

A Web-Search Based Instructional System Model for Higher Education in Thailand

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Abstract: This research aimed to develop the Web-search Based Instructional System Model (WBIS Model), to investigate the results of using the Web-Search Based Instructional System with regard to the problem solving and learning achievements and to examine the opinions of the samples with regard to learning and instruction using the Web-Search Based Instructional System. The research instruments used were: a Web-search Based Instructional System Model (WBIS Model), a problem thinking test with discriminating powers (B) ranging from 0.20-0.53 and a reliability of 0.659; a learning achievement test with discriminating powers ranging from 0.20-0.63 and a reliability of 0.804 and a questionnaire on learners' opinions with discriminating powers ranging from 0.302-0.671 and a reliability of 0.904. The statistics used in data analyses were percentage, mean, standard deviation; finding out an efficiency of a Web-search Based Instructional System Model (WBIS Model) based on the required efficiency of 80/80 (E_1/E_2) and comparing achievement mean scores using the dependent sample t-test. The results of the study were as follows: the developed Web-search Based Instructional System Model (WBIS Model) consisted of 4 components: model's principle; model's objectives of the model as aiming to develop problem solving thinking and learning achievements, the learning-teaching process comprising of 2 stages: the stage of preparation before learning and teaching and the stage of organization of learning-teaching process. There were 6 activities: preparing, presenting situation hypothesizing, searching supporting and making conclusion and measurement and evaluation, the qualified persons viewed about the appropriateness of the components, procedures and activities as a whole at a high level. The developed Web-search Based Instructional System Model (WBIS Model) had an efficiency of 81.18/83.61. The learners showed gains in learning achievement and problem solving thinking before experimenting at 0.01 level of significance. Also, the learners agreed with the learning via the developed Learning-Teaching Model at a high level.

Key words: WBIS Model, reliability, data analysis, measurement, level of significance

INTRODUCTION

Thailand has entered a new wave of change to knowledge-based society and knowledge-based economy (Knowledge-Based Society/Economy: KBS/KBE). This change will lead to knowledge and innovation a key factor in development (Anderson, 1999). For develop human resources to have knowledge and education in the modern era. The technology is very important in the development of education, especially information technology to potential for networked learning. Resources for learning and knowledge exchange between organizations at all levels (Joyce and Weil, 2004).

Higher education institutions need to adapt teaching styles to meet the students. Higher Education Development Plan on number 9 as follows: improve the learning of students with diverse interests, aptitude and education system and in non-formal education

educational and leisure. That lead to lifelong learning. And of course to know how to stop learning. Model development and teaching methods to suit the diverse nature course content and level of education especially undergraduates. Should focus on teaching to focus on the synthesis and analytical thinking skills and problem solving skills in terms of knowledge gained from learning. Encourage higher education institutions offer courses to become an integrated and flexible. Diversity to improvement and modernization program according to the evolution of knowledge. A universal constant and can be linked to the study of non-formal education system. Education and leisure to promote the use of the learning activities of students so that students can learn on their own. And the role of teachers with support and guidance and the importance of learning more. Support distance education. Using information technology to spread education and knowledge the Virtual University with

quality. Resources to support education aimed at providing opportunities for education and capacity building, learning of the underprivileged people with disabilities and the intellectual excellence and to help students and teachers have been developing steadily.

Learning quest have a concept that allows students to practice learning the skills to figure out why the information received learning problems. To clearly define the terminology or assumptions survey to gather information and build knowledge on their own conclusions. This allows the students are familiar with the reality of the world. Filled with the problem differently (Suchman, 1962). The focus on developing the ability to think problems through scientific methods. The focus on learning from the truth based on assumptions. It was discovered that the assumptions and the rules that apply (Kuhlthau, 1989).

The material on education to cover the whole education system, non-formal education and formal education. To allow students to learn throughout life (Ministry of Education) studies of Gregoire *et al.* (1996). The introduction of internet use in teaching and learning affect a wide variety of intellectual skills and the problem solving skills. Learning how to learn and creative thinking skills. It also affects the ability to research and access information quickly and navigation systems World Wide Web: WWW used in conjunction with regular classroom instruction. Affect academic achievement in the course of the study (Goldberg, 1997). And if the design of teaching and learning on the Web (Web-based instruction) as the students get the basic skills in using information technology and higher-order thinking skills. Form of learning that has received attention in the implementation of the study. And widely taught online learning and learning on the Web (Web-based instruction) his use of computer technology. Network technology (Romey, 1968) and communication technologies as a tool for creating and transmitting knowledge skills and experience life together. The students can learn the skills and abilities of their own (Weir, 1974). The network will be about learning and teaching process to be automated. Virtual teaching and learning in a study usual.

PURPOSES

- To develop the Web-search Based Instructional System Model (WBIS Model)
- To investigate the results of using the Web-Search Based Instructional System with regard to the problem solving and learning achievements
- To examine the opinions of the samples with regard to learning and instruction using the Web-Search Based Instructional System

DEVELOPMENT OF THE WEB-SEARCH BASED INSTRUCTIONAL SYSTEM MODEL (WBIS MODEL)

There were 2 phrases in WBIS Model development:

Phrase 1 a Web-Search Based Instructional System Model for higher education in Thailand: Researcher used system approach and indicated related other on 5 ADDIE: analysis, design, development and implementation.

Analysis and synthesis:

- Analysis and synthesis of Instructional System Model: principle, purposes, process, instruction and evaluation
- Analysis and synthesis principles of Web-Based Instruction: interesting, telling purpose, reviewing, learning commendation, class participation, feedback, testing and usage
- Analysis and synthesis steps of inquiry-based learning): orientation, task, hypothesis, exploration, support) and conclusion
- Analysis and synthesis of problems solving thought: state problems, analysis problems, selecting problems solving, problems solving

Design of the Web-search Based Instructional System Model (WBIS Model) analyzing Instructional System Model: Principle, purposes, process, instruction and evaluation.

Development:

- Development of the Web-search Based Instructional System Model (WBIS Model) passed 5 experts in steps and activities therefore, it was taken 5 experts the Web-Search Based Instructional System
- Development of instrument in data collecting: LMS 0503306, test; B value; 0.20-0.53 and reality; 0.6591, learning test; B value; 0.20-0.63 and reality; 0.804, opinion questionnaire about Web-Search Based Instructional System Model; B value; 0.302-0.677 and reality; 0.904.

Implementation: Taking Web-Search Based Instructional System Model to try-out by one-to-one testing with 3 students and try out with small group testing; 9 students to check fully Web-Search Based Instructional System Model and solving.

Phrase 2 treatment Web-Search Based Instructional System Model for higher education in Thailand: The sample were first students of Department of Educational Technology and Communications, Faculty of Education, Mahasarakham University being selected purposive sampling in LMD 0503306 in Summer 2010 as 3 weeks.

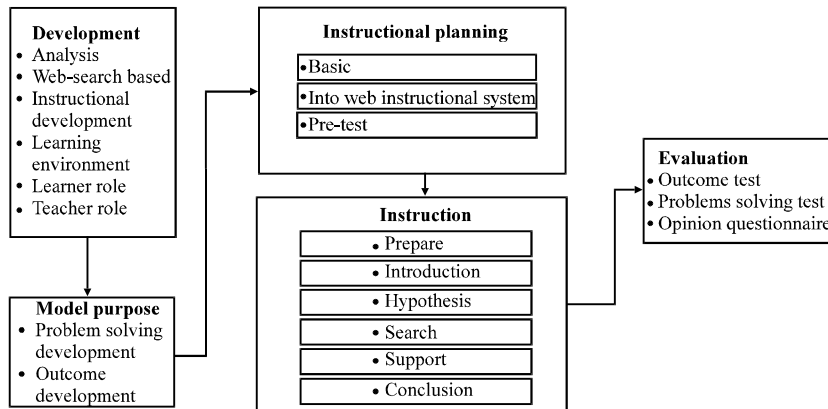


Fig. 1: Instructional System Model

RESULTS

Phrase 1 A Web-Search Based Instructional System Model for higher education in Thailand

Analysis and synthesis:

- Analysis and synthesis of Instructional System Model: principle, purposes, process, instruction and evaluation
- Analysis and synthesis principles of web-based instruction: interesting, telling purpose, reviewing, learning commendation, class participation, feedback, testing and usage
- Analysis and synthesis steps of inquiry-based learning): orientation, task, hypothesis, exploration, support) and conclusion
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Design of the Web-search Based Instructional System Model (WBIS Model) analyzing Instructional System Model:

Principle, purposes, process, instruction and evaluation.

Development: Development of the Web-search Based Instructional System Model (WBIS Model) passed 5 experts in steps and activities therefore, it was taken 5 experts the Web-Search Based Instructional System and development of instrument in data collecting.

Implementation: Taking Web-Search Based Instructional System Model to try-out. Five experts showed that opinion of steps and activities at 96% and educational technology and communications experts showed that opinion at more level (Fig. 1).

Phrase 2 treatment Web-Search Based Instructional System Model for higher education in Thailand: The statistics used in data analyses were percentage, mean,

standard deviation; finding out an efficiency of a Web-search Based Instructional System Model (WBIS Model) based on the required efficiency of 80/80 (E_1/E_2) and comparing achievement mean scores using the dependent sample t-test. The results of the study were as follows: the developed Web-search Based Instructional System Model (WBIS Model) consisted of 4 components:

- Model's principle
- Model's objectives of the model as aiming to develop problem solving thinking and learning achievements
- The learning-teaching process comprising of 2 stages: the stage of preparation before learning and teaching and the stage of organization of learning-teaching process. There were 6 activities: preparing, presenting situation hypothesizing, searching, supporting and making conclusion
- Measurement and evaluation, the qualified persons viewed about the appropriateness of the components, procedures and activities as a whole at a high level

CONCLUSION

The developed Web-search Based Instructional System Model (WBIS Model) had an efficiency of 81.18/83.61. The learners showed gains in learning achievement and problem solving thinking before experimenting at 0.01 level of significance. Also, the learners agreed with the learning via the developed Learning-Teaching Model at a high level.

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