A Development of Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method.

Rungtiva Saosing

Faculty of Science and Technology , Rajamangala University of Technology Krungthep
2 Nanglingee Road, Thungmahamek Sub district, Sathorn District, Bangkok. 10120
E-mail: rungtiva.s@rmutk.ac.th

Abstract

The purposes of this research were : 1) to develop Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method 2) to evaluate students' psycho-motor skill 3) to compare students' learning achievement before and after using Web-based Instruction 4) to study satisfaction towards creation of Web-based Instruction. The 30 students was sample group which to selected by the purposive sampling from population was 125 students whom registered in Computer Graphic for Applications subject in first semester of the 2012 academic year of Rajamangala University of Technology Krungthep .

The results of this research revealed that : 1) Web-based Instruction obtained the efficiency of 83.52/81.04 2) the average scores of students' psycho-motor skill were at the good level ($\overline{X}$ =3.43) 3) the post- learning achievement ($\overline{X}$ =45.34) of the students used the Web-based Instruction was significantly higher than pre-learning ($\overline{X}$ =8.63) counterpart at the .05 4) students' satisfaction towards creation of Web-based Instruction were at the good level ($\overline{X}$ = 3.46)

Keywords: Web-based Instruction for Competency-based
, Psycho-motor Skill through Applying Davies' Instructional Model, Project-Based Instruction , Integration Learning Method

1. Introduction

1.1 Background and importance of the issue.

Computer Assisted Instruction was adopted to instruct and use the computer to support the learning of the students. Computer Assisted Instruction has a lot of types : Tutorial type , Demonstration type. The students will get to know and learn the main objectives of the course, students will be assessed immediately and students will get to know self-assessment results immediately. [1] Teaching in Higher Education ;especially Rajamangala University of Technology Krungthep was focuses on developing practiced skills. These Skills promote dynamic learning and help students with the processes of continuous skills to development. [2] The process to develop these skill , Fitts'Law [3] states 3 phases were 1) Cognitive Phase 2) Organizing Phase and 3) Perfect Phase. Davies' Instructional Model has 5 steps as step 1 : demonstrate all operation , step 2 : demonstrate operational subsidiaries and student follow, step 3 : student to demonstrate operational subsidiaries and teacher is mentor, step 4 : teacher provide technical skills to work quickly and well, step 5 : students can link subskills to complete skills by themselves [4]

A study from the authentic teaching on each course which emphasized to practice skill found these problems leaded to this research : 1) Students hand in work late because they have low practice skills, 2) Students have low practice scores and many students have score which under the evaluation criteria, 3) There is a wide range in the scores of different students then to hard teaches about practice skills , 4) Students are not able to integrate knowledge skills to create projects.

In that cause, in conclusion that teachers need method to help the students develop a skill set which will enable them to progress in various different subjects. Although it has many research to present method to develop practice skills [5] [6] [7] but found that the lack of research on the use of Computer Assisted Instruction to demonstrating through the Internet towards Integration Learning Method.

So that in this research focus on applied ICT to development Web application for instruction. This study aimed to organize the teaching and learning activities using Davies' practical skill instructional model in course and support students and teacher could interaction with communication tools and students could learning by themselves through the Internet, to help students' preparing before practice skills in classroom and development integration learning method to do project.

1.2 Sampling Method

The 30 students was sample group which to selected by the purposive sampling from population was 125 students whom registered in Computer Graphic for

Applications subject in first semester of the 2012 academic year of Rajamangala University of Technology Krungthep.

1.3 Purposes of the research

1) to develop Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

2) to evaluate students' psycho-motor skill

3) to compare learning achievement before and after using Web-based Instruction

4) to study satisfaction towards creation of Web-based Instruction

2. Literature Review

Songlin Reungyangmee. [5] "The result of creation of Davies' instructional environment for psychomotor domain that is related to chidren's spatial-temporal intelligence".

This research is aimed to 1) compare chidren's spatial-temporal intelligence in pre-Davies' instructional environment and post-Davies' instruction environment 2) to study chidren's satisfaction toward creation of Davies' instruction environment for psychomotor domain. The sampling of research are 200 students of second-year primary school from 13 school in Wat Makrud School , Kokpho, Pattani during 1st semester of 2009. The Cluster Random Sampling was used to randomly pick 21 student out of 200.

Summary of findings ; 1) Post-instruction scores higher than Pre-instruction at statistically significant difference was 0.1. The range of percentage of spatial-temporal intelligence was between 79.05% - 85.18% which scored up in the good level. 2) The satisfaction of children toward creation of Davies' instruction environment for psychomotor found that the students were highly satisfied in every instructional environment

Cheerayut Kanokpodjananont. [6] "The Development of Demonstrate Computer Assisted Instruction by Using Project-based Learning Process for Skill Evaluate in Jewelry Making 1".

The purpose of the study were to develop and to find the efficiency of the Demonstration Computer Assisted Instruction by Using Project Base Learning Process in Jewelry Making 1 and to Evaluate the skill of sampling group. The samples were 25 Jewelry Students in work of art program form Golden Jubilee Rol Goldsmith College, who have to register for 2301-2811 Jewelry Makong 1 in semester 1/2010.

It was found that the efficiency of the developed Computer Assisted Instruction was 92.5 percent in which it was at a good level and text quality and media was in good level. The skill assessment of sampling group are 78.6 percent which was higher than the assumption.

Nattapon Suksao. [7] "Using Davies' Practical Skill Instructional Model in Basic Network System Courses, Sankamphaeng Technical College, Chiang Mai Province".

This study aimed to organize the teaching and learning activities using Davies' Practical skill instructional model in Basic Network System Courses, Business Computer section of Certificate of Vocational Education. The samplings were 18 students in Business Computer section at 2nd year Certificate of Vocational Education of Sankamphaeng Technical College, Chiang Mai Province. The Data collected by used 2 lesson plans of Basic Network System Courses total studied period of 16 hours and opinion questionnaires. The study found as follows: 1) The achievement of knowledge and understanding result that students had achieved in studying with high score of 80.25 percentages. Both of learning management plan and practice skill plan in generally was found in very good level at 80.32 percentages.

2) The evaluation of the morality of the students as a whole is in very good of 84.31 percentages. in the resolution carefully, and creativity. The neatness of the work piece. Work completed in the allotted time, and responsibilities. 3) The students had most agreed with the teaching and learning activities organized. The teaching materials were very interested. The most agree opinion in objective and content assigned and the studying activity were found as a result.

3. Research Methodology

This Research have 5 steps as follows :

Step 1 : to study Literature Review about develop Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

Step 2 : Create Research Instrument

1) Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

2) The questionnaire for expert to evaluate Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

3) The satisfaction questionnaire for sample to evaluate Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

4) The worksheet for sample which Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

5) A skills assessment which evaluate Psycho-motor Skill through Applying Davies' Instructional Model and Integration Learning.

Step 3 : To present Research Instrument to Experts for evaluate by questionnaire

Step 4: Used Experimental Research which One group Pretest-Posttest Design :

O_1 X O_2

X : Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

O_1 : Pretest

O_2 : Posttest

Step 5 : Analysis Data

1) Analyzes the content validity by IOC (Index of Item-Objective Congruence)

2) Analysis of the reliability of the test by KR-20 and satisfaction questionnaire by Cronbach alpha coefficient

3) Analysis of to compare learning achievement before and after using Web-based Instruction by t-test (Dependent Sample)

4. Conclusion and Results

4.1 Conclusion

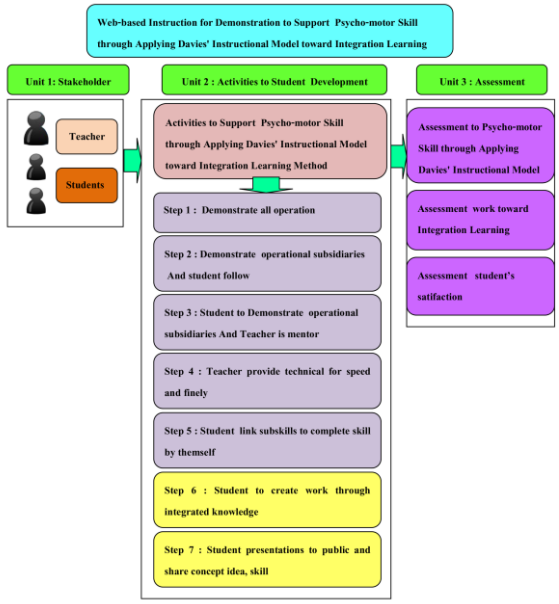

Figure 1: Components of Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning

The findings are different from other research ,figure 1 present the Components of Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning include that 3 main components : Unit1 is part of Stakeholder , Unit 2 is part of Activities to Student Development and Unit 3 is part of Assessment.

Unit 2 is part of Activities to Student Development to Activities to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method include 7 step : Step 1 : Demonstrate all operation

, Step 2 : Demonstrate operational subsidiaries And student follow, Step 3 : Student to Demonstrate operational subsidiaries And Teacher is mentor, Step 4 : Teacher provide technical for speed and finely, Step 5 : Student link subskills to complete skill by themselves, Step 6 : Student to create work through integrated knowledge and Step 7 : Student presentations to public and share concept idea, skill

4.2 Results

Results from data analysis is present in table 1 – table 4 as follow :

Table 1 : Efficiency of Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method

Description	Criterion (Percentage)	Result (Percentage)
Average of between Unit (E_1)	80	83.52
Average of Posttest (E_2)	80	81.04
Efficiency = 83.52/81.04		

According to data analysis in table 1: Web-based Instruction for Demonstration to Support Psycho-motor Skill through Applying Davies' Instructional Model toward Integration Learning Method obtained the efficiency of 83.52/81.04

Table 2 : Average scores of students' psycho-motor skill

Average scores of students' psycho-motor skill	$\overline{X}$	**S.D**	**t**	**sig**
	3.43	.113	5.474*	.000

According to data analysis in table 2: the average scores of students' psycho-motor skill were at the good level ($\overline{X}$ =3.43) at level of statistical significance .05

Table 3 : Average to compare learning achievement before and after using Web-based Instruction

คะแนน	$\overline{X}$	**S.D**	**t**	**sig**
Pretest (Pre-learning achievement)	8.63	2.254	30.291*	.000
Posttest (Post-learning achievement)	45.34	4.109		

According to data analysis in table 2: the post- learning achievement ($\overline{X}$ =45.34) of the students used the Web-based Instruction was significantly higher scores than pre-learning achievement ($\overline{X}$ =8.63) at level of statistical significance .05

Table 4 : Average scores of students' satisfaction

Satisfaction	$\overline{X}$	**S.D**	**result**
Step 1 : Demonstrate all operation	3.63	0.112	excellent
Step 2 : Demonstrate operational subsidiaries And student follow	3.56	0.167	excellent
Step 3 : Student to Demonstrate operational subsidiaries And Teacher is mentor	3.42	0.226	good
Step 4 : Teacher provide technical for speed and finely	3.33	0.332	good
Step 5 : Student link subskills to complete skill by themselves	3.33	0.338	excellent
Step 6 : Student to create work through integrated knowledge	3.21	0.221	good
Step 7 : Student presentations to public and share concept idea, skill	3.76	0.334	excellent
Average	**3.46**	**0.247**	good

According to data analysis in table 4: students' satisfaction towards creation of Web-based Instruction were at the good level ($\overline{X}$ = 3.46)

5. Discussion

The result of this research that show potentiality of web-based instruction for demonstration to support psycho-motor skill through applying Davies' instructional model toward integration learning method which development students' practice skill. The students whom used the Web-based Instruction was significantly higher scores than pre-learning achievement. According to other research which used Davies' instructional model, Project-based Learning Process for Skill
[5][6][7]

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