Optimization of Social Science Learning Media Using E-Learning Media in Senior High Schools

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Abstract- This study is aimed at finding out how to optimize the use of learning media in senior high school based on several relevant theories. The method used was grounded theory, which links several practical and empirical theories to develop an optimization solution in organizing e-learning in schools. This article was written based on several studies of research results relevant to the implementation of e-learning to examine in depth their weaknesses and strengths as a conclusion. The results of the study prove that there is a model flow of planning, implementation, optimization, and evaluation which can then be made a matrix that is easily understood for all e-learning managers to be applied to the learning process at school. It is expected that this study can increase in the quality of high school education learning (especially social science) and be a means of realizing various government policies related to ICT-based learning. In the future, the researcher expects that there will be in-depth studies as the development of this study.

Index Terms- Optimization of E-learning, Social Science Learning, ICT Learning

I. INTRODUCTION

Information and Communication Technology (ICT) is considered pivotal to be developed in Indonesia as Indonesia has been left behind by other nations in terms of its development. The use of learning media in accordance with technological advances is one effort of the school to develop its potential. The development of science and technology has rapid progress and become a characteristic that this time has become a modern time or era, which influences fields of human life, including education (Riduwan, Buchtir, & Bahri, 2018)

There are many opportunities offered using ICTs in education that can lead to better and more interesting learning experiences (Fitriyadi, 2013). ICT-based learning is expected to minimize the various problems of learning in schools in regional areas because, in fact, even though almost all students have gadgets, many of them are still not optimally utilizing information systems and technology that are developing in the community.

On the other hand, as various government regulations develop, the task of the teacher is getting relatively heavier because it is undeniable that in carrying out additional activities to keep up with the development of ever-changing regulations, the teacher must leave his obligations in the classroom to teach. On the other hand, the school also demands the students to have high achievement.

Based on the demand for high achievement, it is undeniable that the students representing the school to take part in the competition will relatively leave the learning hours to participate in various forms of training and participation. Thus, the school must play an active role in developing methods and learning media to solve such a problem, which means that the teacher can complete the learning process in the midst of his busy life and the students can continue to learn actively, be highly motivated and always be achievers.

Based on the findings above, the school needs a media that can motivate students to continue learning, both at school and outside of school because one of the efforts to improve student learning motives is to use E-learning based learning media. E-learning as a solution to provide a different and interesting learning atmosphere and teaching and learning process to make it easier to deliver the materials (Diah & Fadillah, 2015). The selection of learning media is reasonable because students and teachers have more free time in carrying out academic activities like teaching and learning in class with flexible time.

E-learning is an electronic-based learning process using a computer network that allows for further development in the form of web-based to be developed into a wider computer network, namely the internet. Thus, the e-learning system using the internet is also called internet enabled learning (Argustina, 2013).

Various studies conducted related to the use of information technology show a significant increase in learning outcomes. The use of ICT will be optimal in learning physics if teachers can improve their professional abilities as users of this technology product (Siahaan, 2012). Targeted and systematic policies can refer to the ICT-Based School levels, pioneer, elementary, secondary and established based on their factors such as infrastructure, human resources, content, learning, as well as policies and programs (Fitriyadi, 2013).

Based on the above explanation, the formulated problem is how is the process of planning, implementing, optimizing, and
evaluating the use of ICT-based learning media by using an e-learning program?

II. THEORETICAL REVIEW

A. Information and Communication Technology (ICT) Based Learning

As the information technology (IT) develops rapidly, the need for an IT-based concept and mechanism of teaching and learning (education) is inevitable and the concept which is then known as e-learning has an influence on the process of transformation of conventional education in the form of digital, both in the content and the system (Susanti & Sholeh, 2008). The presence of information technology in the field of education, especially in the teaching and learning process, has become an essential requirement, including by implementing e-learning technology (Kosasi, 2015a).

Based on some of the opinions mentioned above, then ICT-based learning is a learning model that bases its activities on the sophistication of technology, information, and communication in a digital form both in the content and system (media used).

B. E-Learning Media Based Learning

Learning activities are a communication process. In other words, learning activities through the media occur when there is communication between recipients of the message with the source through the media. This process only occurs after a feedback (Nurseto, 2011). The term "e" or the abbreviation of electronic in e-learning is used as a term for all technologies used to support teaching efforts through internet electronic technology (Onno W. Purbo (2002) in Yazdi, 2012). E-learning offers new methods for computer-based distance education and clean technology (Georgiev, Georgieva, & Smrikarov, 2004). Thus, e-learning media-based learning is a learning model that uses all the technological sophistication to support teaching efforts based on computers by still considering the rules contained in the learning process.

E-learning has the characteristics as follows:

1. **Non-linearity**, the user is free to access the learning object and there are facilities to provide requirements depending on the user's knowledge;
2. **Self-managing**, the lecturer can manage his own learning process by following the structure that has been created;
3. **Feedback-interactivity**, learning can be done interactively, and feedback is provided in the learning process;
4. **Multimedia-learners style**, e-learning provides multimedia facilities. The advantage of using multimedia is that students can understand more clearly and tangibly according to their background;
5. **Just in time**, e-learning provides flexible time for the user to solve a problem or just to increase knowledge and skills;
6. **Dynamic updating**, e-learning can update the contents of the material online on the latest changes;
7. **Easy accessibility/access ease**, it only uses a browser (and maybe some devices installed); and
8. **Collaborative learning**, with learning tools that enable interaction, means being able to communicate directly at the same time (synchronous) or communicate at different times (asynchronous) and the user can communicate with the material designers, other students. (Agustina, 2013).

The components that make up e-learning are as follows:

1. **E-learning infrastructure**: E-learning infrastructure can be in the form of personal computers (PCs), computer networks, internet and multimedia equipment. This includes teleconference equipment if we provide synchronous learning services through teleconferencing; and

2. **E-learning systems and applications**: The software system that virtualizes the conventional teaching and learning process, such as classroom management, creation of material or content, discussion forums, assessment systems (report), online examination systems and all features related to the management of teaching and learning processes, is often called the Learning Management System (LMS). There many open source LMSs that we can use them easily and cheaply to be built in our schools and universities. (Agustina, 2013).

To create e-learning that attracts the attention of teachers and students, there are three important things to understand in designing e-learning, which are simple, personal, and fast. **Simple** means making it easier for students to use technology and menu systems. With the ease on the panel provided, it will reduce the introduction of the e-learning system itself so that the participants' learning time becomes more efficient. **Personal** means that the teacher can interact well such as communicating with students in front of the class and interactions become more personal and can monitor the progress of the students. On the other hand, the teacher must also have a system of services and responsiveness that is fast in handling every complaint and the needs of the students (Kosasi, 2015a). The e-learning module prototype developed in accordance with the existing system is divided into two, namely teacher content and student content. The teacher content has broad accessibility, such as making questions, making academic announcements, uploading subject matter, and examining and announcing exam results. The student content is limited to viewing access (academic announcements and exam results), taking exams, and downloading subject matter and assignments (Yazdi, 2012).

The application of e-learning requires adequate resources, especially human resources. In terms of human resources, the implementation of e-learning certainly requires computer literacy, especially for teachers and students. Computer literacy is a term that is often used to explain basic knowledge that common people, not "computer-expertise people", need to know. Relating to this concept, computer literacy has more to do with the practical aspects of computer use, not the design and development of the computer itself (Murtiyasa, 2017).

To produce interesting and attractive e-learning, there are three things that must be fulfilled in designing e-learning, namely simple, personal, and fast, with the following explanation:

1. A simple system will make it easier for students to utilize existing technology and menus. The convenience of the panel provided will reduce the introduction of the e-learning system itself. Thus, the participants' learning time can be streamlined for the learning process itself and not for learning to use the system of e-learning;
2. Personal requirement means the teacher can interact well like a teacher who communicates with his students in front of the class. With a more personal approach and interaction, the teacher can monitor the students’ progress and help them with all the problems they face. This will make students feel comfortable for long in front of the computer screen; and
3. Speed is a fast response to complaints and other student needs. Thus, the improvement of learning can be done as quickly as possible by the teacher (Onno W. Purbo, 2002 in Suyanto, 2005).

III. FINDINGS AND DISCUSSION

1. Planning of E-Learning Based Learning Media

Planning is the main function that influences the following functions. Thus, a teacher must be able to arrange planning in writing (Soleh, 2007). Planning of geography learning starts from the group division, analysis of the material that will be constructed through the creation of learning tools in accordance with the 2013 Curriculum and the media used (Delita, Elfayettei, & Sidauruk, 2016).

Planning the learning using e-learning media includes the design and making of teaching materials, that cannot be separated from the content on e-learning used. Content is a learning object that is one of the parameters of the success of e-learning through the type, content and weight of the content (Hanum, 2013). The content must be able to provide at least the following:
1. Teacher-centered content, a procedural, declarative and well and clearly defined learning content;
2. Learner-centered content, a content that presents instructional outcomes focused on developing creativity and maximizing independence;
3. Work examples on content material to facilitate understanding and provide opportunities for practice; and
4. Additional content in the form of educational games as a practice medium of question-maker aid.

Some principles of creating e-learning websites include:
1. Formulating learning objectives;
2. Introducing learning material;
3. Providing assistance and ease for students to learn the material; and
4. Providing assistance and ease for students to do assignments with clear instructions and directions;
5. Delivering learning materials in accordance with generally accepted standards and the level of student development;
6. Delivering the material systematically and providing learning motivation and the summary at the end of learning;
7. Delivering the material in accordance with reality to be easily understood, absorbed, and practiced directly by the students;
8. Providing the method of explanation that is effective, clear, and easily understood by students with illustrations, examples and demonstrations; and
9. As a tool to find out the success of learning, an evaluation and feedback can be obtained from the students. (Munir, 2009 in Hanum, 2013).

Based on the explanation of the theory about the planning of learning media based on e-learning, in general the school should be well prepared to support e-learning facilities to the maximum, minimize the risks of optimally functioning systems, and prepare the teachers and students to be able to use these facilities as well as possible. In addition, schools must be able to improve the quality of teacher’s instructional planning using e-learning website-based learning through various trainings.

2. Implementation of E-Learning Based Learning Media

Each learning method must contain the formulation of organizing learning materials, delivery strategies, and management of activities by considering the learning objectives, learning obstacles, student characteristics to achieve the effectiveness, efficiency, and attractiveness of learning (Miarso, 2004 in Hanum, 2013). Learning using e-learning is learning by utilizing internet technology to improve the learning environment with rich content and broad scope. E-learning is the use of learning media using the internet to deliver a series of solutions that can enhance knowledge and skills (Rossenberg, 2006 in Hanum, 2013).

As explained above, we can examine the authentic evidence of the occurrence of ICT-based learning from the Lesson Plan (RPP) compiled and its implementation carried out by each subject teacher at school. The lesson plan that integrates ICT in learning can be arranged through 2 (two) approaches, namely the idealist and pragmatic approaches (Kusmana, 2011).

First, the Idealist Approach can be started by determining the topic, learning objectives to be achieved, and learning activities by utilizing ICT media (such as modules, worksheets, audio programs, VCD/DVD, CD-ROMs, online learning materials on the internet, or other synchronous and asynchronous communication tools) that are relevant to achieving the learning objectives. Second, the Pragmatic Approach can be initiated by identifying ICT media (such as books, modules, worksheets, audio programs, VCD / DVD, CD-ROOM, online learning materials on the internet, or other synchronous and asynchronous communication tools) that exist or may be able to be carried out or used and choosing the topics that can be supported by the existence of these ICTs and ended by planning relevant learning strategies to achieve basic competencies and indicators of learning outcomes from the topic of the lesson.

The strategies that can be chosen according to the two approaches are: Resources-based learning, Case/problem-based learning, Simulation-based learning, and Collaborative-based learning.

3. Optimization of E-Learning Based Learning Media

From the definition and function of learning media, it can be concluded that learning media is one of the external factors that influences the success of learning activities. In general, the benefit of learning media is to facilitate interactions between the teacher and students for more effective and efficient learning activities. The success of e-learning is supported by the maximum interaction between the teacher and students, the students and various learning facilities, the students and other students, as well as the existence of active learning patterns in these interactions (Hanum, 2013).

Various efforts in optimizing the development of e-learning can be done following the development of available ICT facilities.
Sometimes ICT facilities are not equipped at the same time. Likewise, the prototype of learning materials and instructional designs that will be used continue should be considered and evaluated continuously (Kusmana, 2011). In order to optimize ICT, computers and ICT must be mastered by all school components (Suyatno, 2018). The utilization is very broad. Administrators can use computers and ICT to develop database systems and online services. The teacher can use them to develop teaching materials, create learning media, and make an evaluation question bank. The principal can use them to develop a Just in Time (JIT) management system, where he only needs "click" on the computer to get what he needs. Students can use them to learn and access information. To support these activities, the school environment must use wi-fi hot spots, so the internet can be accessed anywhere in the school environment without using a network cable.

To support the process of integrating ICT in learning, school management, teachers and students must understand the 9 (nine) principles of ICT integration in learning consisting of the following principles:

1. Active: allowing students to be actively involved by an interesting and meaningful learning process;
2. Constructive: allowing students to combine new ideas into prior knowledge to understand the meaning or curiosity and doubt that has existed in their minds;
3. Collaborative: allowing students in a group or community to cooperate with each other, share ideas, suggestions or experiences, advise and provide input for fellow group member;
4. Enthusiastic: allowing students to actively and enthusiastically strive to achieve the desired goals;
5. Dialogical: allowing the learning process inherently as a social and dialogue process in which students benefit from the communication process both inside and outside of school;
6. Contextual: allowing learning situations to be directed to meaningful (real-world) learning processes through a "problem-based or case-based learning" approach;
7. Reflective: allowing students to be aware of and reflect on what they have learned as part of the learning process itself;
8. Multisensory: allowing learning to be delivered for various learning modalities (multisensory), both audio, visual, and kinesthetic; and
9. High order thinking skills training: allowing to practice higher-order thinking skills (such as problem solving, decision making, etc.), which indirectly increases "ICT and media literacy". (Kusmana, 2011).

Based on the relevant theory in terms of optimizing e-learning based learning media, the school can do create a vision of future learning based on ICT, relocate owned resources, provide supporting infrastructure and student access to credible ICTs, and prepare competent and highly professional teaching staff in the ICT field.

4. Evaluation of E-Learning Based Learning Media

Learning evaluation is an indicator tool to assess the achievement of predetermined objectives and the overall teaching implementation process (Hanum, 2013). Evaluation is not just assessing an activity spontaneously and incidentally, but is an activity to assess something in a planned, systematic, and directed way based on clear objectives (Wulandari & Sarjono, 2013).

The evaluation of the implementation of e-learning can be seen in terms of increasing knowledge and skills, learning environment, and its effect. The evaluation of the implementation of e-learning is the process of analyzing the quality of the web-based learning process (e-learning) and the extent to which the achievement of the e-learning process can be felt by students. The evaluation is carried out as a form of assessment of various components found in e-learning (Hanum, 2013).

Before the program starts, it's a good idea to try by taking a few samples of people who are asked to help evaluate. The process of the stages above requires a relatively long time because the prototype needs to be evaluated continuously. Inputs from others or students need to be taken seriously by paying attention to some of the problems that often arise in e-learning implementation as follows:

a. Problems of access to carry out e-learning such as the availability of internet, electricity, telephone, and other infrastructure;
b. Problems with software availability. How to work on inexpensive software;
c. Problems of its impact on the existing curriculum;
d. Problems of skill and knowledge; and

Evaluation activities as part of any learning program need to be further optimized and not only rely on an assessment of learning outcomes, but also need an assessment of the inputs, outputs and quality of the learning process itself (Widoyoko, 2011). Optimizing the evaluation system has two meanings. First, it is an evaluation system that provides optimal information. Second, it is the benefit achieved from evaluation. The main benefit of the evaluation is to improve the quality of learning, which will increase the quality of education.

In the education field, in terms of its objectives, there are macro and micro evaluations. The macro evaluation targets the educational program, which is a program planned to improve the education. Micro-evaluation is often used at the classroom level, especially to find out students' learning achievement. This learning achievement is not only cognitive, but also includes all the potentials that exist in students. Thus, the target of micro-evaluation is the learning program in the classroom and the person in charge is the teacher for the school or the lecturer for the university (Mardapi, 2000 in Widoyoko, 2011).

From the various opinions mentioned above, it can be concluded that the learning evaluation should use e-learning media for students in the scope of not only e-learning outcomes, but also the evaluation of the students’ activities in using e-learning media. In other words, evaluation is based on:

1. Input, including the introduction of basic material to be given, which can be in the form of enthusiasm of each student in using media;
2. The process, an evaluation to see the optimization of students in using e-learning media; and
3. Output, an evaluation of the learning outcomes of geography based on the results of tests to students.

5. Operational Framework of Optimization of E-Learning Based Learning Media in Senior High Schools

From various theories collected, a framework can be made to optimize the management of e-learning in schools illustrated in Figure 1 as follows:

![Operational Framework of Optimization of E-Learning Based Learning Media in Senior High Schools](image)

**Source:** Various relevant theories developed by researchers

**Figure 1: E-Learning Management Optimization Framework**

Figure 2.1 illustrates the whole process of managing e-learning carried out systematically, with an evaluation aspect of the elements of the input, process, and output of each process starting from planning, implementing, and optimizing. The dimensions of the tools, teachers, and students associated with the framework are outlined in Table 1 as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Dimension</th>
<th>Input</th>
<th>Process</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planning</td>
<td>Tool Inventory of the needs for program, networks, access availability, and class eligibility</td>
<td>Provision of programs, networks, availability of access, and class eligibility</td>
<td>Readiness of program, networking, access, and class eligibility</td>
</tr>
<tr>
<td></td>
<td>Teacher</td>
<td>Program socialization, the selection of e-learning teachers on certain subjects with ICT competence as a benchmark for selection</td>
<td>Training for selected teachers by providing modules as a guide for practicing</td>
<td>The teacher can master the e-learning program and provide education and training to students</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>Getting education from the school conducted by subject teachers</td>
<td>Students are given training on how to operate the program</td>
<td>Students can run e-learning programs</td>
</tr>
<tr>
<td>2</td>
<td>Implementation</td>
<td>Tool Programs, networks and access have been filled with subject matter</td>
<td>Programs, networks and access are run</td>
<td>Evaluating the limitations of the tools used</td>
</tr>
<tr>
<td></td>
<td>Teacher</td>
<td>Making lesson plans based on e-learning</td>
<td>Organizing the learning process</td>
<td>Observing the students about their understanding of lessons using e-learning media</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>Preparing the media and listening to the teacher's instructions</td>
<td>Operating e-learning that has been available and following the learning process</td>
<td>Re-asking the unclear teacher's explanation and submitting the assignments</td>
</tr>
<tr>
<td>3</td>
<td>Optimization</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tool | Improving the quality of the programs, networks, and access speeds | Availability of e-learning access to be accessed outside the classroom | Ease of use of tools using each student’s gadget
---|---|---|---
Teacher | Providing continuous training on improving the quality of programs and modifying lesson plans that are better and easier for students to understand when studying outside the classroom | Providing online-based materials without having to face to face | Teachers can freely assess student learning outcomes outside the classroom
Student | Students have gadgets to easily access e-learning | Students can access e-learning outside of school | Students collect their learning results online without having to go to class or school

### 4 Evaluation

| Tool | Evaluation of program updates, networks, availability of access, and class eligibility | Evaluation of the estimated speed of the program to be accessed properly | Evaluation of strengths and weaknesses in the ability of all program components, networks, and class eligibility
---|---|---|---
Teacher | Creating and/or compiling materials and/or test contents | Giving tests to students both from inside and/or outside the classroom | Assessing the results of tests done by students
Student | Able to understand the contents of the tests provided | Doing the test given well | Collecting the results of tests that have been done

Source: Various Operational Developed References

### IV. CONCLUSION

Based on the theoretical studies discussed, it can be concluded that the process of managing e-learning must be done in a systematic way, with evaluation aspects of the elements of input, process, and output for each process starting from planning, implementation, optimization, to evaluation. The framework built is one of the efforts in estimating every possible level of failure and/or success of the e-learning use in schools. This framework shows the dimension of tools, teachers, and students about the development of e-learning management in senior high schools. Therefore, e-learning management problems can be minimized in order to run well. On the other hand, the problems that underlie program implementation can be minimized by looking at various indicators in the problem framework.

**REFERENCES**


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