

The Development of Learning Centers in Virtual Worlds to Enhance Team Learning Ability of Lower Secondary School Students

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Abstract

This paper is a report on the findings of a study conducted on the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students. The methodology of this study was R&D research. The subjects were 27 lower secondary school students was an experimental group in Kanjanapisek Witthayalai Nakornphathom School in the academic year of 2012. The research instruments were a specialist interview form, team learning ability assessment form, learning achievement test, attitude questionnaire, learning centers in virtual worlds to enhance team learning ability. The data was statistically analyzed using mean, standard deviation, and dependent t –test.

The research findings discovered the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students consisted of six components: 1) Learners 2) Facilitator 3) Instructional package 4) Activities 5) Learning centers 6) Virtual worlds. Six processes; 1) Introduction 2) Team building 3) Study 4) Knowledge sharing 5) Implementation 6) Discussion and conclusion.

Introduction

Team learning is one of the abilities expected by the society toward the youth. Actually, team learning is able to develop skills in relationships to each other, skill of communication, expression ability, understanding in learning process and knowing how to work with another (Michaelson, 2008) and to support the learning society to develop mankind as well as nation buildings. Lancaster and Strand (2001) indicated that team learning is to develop the student studying and group working for in term of social skills and elimination of conflict in leaning process.

Learning centers teaching method is the way to improve the development of team learning, by organizing of learning process for self-study and group process and must be prepared for comprehensive center, each center must be completed both content and procedure. The learner is able to visit all centers and participate those activities themselves according to their own interests under the supervision of the teacher. (Kammani, 2010) Students will be able to communicate and discuss in their team.

Learning in the virtual worlds is a presentation of data and material for learners to understanding the concept and social awareness. (Mathews and et.al, 2012). A performance of learning centers in virtual worlds is according to the learner's interest. The using of various multimedia is to create the concept of the learners in virtual worlds. All learners can get to the virtual worlds at the same time and place by using the "avatar" to identify themselves. It is facilitate team learning. Besides, it is a suitable for long distance learning for no limitation of time and place. Learners can use the facilitation without the limitation of time, place and expenses. (Malithong, 2005)

The researcher's opinion is learning centers in virtual worlds are an innovative in education. Therefore, the researcher is interesting in developing of learning centers in virtual worlds model to enhance team learning ability of lower secondary school students.

The objectives of this study

The purposes of this research were as follows:

1. to investigate components, processes and learning activities of the learning centers in virtual worlds model to enhance team learning ability.
2. to create the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students.
3. to study the results of the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students.
4. to present the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students.

Hypothesis

The team learning ability posttest of students in the experimental group after learning by using the learning centers in virtual worlds model was higher than the pretest at the .05 level of significant.

Research questions

1. What components, processes and learning activities of the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students?
2. Can lower secondary school students enhance team learning ability using this model?

Methodology

The learning centers in virtual worlds model to enhance team learning ability of lower secondary school students was R&D research. The methodology consisted of the following; the researcher

(1) Analyzed and synthesized information and research about components and processes of 3D virtual learning environment, learning centers teaching method, and team learning.

(2) Created the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students with five experts monitoring this model.

(3) Studied the results of using the learning centers in virtual worlds model to enhance team learning ability with 27 lower secondary school students, Kanjanapisek Witthayalai Nakornphathom School, academic year 2012, was an experimental group. The subjects were similar in terms of age (ranging from 13-14). After trial, the researcher revised, modified this model and followed by considering and approving by five experts in the educational field.

(4) Presented the learning centers in virtual worlds model to enhance team learning ability of lower secondary school students in publications.

Instruments

Instruments of this research consisted of a specialist interview form, team learning ability assessment form, learning achievement test, attitude questionnaire, and the learning centers in virtual worlds to enhance team learning ability. The content validity of these instruments was obtained from three experts. These instruments were revised according to suggestion of the experts.

Experiment Stages





1. The subjects completed the pretest of the team learning ability assessment and learning achievement test prior to starting the processes of learning centers in virtual worlds model to enhance team learning ability with online learning and studying in the classroom.

2. The subjects performed instructional activities from learning centers in virtual worlds model for 4 weeks (9 hours) as follows:

2.1 The instructor who participated in the research informed objectives, team learning principles and activities, assessment and evaluation to subjects.

2.2 The experimental group students took the team learning ability and learning achievement pretest.

2.3 The experimental group students participated in learning centers in virtual worlds processes which followed by team learning activities.

Processes	Contents	Learning activities	Online/F2F
1. Introduction	Selected topic for study and debate such as Traffic sign and symbol in the student's community area, How to driving safety, How to driving motorcycle, Safety on the road.	<ol style="list-style-type: none"> 1. The instructor motivates student's interest. 2. The instructor gives orientation to the students. 3. Students register and login to the virtual worlds. 4. Students learn how to use virtual worlds. 	 One and a half hrs.
2. Team building on Virtual worlds		<ol style="list-style-type: none"> 1. Grouping the students as the team. 2. Each team set the roll of individual (i.e. Chairman, Secretary). 3. Each team set aims and planning by using online chat tools on the Virtual worlds. 	 Half an hr.
3. Study by using Virtual instructional package		<ol style="list-style-type: none"> 1. Students study the contents by using virtual instructional package on the virtual worlds. 2. Students practice individual test by using online quiz on the Virtual worlds. 	 Six hrs. (four learning centers)
4. Knowledge sharing between team members by using chat		<ol style="list-style-type: none"> 1. Each team discusses and shares the knowledge by using online chat tools on the Virtual worlds. 2. Each team practices the team test by using online quiz on the Virtual worlds. 3. Each team recalls the subject after team testing by using online chat tools on the Virtual worlds. 	
5. Implementation by doing an assignment on virtual worlds		<ol style="list-style-type: none"> 1. Brain storming from the student team to produce outcome by using online chat tools on Virtual worlds. 2. Each team makes an assignment on the Virtual worlds. 	
6. Discussion and Conclusion		<ol style="list-style-type: none"> 1. Total class is discusses and concludes that they have learned. 2. The instructor gives some feedback. 	 One hr.
4 weeks (9 hrs.)			

3. The experimental group students completed the team learning ability and learning achievement posttest and answered the attitude questionnaire.

Data Analysis

After the experimental group students completed the team learning ability test and learning achievement test. The team learning ability and learning achievement was analyzed by using dependent t-test in Table 1 and 2.

Table 1: The results of means, standard deviation and a dependent t-test result the difference between the pretest and posttest team learning ability scores of the experiment group.

T-Test

[DataSet1]

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest1	3.3981	27	.82117	.15803
	Posttest1	4.2315	27	.90839	.15557
Pair 2	Pretest2	3.3611	27	.71649	.13789
	Posttest2	4.1944	27	.81813	.15745
Pair 3	Pretest3	3.3864	27	.65481	.12602
	Posttest3	4.3037	27	.66935	.12882
Pair 4	Pretest4	3.4115	27	.70665	.13599
	Posttest4	4.3025	27	.75710	.14570

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pretest1 & Posttest1	27	.240	.229
Pair 2	Pretest2 & Posttest2	27	.186	.352
Pair 3	Pretest3 & Posttest3	27	.238	.232
Pair 4	Pretest4 & Posttest4	27	.027	.892

Paired Samples Test									
		Paired Differences				t	df	Sig. (2-tailed)	
				95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Pretest1 - Posttest1	-.83333	1.00480	.19337	-1.23082	-.43585	-4.309	26	.000
Pair 2	Pretest2 - Posttest2	-.83333	.98194	.18897	-1.22178	-.44489	-4.410	26	.000
Pair 3	Pretest3 - Posttest3	-.91738	.81734	.15730	-1.24071	-.59406	-5.832	26	.000
Pair 4	Pretest4 - Posttest4	-.89095	1.02143	.19657	-1.29501	-.48688	-4.532	26	.000

After using the process of the learning centers in virtual worlds model, team learning ability was analyzed by the dependent t- test and this found that there was a significant difference between posttest and pretest of the experimental group in team learning ability at the .05 (See Table 1).

Table 2: The results of mean, standard deviation and a dependent t-test result the difference between the pretest and posttest learning achievement scores

T-Test

[DataSet2]

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	achievementpre	8.7407	27	3.82896	.73688
	achievementpost	14.1111	27	4.56014	.87760

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	achievementpre & achievementpost	27	.500	.008

Paired Samples Test									
		Paired Differences				t	df	Sig. (2-tailed)	
				95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	achievementpre - achievementpost	-5.37037	4.24398	.81676	-7.04923	-3.69151	-6.575	26	.000

Learning achievement was analyzed using a dependent t-test and this found that there was a significant difference between pretest and posttest in learning achievement at the .05 (See Table 2).

Findings

The results of this study revealed that:

1. The experts' opinions agreed that the learning centers in virtual worlds model to enhance team learning ability consisted of six components: 1) Learners 2) Facilitator 3) Instructional package 4) Activities 5) Learning centers 6) Virtual worlds. The six processes consisted of 1) Introduction 2) Team building 3) Study 4) Knowledge sharing 5) Implementation 6) Discussion and conclusion.

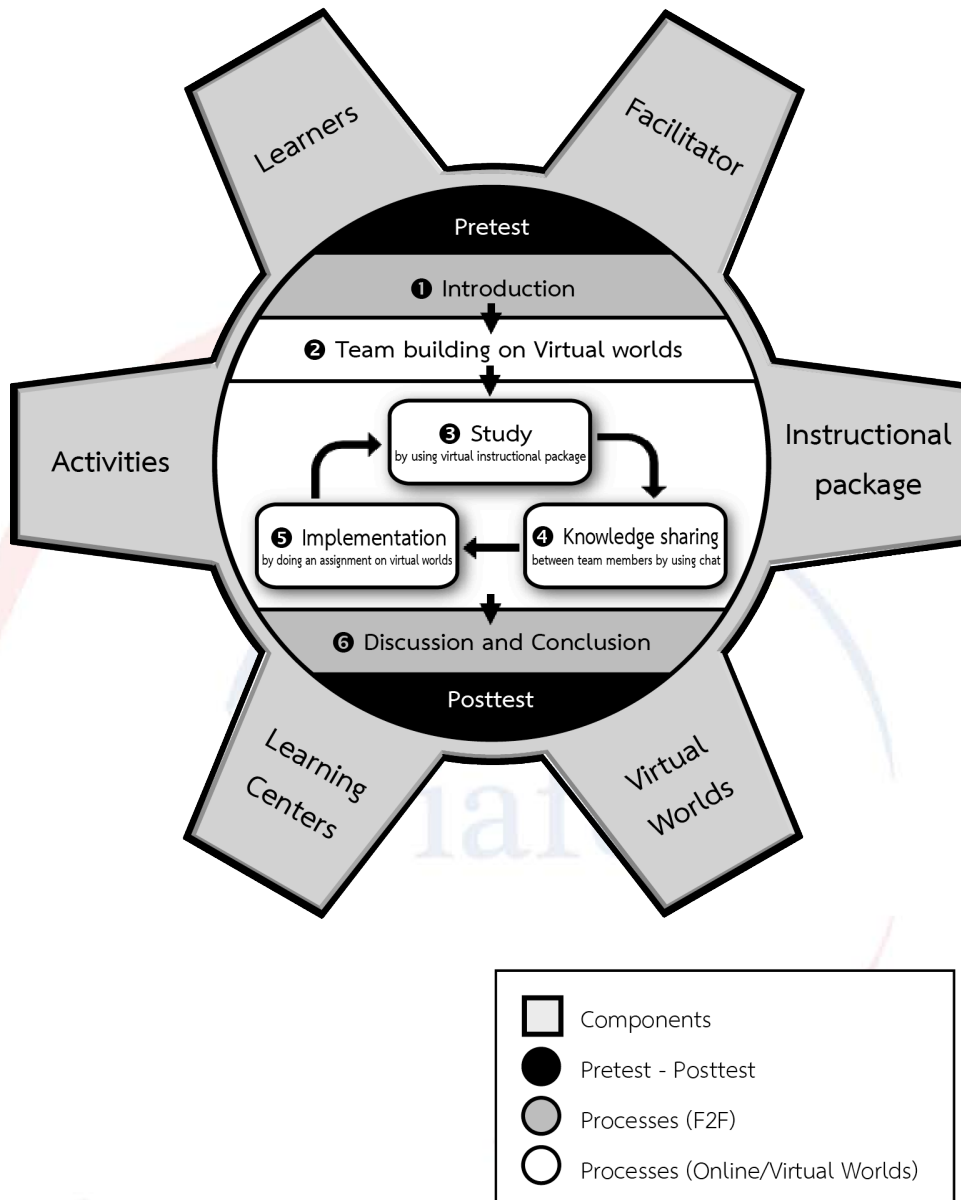
2. A t-test comparison of posttest and pretest of the experimental group students showed statistically significant difference at .05 level in team learning ability.

3. A t-test comparison of posttest and pretest of the experimental group students showed statistically significant difference at .05 level in learning achievement test.

4. The experimental group students revealed that they were satisfied with learning centers in virtual worlds model to enhance team learning ability of lower secondary school students.

5. The learning centers in virtual worlds model to enhance team learning ability of lower secondary school students was presented as follows:

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