

E-Learning Development Based on Schoology for Subject of Information and Communication Technology Grade VII using Flipped-Learning Approach

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Abstract

Information technology began to be used in solving problems that exist in the education field, especially in the learning process. The existence of information technology is increasingly developing the conventional learning process that has various weaknesses. One of the information technology products used in the learning process is Electronic Learning: E-Learning. This study aims to develop E-Learning facilities at Pelita Harapan Bangsa Tegal Middle School. The use of the Flipped Learning approach, or it can also be called an inverted class now became popular when E-Learning is applied in teaching development and learning activities. This research includes the type of development research concerning the opinion of Borg and Gall. Products developed based on initial research is Schoology learning management system (LMS) using the Flipped learning approach for class VII students Mail Merge eye containing materials on ICT subjects. The subjects in this trial were the subject matter of research development experts items, namely materials experts, learning media experts, and teachers, as well as subjects of class VII of Pelita Harapan Bangsa in Tegal City Middle School as potential users of the product. The technique of the data collection was done by questionnaire. This questionnaire was used to assess products that were developed in terms of product feasibility. Data were descriptively analyzed quantitatively and qualitatively. Based on the tests that had been carried out, it can be assumed that the Schoology-assisted Flipped Learning approach is Appropriate to use and can increase student activity and interest in learning. The use of flipped learning helped by Schoology can be beneficial to the development of education as a whole such as long-distance learning and can be more efficient and effective in terms of collection and delivery of tasks.

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INTRODUCTION

The influence of information technology development, which grew rapidly in this era of globalization cannot be avoided towards the education field. Global demand world requires education to always and constantly adjust to the technology development effort to enhance the quality of education standard, particularly the adjustment of its use for education, especially in the learning process. Information technology is the development of information systems by combining computer technology with telecommunications (Baharuddin, and Wahyuni, 2008). Information technology is developing very rapidly that is to be able to give effect to other areas of life. Information technology can integrate itself with other fields into a solution to problems faced in other areas. Information technology offers various facilities in implementing a system, either as primary tools, as well as supporting tools. The existence of this information technology can turn things considered difficult into easier things to do or even to be developed. The impact of using information technology among others is increasing the effectiveness and efficiency of a system or process so that the system or the process can be more productive in generating output. It also wants to encourage and affect the information technology to able to get into various fields of human life and gives a positive influence in a system or process that is carried out.

One area influenced by information technology is the field of education. Information technology began to be used in solving the problems that exist in the education field, including in the learning process. Conventional learning process which has many weaknesses is soon gradually repaired and developed through information technology. One of the information technology products used in the study is the Electronic Learning or E-Learning. E-Learning gives new hope as an alternative solution to most issues of education in Indonesia such as the lack of teaching materials, low competence of educators, tedious learning product for students, and a variety of other problems inherent in the

conventional learning process. Selection of the development of E-Learning that using LMS refers to some of the advantages of LMS according to research conducted by the Prog, Prasojo, and Riyanto (2011), which explains that the E-Learning based LMS has several advantages, namely: (1) students can learn independently; (2) the cost will be less; (3) can be accessed anywhere and anytime as long as there is an internet connection; (4) instilling a sense of responsibility for the learners.

E-learning an option that can be used in carrying out the learning because it has advantages that can facilitate students and teachers in the teaching and learning process. However, until now E-learning is still rarely used for education at the level of Junior High Schools. The rarity of the use of E-learning for education in junior high is caused by many teachers and school administrators who do not understand E-learning. Also, many teachers are still less capable of using computers and internet facilities. Primarily senior teachers are mostly used to using conventional teaching methods.

Basic education, especially secondary school level, the use of Internet network covering material online searches, provide homework using the Internet network or submitting additional materials online is still lacking. Many schools have not been able to maximize the use of government facilities that provide such as Internet network

Mawar (2012) argues that the "E-Learning is an innovation that has contributed greatly to the change in the learning process, where the learning process is no longer just listen to the description of the material from the teacher, but the students also perform other activities such as observing, doing, demonstrate and so on other. "this means that the E-learning into one device that can deliver ease in the learning process is carried out in an educational institution. An increasing number of learning resources will be able to make students more motivated to be active in a learning process, because apart from many sources, E-Learning can be visualized into various forms of media, making it more appealing. According to Supriani

(2016), one maintains student motivation to be maintained and increased, the need for learning that is not monotonous, so E-learning can be visualized into various forms of media, making it more attractive will help students to improve students' motivation by using E-learning and flipped-learning. Also, because much of the source material, E-Learning can accommodate the students to be active in providing another source of teaching material, so they got a lot of knowledge by their efforts (Santyasa, 2009).

So based on the preliminary studies conducted, such as curriculum analysis, analysis of syllabi, task analysis and the analysis of learners, it is necessary to develop the product E-learning can help students, because by using media such as e-learning students can perform activities to observe, perform and demonstrate with more focus (Sudjana, and Riva, 2011).

METHODS

This study uses the product research and development, or R and D (research and development). Use of product development research used for this study is the research that developed a specific product and to test the effectiveness remedy an end (Borg, and Gall, 1989), In development research, Borg, and Gall (1989) has ten-step research. The tenth step is grouped into three main stages. Namely, preliminary study, stage of development and testing phase, but the dissemination phase is not implemented. This development is done on the Product Learning Management System, or LMS that use Schoology and a learning tool for the subjects of Information and Communication Technology in the form of learning materials and evaluation tools are uploaded in Schoology. The products are developed based on initial research is a Learning Management System (LSM) Schoology using Flipped learning approach for students of classes VII which contains material Mail Merge eye on the subjects of ICT. Subject trials in this development research is a subject matter expert, the master material,

Data were collected by questionnaire. The questionnaire was used to assess the products

developed in terms of the feasibility of the product. Data were analyzed by descriptive quantitative and qualitative.

RESULTS AND DISCUSSION

Development results

The research was carried out in Junior High Schools Pelita Harapan Bangsa Tegal (February 10, 2016) with the subject of testing 19 students. This study was conducted to develop e-learning products-based Schoology at school and to see the feasibility of the product in school. Results of this research are divided into two parts, the second part of the cover (1) products E-learning learning based Schoology in PHB Tegal, (2) the effectiveness of learning

Based on the analysis of the curriculum, where SBC is applied in class VII Pelita Harapan Bangsa Tegal, allowing it to draw up media that can present an attractive learning material for students. Schools can do more to develop instructional media by the potential and abilities of students. Evaluation, because Junior High Schools Pelita Harapan Bangsa Tegal using SBC still cognitive assessment, using the test.

At this stage of development of the LMS that use Schoology, it is necessary to do the flow mapping in the use of Schoology. The first step is to register the Junior High School Pelita Harapan Bangsa Tegal in Schoology page. Furthermore, after gaining access to schools and teachers, then carried on student enrollment, so students will have special access to be able to enroll in classes. After students have access, students log in on pages Schoology as a student. Then, the students will go to the home page where there will be several options such as teaching materials, tasks, chat room, discussion, and the results of student assessment.

Students can learn the material at home after the teacher provides access to any material. Students work on assignments at the school as the implementation of the flipped learning-learning process.

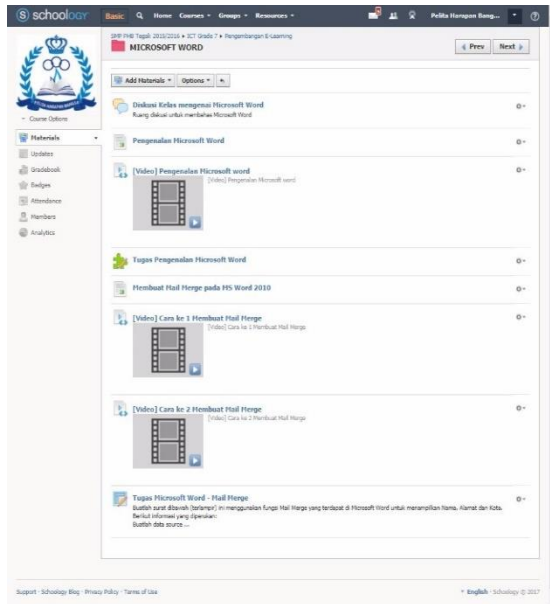


Figure 1. Homepage Students

Table 1. Product Comparison between a Draft Product with Final Product

Product components	Initial product	Final product
Learning plan	Learning plan has not noticed the learning phase synchronization with the stage of learning to use the Schoology are in the mix with the flipped learning approach.	Learning plan focuses on the stages of the learning process that should be experienced by students and teachers unravel the lesson plan.
Instructions for use schoology and flipped approach learning process	There are no instructions on using Schoology in an early draft of products and processes flipped learning approach.	Instructions for use include a user from beginning to the end of the lesson as well as an explanation of functions and how to use all the functions within Schoology and flipped approaches to the learning process. The guide is divided into two parts, namely a guide for teachers and students. Free equipped print screen of each display Schoology according to the steps that must be done by students and teachers.
Views schoology	Schoology display using standard views that are provided in the initial manufacture of E-learning using Schoology.	Schoology views developed based on standard features that have been provided Schoology, made several modifications to improve the look to create an impression on the students.
Learning materials	learning materials just a collection of materials related to the subject and are prepared is not based on the stages of learning to use Schoology.	Learning material presented in the form of a written description that contains all the material that is capable of supporting the achievement of standards and basic competencies stipulated that presented in the order of activity that must be done by the lesson plan that had been developed.
Display of learning materials	Learning material presented in the form of a written description of the material, informal writing language to a standard presentation technique of writing the document, regardless of color as an impression so that students feel bored when studying at home as implantation flipped learning.	It is learning the material presented in narrative form, incorporating images that facilitate students' understanding of the subject. Also, use a different color for the part of the material is deemed to be fundamental and it is also important to give the impression on the students.
Tutorial video	Instructional videos related to the subject but the contents were not adjusted more advance with the description of learning materials uploaded.	Videos uploaded learning is learning videos that have been adapted to the learning materials. Not just about the appropriateness of the content, but the stages in the study material well adapted to the order in which the instructional video.
Video ice breaking	No video ice breaking on the preliminary draft of the product.	It is used to simplify the process of understanding. Video ice-breaking have to be added in Schoology because it found many students who reported experiencing saturation in using Schoology. Video ice breaking selected by the subject that has more value.
Features discussion	Features discussion is not designed for the discussion of specific sub material, and there is no clear agenda when this feature is used in conjunction by students and	Features discussion initiated by the teacher by asking questions that must be addressed by the students.

Feasibility results

The results of this study are using calculation Linkert for overall scale of the results of the data collection experts and expert media and material obtained from the same category which is 77.30% and 79.05% with the high category which means Schoology using flipped learning approach should be developed.

To obtain the results of the feasibility of the product should be revised set of draft products up to the final product with the following details.

After an update, the development of e-learning using Schoology and flipped learning approach may be feasible to use.

Product components	Initial product	Final product
	teachers that are less effective when used at home while implementing the flipped learning.	Features of this discussion are used not only to determine the ability of the students but also performed as part of the monitoring process of learning and communication replaces in the learning process that usually occurs in the classroom so that learning flipped approach can also work well.
Private chat features	The private chat feature is enabled to approach students who are not active on the discussion feature.	The private chat feature is used to monitor the students' learning process. It is used by teachers to check the students' learning process individually. This feature has become the solution of problems where some students are reluctant to give their opinions in front of lots of people so that the teacher evaluation can be done properly and completely describe the ability of students to the achievement of SK and KD.
Feature comments	The comments feature is not designed to be used with scheduled and not used to determine the students' learning process, used only in case if there are questions from students to teachers.	The comments feature is used in establishing communication with the student's teacher-related material parts uploaded within Schoology. Through this feature, students can question things or instructions that they do not understand by what has been written by teachers in any materials uploaded.

N-gain test results

To know the improvement of the research, this research use N-Gain test, to look at class groups where there is an increase higher. These data compare the increase in value that occurs at each grade group so that we can conclude the group of students who received higher improvement between the experimental class and control class.

Table 2. Test N-gain

Class	Gain
Experiment	0.57
Control	0.25

Table 2 shows that the experimental class got a gain of 0.57 while the gain value obtained control class 0.25. Seen that Gain Experiments > Gain Control, so it can be concluded that the experimental group experienced a higher increase than the control class so that the treatment given to improve the students better.

Related to effectiveness, Sicat (2015) analyze that media Schoology have high effectiveness in teaching Business Writing, so he suggested that teachers use this medium as an auxiliary in the course of learning. The kind of material that can be used is unlimited. When in the study, teachers choose the type of media according to their needs. When listening to a conversation or conversations quickness just the audio type selected, and when learning requires

both images and sound the audio-visual choice. So, there is no shortage of words.

Teacher creativity in concocting a key to learning materials. And will certainly have an impact on the level of pleasure and satisfaction of students in the course. Learning through media Schoology not affixed should be in class. Once a teacher happens to be a task campus learning process is still ongoing. Teachers prepare the material first and then upload the assignment feature.

Teaching materials, Workmanship commands, questions, and the deadline for collection or submit in setting and included in the assignment features. Pupil in a time not so long will upload or submit the results of its work and teachers will soon be able to see all of his students work remotely by other terms of long-distance learning.

Excess next Schoology media is that we can download and print directly on attendance and assignments that have been sent so that we also have offline files. It can be used to anticipate the problems that may be appear later. Schoology media of course also has its drawbacks. Deficiencies that arise or are found in the study can be explained as follows. At the beginning of the learning is not visible shortcomings. The learning process can proceed smoothly. Teachers can run with a coherent learning plan. Audio plays and YouTube that have been able

presented. Students can hear and see the video without constraints.

At the development stage of learning undertaken in this study be revised as many as 3 phase, phase of First Instance is the revision of the results of tests on the test one-on-one and then stages revised initial test results and final results of field trials. Each stage there are revised according to the findings found and needs to be improved by the existing theory.

Student interests are fundamental to make students understand the material given, Munadi (2013) stated in his research that the students' interest in learning and motivation has a big hand in improving student achievement, more specifically states that the influence of motivation and interest in learning has the effect of 55.8%.

Romiszowski (1974) states that "the use of computers in education is increasing, not only as an aid to the administration of education but as a presentation medium. Also, computers are already being used to present many programs of a simpler construction "means that the use of computers in learning increases, not only as a tool for implementing the learning but also as a media presentation. Based on the explanation of experts can be concluded that computer-based learning media is a learning tool that can be used individually or together. Learning is meant learning to use a computer. The use of computers in learning activities aim to improve cognitive ability, psychomotor, and affective.

Hannafin (Uno, 2010) states computer-based media can improve the effectiveness of learning, in this case, centered on the audio-visual media that will be used to assist in learning. Video learning is used to increase student interest thus indirectly can improve the students' future.

Interest in learning can be enhanced by bringing additional media that attract the attention of students, research Sitohang, and Sitepu (2014) media such as video, written in learning Think Pair Share and may improve the learning ability of students who are not directly affected by an increase in motivation and interest in students' learning. Video increase student interest visually, the addition of video to attract the attention of students in learning.

Video added because on the class that the learning that takes less attracted the attention of students in deepening material provided to learn to understand the material provided at home. The video gave according to the material so that the younger students understand the steps of making a mail merge in the subjects of ICT.

In the second test evaluation results in small classes discovered another problem that the media maid namely LKS (student worksheet) has a language is less flexible and less rigid or ineffective in its delivery. Language barriers that occur have a considerable influence on the understanding of the students in understanding the material.

Language influential in shaping meaning. This approach is based on the concept of social constructivism learning proposed by Vygotsky and Bruner. Vygotsky argues that children develop thinking skills through the mediation of cultural and interpersonal communication or interpersonal communication is done with parents and peers. In a sense, the development of mental concepts and procedures used to rely on the knowledge of the social interaction and the exchange of verbal symbols.

The language used must be coinciding with the ability and vocabulary that is understood by the students according to the development stage; this adjustment impact on increasing comprehension obtained by students in implementing learning. According to Rubin (Somadayo, 2011) says: "Reading comprehension is a complex intellectual process which includes two main capabilities, namely the mastery of the meaning of words and the ability to think about the concept of verbal. Sitohang, and Sitepu (2014) also states "that reading comprehension is the kind of reading that aims to understand the standards or norms of the literary (literal standard), the reviewer critical (critical review), drama writing (printed drama) as well as patterns of fiction (patterns of fiction)".

Final revision conducted by researchers involves minor repairs which include improvements and additions video display, the display color improvement will lead to student interest and create points of interest in the media

presented to the students. Dzulkipli, and Mustafar (2013) states with iridescence on the grain will increase the memory capacity of students to memorize the material and teaching.

On learning flipped learning, students are allowed to understand the material given independently at home, and students get either alone or in a group assignment in school, as well as an evaluation. Doing understanding of the material at home has a relation with learning styles used by students and effective when used by students to understand the material given by the teacher to understand.

Winkel (2004) defines learning as a mental activity/psychic, which takes place in active interaction with the environment, can produce several changes in the knowledge, understanding, skills and value attitudes. So, it can be concluded that learning is a process wherein it occurs an interaction between a person and the environment that result in changes in its behavior that will provide a good experience is the knowledge, attitudes, and skills. Learning styles in question are the modalities or how the students with the easiest way to absorb information and the dominance of the brain or the way students organize and process information.

DePorter was quoted Suparman (2010) divides the learning style into 3 learning styles affect the ability of the grasp of the students in understanding the material, the student who has particularly a tendency to learn visually will use to view the video or image so that it gets more knowledge well, while for those who have to learn styles then he will understand by reading and speaking what he read so that he will understand what he learned, and that has a kinesthetic style will be learning by doing other things like go for a walk. Bire, A. L., Geradus, and Bire, J. (2014) states that the right learning style, each student will get a better understanding rather than being forced to learn to use the learning style that is less to her liking.

Through group discussions, students in cooperation between members of the group to express opinions, express, and answer questions in the worksheet. Then each group presents the results of discussions in class through

presentations, so each member of the group responsible for the group's success. After the presentation, researchers encourage learners to find an alternative solution for the problem; the learner is encouraged to find a way of solving the problem of the easiest and simple.

In the conventional learning, students get the material in school and get a job to do at home so that students understand the material according to what is conveyed by teachers and students less exploration about what they should understand. So that what is earned by students limited time available in schools to understand the material that is in school, it is a limitation of students in understanding more about the material.

Learning flipped learning has advantages that students can tailor learning styles according to what ordinary students do to get a better value. It is shown that learning with learning flipped get better results and is said to be more effective than conventional learning. The task given school creates the conditions students to do the work at school with the help of teachers, because of the tendency of learning conventional students who did tasks at home occasionally ask for help from others to work on a job that deviated from the original purpose of the tasks that used to carry out reinforcement of any material which has been given to teachers at the school shifted to a tendency to get a better value with the help of others.

Changes in learning goal orientation will change the way of thinking of students. Martin (2009) explains that memory was divided into STM (short-term memory) and LTM (long-term memory), to get the LTM memory or long-term memory needs to be done there STM looping which has been obtained. The purpose of the assignment is for students to learn more and understand what is given in schools, so that the STM has been obtained at the school can be converted into the LTM that will be useful for students in the future, but the shift of students sometimes ask someone else to do or imitate tasks owned by a friend so that repetition obtained unfavorable STM, and LTM affect students who are less complete.

Learning flipped learning, placing the task of school so that what is done by the students can be controlled by the teacher and the teacher can give help in absorbing the material. Fandakova, and Bunge (2016) states that flipped learning showed greater gains in helping students to form LTM in students. Get STM and LTM sequence is reversed, so that students get the LTM her at school and not at home, students gather insights in the home is simple and short. Teachers help students to repeat the STM that he had learned at home, if students do not learn the material that is in the house then the student cannot do what is given by the teacher and will be detected by the teacher and the teacher can perform an act further against the student.

Features that are owned by Schoology is as follows: (1) Courses, with a menu of courses we can create a new class, join a class that previously existed or browsing through a list of predefined classes, (2) Groups, functions like message wall where group members can also post wall messages. When joining a group, we can find part of the desired group, (3) Resources, to maintain, track documents, files, and images uploaded into the classroom, (4) Recent Activity, to display the latest news contained in Schoology account. Users can post an update in your account and choose which page will be posted, (5) Calendar, to display a calendar page that was posted earlier in the Recent Activity, (6) Messages, to send messages or view the messages between users Schoology, (7) People, to be able to see a list of users in a class.

With a variety of facilities owned by Schoology teachers can also create or provide course materials, quizzes, assignments, and assessments directly to students. Teachers are also given absolute authority in the process and set the course in the classroom activities Schoology. Learners cannot be arbitrarily themselves doing activities outside learning activities for teachers to remove students from the classroom or temporarily disable it. By setting a good class and the provision of learning materials are weighed and attract the learners will be excited and be responsible for any learning in Schoology. So, learning e-Learning through the

media Schoology can be one effective learning for students. Based on a variety of advantages, the purpose of this development, thus, create the product of the learning programs of e-Learning with Schoology has been achieved and can be used as an enrichment of learning very attractive, easy to use, useful, and effective for learning concept of rigid body dynamics and train students to learn independently. Schoology media generally have a plus in the learning process, especially courses Academic Listening, and did not rule out other subjects. Advantages such as accessible, it's many, can be for a variety of delivery, can be long-distance learning, effective and efficient, submit task could be from anywhere, etc. E-learning makes learning interesting Schoology based and suitable for students centered learning. Thus, create a product in the form of e-Learning instructional program with Schoology has been achieved and can be used as a learning enrichment very attractive, easy to use, useful, and effective for learning the concept of rigid body dynamics and train students to learn independently. Schoology media generally have a plus in the learning process, especially courses Academic Listening, and did not rule out other subjects. Advantages such as accessible, it's many, can be for a variety of delivery, can be long-distance learning, effective and efficient, submit task could be from anywhere, etc. E-learning makes learning interesting Schoology based and suitable for students centered learning. Thus, create a product in the form of e-Learning instructional program with Schoology has been achieved and can be used as a learning enrichment very attractive, easy to use, useful, and effective for learning the concept of rigid body dynamics and train students to learn independently. Schoology media generally have a plus in the learning process, especially courses Academic Listening, and did not rule out other subjects. Advantages such as accessible, it's many, can be for a variety of delivery, can be long-distance learning, effective and efficient, submit task could be from anywhere, etc. E-learning makes learning interesting Schoology based and suitable for students centered learning.

This is similar to that performed by Sumianingrum, Wibawanto, and Haryono. (2017) states that e-learning can increase students' cognitive aspects in implementing the learning process. This increase was influenced by the students' interest in learning development for using e-learning as a tool in teaching as revealed by Noor, Hardyanto, and Wibawanto (2017).

Of course, the media also has the disadvantage of depending on the internet connection; no internet then learning cannot walk.

CONCLUSION

Based on testing that has been done can be concluded, Development of e-learning-assisted Schoology that uses flipped-learning approach has been developed by guidance and input from subject matter experts, media and students. Flipped Learning aided learning Schoology fit for use after through the stages of revamping and updating. Flipped Learning aided learning Schoology also able to improve student learning outcomes. Not only are students who like technology, but almost all students increased learning outcomes for using Schoology. It can be seen from a comparison of the lowest value.

REFERENCES

- Baharuddin, & Wahyuni, E. N. (2008). *Teori belajar dan pembelajaran*. Jogjakarta: AR-Ruzz Media.
- Bire, A. L., Geradus, U., & Bire, J. (2014). Pengaruh gaya belajar visual, auditorial, dan kinestetik terhadap prestasi belajar siswa. *Jurnal Kependidikan: Penelitian Inovasi Pembelajaran*, 44(2). Retrieved from <https://journal.uny.ac.id/index.php/jk/article/view/5307>
- Borg, W. R., & Gall, M. G. (1989). *Educational research: an introduction*. Ney York: Longman.
- Dzul kifli, M. A. & Mustafar, M. F. (2013). The influence of colour on memory performance: a review. *Malaysian Journal of Medical Sciences*, 20(2), 3-9. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3743993>
- Fandakova, Y., & Bunge, S. A. (2016). What connections can we draw between research on long-term memory and student learning? *Mind Brain and Education*, 10(3), 135-141. Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1111/mbe.12123>
- Martin, R. L. (2009). *The design of business: why design thinking is the next competitive advantage*. Massachusetts: Harvard Business School Publishing.
- Mawar, R. (2012). Efektivitas penggunaan media pembelajaran e-learning berbasis web pada pelajaran teknologi informasi dan komunikasi terhadap hasil belajar siswa kelas x sma negeri 1 kalasan. *Undergraduate Thesis*. Yogyakarta: Universitas Negeri Yogyakarta. Retrieved from <http://eprints.uny.ac.id/6803>
- Munadi, Y. (2013). *Media pembelajaran: sebuah pendekatan baru*. Jakarta: Gaung Persada Press.
- Noor, M. E., Hardyanto, W., & Wibawanto, H. (2017). Penggunaan e-learning dalam pembelajaran berbasis proyek di sma negeri 1 jepara. *Innovative Journal of Curriculum and Educational Technology*, 6(1), 17-26. Retrieved from <https://journal.unnes.ac.id/sju/index.php/ujet/article/view/15572>
- Prasojo, L. D., & Riyanto. (2011). *Teknologi informasi pendidikan*. Yogyakarta: Gava Media.
- Romiszowski, A. J. (1974). *The selection and use of instructional media*. University of Wisconsin, Madison: Wiley.
- Santyasa, I. W. (2009). *Metode penelitian pengembangan dan teori pengembangan modul. Paper*. Pelatihan bagi para Guru TK, SD, SMP, SMA, dan SMK di Kecamatan Nusa Penida Kabupaten Klungkung, January 12-14, 2009. <http://santyasa.blogspot.com/2009/01/metode-penelitian-pengembangan-dan.html#axzz5moiumx8e>
- Sicat, A. S. (2015). Enhancing college students' proficiency in business writing via schoology. *International Journal of Education and Research*, 3(1), 159-178. Retrieved from <https://ijern.com/journal/2015/January-2015/14.pdf>
- Sitohang, R., & Sitepu, M. S. U. (2014). Meningkatkan motivasi belajar siswa dengan menggunakan metode think pair share pada pembelajaran ips di kelas v sdn 104204 sambirejo timur. *Jurnal Handayani*, 2(1), 61-68. Retrieved from <https://jurnal.unimed.ac.id/2012/index.php/handayani/article/view/1741>
- Somadayo, S. (2011). *Strategi dan teknik pembelajaran membaca*. Yogyakarta: Graha Ilmu.

- Sudjana, N. & Rivai, A. (2005). *Media pengajaran*. Bandung: Sinar Baru Algesindo.
- Sumianingrum, N. E., Wibawanto, H., & Haryono. (2017). Efektivitas metode discovery learning berbantuan e-learning di sma negeri 1 jepara. *Innovative Journal of Curriculum and Educational Technology*, 6(1), 27-35. Retrieved from <https://journal.unnes.ac.id/sju/index.php/ujet/article/view/15573>
- Suparman. (2010). *Mengajar yang menyenangkan siswa*. Yogyakarta: Pinus Book Publisher.
- Supriani, Y. (2016). Menumbuhkan kemandirian belajar matematika siswa berbantuan quipper school. *Jurnal Ilmiah Pendidikan Matematika*, 1(2). Retrieved from <http://journal.upgris.ac.id/index.php/JIPMat/article/view/1248>
- Uno, H. (2010). *Perencanaan pembelajaran*. Jakarta: Bumi Aksara.