

Development Model of Learning Information Technology Project Management based of Multimedia on Higher Education

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Abstract— Objective: Produce a model of learning Information Technology Project Management based of Multimedia. Study observation of Project Management Information Technology (PMIT) at yield: learning style characteristics student's at 63.18 % is audiovisual, professional competence requirements, lack of student learning outcomes, learning models have not been relevant, effective and efficient, as well as students not motivated to learn PMIT.

This study conduct quantitative and qualitative analysis of the learning process, further develop models of learning PMIT based of Multimedia to conduct research and development (R&D). The Instructional Design (ID) model and the Instructional Systems Design (ISD) Model of Motivation or ARCS model (attention, relevance, confident and satisfaction) and finally evaluating the success of learning. Implementation and design multimedia for PMIT.

Keywords: Project Management Information Technology; multimedia; Research and Development (R & D); Instructional Design (ID); Instructional Systems Design (ISD); ARCS; implementation and design multimedia.

I. INTRODUCTION

Project Management Information Technology (PMIT) has some expertise in Sharlett Gillard needs to be a project manager, among others (Gillard, 2009: 1-7): technical skills, inter-personal skills, personal leadership and educational background. Results of field observations competence base curriculum with student centre learning (SCL) methods, qualification of lecturers in the methods of constructivist learning, system learning of blended learning is learning which is done face to face and online, in terms of qualification of lecturers in lesson planning, learning process, evaluation and follow-up study.

The low student results from the average value PMIT is 67, 645. Through observation of the 100 respondents learning styles of students, there is a learning styles: 19.78 % auditory, 17,50 % kinesthetic and 63.18 % audiovisual, this indicates that the student will more quickly understand when learning using audio-visual means or can be said to be learning by using multimedia will facilitate student learning. Based on the motivation to learn there are several problems,

among others: the ownership PMIT books, attendance rate <70%, the support of library facilities. (Joko Dewanto, 2014.4)

Various obstacles in carrying out its functions. This is due, among others : changes in company business strategy, compatibility of hardware, software selection of diverse, the problem of data security, computer network bandwidth, the behavior of end-users and other workers as well as the policies of the executive of the company. On the other hand 5 capabilities of professional services : 1. Skills of communication, 2. critical thinking and strategic skills, 3. focus on the client and the market, 4. The interpretation centered on information, 5. Adaptation Technology.

PMIT education learning activities, explain some of the terms capability, among others : the project life cycle, project integration management, project scope management, project time management, project management financing, quality project management, project resource management, project communications management, project risk management, management project logistics. (PMBOK, 2014.1). Resulting in better information technology projects project hardware, software, brain ware, database, network and telecommunication, quality computer security with requirements in a systematic, control, and efficient, which would have consequent to the ability to : management, analyze and evaluate, specifications, designing, evolution of information technology, novelty and creative, standard, individual skill, and professional networking practitioners. Using a multimedia approach model, notation, and the procedure for the model construction and analysis. The method provides a systematic approach to the design specifications, construction testing, and verification of software items.

Therefore it is necessary learning model SCL, the currently proposed to be a model of learning that should be used because it has several advantages: (1) a student will be able to feel that learning into his own as students are given ample opportunity to participate; (2) students have a strong motivation to participate in learning activities; (3) the growth of democratic atmosphere in pembelajaran so that there will be dialogue and discussion to learn from each other-learning

among students; (4) can broaden the mind and knowledge for lecturers or teachers because something is experienced and delivered the student may not be known in advance by the lecturer. Advantages possessed SCL learning model will be able to support efforts towards an effective and efficient learning which is characterized by (1) the relevance and the real world; (2) organization: sequence and cumulative effects; (3) practice; (4) transfer and transformation; (5) motivation; (6) the meaning or exploration; (7) the results and feedback. (Rahmini Hadi, 2007.4). So SCL with multimedia and instructional systems design model of motivation or ACRS may improve learning ability PMIT. Based on the above problems need to be replicated on the development of multimedia-based learning PMIT on informatics engineering study program.

Learning media can overcome the limitations of the senses, space, and time, among others : a. the object or objects that are too big; b. the object or objects that are too small are not visible to the senses; c. rare occurrence that happened in the past or occur once in decades; d. object or process is very complex as the blood circulation; e. events or experiments that may harm can be simulated. Learning media can provide a common experience to the students about the events in the environment, as well as allowing direct interaction with faculty, community, and environment. The use of instructional media can enhance the learning process and the result is a level of thinking with respect to students. The level of human thinking follows the developmental stages starting from concrete thinking toward abstract thinking, starting from simple thinking leading to complex thinking. The use of instructional media is closely related to the stage of thinking because through the medium of learning abstract things can dikongkretkan, and complex things can be simplified.

Media pembelajaran dapat mengatasi keterbatasan indera, ruang, dan waktu; a. objek atau benda yang terlalu besar ; b. objek atau benda yang terlalu kecil yang tidak tampak oleh indera; c. kejadian langka yang terjadi di masa lalu atau terjadi sekali dalam puluhan tahun; d. objek atau proses yang amat rumit seperti peredaran darah; e. kejadian atau percobaan yang dapat membahayakan dapat disimulasikan dengan. Media pembelajaran dapat memberikan kesamaan pengalaman kepada mahasiswa mengenai kejadian-kejadian di lingkungan, serta memungkinkan terjadinya interaksi langsung dengan dosen, masyarakat, dan lingkungannya. Penggunaan media pembelajaran dapat mempertinggi proses dan hasil pembelajaran adalah berkenaan dengan taraf berpikir mahasiswa. Taraf berpikir manusia mengikuti tahap perkembangan dimulai dari berpikir kongkret menuju ke berpikir abstrak, dimulai dari berpikir sederhana menuju ke berpikir kompleks. Penggunaan media pembelajaran erat kaitannya dengan tahapan berpikir tersebut sebab melalui media pembelajaran hal-hal yang abstrak dapat

dikongkretkan, dan hal-hal yang kompleks dapat disederhanakan.

Multimedia based multimedia system books, is a Multimedia “*Multimedia is the media that uses multiple forms of information content and information processing (e.g. text, audio, graphics, animation, video, interactivity) to inform or entertain the user. Multimedia also refers to the use of electronic media to store and experience multimedia content.*” . Six multimedia criteria (Thorn, 2006 : 23) : 1. Ease of navigation, 2. Content of cognition, 3. Presentation of information, 4. Media Integration, 5. Artistic and Aesthetics, 5. Functions as a whole.

II. METHODOLOGY

Research learning model development Manajemen Proyek Teknologi Informasi (PMIT) multimedia-based courses conducted at the faculty of computer science techniques of informatics Esa Unggul University in semester 3 2014. PMIT is subject to the competency objectives include: 1) Explaining the nature of the information technology project management, 2) Identifying information technology project management can benefit, 3) Conducting project life cycle management of information technology, 4) Have a working knowledge of the management body of knowledge (standards compliant management professional), the development of project management in hardware, software, brain ware, database, network and communications, network security.

Gall and Borg research procedures in the development of learning using the concept of instructional design system approach Walter Dick, Lou Carey, and James Carey is used for research and development. The steps of research conducted in this study are based on the implementation of the components of the system design model of learning by Dick and Carey, as follows :

Specifically steps in education research are as follows:

1. Identifying learning objectives;
2. Conduct instructional analysis;
3. Analyze the characteristics of the students and the learning context;
4. Formulate specific learning objectives;
5. Develop assessment instruments;
6. Build a learning strategy;
7. To develop and selecting teaching materials;
8. Designing and developing the formative evaluation;
9. revision of the learning program;
10. Designing and developing a summative evaluation.

While in this observation in multimedia development refers to the development of research models Gall and Borg (2007, :589), the development model of instructional design Dick and Carey (2005, 1). On the development of multimedia-based project management using the steps multimedia software development : 1) conduct needs analysis, 2) perform instructional design, 3) produce multimedia, 4) perform validation, evaluation and revision of the model and 5) learning product trials. In the formative evaluation using the development of Dick and Carey have three (3) main steps, namely: (1) one to one evaluation, (2) small group evaluation and (3) field trial.

As for the software development use prototype development, using step-step development, as follows: 1) listening to the needs of users (lecture, students, administrators), 2) establish and revise the model, 3) to test the user and improve the user's screen models.

So the development of learning divided four parts: analysis comprises : identifying learning objectives, determine instructional analysis and instructional analysis and context; design consists of: multimedia software design process (planning, analysis, design; implementation consists of : expert validation and manufacture and operation modul teaching and assessment will consist of : perfection and reparation.

III. ANALYSIS AND DISCUSSION

In developing the model using a 10-step development of learning models as follows:

A. Identifying learning objectives;

Esa Unggul University research profile

3. General Data : Description of the background, vision, mission and objectives of the study program, the state of lecturers, students, curriculum and learning, constraints and efforts to improve the quality of learning.
4. Lecturer: yet have the ability qualifications: preparation of lesson planning: methods and learning strategies, time allocation in accordance with the expected competencies; the implementation of the learning plan: apply various teaching methods and techniques according to the study, stringing materials together student; assessment of student learning outcomes: classifying the results, determine the source of instructional media and manage and analyze the results.
5. Students: derived from 83 people with a graduation rate (72.5%) and 48 students with a graduation rate (62.79%) who were taking courses in project management in the fifth semester. Through the study of the document to the learning process: qualification in determining the learning method in accordance with the expected competence, no

student identification, records talent, student learning difficulties, how to solve the problem and there was no follow-up study. Meanwhile, through the observation of learning outcomes: Student has not found a real focus issues and relevant lectures, students have not learned, conventional learning approaches, short lectures and teacher learning center.

6. After seeing problems then by using the draft standard competency based curriculum informatics engineering course there are some descriptions of the curriculum include: graduate competency profiles, competency elements, materials or formulation competency assessment, distribution of course, the ability of soft skills, the course structure based structure expected competencies, curriculum, subjects and composition of prerequisite subjects.
7. Based on the study data analysis and instructional objectives or general competence in the subject of PMIT is :

TABEL I. TABLE : GENERAL COMPETENCE MANAJEMEN PROYEK TEKNOLOGI INFORMASI

No	General Competence
1	Identification IT project management
2	Explaining the process and project management life cycle
3	Settings Management Body of Knowledge

Source : SAP and observer modification

B. Conduct an analysis of learning;

Learning analysis conducted after the completion of the steps is no clear analysis of learning objectives, then drafted the analysis of learning (instruction analysis).

Analysis of learning courses in PMIT begins by explaining the project management of information technology both in terms of customer needs in the field of information technology such as hardware, software, brainware, database, networking and telecommunications, computer security. Further describing the life cycle of protectionism toward information technology projects, describe the process of project development (planning, analyzing, designing, implementing and care). Implement project management coverage, implementing a project management, project management implement the financing, implementing project management risk, implement quality project management, implementing HR project management, implementing project management communication, implement project management logistics.

C. Analyze the characteristics of the students and the learning context;

While the characteristics of the treated, sample of respondents were second-class respondents, namely the group 1 = 25 students and group 2 = 20 students, predominantly the age range 19 -20 years, the majority of

regions of origin: DKI Jakarta and Tangerang, on average monthly expenditure: Rp. 1.000.000, -, average sources of funds = parents, home with their parents, past parents education = high school, the average GPA of group 1 = 3.12, group 2 = 2.65, the majority have never experienced project management, have a high desire to learn project management looks, desire to open a business to make ends meet.

In the cognitive abilities of all students more than consent to the use of project management to build information technology according to customer requirements. Understanding the processes of initiation, planning, executing, overseeing and completing projects, and wants to increase the knowledge of project management in terms of: coverage, integration, time, cost, quality, communication, risk, logistics and human resources.

At almost the entire student affective abilities should approve the student to understand the technology project management information, receive learning project management, project management responds to learning, respect for others, accepting learn project management, students are motivated to learn project management, the learning process requires students active, promoting teamwork, students increase confidence, improve the ability of the discussion. On psychomotor almost all students should be able to use equipment approved development project management, being able to use project management software project.

On the verbal skills of information: almost all students of more than than agreed they should be able to interview users of the software, capable of performing information communication skills, able to develop means of communication.

In the predominantly student's learning style observation auditory and visual indicate that students like to listen as well as visual, did not agree to have a textbook, could not agree on the seriousness of the learning project management, often asked professors, the desire to do homework that is assigned faculty, interested in the field of science studied, have orientation in education,

On the whole student learning motivation is almost more than agree to the lecturers quality learning, subjects qualified industrial weights, using methods that are well packaged, the conditions that support the lecture room lecture, although still not agreed the library.

D. Formulate specific learning objectives;

Analysis instructional produce building GBPP that include: description of courses, general competencies, special competencies, sub subject, assessment, types of grains, indicators of achievement, time estimation, methods of teaching, learning and library media.

TABEL II. THE PURPOSE OF SPECIAL COMPETENCE

No	The Purpose of Special Competence
1	Identifying IT project management
2	Describe the project life cycle
3	Describe the process of development of the project management
4	Integrating project management
5	Implement project management coverage
6	Implement project management time
7	Implementing financing project management
8	Carry out the project management of risk
9	Implement project management quality
10	Implement project management HR
11	Implement project management communication
12	Implement project management logistics (procurement)

PMIT multimedia design implementation to deliver increased value of project management lectures.

IV. CONCLUSION

ARCS model execution in PMIT learning courses Information Engineering University Esa Unggul has generally been well implemented with attainment of 80% with a range of supporting factors and inhibitors. In practice, the more dominant aspect is the aspect of attention (attention), while other aspects have also been implemented with good but not as good as aspects of attention (attention). As for its implementation are:

1. Lecturer always try to raise the attention of students by using a variety of learning methods, such as lectures, discussions, question and answer, demonstration, presentation, pbl, project base learning, drill and memorization; using a variety of learning media, such as books, e-books, pictures, VCD and LCD; use humor if the conditions are right; questioning techniques; and use multimedia.
2. Trying to show the relevance of the material being studied with the needs of students with instructional objectives reveal, the benefits of learning PMIT, and be enthusiastic in learning.
3. Increase student confidence in his ability to give hope of success, the preparation of a systematic study of the material that is easy to difficult and the sequence in which the material can support the material to the next
4. Creating student satisfaction with verbal and non-verbal praise, giving the opportunity to demonstrate its ability, and the opportunity to help their friends who have learning difficulties PMIT

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