Conference Paper

Development of Blended Learning Model Based on Constructivism of Conservation Value

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Abstract

The aim of the reserach is design and develop the Management Information System course using e-learning system at Economics Faculty UNNES. The aim detail to be achieved are (1) developing blended learning model based constructivism of conservation value, (2) measuring effectiveness of implementation developed learning model, and (3) knowing the benefits to be gained by implementation the learning model. This research is development research with quantitative and qualitative approach. The research started with problem identification, then compile research instrument in questionnaire, observation and documentation. The next step is data collection, then presentation and data analysis, and conclusions for last step. The effectiveness of the development learning model is 82.58%. The results are clarified by student's response that the developed learning model is effectively implementation in Management Information System learning and give understanding to students. Benefits gained by implementation the learning model viewed from personal and group side is change of insight and behavior of students that lead to character of conservation value, and in outcome side is creativity of development product information management system, building their own knowledge by hooking with daily living conditions, and actualization through skills possessed.

Keywords: blended learning, constructivism, conservation value

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1. Introduction

The education system development in a country is inseparable from the role of science and technology. The development of Science and Technology is evolving very rapidly, so it demands that people should be qualified and responsive and also ready to face the various global demands. Many aspects of human life have been touched and even changed as a result of the adoption of information technology and communications.

In the learning that supported by information and communication technologies, it can be found in the environment of learning based e-learning, every individual student has the discretion to determine what want to learn, where and how the learning process will be done. In an environment of learning based on student (learner centered), various conveniences are provided, so that every individual can actively construct their own knowledge structures based on initiative and responsibility. Individual students have great access to abundant learning resources, receiving feedback, and continually improving their understanding by a process known as generative learning.

The utilization of information and communication technology in education, which is generally called e-learning can improve the quality of learning. E-learning extends beyond the classroom and consists of material and communication over the internet directly to the learner"s PC. This channel has experienced significant growth in recent years [31] appealing to employers, learners and academia. The most commonly quoted benefits are continuous learning, time saved and reduced travel costs [20]. The first of improved quality in e-learning is the openness and the ability of the students in using of information and communication technology. Other forms of communications based internet such as websites, blogs, discussion forums, facebook, twitter, email, and edmodo have been a media/communication tools everyday. Second, the lower cost of information and communication technology, so it becomes part of human life.

Based on the research results of Lord and Lara Lomicka (2008) explains that researchers have begun to investigate the development of online communities not only in the setting of distance education, but also in the type of hybrid program combines features of the online distance education with a conventional classroom-based learning. Hybrid type of program is often referred to as blended learning, combining different types of pedagogy with different tools for interaction and discussion. Blended learning as a blend of classroom and online learning that includes some of the convenience of online courses without loss of contact face-to-face.

The term, "blended learning" has also been criticised as misleading [22] on the basis that the blending essentially refers to teaching, rather than learning. Oliver and Trigwell (2005) suggest that a more appropriate term for the concept would be "blended teaching" or "learning blended pedagogies". Despite Oliver and Trigwell"s suggested need that blended learning refocus on the learner, rather than the instructor"s perspective, Thorne (2003, p. 184) recognised the strategic importance of the "blend" when he defined blended learning as "a way of meeting the challenges of tailoring learning

and development to the needs of individuals by integrating the innovative and technological advances offered by online learning with the interaction and participation offered in the best traditional learning".

Regardless of the ambiguity of the term "blended learning" [15] a common factor in a number of definitions, is the use of e-learning tools to support more classical learning approaches, such as classroom instruction or on-the-job training, where justification for such support is based on improved learning outcomes and/or cost and time savings [15]. The benefits of using blended learning include: quality improvements in learning and teaching [8, 19], widening student participation [5], and meeting student expectations [10].

The method of learning have been done in the class i.e. lectures, discussions, and faqs. Bereiter (2002) argued that progressive educators argue against instructivism, which assumes the effectiveness of passive reception of sanctioned information through memorization and recall, and instead promote the development of skills in collaboration, problem solving, knowledge creation, and evaluating gathered information With this end in view, many educators have turned to pedagogies based on constructivist epistemology, although the debate about the efficacy of constructivist learning models still persists [30].

In the method of learning is a lecturer and students based on learning materials that have been developed by lecturers and reference materials. Sometimes, lecturers use interactive learning media based multimedia that displayed by LCD screen viewer. However, because of time and the amount of material that must be passed, learning methods of college often can not be implemented properly. Lectures focus on the achievement of the material that is charged at a unit of reference (SAP) and syllabus.

Based on observations of researchers in the learning process at the Faculty of Economics UNNES, showed that apparently the process of teaching and learning requires to meet directly between students and lecturers. Relating to the course of Management

Information Systems, due to a high enough degree of difficulty and considerable material content, it makes the learning motivation of students being low. It has a considerable influence on quality of learning that impact the lack of competence of the students. The importance of human behavioral factors over content and tool selection when implementing a blended learning solution cannot be ignored. The role of group dynamics in achieving the learning outcomes also needs to be considered, as does the perceived value of the approach to be taken by the participants. Findings relate to both the e–learning experience and other learning methods experienced on the

course, influenced partly by the students' expectations and preferences [18]. Learning is a much more complicated phenomenon than can ever be limited to a classroom. In organizational learning efforts, the confusion of learning and training is fatal [27].

Basically the concept of Management Information System courses is closely related to daily human life because the system is found around us. Thus, the concept of Management Information System courses should be more readily accepted or understood by students. Generally, learning has two characteristics, namely: first, the learning process involves a mental process of learners. It is not only demanding learners simply hear, noted, but also it wants the activities in the process of thinking. Second, the learning process builds an atmosphere of dialogue and questioning that directed to improve and increase the ability of thinking, which in turn to help and gain knowledge for learners that they are invalid constructs themselves. It is supported by the results of research that a priority for higher education is to develop students" technical as well as generic skills so that they can make a successful transition from university to the workplace [1, 26].

Universitas Negeri Semarang (UNNES) as part of a college education has risen in government mission to develop character education for the student. UNNES is a University which has a vision to be the University of Conservation Insightful and Reputable International. Insightful conservation significance viewpoints and attitudes oriented on the principle of conservation (the preservation, maintenance, care, conservation, and development) of natural resources and socio-cultural values. The principle becomes the cornerstone activities in tri dharma universities. International Reputable has meaningful image and good name in the International Association as well as being the reference in the tri dharma of collage activities at the international level. Based on the vision of Unnes, education applied in UNNES is education character. Character education developed by UNNES is a conservation-based character education [12]. There are eight character values conservation that UNNES carried; they are religious, honest, intelligent, caring, tolerant, democratic, and tough and manners. The eight of values will certainly grow as other characters such as fairness, responsibility, and love of the homeland.

The problems mentioned above were requiring an effort. This research is expected to contribute solution in improving the students" livelinees and competence In Management Information Systems courses. Through a blended learning model, the learning process is not limited only in the classroom but it also can be developed outside of the classroom without obstructed by time and space. One of approachs to learning that facilitating the completion of the problem above is using constructivism learning

approach. Constructivism learning theory explains that people build or create knowledge by trying to give a sense of the knowledge in accordance with the experience [21].

Constructivism represents the epistemological intersection of empiricism and rationalism – learners come to know not only through empirical observation, but through rational mental construction [11]. Constructivists, on the other hand, display a variety of ontological and epistemological perspectives. For example, cognitive constructivists, based Piaget"s (1932) work, see that students construct their own meaning of reality. Piagetian constructivism is closely related to cognitivist and appears externally quite similar to forms of cognitivist. From this perspective, the learner still processes objective reality in the mind, but creates his or her own understanding based on individual apperceptions, which may or may not correspond with reality [25]. Therefore, in the learning of Management Information System should be aware that the meaningfulness of learning will occur, if the students provide the opportunity to build their own knowledge and accordance with the vision and mission of the College, namely UNNES.

From the explanation of background above, then researcher can formulate the problems solved in this study, namely the following: (1) how the development of blended learning model based on contructivism of conservation value? (2) How the effectiveness of the development of blended learning model based on constructivism conservation value in Faculty of Economics UNNES? (3) How much the benefits will be gained with the implementation of blended learning model for students and professors.

The aim of the research is to design and develop the learning of Management Information System courses using e-learning system at the Economics Faculty UNNES. In detail of the purposes will be achieved as follows: (1) Developing a blended learning model based on Constructivism of conservation value (2) Measuring the effectiveness of the development of blended learning model based on constructivism conservation value in Faculty of Economics UNNES (3) knowing the benefits which will be gained by the implementation of blended learning model for students and professors.

2. Methodology

This study is special learning research, where learning of Management Information System for prospective teachers of Economics does not only reach the cognitive domain, but also affective and psychomotor domains. This research is a development research and using quantitative approach which is equipped with a qualitative approach in terms of initial observation data acquisition. Qualitative approach is used

to catch the problems of the teaching Management Information Systems courses, after the problem was detected, then the complied a blended learning models based on conservation value in the course of Management Information Systems.

The research was conducted at the Faculty of Economics, Universitas Negeri Semarang which is taking the courses of Management Information Systems at Undergraduate of the Department of Economics Education. Based on purposes of the research, the changing observed or measured in this study is the implementation of the Management Information System learning at the Department of Economics Education FE UNNES.

The flowchart of this research methodology was starting from the determination of the issue, data collection, data analysis, conclusion and suggestions. Stages of research methodology had described in general as follows (1) identification of the problem in the issue of what will be discussed with regard to the course of Management Information System based on observation and information that have been obtained. (2) Preliminary Studies and Literature Studies conducted in Management Information Systems courses at the Department of Economics Education. The implementation in this activity was visually observed a situation that was examined. While researcher was doing observations in the field, researcher did a study of the literature to support the research. The study of the literature will be used to supporting of theory in research. (3) Determining and arranging a research instrument. This stage was the determination of the research instrument that was using a questionnaire and observation sheets. Drafting questionnaire was divided into four parts, namely the identity of the source of data, qualitative, quantitative and content/essay. Then, it arranged in 1 batch to be distributed to respondents. (4) Collecting data by filling out the sheet of observations during the process lecturing and distributing a questionnaire to respondents, and also doing visual observations during lectures take place. (5) Data processing consists of editing, tabulating and calculations with the help of a computer program, while qualitative data is processed with the technique of triangulation. Editing was done in hopes that will be retrieved data, and data are actually valid, reliable, and responsive. (6) Data analysis based on the result of research and theory that exist. (7) The identification of the effectiveness. After data analysis will be identifing the effectiveness of blended learning model based on Constructivism of conservation value of Management Information Systems courses in the Department of Economics Education FE UNNES. (8) Drawing conclusions based on data analysis and checked in accordance with the intent and purpose of the research, as well as provide advice as needed.

Data collection techniques in the study were using the closed and semi-open questionnaire, and also documentation. The next data collection techniques were documentation, shaped text, drawing, or the monumental works from students. Data analysis in this study uses descriptive percentage of analysis data. This analysis is used to find out the description of the implementation of the Management Information System learning with a blended learning model based on constructivism of conservation value. Questionnaire of research instrument were analyzed with descriptive statistics percentage for outlining how far students gained the experience learning in courses of Management Information System.

3. Results and Discussion

This resulted in the products of development research is a learning model that stated in the plan of semester learning based on Constructivism of conservation value for instructional Management Information System (MIS). The result of development including the implementation of exposure and exposure to development.

The exposure of the implementation consisted of (1) the identification and analysis of the situation, and (2) advanced exploration. First is the identification and analysis of the situation. The tracking of basic information about the process of learning and device of learning is used to support the learning process that has been going on in the classes. It is conducted through surveys and exploration. The first activity was making an initial contact with practitioners as the informant early. Meetings with practitioners are done by the method of interview. Interviews were conducted with the unstructured interview techniques, so the informant had mentioned above that do not feel strained and creates a relaxed and enjoyable. Through that way, the researchers can reveal and explore the information about learning and device of learning in Management Information System that had occurred in the classroom with honest and what it is.

The advantage of unstructured interviews that have been conducted i.e., the informant naturally and without coercion issued complaints and difficulties in teaching of Management Information System courses. One of them, according to the informants expressed that they found of the difficulty in presenting of the material management information system courses in the classroom, because the material of Management Information System requires practice to complement the existing theory.

The response results from the practitioner was used as a basic of field survey and exploration. The source of information second providers were students who take the courses of management information systems. The second step was meeting with

the students who have completed the courses of management information system. Some students mentioned that they require more constructive learning model which is in accordance with the environment conditions of students to facilitate in learning. Secondly is further exploration. Further exploration was done after the initial communication. Information obtained in further exploration includes the conditions of the learning activity summarized in the identification of problems in the learning process in detail.

Development of exposure consists of: *first*, the identification of problems and needs assessment to the development model of management information system learning. Before the researcher was making the conducted a survey, researchers will analyze the plan of course that used. Furthermore, the researchers doing survey to analyze and observe the learning of management information system that occurs in a class observations, then it will be checked with the plan of lecture.

Needs of students in this study are the fundamentally required by students to maximize the potential of each student in the learning, it uses to achieve the learning objectives, and it can actualize an understanding and knowledge in the form of attitude and behaviour in accordance with the predetermined competencies. Based on unstructured interviews conducted with some of the students, it can be concluded that the learning during applied in the classroom is the variation of learning model between theory and practice in the real life of students related to management information systems.

Second was formulating product development. Based on the process of identifying the problem and the components in the development of learning products, the researchers formulate the product development form the model of learning as outlined in the plan of lecture. After the researchers analyze the needs of the students in the learning process and the observations has the results about the learning process activity, then researchers are discussing the results of the observation by a team of experts. Based on the results of discussions between researchers with expert team, the researcher formulates a model of learning.

Third was the preparation of the design and development of a prototype model of learning. The preparation of the design and development of the entrepreneurial learning materials consist of six stages, namely: (1) preparation of a prototype model of learning which is based on conceptual design in the form of constructivism based learning model with value conservation, (2) validation by practitioners, (3) the first revision, (4) the results of the expert team discussed with revision, (2) the second revision, and (6) the draft of prototype prepared will ready to be tested in the field.

The learning model development have been mapped, and then the next step is designing indicators of learning achievement and learning scenarios. The prototype model of learning that will take place in the classroom is validated by the validator team. Question form of validation consists of three aspects of assessment, they are: 1) the assessment of feasibilty content consists of 5 components (conformity of material description with standard and basic competences, the accuracy of the material, the material upgrades, encourage curiosity, extended of insight). 2) The presentation feasibilty assessment of consists of 2 components (presentation techniques and supporting presentation). 3) graphic evaluation assessment, consist of 3 components (size, skin design, design of contents). 4) The eligibility assessment, and 5) the contextual approach which consists of 7 components (constructivism, inquiry, questioning, community learning, modeling, reflections, and authentic assessment). The results of the analysis of question form validation materials by validator indicates that the development of learning model has met the eligibility of the validity and the criteria is criteria "feasible", so it can be used with the revision.

The prototype of blended learning model based on constructivism of conservation-value is formulated in the lecture of the semester. Each student is given independent and structure tasks separately in accordance with the material there. So, it is expected at the end of the lecture, the students are able to develop skills and attitudes in accordance with conservation values which applicated in courses and daily life.

Fourth, the trial results of learning model prototype. Testing the prototype of learning model is implemented by as much as one time. The purpose of the study is to know the validity and the effectiveness of learning model that developed. Researchers determine the classes that will be used as the subject for trial test and determine the schedule for the execution of the test. The implementation of the trial test in the field held smoothly with researchers who are implementing their own learning by using learning model that researchers develop. The field test is used to find out the effectiveness of a learning model that was developed. Field test is performed according to the scenario of the learning that has been designed. Learning approach uses the constructivism approach of conservation value with the method of lecture, discussion, observation, and assignments. Early learning activities, researchers give appreciation, orientation, motivation, and deliver learning objectives.

In the core activity, the researchers provide the stimulation and students should be listening the material. Students discuss with group friends about the material of e-commerce and perform a simple practice of utilization of management information

systems. In the last stage of the core activity, each group is presenting the results of the discussion and the other students will give responses to the results of the discussion.

Learning observations done during the activity of learning has tested in the field. The developers enlisted the help of lecturers as observer of learning in the field trials. The observer assesses the activities of student during the process of teaching and learning activities that use learning materials of the development result by giving sign check list ($\sqrt{}$) in every item statements on the observation sheet in the Appendix. The following result of observations of learning is shown in table 1.

TABLE 1: The Result Data of Observation in the Learning.

Description	Score
1. Syntax	7
2. Coefficient in the class	12
3. The principle of reaction and management	20
The number of answers	39
The number of ideal score	40
Final score	97.5

Source: Data processed by researcher, 2017

Observational of learning is done with 3 (three) aspects of the assessment, i.e. 1) learning syntax with two indicator assessment, 2) coefficient class with 3 indicator assessment, and 3) reaction and management principles with 5 indicator assessment. Total number of statements is 10 items. Based on the results of observation in the table 5.1 obtained score effectiveness of 97.5. It shows that the model of learning by using a blended learning based on constructivism of conservation value has been carried out effectively in the classroom.

Fifth, feasibility evaluation of the learning model. It uses to find out the worth or whether the prototype, then the researcher is asking for feedback from students about the learning model was developed that has been applied in the process of teaching and learning. Researchers use the question form learning materials development responses as a research instrument in the exploring and knowing the responses of students to the feasibility of blended learning model based constructivism of conservation value that developed. There are 11 items of assessment to 30 samples. The following of student response analysis results as shown in table 2.

Based on the results of the analysis of the responses of students, it retrieved the results of the effectiveness of the learning model of 82.58%. With the results of the percentage and clarified with the response of the students in the form of qualitative data from respondents or responses given then it can be said that blended learning

TABLE 2: The Analysis Result of Learning Model Responses.

Description	Number of Question										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
The number of answers of students	101	102	98	96	102	94	97	101	104	91	104
The number of ideal score	120	120	120	120	120	120	120	120	120	120	120
The number of answers total						1.090					
The number of ideal score total						1.320					
The effectiveness score						82,58					
Source: Data processed by researcher, 2017											

model based on constructivism of conservation value that valued effective, when it applied in management information systems. Based on the results of the qualitative responses stated that the learning models applied can provide insight to the students in the study of management information systems.

Sixth, refinement of prototype. Overall, this research and development has reached the expected of the aim research. The research development has also produced some findings of empirical research results, namely as follows: (1) Learning management information system is using concrete examples but less relevant. Therefore, when researchers apply learning with gets a good response because of the raised problems often faced by students. (2) the development of a learning model is attractive model in accordance with the conditions of the surrounding environment and the vision and mission of the College that is going stronger to the self of college students, because they feel for themselves what is happening, and then digesting it in their minds, and they can also actualize themselves against what they know, so the value of the character is expected to be formed.

Studies in reflection activities of learning is to (1) develop a blended learning model based on Constructivism of conservation value, (2) measure the effectiveness of blended learning model based on Constructivism of conservation value, which is worth conservation in the Faculty of Economics UNNES, (3) know the benefits which will be gained with the implementation of blended learning model for students and lecturer. Based on the results of the activities of learning by using learning model was developed that consists of an initial exploration activities, information, and action, it can be seen the changes that occur in student both in personal and group.

The findings of this research is that personal and group of students is changing insight in understanding the attitudes and behaviors of conservation value that is religious, honest, caring, tolerant, democratic, polite, smart, and tough. It is evidenced in the pre-elimanary survey before learning activities taking place, the students do not have an idea of the material that described as only limited theory. But, after learning activities is taking place, students can understand and apply the theory that accepted for later developed into a product of information system.

Other findings of the research is in terms of the outcomes obtained from the learning activities using the learning model that developed the change in student insights and applied the critical thinking ability in applying an understanding into the settlement of a case in the activity. The results of the activities are (1) conducting the discussion activity, each Member actively convey the idea or the rationale, (2) student was able to relate the knowledge with the situation around the environment condition of residence, (3) student is able to understand the material being taught that is then actualized in skills form that produce a product.

Learning outcomes by using the model of learning the results of development are also reinforced with the responses of the students described systematically the increased insight, a way of thinking in solving students" utilization of information systems. Students more easily understand the material in a way to build their own knowledge with the students relate to the conditions of daily life.

Presentation of the results of the reflection can be seen that the development model of learning has been able to provide change of insight, knowledge, experience, and actualizing themselves on personal and group in understanding of management information system, and providing critical thinking ability in reviewing the understanding gained through interaction of learning activities and the discussion. Based on the above, it can be concluded that the the results of the development of the components shows that intervention through the development of blended learning model based on constructivism of conservation value has been able to deliver results to changes in the insight, knowledge, attitude, and critical thinking skills and analytical students, especially characteristic value of conservation.

The results of this research was reinforced by results of research of Bernard et al (2014) which states that "in terms of achievement outcomes, blended learning conditions exceed classroom instruction conditions by about one-third of a standard deviation ($g + = 0.334$, $k = 117$, $p < .001$) and that the kind of computer support used (i.e., cognitive support vs. content/presentational support) and the presence of one or more

interaction treatments (e.g., student–student/–teacher/–content interaction) serve to enhance student achievement.

The goal of learning from a constructivist perspective is not for students to process discrete facts but to create elaborations and interpretations of information [11]. Therefore, socio-cultural constructivist methods of pedagogy emphasize student creation of individual and group meaning, rather than teacher-led instruction. Activities focus on learning through artifact creation [23], authentic tasks [13], cognitive apprenticeships [7], demonstration of multiple perspectives (for example, through cases; see [9]) and social negotiation through argumentation [2], as well as anchoring learning in meaningful contexts [6] and problem solving [14, 16, 28].

4. Conclusions and Recomendations

The conclusions of the study are: (1) the development of blended learning model based on constructivism of conservation value starts from the identification of problems and needs assessment to the development of blended learning model based on constructivism of conservation value, the formulation of conservation pruduct by collaborating with practitioners, the development of planing of the lecture of the semester, the trial results at each stage of the preparation of the prototype development plan of lectures semester, and the evaluation of the results of a test to measure the effectiveness of product development plans a lecture of the semester.(2) The effectiveness of the development of blended learning model based on constructivism of conservation value in Faculty of Economics UNNES was 82.58%. The results made clear with the response of the students in the form of qualitative data from respondents or responses given, so it can be said that the model of learning developed effectively, because it was applied in Management Information Systems course and providing insight to the students in the study of Management Information Systems (3) The benefits obtained with the implementation of blended learning model can be seen from the personal and group, there was the change of the students ' behavior and insights that led to the character value of the conservation, and also in the aspect of outcomes is the liveliness in conveying the results of creativity development of product Management Information Systems, building your own knowledge with associate with life condition, and the actualization through skills.

The recomendation in this research are: (1) the results of the development is expected to be used by the users of the research in developing a creative and innovative learning model to improve the understanding of the students. (2) The

results of the development can be adopted user research (student) as references and guidelines in developing learning devices to support teaching and learning activities in the classroom. (3) The Learning Model was developed having regard to the characteristics of the students and the vision and mission of the College in General. Therefore, the development of this learning model is still needs to be perfected, and then it is recommended before it will be delivered extensively. Further evaluation is needed. Thus, the development of learning model in Management Information System is really tested.

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