

Synthesis Intelligent Cooperative Education Process Management on Cloud Computing Technology.

Suriya Pumchalerm¹, Prachyanun Nilsook², Namon Jeerungsuwan³

¹Faculty of Technical Education
King Mongkut's University of Technology North Bangkok
Bangkok, Thailand
pumchalerm@hotmail.com

²Faculty of Technical Education
King Mongkut's University of Technology North Bangkok
Bangkok, Thailand
Prachyanun@hotmail.com

³Faculty of Technical Education
King Mongkut's University of Technology North Bangkok
Bangkok, Thailand
namon2015@gmail.com

Abstract—The purpose of the research study were 1) to analyze a framework of intelligent cooperative education process on cloud computing technology, 2) to synthesis of intelligent cooperative education process on cloud computing technology. The study used qualitative method by depth interviews of experts and synthesizing relevant literature. Nine experts in cooperative education with information and communication technology experiences were the sample group. The research tool was a depth interviews and related studies and literature were reviewed. The above conceptual framework was used to synthesis intelligent cooperative education process on cloud computing technology. The study findings main process as follows: (1) Pre-Operation (2) Operation (3) Post-Operation.

Keywords-Cooperative Education; Intelligent System; Cloud Computing.

I. INTRODUCTION

Studying is the process in which helps oneself to develop in many aspects [1]. Studying only by theoretical learning, however, might not enough to bring out the body of knowledge to effectively develop a country. Experience in working was also another important reinforcement that helped combine skills, intellects, and knowledge of a person in order to improve his or her organization [2]. From the business organization's point of view, candidates who obtained any other skills, besides academic knowledge, were more preferable. The other

skills preferred by the business organization were knowledge implementation, credibility, problem solving, self-improvement and moral ethical awareness. These skills could not be learned from any textbooks or papers they were learned from practicing in real life especially in a working context [3]. Applying and integrating the knowledge gained from classrooms with working experience in the business organizations created professional skills and self-improvement skills [4]. Cooperative education management is different from managing other subjects and that caused limitation in learning and teaching management for the course, especially when the course requires cooperation from different departments and sections. Therefore, applying the Information and Communication Technology (ICT) was an appropriate solution for managing cooperative education. It was also in accordance with the B.E. 2554 – 2564 Information and Communication Technology conceptual framework of the government or so-called “ICT 2020” which focused on using ICT to be Thailand's driving force for sustainable knowledge, intellect and the growing economy with equality [5]. Implementing ICT to the cooperative education is also agreed with strategy Number 2 of the Ministry of Education in which it was promoting learning and teaching management using ICT in order to increase the effectiveness of the Thai educational system. The aim was to empower the citizens of the nation with emphasizing the learner development

using ICT as an essential tool. This would help sustainably improve the country as a whole.

II. PURPOSE OF THE STUDY

- 1) To analyze a framework of intelligent cooperative education process on cloud computing technology
- 2) To synthesis of intelligent cooperative education process on cloud computing technology.

III. RESEARCH FRAMEWORK

Conceptual framework of synthesis intelligent cooperative education process on cloud computing technology was shown in Figure 1.

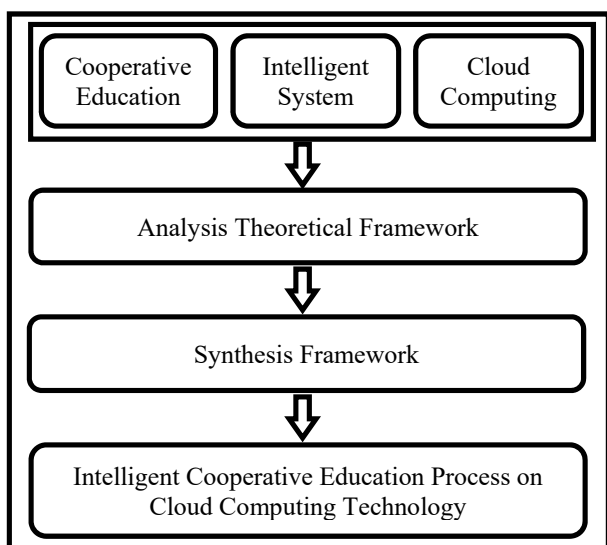


Figure 1. Conceptual framework.

IV. METHODOLOGY

The study consisted of two phases as follows:

- 1) To analyze and synthesize document and research studies related to intelligent cooperative education process on cloud computing technology.
- 2) Depth interviews with experts about cooperative education and ICT in higher education institutions.

V. DISCUSSION

Synthesis the characteristics of intelligent cooperative education process on cloud computing technology shown on table I.

TABLE I
Characteristics of intelligent cooperative education process on cloud computing

Process	Institute					
	MUA [6]	SUT [7]	WU [8]	RMUTT [9]	KMUTNB [10]	SPU [11]

Pre-Operation						
1. Pre-Cooperative Resister		✓	✓		✓	✓
Process	Institute					
	MUA	SUT	WU	RMUTT	KMUTNB	SPU
2. Academic Preparation	✓			✓		✓
3. Announce Information						✓
4. Announce Jobs to Students	✓				✓	✓
5. Declaration of Intention		✓	✓	✓	✓	✓
6. Subject Register		✓	✓	✓	✓	✓
7. Qualification Screening	✓			✓		
8. Application		✓	✓			
9. Quality of Jobs	✓					
10. Job Quality Guarantee				✓		✓
11. Pairing				✓		
12. Select Student			✓	✓		✓
13. Selected Results	✓	✓	✓	✓	✓	
14. Consider Compensation		✓	✓			
15. Meeting with Student and Co-op Supervisors						✓
16. Accident Insurance	✓					
17. Define Jobs Characteristics		✓	✓			
18. Meeting with All Stakeholder	✓					✓
19. Assistance Document					✓	
20. Preparation		✓	✓	✓		
21. Training Orientation				✓		
22. Students Delivery	✓				✓	✓
Operation						
1. Entry Report of Students	✓	✓	✓	✓	✓	✓
2. Send Planning	✓	✓	✓	✓	✓	✓
3. Present Project Proposal				✓	✓	
4. Progress Report	✓	✓	✓	✓	✓	✓
5. Send Report		✓	✓			
6. Supervising	✓	✓	✓	✓	✓	✓
7. Consulting						✓

8. Present Training	✓			✓	✓	✓
9. Evaluation	✓			✓	✓	✓

Process	Institute					
	OHEC	SUT	WU	RMUTT	KMUTNB	SPU
Post-Operation						
1. Student Returning					✓	✓
2. Evaluation	✓	✓	✓		✓	✓
3. Send Completion Report		✓	✓	✓		
4. Seminar	✓	✓	✓	✓		
5. Interview		✓	✓			
6. Evaluation Report						✓
7. Collect Evaluation				✓		
8. Feedback Report	✓					✓
9. Post-Training					✓	
10. Contest Project				✓		
11. Save to Database	✓					✓

Annotation:

OHEC mean Office of Higher Education Commission

SUT mean Suranaree University of Technology

WU mean Walailak University

RMUTT mean Rajamangala University of Technology

Thanyaburi

KMUTNB mean King Mongkut’s University of

Technology North Bangkok

SPU mean Sripatum University

From depth interviews with experts about cooperative education and ICT in five higher education institutions and Office of higher education commission and analyze and synthesize document and research found Intelligent Cooperative education process on cloud computing technology has three main-processes and each main-process has sub-process as follows.

- Pre-Operation has nine sub-processes (1) Announce (2) Academic Preparation (3) Subject Register (4) Declaration of Intention (5) Qualification Screening (6) Pairing/Select (7) Announcement (8) Training Orientation (9) Students Delivery

- Operation has five sub-processes (1) Entry Report of Students (2) Planning /Project Proposal (3) Progress Report (4) Supervising (5) Result of Training Presentation

- Post-Operation has seven sub-processes (1) Student

Returning (2) Completion Report (3) Assessment (4) Post-Training (5) Outstanding Performance Selection (6) Evaluation Summary (7) Feedback Report

Processes derived from synthesis were only part of the whole process because this research considered the processes running on the cloud computing technology only. There were just two processes to be made the intelligent cooperative education process management on cloud computing technology system. That was Qualification Screening and Pairing/Select.

VI. CONCLUSION

The results of study imply that it was consists of important elements i.e., Cooperative Education, Intelligent System and Cloud Computing. Moreover, the tools for support this studies as follows:

- The Internet used for communication through web browse
- Information retrieval use for assess the various knowledge sources.
- document management systems.
- tools for communication.
- Software as a Service.

Cloud computing technology is the new technology for education in Thailand emphasizing on flexible expansion. It can be adjusted its size by user satisfaction and resource allotment focusing on working from the remote area [12].

Service of Cloud computing technology consists: Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Serviced (SaaS) [13]. This paper presents the Software as a Service in cooperation education process management. SaaS is a service for user can access every time, everywhere and access from various devices. Moreover, user can share resource or data and information (e.g. document or picture) because it is easy to access and collaborate. It can help raise efficiency of the technology and reduce the complexity in data-to-user management,

Creating a system to be intelligent, can use techniques such as Pattern recognition, Genetic programming, Robotic, Expert System, Natural Language Processing, Fuzzy Logic, Virtual Reality Systems, Neural Computing, Intelligent Tutoring Systems and Intelligent Agent[14],[15]. This research used Intelligent Agent to created system and IA was a kind of software had three properties as follows. 1) Automation 2) Adaption 3) Interaction [16]. Intelligent system was applied to the process of cooperation education. It can help carry out activities to more efficacy.

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