

## Development of Learning Management of E-learning in Demak Senior High School 1

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### Abstrak

This study aims to develop an e-learning management model of learning for Mathematics subjects in class X Senior High School 1 in Demak, testing its effectiveness and practicality. The research method used is Research and Development with the stages of this research process include: (1) preliminary stage; (2) the development stage, making the learning management model integrated into e-learning; (3) the validation stage, carried out by experts and practitioners; and (4) the testing phase was carried out in Demak 1 State High School involving 12 limited test students and 36 wider test students. Methods of data collection were in the form of test questions and questionnaires. The product validation test results were 94.35% (very feasible). Limited test results obtained an average score of pre-test 74.67 and post-test of 80.08 with a gain of 0.33 (medium). Wider test results obtained an average score of pre-test 71.44 and post-test 84.67 with a gain of 0.41 (medium). The practicality test results were obtained from student responses, namely 91.17% which included in the very practical category.

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## INTRODUCTION

In the current era of globalization, the development of information and communication technology is running so fast. The role of technology cannot be separated from all aspects of people's lives today. The development of information and communication technology has helped and alleviated various activities carried out by humans. These activities include offices, households, entertainment, until the realm of education has utilized the use of technology.

Demak Senior High School 1 is one of the schools that had implemented e-learning teaching. However, e-learning teaching has not been maximally used. This is because some teachers still experience difficulties in using information and communication technology, evaluations conducted on students are not running smoothly, some teachers still use conventional methods in learning, even sometimes the delivery of teaching materials is late or not delivered if the meeting does not occur, as well as time availability face to face in learning is still lacking.

Responding to these problems, learning is developed by utilizing IT-based media or better known as e-learning that promises independence of time and place (Effendi and Zhuang, 2005:9). In e-learning, devices that can be used include computers/laptops, smartphones, and tablets. The characteristics of e-learning devices have a high level of flexibility and portability, allowing students to access material, direction and information related to learning whenever and wherever (Rusman 2011:264). In addition, (Rusman, 2011:264) also states that e-learning allows more opportunities to interact between students and teachers both directly and indirectly.

Furthermore, interviews were conducted with subject teachers, which obtained a description of the problem, among others: (1) not all teachers can use information and communication technology, (2) e-learning has not been programmed in planning, (3) inadequate access to the internet, (4) evaluation of learning on students is difficult to do if e-

learning is used by all students, and (5) there is no management mechanism for e-learning in a standard and structured manner. From the explanation above, it can be concluded that the learning management of e-learning is expected to be a supporter of Mathematics subjects, in Demak Senior High School 1.

The main function of learning management is planning, implementation, and evaluation (*Badan Penjaminan Mutu Akademik*, 2007:16). Regarding the integration of e-learning in the process of learning, all the main functions of learning management are carried out to utilize the advantages of information technology. According to (Kusmana, 2011:44) authentic evidence of e-learning in the process of learning can be observed from the planning (syllabus) prepared and implemented by the subject teachers in the school.

According to (Syafaruddin and Nasution, 2005:17), effective learning is handled by professional teachers through good learning management. Some results of research on the learning management of e-learning show a positive impact on improving student learning outcomes. Maria's research results (2017:59) suggest that the success of e-learning is determined by learning planning integrated with e-learning by involving several parties related to the learning of e-learning. The results of research on the learning development of e-learning showed that e-learning effectively improves student learning outcomes (Hamdan, 2018; Hapsari, 2017; Aeni, 2017; De Oliveira, 2016; Suharyanto and Mailangkay, 2016; Kusumaningrum and Marpanaji, 2014).

Development of learning management of e-learning can be one as an alternative that can be used in Mathematics learning for Demak Senior High School 1 Students. The learning development of e-learning management must be in accordance with the basic competencies contained in Mathematics syllabus. Therefore, this study aims to develop the learning management of e-learning for Demak Senior High School 1 student and test its effectiveness and practicality.

**METHOD**

The research method used is Research and Development (R&D). The steps in the research procedure developed are: (1) preliminary stage; (2) the development stage; (3) validation stage; and (4) the testing phase. Validity testing is carried out by education management experts and practitioners. The study was conducted in Demak Senior High School 1 involving 12 limited test students and 36 wider test students. The instrument in the form of a test was used to determine the extent to which student learning outcomes are achieved before and after using this learning management of e-learning developed.

**RESULTS AND DISCUSSION**

**Results**

**Form of Development of Learning Management of E-learning Model for Class X Students of Demak Senior High School 1**

E-learning learning used in Demak Senior High School 1 uses Moodle. E-learning already exists in Demak Senior High School 1, but there is no clear and standard management mechanism, so it needs to be done in standardized and written management of e-learning learning so that it can be used as a guide for teachers who will use e-learning in their learning activity.

The development of learning management of e-learning covers the main functions of management, namely planning, implementation, and evaluation. The main reference for the development of learning management of e-learning is the E-learning Guidebook for Quality Assurance (2007:13-15), is presented in the following table:

**Table 1.** Learning Management Quality Standards of E-learning

No.	Component	Indicator
1.	Planning	The learning design gets School approval Access to the intranet or the internet is available Access and e-learning facilities are available Mapping program available
2.	Designing and Making Materials	Conformity between material and curriculum Material is approved by the relevant teacher Making material according to the characteristics of e-learning Material can be accessed by students without being bound by time and place E-learning learning is in accordance with the applicable code of ethics
3.	Submission	Material is available in PPT Submission of material according to the mapping program Material must be interesting Face-to-face facilities are available
4.	Interaction	Available interaction designs between students, students and teachers, as well as students and material Direct and indirect interactions occur
5.	Evaluation	Conducted an evaluation of the teacher, students, content, process, organizer, implementation, and material

While the main obstacles to the implementation of e-learning in Demak Senior High School 1, among others (1) not all teachers can use information and communication technology, (2) e-learning learning has not been programmed in learning planning, (3)

inadequate access to the internet, (4) evaluation of learning on students is difficult to do if e-learning is used by all students, and (5) there is no mechanism for e-learning in a standard and structured manner.

Based on the description above, the gap between ideal learning management of e-learning can be identified with the learning management of e-learning that has been implemented in Demak Senior High School 1, as in table 2 below:

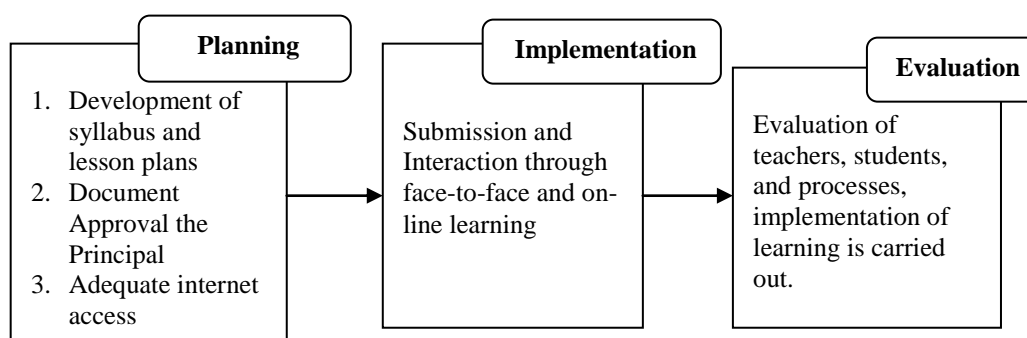
**Table 2.** The gap between theory and fact

No	Aspects	Ideals	Facts	Attention of Aspects
1.	Planning			
	Internet Access	Available intranet or internet access at sufficient speed	Internet speed is inadequate	Need to increase internet speed
	Learning planning	Planning must be contained in the document.	Use of e-learning is not yet listed.	Learning plans need to be made
2.	Evaluation	There must be an evaluation of the teacher and students	There has been no evaluation of the teacher and evaluation of the student is not smooth.	An evaluation of the teacher is needed
3.	Management of e-learning learning is structured in a standard manner	There is	There is Nothing	There needs to be management of e-learning learning

**Product Design**

The development of learning management model of e-learning is done by formulating a learning management model with the UI Academic Quality Assurance Agency approach. The management step with this approach is carried out through three stages based on

learning management needs, namely the planning stage, implementation phase, and evaluation phase. These stages can be developed into a learning management model of e-learning. Based on the results of the needs analysis, the learning management model of e-learning includes:



**Figure 1.** Stage of E-learning Learning Management

Planning for learning of e-learning, the Principal is involved in it accordance with learning planning by the teacher. The teacher must also ensure that the internet network used is adequate. So the teacher must cooperate with the IT Coordinate and Sarpras Coordinator in infrastructure readiness. In addition, the teacher must also plan the right learning strategy (Kusmana, 2011:44).

The implementation of e-learning is related to the delivery and interaction that occurs in face-to-face learning and online. Submission is determined in the learning plan that has been prepared by the teacher and the material that has been made must be interesting, while the interaction in learning is done directly or indirectly. In the implementation of learning

the teacher must also direct students to play an active role in learning. Next, the teacher communicates about the material in the form of digital content to students using the e-learning tools that have been planned. At this stage, the school principal evaluates the implementation of learning e-learning carries out by the teacher (Triwiyanto, 2015:66).

The last stage in the learning management of e-learning is the evaluation of learning of the e-learning. At this stage an evaluation of the teacher, students, and the learning of e-learning process is carried out. The principal is involved in carrying out supervision activities to monitor the evaluation of learning.

Learning management of e-learning model as shown below:

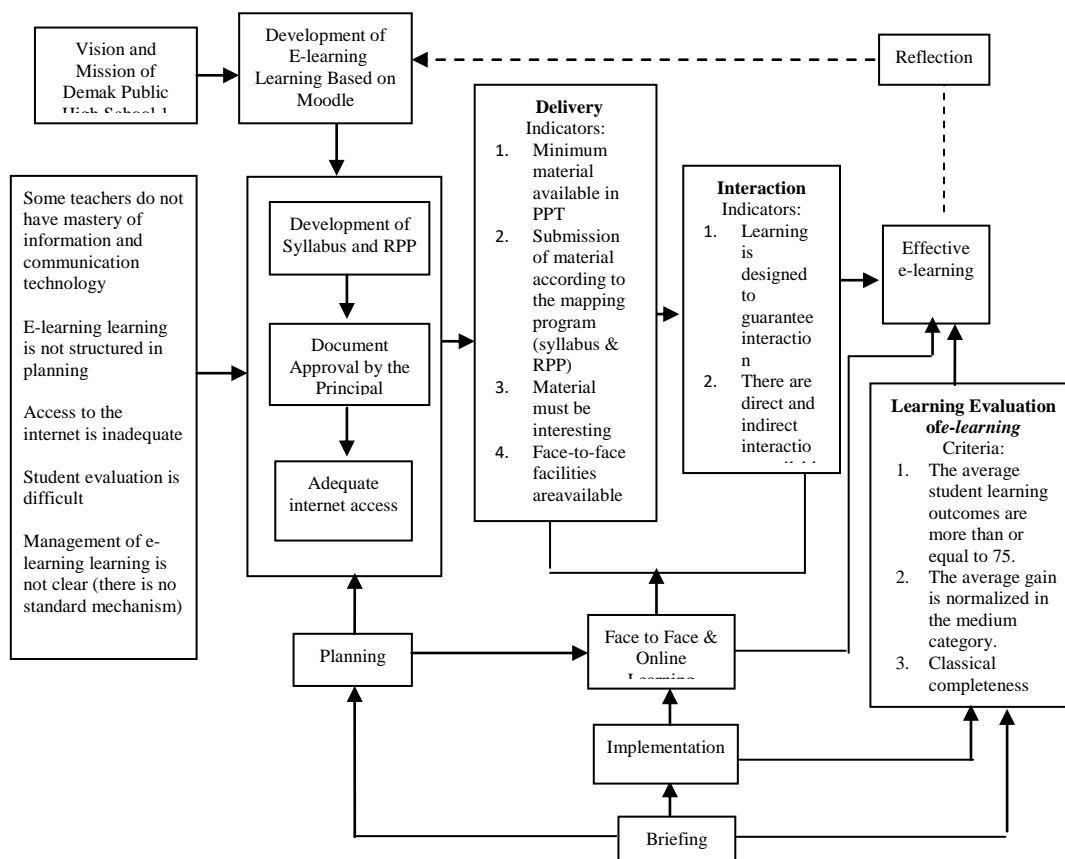


Figure 2. Learning Management of E-learning Model

**Validity Test Results of Learning Management of E-learning Model for Class X Students**

The validity test of education management experts aims to determine the criteria for planning, implementing, and evaluating e-learning learning. Based on the results of the validity test from education management experts, a percentage of validity of 94.35% or in the criteria is very feasible.

The validity test of the practitioner aims to determine the learning planning criteria, implementation of learning, and evaluation of learning. Based on the results of the validity test from the practitioner, the percentage of validity of 85.5% or is in the very feasible criteria.

**The Effectiveness Test Results of Learning Management of E-learning for Class X Students**

Limited tests were conducted on 12 students. The average initial ability of students was 74.67 and the average final ability was 80.08. the highest value of the limited test pre-test results was 87.0; while the lowest value was 52.0. The highest score on the results of the limited test post-test was 95.0; while the lowest value was 66.0. Increased average score (gain) of 0.33 or in medium criteria.

**Tabel 3.** Result of Pre-test and Post-test Limited Test

Criteria	n	Max	Min	Mean	Gain
Pre-test	12	87.0	52.0	74.67	0.33
Post-test	12	95.0	66.0	85.0	Medium Criteria

Source: Research Data Analysis

Wider tests were conducted on 36 students. The average initial ability of students was 71.44 and the average final ability was 84.67. The highest value of the wider pre-test test results was 96; while the lowest value was 50. The highest value in the wider post-test test was 100; while the lowest value was 53.0. Increasing the average score (gain) was 0.41 or in medium criteria.

**Tabel 4.** Result of Wider Pre-test and Post-test

Criteria	n	Max	Min	Mean	Gain
Pre-test	36	96	50	71.44	0.41
Post-test	36	100	53	84.67	Kriteria sedang

Source: Research Data Analysis

**Practicality Test Results of Learning Management of E-learning Model for Class X Students**

Practicality test results were seen from student responses conducted at Demak 1 Senior High School. Student responses were carried out by 36 students of class X. In general, the practicality test results of the learning management of e-learning model got a percentage of 91.17% which was included in very practical criteria. In addition, practicality was obtained from the effectiveness of e-learning implemented.

**Discussion**

The development of information and communication technology is a new tren that allows learning to be done online. Online learning is able to transform teacher-centered learning into student-centered learning (Beverly, 2014).

This learning management model of e-learning is adapted to the situation and conditions in Demak 1 Public High School so that it can be implemented easily. The success of this management model implementation lies in the implementation and collaboration of various parties related to learning.

The key to the success of the learning management model of e-learning lies in the planning stage of e-learning learning that is done by the teacher by involving parties directly related to e-learning learning. The function of learning planning is as a guideline in the process of compiling subject matter, the use of learning approaches or methods, the use of media, learning resources, and the preparation of assessment tools in a time allocation that will be carried out at a certain time to achieve set goals (Majid, 2015:17). Through planning learning,

preparation of e-learning learning in lesson plans is prepared with considerations according to the situation and conditions in the school.

Previous research related to the development of learning management of e-learning management was focused more on planning the learning done, because researchers assume that planning is the key to success in the learning process of e-learning. This is in accordance with the statement of (Maria, 2017:68) that the key to the success of learning management of e-learning lies in the planning of e-learning teaching that is done by the teacher.

Other studies also emphasize planning and careful learning management (Csete and Evans, 2013; Rahayu, 2015). The management functions used are planning, organizing, evaluating and reporting. The management functions studied in the study involved supporting professionals. Almost the same, but it has not fully explained the implementation of the learning carried out. The implementation of learning can be seen by the habituation and routine that is carried out every day (Listyani, 2012).

The implementation of e-learning includes the delivery and interaction of teachers with students in order to convey learning material to students to achieve goals (*Badan Penjaminan Mutu Akademik, 2007*). Submission of e-learning includes the diversity of electronic presentations used in e-learning, the suitability between the way the material is delivered and the mapping program specified, the material is easy to understand, interesting, and error-free, as well as face-to-face facilities, and monitoring student access. While learning interaction of e-learning includes available design interactions between students and students, students and teachers, as well as students with subject matter, and interactions occur both directly and indirectly. However, the learning management of e-learning model that has been implemented in the Public Senior High School 1 Demak is not yet available in face-to-face facilities and there is no monitoring of student access. While the learning interactions that take place only occur

in the classroom, while indirect interactions are only carried out through whatsapp group.

The last management function is evaluation. (Triwiyanto, 2015:183) emphasizes that the evaluation function is carried out to assess the efficiency, effectiveness, benefits, impact and sustainability of a learning program or activity. The results of the evaluation form the basis for formulating alternative solutions that can improve weaknesses and increase future success (Hidayat, 2010:317).

Evaluation of the implementation of e-learning includes evaluation of components, including effectiveness, cost efficiency, students and stakeholders, and also sustainability (*Badan Penjaminan Mutu Akademik, 2007*). Learning evaluation of e-learning that has been done and developed in Public Senior High School 1 includes evaluation of teachers through e-learning instruments, evaluation of online quiz for students and activeness in the learning process, and evaluation of the learning implementation of e-learning running smoothly. So that with the learning evaluation of e-learning weaknesses can be identified and alternative solutions formulated to solve these weaknesses. In theory, this learning management of e-learning model has got a strong foundation that requires a clear and structured management picture to achieve learning goals of e-learning.

This learning management of e-learning model is complete to be developed with the aim of maximizing management effectiveness. If viewed from management functions, this model presents a complete range starting from planning. This is the novelty of this learning management model. Problems found based on past learning evaluations can be used as a basis for planning future learning.

## CONCLUSION

Based on the results of research and discussion, it can be concluded that the learning of management of e-learning in Public Senior High School 1 Demak is very feasible because it includes the following three aspects: (1) The results of development validation of the learning

management of e-learning are categorized as very feasible with a percentage of 94.35%; (2) The results of practicality in developing learning management of e-learning are categorized as very practical with a percentage of 91.17%; (3) The results of the effectiveness of the development of e-learning management obtain an average value of 84.67, a gain value of 0.41 (moderate), and classical graduation of more than 80%, so that it can be declared effective because it meets the criteria.

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