of vocational and technology subject by determining learner quality in each education form clearly according to the curriculum [1].

A main problem in management of instruction in vocational and technology subject regarding Packaging Design making is a lacking of educational media which may be a reason making learners lacking in skills and trainings in each subjects [2]

A Computer Multimedia is a form which learners are able to study everywhere by utilizing portable computer technology having wireless communication as a learning tools; the instruction has to be aware a context of learners [3] [17]... Computer Multimedia or ubiquitous learning environment ULE is a management of learning environment to be everywhere and anytime by having portable computer to be a tool facilitating in accessing

learning source; ubiquitous learning environment consists of 4 parts: 1) portable tools 2) wireless communication 3) ubiquitous learning management system and 4) learning context detection [4]. Learning management by utilizing modern technology in managing several technologies making students to be able to learn by themselves; the learners will use their skills and experiences in searching data from learning source, doubt and desire to learn and will be able to decide and enhance confidence for learners to be the persons possessing knowledge and skills in the topics they desire for answers and expressing creativity [5],[6].

As such the benefits of u-learning system and problems in learning management on vocational and technology subject: Packaging Design to be a guidelines for researchers interested for conducting a research on development of Computer Multimedia of vocational and technology subject: Packaging Design for students of Demonstration School of Suan Sunandha Rajabhat to be able to use in the instruction promoting students to gain better learning achievement, as well as, to be a guideline for instructors to manage instructions more efficiently.

PROCEDURE FOR PAPER SUBMISSION

A. Objectives

1. To develop Computer Multimedia of vocational and technology subject: Packaging Design for students of Demonstration School of Suan Sunandha Rajabhat to gain efficiency according to 80/80 criteria.

2. To compare learning achievement before study and after learning by developing Computer Multimedia of vocational and technology subject: Packaging Design.

3. To study the satisfaction towards learning by developing Computer Multimedia systems of vocational and technology subject: Packaging Design.

B. Delimitation of Research

1. Population and sample

Population using in the study of results in implementation of the from was secondary students, grade 9, Demonstration School of Suan Sunandha Rajabhat, Wachira sub-1. district, Dusit district, Bangkok metropolis, second semester, academic year: 2019, 3 classrooms, 120 students (total); randomization was conducted according to multi-stage sampling for 70 persons and sample group of the study regarding quality of the form, namely 5 experts of innovation media and information technology in curriculum and instruction.

2. Studied variables

Independent variable is a teaching Computer Multimedia, vocational and technology subject: Packaging Design.

Dependent variable is a learning achievement and satisfaction towards learning.

3. Contents

Contents using in this experiment are a part of vocational and technology subject: Packaging Design.

CONCEPTUAL FRAMEWORK IN RESEARCH

The framework in research is to implement form of learning design by applying project-based learning [7] with an application learning by ubiquitous learning environment [8] as Fig. 1
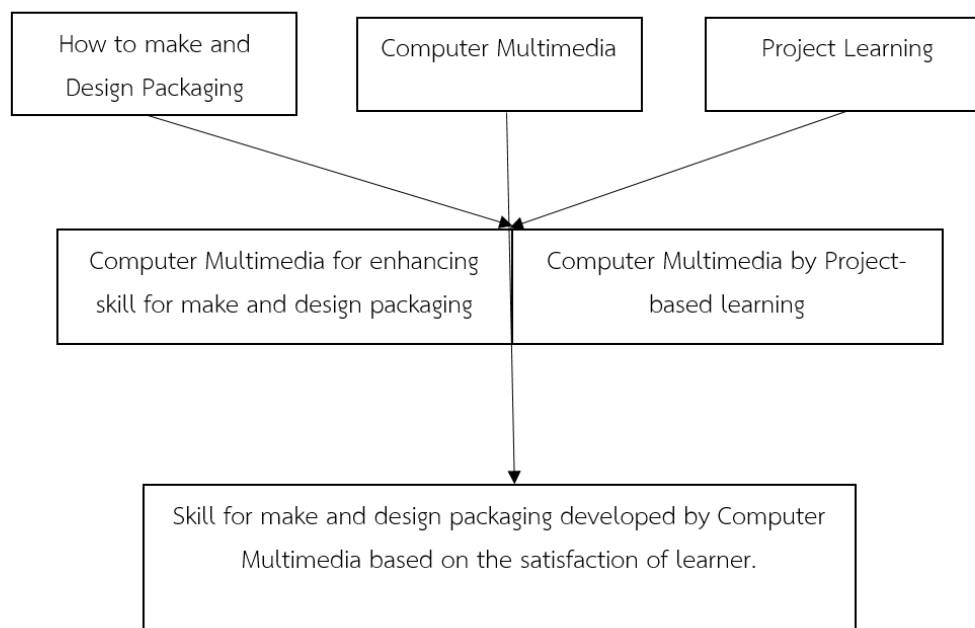
Fig. 1 Conceptual Framework in Research

RESEARCH METHODOLOGY

This research is for Computer Multimedia development of vocational and technology subject: Packaging Design for students of Demonstration School of Suan Sunandha Rajabhat having details as follows:

Part 1 : Computer Multimedia study of vocational and technology subject: Packaging Designfor students of Demonstration School of Suan Sunandha Rajabhat is a study of instruction elements, project-based learning of vocational and technology of

Packaging Design by

1. Determining guideline elements in several aspects by conducting principles, ideas and theories in points of important characteristics of attribute, steps and procedures of each topic in order to conduct data analysis and summarize elements to determine a clear element and guideline.

2. Integrating instruction forms by bringing characteristics, attribute elements, steps and procedures from Computer Multimedia instruction form and project-based learning form to create U-learning to compile in the instruction of vocational and technology subject: Packaging Design to be a prototype to inspect suitability

3. Inspecting suitability of instructing having steps as follows:

3.1 Determine experts in in-depth interview and suitability evaluation of the form by utilizing a selection of experts and qualified persons in education technology, total 5 persons for Computer Multimedia from consideration and the instruction of vocational and technology, total 5 persons to consider contents, total 10 persons.

3.2 Improve instruction forms according to suggestions of experts and qualified persons in order to obtain better form.

3.3 Bring the form for qualified persons in vocational and technology subject: total 5 persons for certifying. When the form passes the criteria, part 2 will be continued.

Part 2: Computer Multimedia development of vocational and technology subject: Packaging Design for Students of Demonstration School of Suan Sunandha Rajabhat is a

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consideration according to the certified form in part 1 to be developed into completed form together with performance evaluation and satisfaction evaluation by proceeding as follows:

1. Improve consideration forms for basic principles of instruction from obtained from step 1 consisted of 3 elements, namely basic level of how to make and Design Packaging, Computer Multimedia instruction and project-based learning.

1.1 Respectively design according to hierarchy of course outline of vocational and technology subject (Introduction to Educational Technology) consisted of 3 lessons.

1.2 Develop according to Computer Multimedia instruction form, quality and suitability instruction of Computer Multimedia instruction form by selecting expert group possessing knowledge and experiences for inspecting quality and suitability of the form, total 5 persons.

1.3 Improvement, amendment of Computer Multimedia instruction developed into completed form.

2. Development of skill evaluation for basic level in make and Design Packaging and satisfaction evaluation of students of Demonstration School of Suan Sunandha Rajabhat towards Computer Multimedia instruction form developed to be tools for data collection, total 3 forms, namely

2.1 Basic level of Design Packaging exercises

2.2 Performance evaluation: creating performance evaluation form in the manner of criteria classification and rubric scores applied from Pornthip Chaiyaso [9] as divided into 5 scales [10] and the evaluation has 4 types as follows: 1) Plan for making and Designing Packaging 2) Standard procedure in making and Designing Packaging 3) Suitable taste and good looking for attracting an interest and 4) Packaging presentation.

2.3 Satisfaction evaluation form of learners towards Computer Multimedia instruction developed by having questions being 5 rating scales according to Likert model.

Part 3: The evaluation of Computer Multimedia instruction form, vocational and technology subject, Packaging Design for Demonstration School of Suan Sunandha Rajabhat.

1. Evaluate from development of forms and tools obtained from step 2 by utilizing sample group such as learners at secondary education, grade 9, first semester, academic year of 2019, Demonstration School of Suan Sunandha Rajabhat, total 50 persons.

2. Experiment form by utilizing true experimental design according to randomized control group posttest-only design) [11].

TOOLS USED IN RESEARCH

1. Evaluation form for experts
2. Certification evaluation form for qualified persons
3. Suitability evaluation form of effectiveness in instructions
4. Suitability evaluation of basic exercise in how to make and Design Packaging
5. Performance evaluation form for using in evaluating in the manner of determining criteria and 5 scales rubric scores
6. Learner evaluation form in the manner of 5 scale questions

CONCLUSION

1. The study results of Computer Multimedia system of vocational and technology subject: Packaging Design for Demonstration School of Suan Sunandha Rajabhat are as follows:

Computer Multimedia system of vocational and technology subject: Packaging Design for students of Demonstration School of Suan Sunandha Rajabhat consisted of

1st Element: Basic level of making and Designing Packaging

1) Basic level of making and Designing Packaging is a foundation for learners to know the elements of making and Designing Packaging and to be guidelines for open ideal creativity leading to recipe development of their own.

2) Working with group members is to think individual recipe (work creativity with others) as each member will open and accept new aspect or world view other members in the group.

3) Feeling of accomplishment in finished works

2nd Element of Computer Multimedia such as

1) Person is an instructor and learners related to Computer Multimedia instruction; approach is a learning technique having following procedures: introduction, selection, plan, creation, presentation and evaluation.

2) Context means environment encouraging learning from Computer Multimedia instructions which are tools helping in encouraging diverse instruction.

3) Devices mean tools for using in Computer Multimedia being able to learn whenever and wherever; they are portable tools using for communication, learning exchange, namely tablet PC and smart phone.

3rd Element: Project learning such as

1) Introduction is a process for preparing of learners and instructors to create good atmosphere for the instruction creating familiarity, to comprehend learning topics, to make an understanding of Computer Multimedia process.

2) Selection: Learners decide from topics, discussed points, agreement and deciding to make a project according to determined conditions by talking, discussion via assignment to submit title as instructors observe and supervise.

3) Plan: Determine main steps and plan within the group and brainstorm.

4) Creation: Determine main steps, collect and search for data for create works, cooperate, exchange knowledge in group or between group, amend, and improve until complete.

5) Presentation: Write a report and present according to topics and points as per preliminarily determined agreement.

6) Evaluation: Instructors evaluate from work evaluation form from finished works by having criteria to evaluate.

The results of Computer Multimedia development of vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat are as follows:

1) Computer Multimedia evaluation results of vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat by experts, it is found that the overall opinion are in the highest level ($\bar{x}$ = 4.61, S.D. = 0.55), meaning that the Computer Multimedia instruction by project-based learning to develop making and Designing Packaging skills of the learners in Demonstration School of Suan Sunandha Rajabhat could be able to use with the instruction.

2) Quality and suitability inspection results of Computer Multimedia system of vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat by qualified persons; the quality and suitability inspection results from the qualified persons in lessons and activities on Computer Multimedia, it is found that the opinions are in the highest level ($\bar{x}$ = 4.70, S.D. = 0.46), meaning that U-learning system has the suitability for actual implementation.

Regarding comparison results of skill difference of making and Designing Packaging by Computer Multimedia, vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat, it is found that about making

and Designing Packaging scores after learning by Computer Multimedia, total 50 scores; the students gain 44.58 (coverage), standard deviation: 3.46 and before learning by Computer Multimedia, total 50 scores, the students gain 0.42 (coverage), standard deviation: 3.98; when comparing average score before learning and after learning between control group control group and experimental group; having statistics as: t = 30.093, df = 49, p-value = .000, meaning that there is significant difference at .01 level.

Regarding efficiency of Computer Multimedia, vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat, it yield E1 for procedure efficiency or 85.23 and result efficiency being E2 for 83.22, all of which are in conformity with E1,E2 criteria as not lower than 80/80 as specified.

DISCUSSION

Computer Multimedia management, vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat make learning higher achievement with significant statistics in conformity with the research of Saengduan Bumrungphum, Phatchayanan Ninsuk and Panita Wanphirat [13] conducted a research on virtual library training websites to develop information awareness by utilizing case study of library usage in library; regarding the research results, it is found that the trained students by using training websites have higher achievement in training than before training with statistical significance, having a results in similarity with Sithichai Laisema [14], who conducted a study on a cooperative learning system by virtual team in ubiquitous education by utilizing creative problem-solving procedures to develop creativity and cooperation; regarding the study results, it is found that the students learning with the developed instruction have higher creativity after learning than before learning with statistical significance.

The study of learner satisfaction in Computer Multimedia, vocational and technology subject: Packaging Design for the students of Demonstration School of Suan Sunandha Rajabhat, it is found that the learners are satisfied towards the developed instruction in the highest level; from the study, it is found that in the aspect of received benefits from instruction form management, the students have the highest satisfaction in conformity with the research of Sarawut Yamdee, Natthawut Chaiyapol [15] conducted a study on attitude and behavior of students towards online lesson with Moodle program, case study: a secondary school in Bangkok metropolis, it is found that students have an attitude towards online lessons in good levels and the students have attention behavior in using online lesson in high level in conformity with Sithichai Laisema [14], who conducted a study on virtual team in ubiquitous education by utilizing creative problem-solving procedures to develop creativity and cooperation, it is found that the learners satisfy with the developed system in the highest level and the research of Nopadol Phumijanya [16](2014) who conducted a research regarding effective ubiquitous learning system by using main problem in order to promote problem-solving skills and context awareness, it is found that the graduate students satisfy with the developed learning systems in high level.

SUGGESTION

A study of results in utilizing should be conducted virtual team in ubiquitous education by utilizing contemplative education to develop ability in working as a team such as creative cooperation, analytical thinking, discreet thinking and etc.

ACCKNOWLEDGEMENT

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