Primary School e-Learning Development as a Social Study Learning Model in the 5th Grade Primary School

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Abstract: The development of information technology has a potential to support the learning process revolution; in this matter, a development research has been carried out to develop e-learning in social studies learning model. The research problems are formulated as follows: 1) How is the development of e-learning as a social studies learning model in the fifth grade elementary school? 2) How are the students’ grading results in social studies using e-learning model?, and 3) What are the students’ responses towards e–learning model? This research is a development reseach design including three stages: (1) the preliminary study phase, (2) the drafting stage of the product and (3) the development and evaluation stages. The researcher must test the validity of the learning using expert validation sheet instruments and limited testing using observation sheets, interview guides, questionnaires and documentation as the main instruments. Data analysis is collected using descriptive analysis techniques. This study has succeeded in developing an e-learning model in social studies in the fifth grade; for limited stage trials, the e-learning model has proved to be more effective and produced higher grading results than the conventional model. E-learning is able to generate a high attractiveness and high learning motivation for the students. Learning is more fun so that students learn more optimally and effectively.

Key words: E-learning, Moodle, social studies learning, research and development, the development of a model.

1. Introduction

The world today is in a wave of change in the information technology vortex. This change is unavoidable as waves also hit and affect the world of education. Syaad [1] stated that various changes in the field of information and communication technology have changed the way humans think and respond toward education.

A wise response to this is to take the wave of change and use it as a vehicle for transforming education. Imam Subandi [2] argues that the application of ICT in education at schools is expected to help realizing the efforts to improve the quality of education in schools. Much to do with the use of ICT in the learning process of the Joint Information Systems Committee (JISC) UK, as quoted by Harry et al. [3] states that the development of information and communication technology (ICT) has the potential to support the learning revolution.

The concept that became known as e-learning is an influence in the transformation process of conventional education into digital form, both contents (contents) and the system. Nowadays the concept of e-learning has been widely accepted by the world wide community, as evidenced by the widespread
implementation of e-learning in educational institutions (schools, training and universities) and industry (Cisco Systems, IBM, HP, Oracle, etc.). Related to the use of ICT in the learning process of the England Joint Information Systems Committee (JISC) England, as quoted by Harry et al. [3] states that the development of information and communication technology (ICT) has the potential to support the learning revolution, with six key dimensions namely:

1) Connectivity: ease of communication and global information access;
2) Flexibility: learning can be done anytime and anywhere;
3) Interactivity: the interaction between the learner and the subject matter as well as the learning environment and learning resources that can instantly and directly done;
4) Collaboration: the use of communication facilities and online discussions to support collaborative learning outside the classroom;
5) Expanding opportunities: e-learning materials that can enrich the learning material and expand materials for direct meeting
6) Motivation: the use of multimedia that creates fun learning.

Romi [4] stated along with the development of Information Technology (IT) which is rapidly increasing, the need for an IT-based concept and instructional mechanism becomes inevitable. The concept that became known as e-learning is an influence in the transformation process of education conventional into digital form, both in its contents (contents) and system. Nowadays the concept of e-learning has been widely accepted worldwide, as evidenced by the widespread implementation of e-learning in educational institutions (schools, training and universities) and industry (Cisco Systems, IBM, HP, Oracle, etc.).

Melfachrozi M. [5] stated that the development of Information Technology (IT) has been affecting various aspects of community life. In the field of education, the impact of emerging learning and teaching is known as the concept of e-learning.

The level of ICT use (internet) grows rapidly. Even John Chambers, the CEO of Cisco Systems, as quoted by Romi [4], stated that "The next big killer application for the Internet is going to be education" e-learning in this case held that the use of the main level. Cloete [6] reported that e-learning efforts and experiments currently receive much attention across the globe. The availability of electronic and web-enabling technologies is also dramatically influences the way we view the learning strategies of the future. A research conducted by the Economic and Social Research Council (ESRC) showed that e-learning is one of the things that has increased by 47% over the last few years. The following Fig. 1 shows the result the increase in some forms of learning.

![Fig. 1. Comparison graphic forms of learning from the ESRC: Net percentage increases in provision of different forms of learning.](source: www.esrcsocietytoday.ac.uk/.../facts/index3.aspx)
The rapid pace of growth in the use of ICT in education cannot be separated from the benefits to be gained. Harry B. Santoso [4] stated that ICT can be used to assist in the transformation of the learning paradigm from teacher-centered towards student-centered. It's no longer the teacher who is actively giving or asking the students to ask questions about something that is not yet understood, but here the students are trained to learn critically and actively. E-learning systems can be developed using the collaborative learning approach method and problem-based learning. The same was stated Syaad [2] that was to change the teacher-centered learning towards student-centered learning is highly supported by the development of IT.

Soerkartawi [7] identified that there are at least 3 benefits, namely: a). improving equity and access to education, b). improving the quality, relevance and competitiveness of education output and c). enhancing good governance, accountability and public image of education. Robert T. Raab, W. Ellis Wyn, Buenafe Abdon R. [8] argued that the application of Internet-based information and communication technologies in e-learning-education is now making it possible for education to transcend space, time, and political boundaries. In e-learning, content and mode of delivery are increasingly defined by external groups, students as well as employers.

In e-learning research conducted by Edy [9], he developed a model that links (1) constructs of direct influence e-Learning Utilization Rate (EUR) to Learning Outcomes (LO), (2) the indirect effect of constructs of Utilization Rate of e-learning (EUR) and the Learning Motivation through intermediate variables (LM) and Individual Performance (IP) to Learning Outcomes (LO). The results obtained 53.60% of the total effect.

Given the pace of ICT development on one hand and the content of the benefits inherent in it on the other hand, the e-learning model development is absolutely necessary to anticipate the development of the era into the digital age, including both the mechanism and the content. The problem is how to develop e-learning as a means of learning in elementary school. Romi [4] in this case stated that the strategy of the development of e-learning, is essentially the same as a software development strategy. This is because e-learning is also a software. In science software engineering (software engineering), there are several mandatory steps to develop a software. In this sense, this study was conducted to develop a web-based e-learning as a social studies learning model in elementary school.

According to Oliva [10], models of teaching are strategies based on theories (and often the research) of educators, psychologist, philosophers, and others who question how individual learn. This means that any teaching or learning models should contain a theory-based rationale that contains a series of strategic steps of teachers and students, supported by support systems or learning facilities, and methods to evaluate students' progress.

There are several models of teaching/learning models such as information processing, personal groups, social groups, and behavior group [11]; competence learning model, contextual learning, discovery learning, experience-based learning, integrated learning, and cooperative learning. Sukmadinata. [12] also proposed the academic-based model of teacher education, performance, competence, field, training, micro teaching, internship, distant learning, etc..

Systematic process in developing learning generally was presented in the form of learning model. In the developing a model of learning, Sukmadinata [12] reported on the basis of the selection of learning (approaches, models and methods or procedures) which were: the learning objectives, characteristics of the subjects, and the ability of students and teachers.

The term 'strategy' is derived from the Greek, 'strategia' which means 'the science of wars' or 'warlords'. Furthermore, the strategy was defined as an art of designing war strategy, such as positioning or strategy to fight the army or navy. Strategies can be also interpreted as a skill to set an event or matters.
Sulistyono [13] defined learning strategies as specific actions performed by a person to simplify, accelerate, enjoy more, understand directly, make something effective and more easily transferred to the new situation. Dick and Carey [14] said that a learning strategy describe the general components of a set of learning materials and procedures that could be used with these materials to produce specific learning outcomes to students.

Djamarah [14] suggested that in general, strategy outlined the endeavour to achieve specific targets. Learning strategies can be interpreted as the general patterns of teachers and students activities to achieve learning goals. In connection with this strategy, there are a few expert agreement. They stated that learning strategies was considered over teaching approaches in managing the learning activities to convey the subject matter or content in a systematic way so that the expected ability can be mastered by the students effectively and efficiently. Based on this opinion, the concept of strategy includes four following definitions [15].

1) The sequence of learning activities, ie the sequence teachers activities in delivering the course content to students.
2) Learning method, how teacher organize the course materials and students effective and efficient learning.
3) Media of learning, ie learning equipments and materials used by teachers and students in learning activities.
4) Time used by teachers and students in completing each step in the learning activities.

Thus, a learning strategy is a fusion of a sequence of events, ways of organizing the subject matter and students, equipment and materials, as well as the time spent in the learning process to achieve the intended purpose. In other words, a learning strategy is a systematic way of communicating the content of the lesson to the students to achieve specific learning objectives.

This development research aims to: 1) developing an e-learning as a model of learning in social studies in grade 5 elementary, 2) determining the learning outcomes in social studies 5th grade elementary school students organized by using e-learning; 3) studying the response of students in the 5th grade to learn using e-learning.

Development of e-learning as a model of learning social studies in the 5th grade benefits: 1) providing a model of learning using e-learning, and 2) improving the quality of student-centered learning (student-oriented) in which students will undergo a process of discovery.

E-learning has now become a trend in the world of education. F-Learn or Flexible Learning is one example of the use of e-learning developed at Satya Wacana Christian University. HYLITE (Hybrid Learning for Indonesian Teachers) is also an e-learning facility that is used by elementary school teachers who follow Distance Education (DE) Bachelor Primary Teacher Training Program (BPTTP). Currently there are more than 18 thousand e-learning sites in more than 163 countries using Moodle [16].

E-learning provides benefits both for students and teachers. For learners of e-learning, time zone, location, and distance are not problems. In asynchronous online learning, students can access the online material anytime, while synchronous online learning allows real-time interaction between students by the instructor. The students can use the Internet to access learning materials that are relevant and up to date, and can communicate with experts in the field they are studying.

For teachers, teaching can be done anytime and from anywhere. These materials can be updated online, and the students are able to see the changes made instantly. When students are able to access materials on the Internet, it would be easy for instructors to direct them to the appropriate information based on their needs. If designed properly, online learning systems can be individualized to determine students' needs and level of expertise, and to assign appropriate materials for students as a selection to achieve the desired
learning outcomes.

2. Moodle as the Learning Management System

There are many software systems which serve as a Learning Management System whether paid or as an open source. Our choices will often depend on the availability of budget. Santoso [3] argues nowadays, there are several e-learning systems based on open sources like Moodle, Claroline, and others. For organizations that utilize this software they do not need to pay. Licenses that are normally used are GNU or GPL. The research we need to do when deciding to use a specific system is to study the program’s documentation even up to checking the algorithms used. The absence of significant post-implementation security services may require users to actively engage in the mailing lists or possibly be hit by viruses or other unintended risks to the instructor and the students.

In this case Herman [16] argues that Moodle is one LMS (Learning Management System) open source that can be obtained freely through http://moodle.org. Moodle can be easily developed into an e-learning system. With Moodle, an e-learning portal can be modified as needed.

Moodle is a software package produced for the Internet-based learning activities and websites. Moodle continues to develop system design and updates user interface designs every week. Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment, which means a place of learning that is dynamic by using the object-oriented model. Moodle provides a complete software package (Moodle + Apache + MySQL + PHP). In the development of this research Moodle has several advantages, namely: 1). 100% suitable for online classes as well as additional study that directly deals with the teacher(s). 2). Simple, user-friendly, efficient, and simple to use technology. 3). Installs easily and the many programs are supported by PHP. 4). It only takes one database. 5). Displays the lesson’s description and can be divided into several categories. 6). Moodle can support more than 1000 subjects. 7). The security is solid. The registration form for the student has been examined and its validity and cookies are encrypted. 8). A full language pack is available for various languages. The available languages can be edited using an available edit. There are more than 45 languages available, including Indonesian.

3. Research Methods

The method or approach used in this study is a research and development, which consists of three main steps, namely preliminary studies, planning and development, and validation of models of learning. Then translated into five steps: 1) analyzing the product, 2) developing initial products, 3) validating, 4) field trials and 5) revising the product. We are 4 lecturers as researcher: Slameto, Suroso, Adi Winanto and Ridho Sarwono;

The developed instructional model design consists of: objectives, materials and resources, procedures, and evaluation of learning [17]. Compared to an effective learning model, the learning model that will be developed is a process of inquiry in addressing the problem of learning for elementary school students; not only develop the ability to think cognitively, but also develops students' attitudes, open mindedness, responsibility, wholeheartedness.

4. Preliminary Study

Preliminary studies conducted by collecting data from 9 elementary schools in Salatiga, Central Java, Indonesia through questionnaires and focus group discussions. The deployment of questionnaire instruments was conducted to determine the learning model implemented; from filling this questionnaire, we will eventually find a map of problems associated with the use of computers and the internet (ICT) in teaching elementary social studies of 5th grade primary school students.
Based on the questionnaire, the use of ICT in this learning consisted of 15 items measuring three aspects of learning which were planning, implementation and evaluation. After being charged by the nine of 5th grade teachers, whose results are further analyzed as follows.

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>1.4444</td>
<td>1.2500</td>
<td>0.51201</td>
<td>1.00</td>
<td>2.25</td>
</tr>
<tr>
<td>Implementation</td>
<td>1.5278</td>
<td>1.5000</td>
<td>0.37903</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Evaluation</td>
<td>1.6667</td>
<td>2.0000</td>
<td>0.52705</td>
<td>1.00</td>
<td>2.33</td>
</tr>
</tbody>
</table>

Table 1 above shows that most of the teachers do not use the internet for teaching and planning and a small portion has been utilizing a computer, sometimes with the internet. Furthermore, in the execution/implementation of teaching and learning, was not different from the use of computers and the internet in planning; most teachers do not use the internet for the implementation of teaching and learning, a minority has used a computer, sometimes with the internet. Furthermore, in the evaluation of teaching and learning, their usage in the evaluation of computer and internet was no different with the planning and implementation; most teachers have not been utilizing the Internet for evaluation, a small portion has been utilizing a computer, sometimes with the internet.

Furthermore, the table 1 results are discussed in focus group discussion to validate and also to capture the aspirations of the nine teachers. From FGD, the admitted that the data analysis results was appropriate with the real condition. After that, they agreed to improve the quality of learning in social studies using a computer or Internet-based in social studies teaching.

5. Model Development

The draft of Elementary School Online Portal deliberately chose a web host service provider at www.rumahweb.com with the consideration that the portal in terms of the cost is relatively affordable, the specifications provide various facilities and adequate storage capacities. The features to be developed are cheap web host, reliable, had a virtual private server, managed the DNS facilities, had free privacy protection, had storage capacity that varied in terms of bandwidth 20 GB, and was considered sufficient for the purposes of this study.

The Elementary School Online Portal can be accessed online by visiting sdkita.net address. ES online site and was developed with a base Moodle as one LMS (Learning Management System) which is suitable for online learning. The advantages of Moodle are: 1) students can learn independently and set their own learning conditions (quality computer, screen, study room) and the corresponding time, very flexible in terms of time and environment), 2) teachers and students can interact remotely both at the same time or not (synchronous/asynchronous) and 3) the material and activities can be updated quickly.

The menu is available in the online learning media is the primarily subject matter that can be downloaded on the link provided in every segment of each unit. Then there is also a quiz that contains questions that aim to guide students in learning the topics for each unit. The ES portals online chat facility is also provided so that students can communicate with other students and with the instructor. Students can discuss and ask questions about the material being studied.

Online Portal Elementary School, later, can be accessed by teachers and students; teachers can act as a teacher or administrator and students serve as student. Teachers can manage the class lesson either by uploading material, creating quizzes, check participation, and manage others. It can also be developed for various classes as well as for various subjects.
After the primary portal on line was formed as the initial product, the team's next request was for a validation expert, in this case it was Prof. Eko Sedyiono. By using a 15 item questionnaire instrument, the input obtained was as follows: of the 15 assessment items obtained 2 items were rather low (ease of reading and the size of the letters used), 3 items at the level of average (logo, color text and graphics), 8 items rated high (features, layout, language, consistent navigation and easily understood, the input response, media conformity with the development of five grade students and its role to motivate students to learn) and 2 items were rated very high, namely (ease of access and ease of remembering names).

In addition to the portal experts, researchers also asked the expert validation of online learning, namely Stephen Ch. Relmasira, S.Pd., MS Ed. By using a 18 item instrument, obtained following inputs: 1 item is rated low considering the diversity of the material, 13 items assessed at the level of average (ie: web variation, minimal relevance to the learning needs of students, encourages independent learning, inspire, encourage for independent learning, communication opportunities among students, the opportunity of communication with teachers, build discipline, sustainability, ease of access for students, harmony, quality of materials and material conformity with the child’s age), and 4 items rated on high (website accessibility, attractiveness display and in accordance with the character of the child).

Based on the two experts validations presented above, it can be concluded that the portal can be easily fixed and ready to be trialed immediately following improvements. The original typeface (font) used was Aria, based on input from the expert the font was changed to Times New Roman. Revisions to the content were also added by creating a new page with a web form that contains the material and adding pictures realted to the materials.

Video presentation about Prambanan was also added in this ES online to increase students' knowledge and interest in learning about the material such as Hindu History, especially regarding the temple.

6. Field Trials

### Table 2. The Comparation of Conventional and Online Learning

<table>
<thead>
<tr>
<th></th>
<th>Conventional</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCM</td>
<td>6.90</td>
<td>6.90</td>
</tr>
<tr>
<td>Mastery</td>
<td>55%</td>
<td>69%</td>
</tr>
<tr>
<td>Mean</td>
<td>64.4828</td>
<td>75.6897</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>23.38898</td>
<td>11.91069</td>
</tr>
<tr>
<td>Minimum</td>
<td>10.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>100.00</td>
<td>96.00</td>
</tr>
</tbody>
</table>

### Table 3. One-Sample Test

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>14.847</td>
<td>28</td>
<td>.000</td>
<td>64.48276</td>
</tr>
<tr>
<td>Online</td>
<td>34.221</td>
<td>28</td>
<td>.000</td>
<td>75.68966</td>
</tr>
</tbody>
</table>

Before the research about online learning was completed, the teachers and the students both were trained in the process of online learning formats. The training was carried out for 2 days for 5 elementary school teachers, in the following schools: one teacher from SWCU Laboratory, one teacher from Salatiga ES 02, one teacher from ES 09, one teacher from ES Sidorejo and one teacher from Salatiga 04. Training was conducted at BTSI Computer Laboratory space C. Implementation of the training consisted of 6 phases:
orientation training, the introduction of e-learning, managing official study teaching and learning using Moodle, online assignment, and e-quizzes, as well as the success factors of teachers in teaching the new model.

After the training, they continued with on-line learning practice. Its implementation used the subject of “Heritage History of Buddhism, Hinduism, and Islam in Indonesia” which takes 3 x 2 hour meetings. During the lesson everything went fairly smoothly, some students were excited and motivated to learn seriously. At the end of the 3rd meeting, assessments outcomes were conducted to measure student learning. This was achieved using prepared questions on the module; compared with conventionally taught class, the following results were obtained.

Based on the trial results as mention in Table 2 and Table 3 above, it turns out there is a significant difference after use than before using the on-line learning; students’ results with online learning is higher. The high student learning outcomes with this online learning occurs because students are more serious in their responses, motivated, and able to learn individually, in accordance with the speed of learning potential of each.

7. Discussion

Since the beginning of the development of research conducted with aims for developing e-learning as a model of learning in social studies in fifth grade elementary school; this research has been successfully conducted a series of stages as described above. Until the limited phase trials with ES, prove to be effective for the learning outcomes in social studies fifth grade elementary school students, organized e-learning is higher than lessons conventionally taught. Students are able to instantly communicate with text, images, sounds, data, and two-way video. The resulting interaction can change the roles of students and teachers. Teachers can be separated geographically from their students, and students can learn from other students in the class anywhere in the world.

Teachers and their students can access electronic documents to enrich their knowledge. Students can actively participate as online learners as it provides an interactive learning environment. Students can connect to the electronic information and document their projects, making electronic documents “live” with hypertext. This happens because the Moodle-based learning is indeed developed as a simple, user-friendly, efficient, and simple to use technology; thus showing that there is an explanation of the lesson and the lesson can be divided into several categories that are so easily accessible to students.

The stated finding above was supported by Olson, J. et al. [18] who revealed that e-learning is a term that encompasses a broad array of content and instruction methods, and that has come to mean a new model of education involving revised curriculum, infrastructure, teacher professional development, textbooks, and exams to provide students with technology and “21st century skills” such as creative problem solving. A particularly useful aspect of ICT in education includes accessing the enormous amount of educational resources on the internet and online libraries. The networking of teachers, students and others can also produce a lively community sharing information, ideas and strategies. It is important to realize that there were several supporting factors, that are: technological, human and pedagogical infrastructures, management and leadership [19] the next was by Kasse and Balunywa [20], in addition about new variables of financial budgeting, training and performance evaluation. Therefore, Al-Mobaideen, H. et al. [21] the school give more interest to the infrastructure technological and technical supplement in order to provide the best climate for the teachers to use the system of e-learning in teaching. Furthermore Boulton, H. [22] reminded to planned parental involvement for students working from home, and careful preparation of students, together with tutorial support and opportunity for collaborative work.

In addition to producing an online learning portal, this study also aimed to determine the response of
fifth grade students of elementary school students to learning by using e - Learning. The results of a limited trial turns online learning is able to generate high attractiveness and high learning motivation of students; thus not bound by a school schedule, and being more enjoyable, so the students can tend to learn more optimally and effectively. This is in line with the constructivist experts stating among other things, compared to [23]: learning should be an active process for students with meaningful activities that produce high levels of the cognitive processing, students should construct their own knowledge rather than accept what is given by the instructor; learn collaboratively and cooperatively to facilitate constructive learning, students should be given control of their learning process, students should be given time and opportunity for reflection, learning must be meaningful to the learner, the learning process should be interactive to promote high levels of learning and social aspects and to help developing themselves as learners and part of society as a whole.

8. Conclusions

The design research is research and development. The procedure includes three stages of development: (1) preliminary study phase, (2) drafting stage products and (3) the development and evaluation stages. Data collection instruments used in this study to collect data on the preliminary studies, used the validity of experts, and limited trials. The researcher had test the validity of the learning model using expert validation sheet instruments and limited testing using observation sheets, interview guides, questionnaires and documentation as the main instruments. Data analysis was collected using descriptive analysis techniques.

Through a series of development stages, this study has managed to develop an e-learning as a model of learning in social studies for fifth grade elementary school; as the limited phase 4 trials with ES proved effective as learning outcomes for 5th grade elementary social studies students held by using e-learning is higher than when taught conventionally. The fifth grade elementary school students' responses to learning by using this e-learning was able to generate a high attractiveness and high learning motivation for the students, as was the enjoyment of learning, so that students can learn more optimally and effectively [24].

Suggestions can be submitted as a follow up on the results of this study to be tested extensively to involve more experts and stakeholders, which in turn can be used for real online learning, including revisions where necessary, especially related to the material as a result of changes in the National curriculum into National Curriculum of 2013.

References


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He became a lecturer science 1982 and remains on course guidance and counseling and education of primary school teachers. He has written a book *Learning and the Factors that Influence It*, by Jakarta: Rineka Cipta, in 2003.