CULTURAL TRANSFORMATION THROUGH DIFFUSION OF INNOVATION TOWARD E-LEARNING OPTIMALISATION ON VOCATIONAL EDUCATION

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Abstract

The purpose of writing this paper is to examine a cultural change towards the optimalisation innovation of information and communication technology that contribute greatly to the education and training in the 21st century, namely e-learning system. Contribution of e-learning in vocational education besides to teachers/trainers competence development, also provide learning experiences that help students pursue vocational development stage to face the demands of the workplace. However, the demands of e-learning optimalisation in a vocational school to experience a variety of barriers, especially abstract cultural issues. Abstract culture requires a change of mind, will or intention and user behavior in response to e-learning as a complement of conventional learning. Cultural transformation is done through the stages of the transformation process of identifying variables and how to transform the theoretical approach, supporting factors and characteristics diffusion of innovation. The results of this study will recommend how to transform culture toward optimalisation of technological innovation e-learning in vocational education.

Keywords: culture transformation, diffusion of innovation, e-learning on vocational education

1. Introduction

Information and communication technology (ICT) has made major contributions in improving the quality of education, in the field of academic, administration and management. ICT progress along with advances in the internet that provide great benefits for education and training in the shipment and delivery of learning materials / or web-based training system known as e-learning. E-learning is the use of electronic technology to send, support, and enhance the teaching, learning and assessment, (The ILRT of Bristol University, 2005). Intended electronic technology such as the Internet, intranet/extranet, audio/video tape, satellite transmissions, interactive TV, and CD-ROMs. The concept of e-learning is now widely accepted by the world community education, as evidenced by the rise of the means or medium of e-learning in vocational education and training institutions.

Formal and informal institutions as an institution that serves to manage education and training in Indonesia welcomed the development of the ICT curriculum by incorporating the nuances of ICT and training outside of work (off the job training) through online learning (simulation, video presentations, virtual laboratory), especially in vocational education. This response indicates that education and training institutions considering the development of the ICT world that is undergoing rapid progress. This policy aims to enable students of vocational high school (SMK) have provision ability to recognize, understand, and information technology literacy so that they can apply in the future world of work.

Ironically, the demands that must be implemented vocational schools in the implementation of the learning process is the use of ICT, especially in e-learning faces various problems like
instability internet access, limited infrastructure, especially the technical capabilities and culture of human resources is a barrier in optimizing e-learning. However, if the condition of the current vocational school, instability internet access, infrastructure is not a major obstacle, but lies in the culture or the culture of the user. Constraint user culture will be strongly related to the theory of Fishbein and Ajzen (1975) on the attitudes, intentions and behaviors as well as the theory of diffusion of innovations Rogers (1995) which became the basis of optimization and promote e-learning in vocational learning as a complement. Therefore, it is important to do a cultural transformation through innovation diffusion towards the optimization of e-learning in vocational education is a form of sustainable development in the field of education are not only created but also developed for onward because science and information received by the student should be kept up to date.

2. E-Learning System of Vocational Education

Vocational education is secondary education that prepares students primarily for work in a particular field, (UUSPN No. 20 Tahun 2003 Pasal 15). This notion was reinforced by Sukamto (2001) that, vocational education includes all types and forms of learning experiences that help students pursue vokasionalnya stages of development, ranging from the identification, exploration, orientation, preparation, selection and stabilization of a career in the world of work. This stage of development suggests the need for vocational education to equip students and graduates face the global age especially information and communication technology.

Competence global age requires vocational schools need to consider the resources, management and leadership as well as vocational education advocates the use of ICT as a learning process in schools that become the basic foundation students in the face of ever-changing world of work as the development of technology. Application of ICT through e-learning in vocational education can provide great opportunities enrichment conventional classroom learning and work-based learning support. This is confirmed by Pujiyanto (2008) that, learning by utilizing e-learning systems have relatively equal effectiveness with conventional learning, but the flexibility is still difficult to surpass conventional learning. E-learning allows students to interact with learning resources without being tied to time, place, and face to face with the teacher (a syncronous). Teachers can update the course material at any time and from anywhere with the integration opportunities of learning materials in a variety of media formats and saves the learning time.

Vocational high school (SMK) portion has used e-learning system with emphasizing the complementary function that combines face-to-face meetings and online. However, in line with Wirasti (2013) that, in fact, not a few schools decided to use e-learning in the learning system though infrastructure is available but only limited credibility and imaging that will have an impact on the sustainability of the learning system itself. Credibility and image in question is when the vocational schools have to have the infrastructure and systems but not used because of the teachers let alone students are not able to operate, plus more schools in rural areas that have power supply even though infrastructure constraints or the system has available. Accessibility problems, especially power supplies can still be understandable for rural areas, but the urban areas that all available resources can even be driving the implementation of e-learning in rural areas why not be optimized as well. This raises a big question why the e-learning system can not be optimized and or the inability of teachers and students in the operation of the system. Supposedly this is not a major obstacle but it looks very difficult vocational schools are experiencing a transition from conventional learning technology culture towards modern learning technologies. This is due to a positive attitude toward the benefits of e-learning is very less which results in the behavior intention to use e-learning as a complement vocational learning in less than optimal as well. Therefore, the optimization problem of e-learning is not only limited to the provision of infrastructure but the most important is the culture that begins with the formation of attitudes and intention to want to use e-learning in teaching.

3. Cultural Transformation E-Learning

Cultural transformation is a change of way of life that developed and owned jointly by a group of people and passed down from generation to generation. Culture can be in the form of concrete objects and can also be abstract. Concrete objects, for example, building a house, car, television, art and action items. While such abstract scientific thinking, the ability to create something, imagination, ideals, a strong will to achieve something, faith and so on (Pidarta, 2000).
Related culture in this paper, the emphasis is more on the abstract culture involves the willingness or user behavior in achieving something in line with the theory of Fishbein and Ajzen (1975) on attitudes, intentions and behaviors in response to the technology as well as the intention to behave as indicated by the willingness to use e-learning as a complement conventional learning. To realize this can be done through cultural transformation. In line with cultural transformation, Fortes (in Tilaar, 1999) suggests three main variables in the transformation of culture, namely: (1) the elements are transformed, (2) the process of transformation, and (3) how the transformation. The elements of cultural transformation is cultural values, mores of society, views on life as well as a variety of other living concepts that exist in the community, social habits which are used in the interaction or association of the members of the community, and attitudes necessary role in the social world and eventually various other behavior including reflex process and motion or specific reactions and adjustment to the environment. The elements of the transformation related to e-learning is a process of change in behavior or habits of modern conventional learning towards learning. For the emphasis to be positive, responsible and independent learning intention to be important in changing the culture in the midst of the presence of e-learning which can disrupt the learning behavior. The presence of e-learning in vocational schools are expected to develop themselves and the school community activities facilitate communication up, especially in learning.

The process of cultural transformation will occur more quickly if a new culture (e-learning) is not taken as a new influence enrich the old culture (conventional learning). Thus, it appears that the desire or intention to change within their community or school is large, a precursor to the process of cultural transformation, especially if the old culture to adapt to a new culture that is more sophisticated. If the adaptation process is openly the process of cultural transformation will take place in the absence of conflict or obstacle to the old culture. So the most important in a cultural transformation is enculturation and acculturation. Inculturation is a process of adaptation to cultural change that occurs from the conventional learning system towards e-learning. Learning values can be assimilated well in building cognitive, affective and psychomotor students in the dimensions of space and time. While acculturation is a two cultures meet between conventional and e-learning are complementary default values as conventional able to summarize the competency of cognitive, affective and psychomotor but are limited by space and time, whereas e-learning is able to optimize cognitive and experiential learning such as training, but limited by the ability to optimize the competencies of affective but flexible in space and time. If enculturation and acculturation can be applied in response to the technology, especially in e-learning technologies, the institute/school community will easily adapt by itself.

Departing from the behavior of users in creating responsibility and independent learning, and enculturation and acculturation, there are two approaches that can used to explain the presence of information technology and communication through e-learning, namely technological determinism and social determinism (Flew in Wirasti, 2013 ). technological determinism approache positioned as the dominant factor in changing behavior and communication effect citizens. The presence of e-learning learning that most use it as a pattern of online learning is considered as a determinant of how students’ learning behavior. This fact will lead to the imposition of the students, so they have to follow the pattern established by the technology used in the learning process. Meanwhile, the approach of social determinism, the view that the will and decision of the community or the individual (social context) that determines the effects arising from the presence of information technology such as e-learning. So it's not the technology that determines the interaction patterns of teaching in schools, but the communication needs of the school community who bring these technologies as a means of communication especially welcome in learning. Associated with the social determinism of e-learning, which needs not met through traditional learning (face to face) will determine the presence of online learning, as a complement or complement the conventional learning.

From the theory of technological determinism and social determinism shows that the technology of e-learning system is not only seen from a value-free technological determinism, as tools, machines, techniques or results of knowledge alone, but the most important is the look of the social determinism associated with the values of culture or characteristics, patterns of organizational behavior that the beliefs of the community or the individual. Therefore, adoption technological determinism must be supported by social determinism as the last user who will determine the attitude and behavior intention receipt and use of new technological systems such as e-learning. The decision to use e-learning technology is determined by the attitude is an
expression of love or not people of the vocational school's e-learning system. This can be done through an approach to provide insight into the importance of e-learning in education today. From this stance later, will bring to the school community in a strong intention to encourage the occurrence of an action, including policy planning and optimization through the use of e-learning. Learning behavior of e-learning is social determinism is cultural change passive to active student learning, teacher-centered learning towards student-centered learning supported by the willingness and creativity students in independent learning and the ability of the teacher to direct, motivate, organize themselves to learning, adequate infrastructure and creative administrators and preparation of infrastructure in facilitating learning.

The culture change towards optimizing e-learning if the condition in Indonesia today, in addition to developing a vision or policy is also determined by the instruction of the authorities as the vanguard of implementation, because then the activity will run smoothly if ordered by the authorities or authority. Then at least the leadership should be committed in implementing e-learning in teaching and learning. If this is done then the task, creativity will wake up by itself due to fear and will be sanctioned. This is in line with the statement Sahari Besari (2008) that, the community consists of a community that refers to a person or group leader accepted as wise and wise-elder or elders. Society is more on family aggregation is not interaction between individuals. Togetherness in a large family and not the individual competencies. Personal interests succumb to the interests of the community. So as to implement an e-learning culture will seek balance through a more familiar form of the initial / adaptation of the neighborhood surrounding the trust (leaders).

Familiarization of e-learning in vocational schools starting from the leader to provide education in line with the statement of Harrison and Huntington (2002) that the necessary social and cultural transformation without social unrest through effective education. However, through the educational process of habituation in the e-learning must be imposed by the firmness of the authorities in this case the leader, so there will be forced, forced and accustomed to the culture of self-learning and learning environments from traditional to e-learning system that is able to create learning experiences that meaningful in vocational students preparing to enter the workforce. This means, social or cultural transformation framework is largely determined by the students involved in the learning process of e-learning and learning features develop learning interaction. In the world of education, culture has inherited a tradition not only to students, but also teachers, administrative staff, managers, and even policy. Therefore, to realize the transformation of this culture, the necessary civilizing together (collectively) starts from the head of school, then the student teacher in an integrated manner. Therefore, a reliable change management is needed to ensure the successful implementation of e-learning strategy is accompanied by the diffusion of innovation in delivering e-learning in vocational schools.

4. **Diffusion of Innovation Toward E-Learning Optimalisation**

Diffusion of innovation is how new ideas and technology spread/communicated to the public or social system (Rogers, 1995). This means that communication has been widely role in changing society through the spread of new ideas and new things (innovation) is continuously beyond the boundaries of space and time. Internet including innovation in new communication media categories based on microcomputers that have been growing rapidly in the current era of communication. In its development, internet reach and success as an innovation is diffused in 1983, which is marked by a growing recognition of the Internet, and the adoption of various institutions, companies, government connected to this network. Diffusion is brought as a result of the adoption of the Internet and bring new innovations that encourage e-learning elearning or through a system known in 1997 the Learning Management System (LMS) is intended for learners and learning administration for excellence and interactive display in a variety of data formats or more standard medium and small-sized, reaching a peak in 1999 as the year of e-learning applications.

Technological diffusion innovation of e-learning only prior development of e-learning technology without optimization in learning, especially learning as a complement to the vocational school. This is regarding the factors that hinder the diffusion of innovation e-learning in line with Soekartawi, (2003), namely, (1) infrastructure that allows access to information anywhere with sufficient speed, (2) human resources in technology, (3) regulatory policies that require the presence of macro-and micro-scale in favor of the development of long-term information technology khususnya e-learning, (4) the financial need of the presence of positive attitude to
support e-learning technology industry, (5) the content and applications demanded information to on people, places, and the right time and the availability of the application to deliver the content to the user comfortably (userfriendly).

Another factor which inhibits the diffusion inofasi confirmed by Munawaroh, (2012), which states that learning theory will be used and the main socio-cultural and psychological factors affect the process of diffusion of this technology. Socio-cultural and psychological theory is further strengthening of social determinism. Social and cultural attitudes that uphold social and community collaboration makes it difficult to implement e-learning are demanding independence. Meanwhile, residents of mental psychological factors which are not yet ready to independent schools. Most citizens of our schools still rely even become a follower, in this case students can not learn if there are no teachers / tutors who teach face-to-face. Because of the lack of awareness to learn independently and not realize that it is important to learn for himself, in other words motivation from within our society in the study is still lacking. So the followers and the culture of dependency culture ingrained in our society. In addition, a sense of reluctant because they feel it is enough to state that there is, do not want to be bothered, and ignorance of e-learning. Furthermore, psychological problems in the deployment/acculturation that individual personality differences in society there are those that are conservative and progressive. Conservative or aggressive nature is not determined by the individual personality psychology but by the social circumstances in which individu located. Koenjaraningrat (in elearning.gunadarma.ac.id) stated that, in his conservative positions are those who already have a good position in the society. They do not like the changes that happen because then the new state will change that has been owned by his position. Instead of the aggressive are those who do not have a good position in the society. From this view, if it is associated with the e-learning can be seen in the leadership commitment of an institution or school, much as if not especially concerned with the development of technology to support the implementation of technology in the learning khususnya such as e-learning. This is possible because it has to have the right position in the institution / school. Though leadership is important in providing an example to his subordinates to optimize this technology results collectively.

Strategies adopt and utilize e-learning effectively is an important issue. Utilization of e-learning despite having started in 1999 as a new innovation or the application of e-learning adoption process but susceptible to rejection. Many teachers and students who do not have the knowledge and skills to take advantage of e-learning effectively. Therefore, it is necessary to have information to reduce the uncertainty of the adoption of e-learning.

Based on the description of the factors inhibiting the development of innovation and e-learning in the above, it is important to adapt the innovation decision process theory proposed by Rogers (1995) that, there are several stages in the process of dissemination of innovation in society, namely:

1. Knowledge, to build awareness and determine the existence of an innovation. Of course begins with a strategic percecanaaan/vision of the institution's mission of education, especially related to e-learning.
2. Persuasion, their approach must be persuaded of the benefits of innovation. The process of innovation e-learning should be tailored to the institution or organization through planning adjustments that are designed according to the needs
3. Decision, which will determine the stage of this innovation will be adopted or not. At this stage the agency should make adjustments to the results of the e-learning innovation, in order to accommodate the needs of the needs of the institution.
4. Implementation, implementing decisions that have been made about an innovation and then apply it. In this stage of the innovation process is expected e-learning continues to be developed through a social process in supporting the learning process in educational institutions.
5. Confirmation, confirmed that the decision to adopt is the right decision. So the innovation of e-learning is not something new but complex and could be spread more widely.

One of the important stages in the process of adopting an innovation if it is associated with e-learning is the persuasion stage or the formation of attitudes towards cultural transformation. Provide insight vertically or horizontally on the benefits of innovation to be important in building trust in the technology so that it will arrive at the decision of teachers, students and citizens in general or vocational schools would whether embraced or not. It is important to address the issues related to the theory of social determinism Flew in Wirasti (2013) and the theory of attitude,
intention and behavior by Fishbein and Ajzen (1975). Knowledge of how a technology, difficulty in learning and time needed to learn emerged as the second most important factor in adoption. Difficulty using technology support and management emerged as other factors affecting adoption. In relation to the stages of persuasion or provide an understanding of the importance of the results of innovation e-learning khususnya strongly associated with the four factors that influence the adoption of an innovation according to Rogers, (1995), namely: (1) innovation, (2) communication through certain channels, (3) time, and (4) member of a social system.

1. Innovation, ideas, actions, or goods that are considered new by someone associated with the characteristics of e-learning innovation, as perceived by the faculty/teachers and students determine the rate of adoption. Rogers (1995) mentions the success of an innovation can be evaluated using the five characteristics of innovation, namely: (a) relative advantage, from the adoption of an innovation associated with e-learning lies in the pedagogical advantages of instructional technologies that exceed the conventional teaching tools. In general it can facilitate the efforts of equity and educational opportunity, given the e-learning can enable provide a wider range of education, e-learning will be able to affect the quality of the teachers, staff, students, funding and facilities, and capable of efficient learning in terms of cost and time, (b) Compatibility of e-learning related to the extent of innovation that is consistent with the values that exist in education, learning style, career goals, and learning needs of potential adopters, (c) Complexity is the degree to which an innovation is considered difficult to understand and use. Therefore, the complexity can be overcome with training relevant to the needs of users such as applications, content, and a general improvement, (d) Trialability is the degree to which an innovation can be tested prior to adoption and (e) observability is the degree to which the results of an innovation can be observed someone else if innovation has a high level of observability, it will be relatively easy to learn about the innovations and assess the potential for profit. This in turn may increase the likelihood of adoption.

2. Communication through certain channels, a tool to convey messages from the source to the recipient innovation. Teachers use e-learning learning by uploading learning materials and learning modules in websites/web learning made by the teacher, so that students can learn by going to the web. In addition, students can also search for related material over the internet (web address) if the materials are uploaded by the teacher is not complete. With so will facilitate students and teachers in the learning process. Learning strategy is based on three-way communication: first, communication between the teacher (teacher) with the learner (learner), second, the communication between learners with learning resources; and third, the communication among the learners through the web (online chat) or e-mail, and so on.

3. Time, pendifusian learning e-learning need not be a long time, because most people have to know the name of the internet, we must never open what is called a web, or are most familiar in our world is social networking such as facebook, twitter, path, etc.. Innovation decision process, from start to know someone to decide to accept or reject it, and confirmation of the decision was related to the time dimension. At least the dimension of time is seen in (a) the decision-making process of innovation, (b) a person innovativeness, relatively earlier or later in accepting innovation, and (c) the speed of adoption of innovations in a social system.

4. Social system is a collection of different functional units and bound in collaboration to solve problems in order to achieve a common goal. Time is the most influential factor in pendifusian e-learning is the teacher and the students, in the absence of the teacher (teachers) and learners, e-learning systems will not run, because they are the most important factor and must be present in a learning

In addition to decision theory and characteristics of innovation on top, spreading a culture of innovation in order to transform into the optimization of the e-learning can be done through: (1) improve and develop the knowledge and skills of e-learning, (2) commitment as a vanguard leadership in introducing and continued a practice of e-learning in the new school environment, (3) the participation of all stakeholders in the discussion process adoption, diffusion, implementation and institutionalization of an innovation will be greater innovation is successful, and (4) gives awards to those who use and develop e-learning in learning at school. Therefore dissemination of e-learning starts from the knowledge of the results of innovation to the commitment to encourage or cultivate leadership in innovation khususnya result of e-learning are known to have benefits in supporting learning. Knowledge and leadership commitment must be supported by all stakeholders.
in the school community khususnya berpartisipasi educational institutions active in running the e-learning system.

5. CONCLUSION

Cultural Transformation toward e-learning optimalisation on vocational education certainly is a change from the conventional to the learning of modern learning, known as e-learning. Cultural change-oriented approach to learn from the teacher (teacher-centered) orientation toward the student (student-centered). This cultural change with regard to e-learning that requires an attitude of awareness and active self-learning intention in studying the behavior of the teacher support and bimbingan. Cultural transformation to achieve the objectives optimization of e-learning, must be supported by the resources and technical infrastructure. But if you look at the current state of vocational education, technical aspects in this case the ability of resources and infrastructure no longer be critical to the utilization of e-learning. In general, the main problems in the optimization are the cultural factors associated with attitudes, intentions and user behavior can be overridden by the diffusion of innovation approach to attitude formation and provide insight in building a culture of independent learning in the process of self-development. In particular, the transformation of culture through the diffusion of innovation towards e-learning optimalisation on vocational education can be done as follows:

1. Knowing the characteristics of the innovation diffusion of relative advantage, compatibility, visibility, ease of use, result demonstrability, and trialability should be considered by a vocational school to the receipt of e-learning and optimization.
2. Building a shared vision, develop new policies and procedures as well as a formal system
3. Involve all stakeholders (government, school leaders, teachers, parents and students) in the discussion process adoption, diffusion of innovation, implementation until at solving the problem of e-learning.
4. Improving teacher competence in teaching information and communication technologies such as instructional design, mastery of ICT (use of the Internet as a source of learning) and mastery of the field of expertise.
5. Establishment of information and communications technology community is very supportive to cultivate students with technology.
6. Provide rewards/encouragement of innovation outcomes, especially for those who use and develop innovation results.
7. Monitoring and adjustment process line e-learning technology developments.
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