

Comparison of Internet Based Learning and Conventional Learning Models on Computer Self-Efficacy Ability

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Abstract

The potential of technology not only increases the efficiency, effectiveness, and flexibility of the learning process, but also improves material development, changes the role of learning and develops student autonomy even further. The role of the teacher as a source of knowledge is transformed into facilitators, motivators, evaluators, and tutors. This study formulates the problem, is there a difference in learning outcomes of WAN subjects between groups of students using a web-centric-based learning model and groups of students who use conventional learning models in students of Computer and Network Engineering. This research includes quasi-experimental research. The design is the design version of the nonequivalent control group. Subject learning outcomes that carry out WAN Network Based Equipment Installation (Wide Area Network) between groups that have self-efficacy and computers that have groups that have computer self-efficacy abilities in class XII students who have low competence in Computer Engineering and Expertise Network in SMK Batik 1 Surakarta shows a difference. Groups of students who have the efficacy of self-efficacy, computers, provide better learning outcomes than groups of students with self-efficacy, lower computer skills in subjects, install WAN-Based Network Devices (Wide Area Networks) in SMK Batik 1 Surakarta.

Keywords: *conventional, self efficacy, learning outcomes, web centric course*

I. INTRODUCTION

The development of communication technology is increasingly being accompanied by demands in the telecommunications, economic, banking, and transportation sectors, including the education and training sector. In the field of potential education possessed by communication technology not only increases efficiency and effectiveness as well as the flexibility of the learning process, but also impacts on the development of material, the shifting of the role of the teacher and the development of autonomy in learning.

The paradigm of teacher as a source of knowledge turns into facilitators, motivators, evaluators, and tutors. Teacher-centered learning changes to student-centered learning. Shifting this paradigm, as an important effort to optimize the learning process that fosters the activeness of students in the learning process. This change is reflected in the process of learning activities that place high responsibility on students towards their own learning, so that process of building knowledge on students is done by themselves with their respective activities in the learning process, teacher as

facilitators assist and help solve problems in the learning process.

Uno (2018) explains that students who learn must play an active role in shaping their knowledge. While according to Dimiyati and Mujiono (2016), a learning activity can be said to result when a process of behavior changes in students as a result of an experience. From these two views it can be concluded that a student can show changes in his learning actions as a tangible manifestation of his responsibilities.

The individual success in the world of work in the 21st century is not enough just to determine the level of knowledge, but also how to save knowledge today, and be able to apply to solve new problems. In line with this, Butzin (2015) states that students must learn to work on teams from difference cultures and backgrounds, learn independently and know how to manage time, know how to solve problems, how to do multiple tasks, and how to access information.

Along with the rapid changes in the world of education, Eric Ashby (1972) stated that there had been a fourth revolution in the world of education. The first revolution occurs when

parents submit their children's education to "knowledgeable people" (teacher). The second revolution with the use of writing for educational purposes (in stone, ceramics, palm leaves, etc.). The third revolution occurred with the discovery of printing machines so that educational materials were presented in book form. The fourth revolution occurred with the discovery of electronic devices such as radio and television which could be used to spread education more widely and quickly. Connecting Ashby's opinion, Miarso (2004: 665) states that "Perhaps it is appropriate if we enter the fifth revolution with the development of telecommunications and information technology".

Providing online learning packages or modules through the internet is one of the efforts to teach students, even though there are no teacher who teach because learning is carried out without face to face but online where students access the package or learning module that has been uploaded. Miarso (2004: 553-554) states that, learners can carry out learning activities without having to teach students, but in learning activities these students must have learning activities.

In addition, through internet-based online learning, students can gain new knowledge through experience of accessing packages or modules independently, as well as being responsible for their learning. Through this experience, the changes that occur in students can last longer. In line with this, Pidarta (2010: 197) argues that learning is a behavior change that is relatively permanent as a result of experience (not the results of development, influence of drugs or accidents) and can implement it on other knowledge and be able to communicate it to others. Thus learning requires a relatively permanent change in one's knowledge and behavior, because of experience (Mayer, in Seels & Richey, 2010: 13)

Based on predictions, research results, and the views of scholars, it was concluded that with the influx of globalization, especially communication technology, the education of the present era would be more networked, open and two-way, diverse, multidisciplinary, and related to work productivity at that time and competitive. This change needs to be addressed, it is necessary to make a change in the world of education, especially relating to the use of educational technology in supporting the learning process.

One of the subjects that need special attention is the subject of Installing a WAN-Based Network Device (Wide Area Network) because student learning outcomes in this subject are low, even though these subjects are very important for students in the competence of Computer and Network Engineering expertise.

Current conditions show that in the implementation of subject learning to Install WAN-Based Network Devices (Wide Area Network) in the competence of Computer and Network Engineering expertise, many students have difficulty. This is due to various constraints in learning, among others: (1) material Installing WAN-Based Network Devices (Wide Area Network) is considered less attractive and boring for students, so that the efficiency and effectiveness of learning becomes low and ultimately achieves learning objectives that are not optimal, (2) teacher too dominate most learning activities, while learners become very limited, because they rely too much on teacher explanations, (3) learning models are still conventional so they do not motivate student creativity (4) there are internet facilities at Surakarta Batik 1 Vocational School. suitable for use in teacher. From the initial survey (2018/2019), it was found that out of 875 students in Surakarta Batik 1 Vocational School only 63 students took advantage of this internet-based learning, including 12 of them teachers.

These obstacles can of course affect student learning outcomes, this is seen from the final grades of students, namely for students of class XII 2018/2019 academic year, as many as 97 students of Computer and Network Engineering who obtain subjects to Install WAN-Based Network Devices (Wide Area Network) there are still around 35% that are not complete in this subject. While students of Computer and Network Engineering class XII 2017/2018 academic year out of 105 students, as many as 30% did not complete and 20% got minimum completeness criteria.

Addressing the above and paying attention to existing facilities at Surakarta Batik 1 Vocational School, one of the learning models offered is an internet-based learning model that is by using the internet in learning also known as online learning. With this internet-based learning it is hoped that these problems can be overcome.

Although there are many opinions that say that internet-based learning is very lacking in social interaction, other views suggest that there is social participation in online learning. Anderson (2014) states that here is found a popular cognitive social concept from Vygotsky (1978) that is relevant when we consider how students can work together in the context of online learning to create new knowledge together. These ideas have been expanded by Lipman (1991) and Wenger (2011) who suggest how members of the learning community provide good support and challenge each other, and are more effective in constructing relevant knowledge. Wilson (2011) explains that participants in the online community have a sense of shared ownership, trust, learning expectations, and commitment to participate and contribute to the online community.

The development of an internet-based learning model needs to be carefully designed according to the intended goals. In Haughey's opinion in Anwas (2013: 18), there are three possibilities in the development of internet-based learning models, namely web courses, web centric course, and web enhanced courses.

The existence of the internet in the world of education allows the learning process to be carried out anytime and anywhere. According to Cole (2010) online learning allows flexibility of access, from anywhere and at any time, which allows students to penetrate time and space.

Another factor that influences success in online learning is computer self-efficacy. Cassidy and Eachus (2012) report that computer ability self-efficacy. According to Bandura (1994), people who have high self-efficacy will have high patience in carrying out and resolving the difficulties they face.

The same research conducted by Papasratom and Wangpipatwong (2016) concluded that self-efficacy and one's attitude towards computers are important determinants of outcomes in e-learning courses. Therefore, people who have low self-efficacy on computers will feel uncomfortable in e-learning courses and can influence the expected results. Boverie, et. Al (1998) also found that the higher a person's computer self-efficacy ability, the more satisfied he was in online subjects.

Based on the background stated above, the formulation of the problem of this study is whether there are differences in learning outcomes of WAN subjects between groups of students treated using the web centric course internet-based learning model and groups of students who use conventional learning models in students of Computer Engineering and Network at Surakarta Batik 1 Vocational School. So that researchers are interested in conducting research titled "The Comparison of the Learning Achievement of the Use of Web Centric Course Internet Based and Conventional Learning Models for Vocational Students with Different Levels of Self-Efficacy Capabilities in Computer".

II. THE BASIC FRAMEWORK OF THEORY

A. LEARNING MODEL BASED ON INTERNET WEB CENTRIC COURSE

Munir (2009) suggested that internet-based learning is now beginning to benefit and not only for students, but also for employees, employees, directors, retirees, and housewives. Meanwhile, Lehman and Lisa (2009) suggest several reasons that need to be considered in choosing internet-based learning rather than conventional as follows.

- a. Students can learn more actively. Those who sit quietly and try to avoid participating in online classes, even though they will not be learned by learners and other students, but

to get value, a student must participate (Chang & Smith, 2018).

- b. Learning involves students with content through various channels, learner-content interaction is the key. Interaction occurs through discussion, games, simulations, research, and various other ways (Keeler & Honey, 2017).
- c. Learners and students are involved with each other. Discussions are open to all members and everyone involved in commenting on each other (Richardson & Newby, 2016).
- d. One of the initial plans for large-scale change that has an influence on our nation or planet is to shift to digital delivery of education (Weiss, 2008).
- e. Deep idea exploration; additional comments or conversations in more in-depth discussions (Gupta, et al, 2005).

The web course is the use of the internet for educational purposes. In this model learners and learners are completely separate and there is no need for face to face. All teaching materials, discussions, consultations, assignments, exercises, examinations, and other learning activities are fully delivered via the internet. In other words this model uses a remote system. By using this distance learning system. We can make various kinds of lecture methods. Each will give a difference in the type of learning process (learning experience) and comfort in different situations in students (Rosenberg, 2011)

The web centric course is the use of the internet that combines distance learning and face to face (conventional). Some of the material is delivered via the internet, and partly through the internet, and some through face to face. Its function is complementary. In face to face, teacher and students have more discussion about the mater who has been taught through the internet.

Web Centric Course, also known as blended (hybrid course) is a learning model that includes both online and face-to-face components, while face-to-face or online learning models only limit learning programs (Singh, 2013). Various combinations of online and face-to-face can be used for learning models and have significant benefits compared to the other two approaches, which use online or face-to-face learning only (Kapp & McKeague, 2012). Blended learning can be completed in half the time and half the cost so that it is not only efficient but also effective (Singh, 2013).

B. CONVENTIONAL LEARNING MODEL

Burrowes (2013) argues that conventional learning emphasizes recitation of content, without giving students enough time to reflect on the material presented, relate it to previous knowledge, or apply it to real life situations. Furthermore, it was stated that conventional learning has characteristics, namely (1) teacher-centered learning, (2)

passive learning, (3) interaction between less learners, (4) no cooperative groups, and (5) assessment sporadic.

Conventional learning models are traditional learning models, one of which is the lecture method. According to Djamarah (2011: 97), the lecture method is a method that can be said traditionally because this method has always been used as an oral communication tool between teachers and students in the process of learning and teaching. Learning conventional models is characterized by lectures accompanied by explanations, as well as division of tasks and exercises.

C. SELF-EFFICACY COMPUTER CAPABILITY

According to Doyle (2015: 76) the expertise of computer use is defined as "an individual's judgment of their capability to use a computer." Computer use expertise is interpreted as a judgment of a person's ability to use a computer / information system / information technology. According to him, each person believes that the ability to use a computer he has is not related to past experience but is more focused on his abilities for certain tasks at hand. This shows that with strong beliefs or beliefs in their abilities, one sees certain difficult tasks that use a computer program as an opportunity to be able to master various computer programs. With these beliefs, the abilities possessed by someone will tend to overcome the difficulties being faced.

While according to Bandura (2016: 12) computer skills are interpreted as "the belief of someone who has the ability to operate a computer that is influenced by motivation and behavior." More clearly, Bandura (2016: 12) provides an explanation of computing capabilities such as the following:

People's judgments of their capabilities to organize and execute courses of action required to be designated designated types of performances. It is concerned not with the skills one can do with whatever skills one possesses.

D. LEARNING OUTCOMES

Slameto (2003), divides the factors that influence learning into 2, namely; (1) internal factors; and (2) external factors. The first factor, are internal factors, consists of : (a) physical factors (health and disability factors) (b) psychological factors (intelligence, attention, interest, talent, motives, maturity, and readiness) (c) factors fatigue. The second factor is external factors, which consist of (a) family factors (the way parents educate, relations between family members, home atmosphere, family economic situation, understanding of parents and cultural background); (c) community factors (student activities in the community, mass-media, associates, and forms of community life).

According to Winkel (2005: 102), that learning outcomes are every learning activity that produces a change that is

learning outcomes. The learning outcomes identified in this study refer to the cognitive domain on the dimensions of knowledge and understanding. In this case Arikunto (2013: 117-120), argues that "the cognitive domain concerns several aspects, namely: recognition, disclosure or recall (comprehension), comprehension, application or application, analysis (analysis), synthesis (synthesis), evaluation (Evaluation) ". Thus, the most appropriate way to evaluate the success of learning from the cognitive domain is by using a test tool.

III. RESEARCH METHODS

This study uses quasi-experimental design because in this study it is not possible to control all relevant variables, except for a few of these variables (Suryabrata, 2003).

In this study all groups received treatment, the first group used an internet-based learning model with a web centric course model and the second group used conventional learning. Thus the experimental design of this study was nonequivalent control group design (Tuckman, 1999) 2x2 factorial version.

IV. RESULT

Subject learning outcomes of installing a WAN-based network device (Wide Area Network) between groups that have high computer self-efficacy abilities and groups of students who have computer self-efficacy abilities in lower class XII students competency in Computer and Network Engineering expertise at Batik Vocational School 1 Surakarta shows a difference. The group of students who have high computer self-efficacy abilities provide better learning outcomes than the group of students with low computer self-efficacy abilities in the subject of Installing WAN-Based Network Devices (Wide Area Network) at Surakarta Batik 1 Vocational School.

IV. CONCLUSION

Subject learning outcomes Installing WAN-Based Network Devices (Wide Area Network) between students treated using an internet-based learning model web centric course model and groups of students using conventional learning models in class XII competency skills in Computer and Network Engineering at Batik Vocational Schools 1 Surakarta does not show a difference. In other words, students in both different learning models have the same learning outcomes in the subject of Installing a WAN-Based Network Device (Wide Area Network).

The learning model and self-efficacy of computer capabilities do not indicate the influence of interaction on the learning outcomes of subjects Installing a WAN-Based Network Device (Wide Area Network).

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