Original Research Paper

Development of Web-Based Electronic Learning System (WELS) in Improving the Effectiveness of the Study at Vocational High School "Dharma Nusantara"

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Abstract: The background of this research question comes from teachers of the vocational high school in Indonesia who are difficulties and not sure apply WEB-Based learning to students of Computer and Network engineering program. To answer that question, researchers are developing a learning model based on Electronic Learning Systems (WELS) web-based. The development process is done through Research and Development Approach. From this WELS model, then used in learning on computer technique and network technique and the result is quite effective. Then tested the level of relationship between WELS with the level of effectiveness obtained, the results showed a positive and significant relationship on vocational school students in Indonesia, especially in vocational high school "Dharma Nusantara". In order to produce better future research, we recommend that further research is undertaken by examining other factors that may contribute to and influence the improvement of WELS for all vocational high schools in Indonesia.

Keywords: e-Learning, Learning Website, WELS

Introduction

Technological developments have brought such great impact on the quality of learning and the quality of education, including the process of teaching and learning activities in the classroom, is no longer centered against the teacher. Students can study in accordance with what he wants, according to what he is thinking, so it inspires students in creative thinking and innovative. As is the case when the students learned one of the subjects, when in the process of learning, teachers, as well as students, don't find the right solution in practice his studies, computer technology can be one of the best solutions as a medium of instruction.

Vocational High School "Dharma Nusantara" is a school that has a Program of Information and Communication Technology Skills. Where teachers and students are required to follow the development of technology and information. One of his competence,

namely computer technique and network with the overall number of students were 414 students. Teachers and students in Vocational High School "Dharma Nusantara" currently requires the presence of the application of new learning methods that are effective and fun in accordance with the development of information and communication technologies, one of which is the existence of a medium of instruction. Learning media can be created and used in accordance with needs in the process of implementation of the study at Vocational High School "Dharma Nusantara", interactive learning media is media that is needed in the implementation of learning, either directly in the class or indirect learning or distance learning are often called or also called online learning (e-learning). Distance education has become a popular term to describe learned through telecommunications. As described by Keegan (1986) on the books of Instructional Technology and Media for Learning that distance education has a definition and characteristics of

the physical separation of the learner from the teacher, the managed instruction program, communication technology and two-way communication. Smaldino *et al*. (2012) in Instructional Technology and Media for Learning found that "online learning (also known as learning electronic learning or E-Learning) is the result of teaching being delivered electronically using a computer-based media".

Learning activities in a way that makes it easy for users in online. Because the students or teachers no longer have difficulty in terms of distance or time when the learning activity directly in the class or can be said face to face directly cannot be done. Darmawan (2014a) in his book entitled the development of E-Learning Design theory and argued that: "The system of electronic learning or e-learning is the new way of teaching and learning. E-learning is a basic and logical consequence of the development of information and communication technology".

E-learning applied in Vocational High School "Dharma Nusantara" motivated by difficulties of learning material, assignments or quiz when the teacher was unable to attend to implement learning directly. Other problems are also often experienced by teachers when they have tasks outside school, but the task of teaching is required to be implemented. From these conditions then e-learning based learning is needed as a solution. Not less important is when students are carrying out the activities of the work practices of the industry, where students carry out work directly in the learning industry for a little over two months. Teaching and learning activities are no longer carried out effectively in the classroom. Meanwhile, the activities of the midterm and final exams of the semester must remain they follow. So the students lack get lessons at school. In General, teachers have yet to understand the technology of learning online learning system, on the other hand, the current students are enjoying activities in the form of online communication, ranging from socializing using social media online, search learning materials online, to the activities of entertainment such as game playing. This phenomenon gave rise to the impression students more prepared to face the development of information and communication technology than the teacher. Therefore, teachers need to compensate by following the development of information and communication technologies especially in the field of online learning, so that students can learn in a way that they enjoy doing. In addition, along with the development of technology, students and teachers will also need to know online learning that demands the ability to be able to do a variety of activities-based internet technologies. Whereby indirectly, e-learning can improve the quality of learning in a fun learning method in accordance with their interest will be matters relating to the development of technologies that are currently available.

From the observations, while conducted by a research team at Vocational High School "Dharma Nusantara", researchers found the problem about the delay of learning activities directly in class due to a variety of factors over which requires the existence of a solution to overcome these problems. Thus this research is focused on questions about (1) How does Electronic Learning System development in improving the effectiveness of Web-based study at Vocational High School "Dharma Nusantara"?; (2) How is the effectiveness of the application of the Web-based Learning Activities on computer network engineering student in Vocational High School "Dharma Nusantara"?; (3) How is the relationship between the application of Web-based Electronic Learning Systems that have been developed with the effectiveness of student learning at Vocational High School "Dharma Nusantara"?

Literature Review

Learning system

Learning in effective teaching and learning activities, in fact, is the learning that is implemented systematically. Shrode and Voich (1974) in Zakapedia (2015) defines that "the System is a set of interrelated parts, working independently and jointly, in pursuit of common objectives of the whole, within a complex environment". Learning activities in it there is the activity of teaching educators and student learning activities, teaching activities among teachers and learning activities of students this is what is often called the learning interaction. Learning depends very much on the ability of teachers in implementing or pack the learning process. The study was carried out in a good and right will provide the dominant contribution in order for students, instead of learning that is implemented in a way that is not good will lead to potential student hard developed or empowered.

Hamalik in Sanjaya (2013) suggested that the "learning system is an organized combination that includes elements of human, material, facilities, equipment and procedures that interact to accomplish a goal". The elements in the system of learning should be integrated with each other so that the learning objectives to be achieved can be realized. As well as a system of online learning element of humane is items must exist in the learning system, which consists of the elements of the system developers, teachers and students as a user. Element material consisting of materials and supporting equipment in systems such as online learning, the computer as a medium, the user interface as the media liaison between students and teachers in learning online, access to the internet as a transmission medium in the process of implementation of distance learning.

Electronic

According to large Indonesian Language Dictionary (KBBI) online, an electronic device that is "based on the principles of electronics; things or objects using tools created or worked on the basis of Electronics". An example of an electronic device is the driver electronics (electronic control), electronic equipment, electronic devices and musical instruments that use electrical tools. Based on the above understanding, electronic learning in context can be understood as a medium that was created with the intention to accommodate the learning needs was formed with the basic principles of electronics such as televisions, radios, computers and more.

Website

The website or often known as the current website often used by the user in the exchange of information that consists of a few pages use technologies that are connected to the internet. Yuhefizar (2016) in the Carapedia page.com, that: the Web is a method for displaying information on the internet, either in the form of text, images, sound or interactive videos and merit to linking (link) a document with other documents (hypertext) that can be accessed through a browser. How to make use of information technology for learning activities according to Warsita (2008), as follows: (1) Web Course, namely the use of information technology for the purposes of education, where all learning materials, discussions, consultation, training, assignments and exams are delivered entirely over the internet. Students and teachers are entirely separate and not needed the presence of face-to-face, (2) Web-Centric Course, where most materials, discussions, consultation, assignments and exercises are delivered via the internet; While the exam and some consultations, discussions and exercises done in face-to-face and (3) Web-Enhanced Course, namely the utilization of the internet for education, to support the improvement of the quality of face-to-face learning activities in the classroom. Based on the above, some sense of the Web according to researchers are information and communication technology-based wherein it has the features of multimedia (text, images, sound and video) in the form of information that can be accessed interactively through internet network.

Training Materials

Training Materials stands for education and training materials. Unlike adaptive and normative subjects, subjects in high school vocational training or productive subject there is often referred to by the term vocational subjects. It's called a training subject because it contains knowledge, theory and practice. More than that, on the subject of productive training exercise activity there is in accordance with the competency skills to the needs of the industrial world in the future when the students have finished school and work in the industrial environment.

Moodle in the Development of Learning Management System (LMS)

Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment (Xing, 2013). Darmawan and Bariyah (2014), "Moodle is an open source application program in developing e-learning systems". Using Moodle in building web-based learning system, can create an effective teaching and learning activities without limits of space and time. This means the learning system can be done electronically (e-learning) or also called remote learning system (distance learning). Moodle can be used freely as open source products (open source) under the GNU license. Moodle can be installed on any computer and operating system that can run PHP and SQL (Alshraideh *et al*., 2013) database support. The features are presented in a Learning Management System is quite comprehensive, (Lourdes *et al*., 2013), including Assignment Submission, discussion forums, download archives, rankings, chat, online calendar, news, online quiz, wikis and Video Conference, (McKnight and McKnight, 2012). How to develop a Learning Management System is divided into two ways, i.e., offline and Online. To construct a Learning Management System by way of offline-only required supporting software, such as Xampp and Moodle's course to the next can be installed and configured. As for building a Learning Management System by means of online just by visiting a website on https://gnomio.com.

Methods

Research and development in terms of education, producing specific products that can be used to achieve the goal of effective learning. Borg *et al*. (2003) in Sugiyono (2015), The steps of this process are usually referred to as the R and D cycle, which consist of Wadi research findings pertinent to the product to be developed, developing the product based on these findings, field testing it in the testing where it will be used eventually and revising to correct the deficiencies found in the field-testing stage. In more rigorous programs of R and D, this cycle is repeated until the field test data indicate that the product meets its behaviorally defined objectives. To analyze the impact of the research product, the quantitative data is analyzed through the result of experimental data of the product at trial (Darmawan, 2014b). Sugiyono (2015) explained the steps the research and development level 4 as follows:

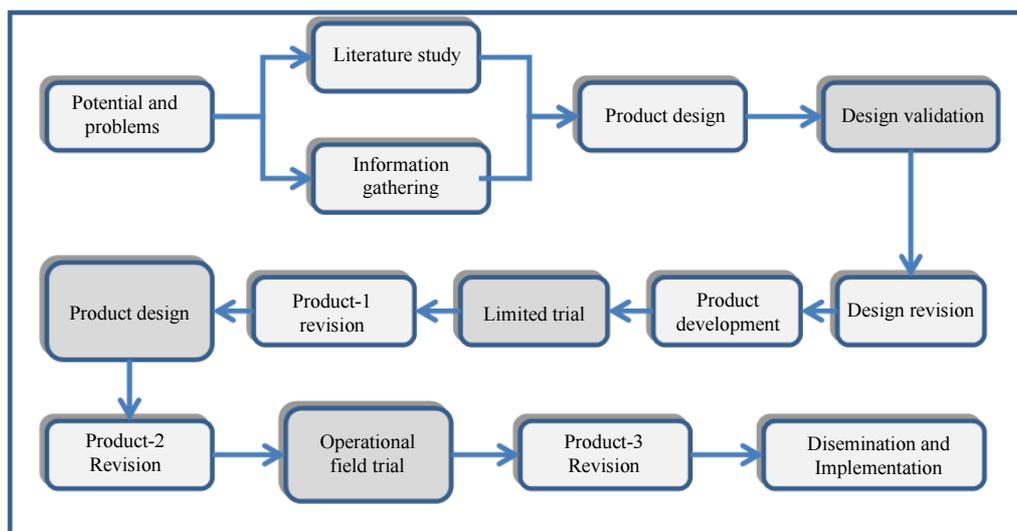Based on the steps in Fig. 1, here are the steps of WELS development, which are as follows:

Fig. 1: Steps of Level 4 research and development here are the stages of research with reference to the flow chart above R&D

Identify Potential and Problems

At this stage, researchers conducted a series of structured and unstructured interviews with several Parties at the school, including interviews with the principal, some teachers and students. In addition, researchers doing research in the field, researching the teaching and learning activities when the teacher was unable to attend class. Based on the identification process, obtained the impression that the problems that appear in the activity of learning when teachers and students cannot face to face directly, learning becomes not effective though the task is already given.

Literature Study

At this stage the researcher is collecting and studying some literature relating to research and development (Borg *et al.*, 2003) that is based on the results of research to determine what products need to be developed in order to overcome the problems, especially the development of web-based electronic learning system using Learning Management System Moodle as an attempt to increase the effectiveness of learning in the Vocational High School "Dharma Nusantara".

Collection of Information

At this stage, the researcher collects a variety of information from the administrative data of the associated students, teachers, list of subjects correspond to the structure of the curriculum, lessons schedule, materials, articles, news of the school as well as other information that supports the completeness of data in a web-based electronic learning systems.

Designing Products

On this stage researchers design products using Learning Management System (LMS) Moodle online

(https://smkgdn.gnomio.com). Researchers develop online LMS with consideration in terms of time, cost and ease of build. This phase consists of (1) the pre-production stage, (2) production stage and (3) post production stage. The following flowchart of the use of web-based electronic learning system based on the access rights of the user who performed the activity in the pre-production. This is intended to help the legibility of the system of information for the admin in using this product as described by Paydar and Kahani (2011) which explains that Information Sources: This item indicates the types of information sources that are utilized by the pre-test process Information Sources: This item indicates the types of information sources that are utilized by the framework to automate the test process.

Validation of the Design

At this stage product design was validated by media experts to obtain a judgment that the products developed are worthy to be used in the stage of research in the field.

Design Revision

This stage is carried out after the first product design validation is performed. The revision is carried out based on some revisions of media experts. The revision is done including a banner on the initial display (homepage), user permissions and category rendering course which is the core content of web-based electronic learning system.

This flowchart from Fig. 2 described the process of operating WELS (left side). It starts from data input until Finish. Then right side the system display and respon the whole system of prototype WELS. It begins with controling based on database until system respons and display. Both must show smooth communication.
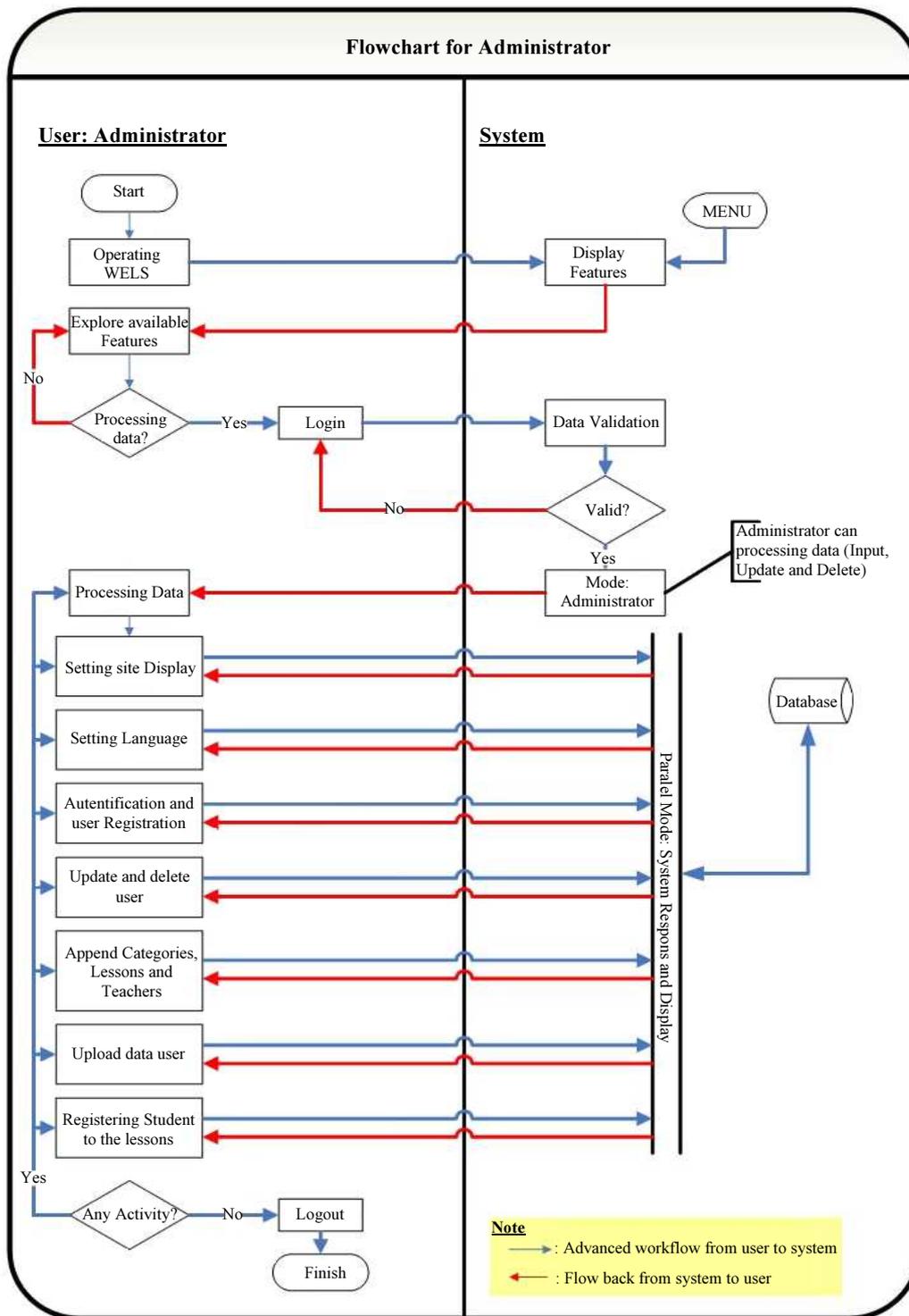
Fig. 2: Administrator access

Limited Trials

Limited trials carried out to some students to know the quality of the electronic web-based learning system that was built, the introduction of the system and ease of access. This test was performed twice to make sure that the features tested was understandable by the students. Tests performed include: (1) A test user login (access rights), (2) testing the menu, (3) applying the test profile settings, (4) a test display, (5) access trials per session

material, (6) trials of Deuteronomy/quiz and (7) trial of value processing.

Revision of the Product 1

Product 1 revision is carried out based on the evaluation of the limited trials. At this stage, the product only at the extent of the revision is the default setting for the language setting, i.e., the language of Indonesia.

The Main Field Trials

On the stage of this main field trials, researchers are testing the feasibility of the system with the approach of the application of the material on the training subject to assemble Personal computers in class X-A competency expertise of computer technique and network.
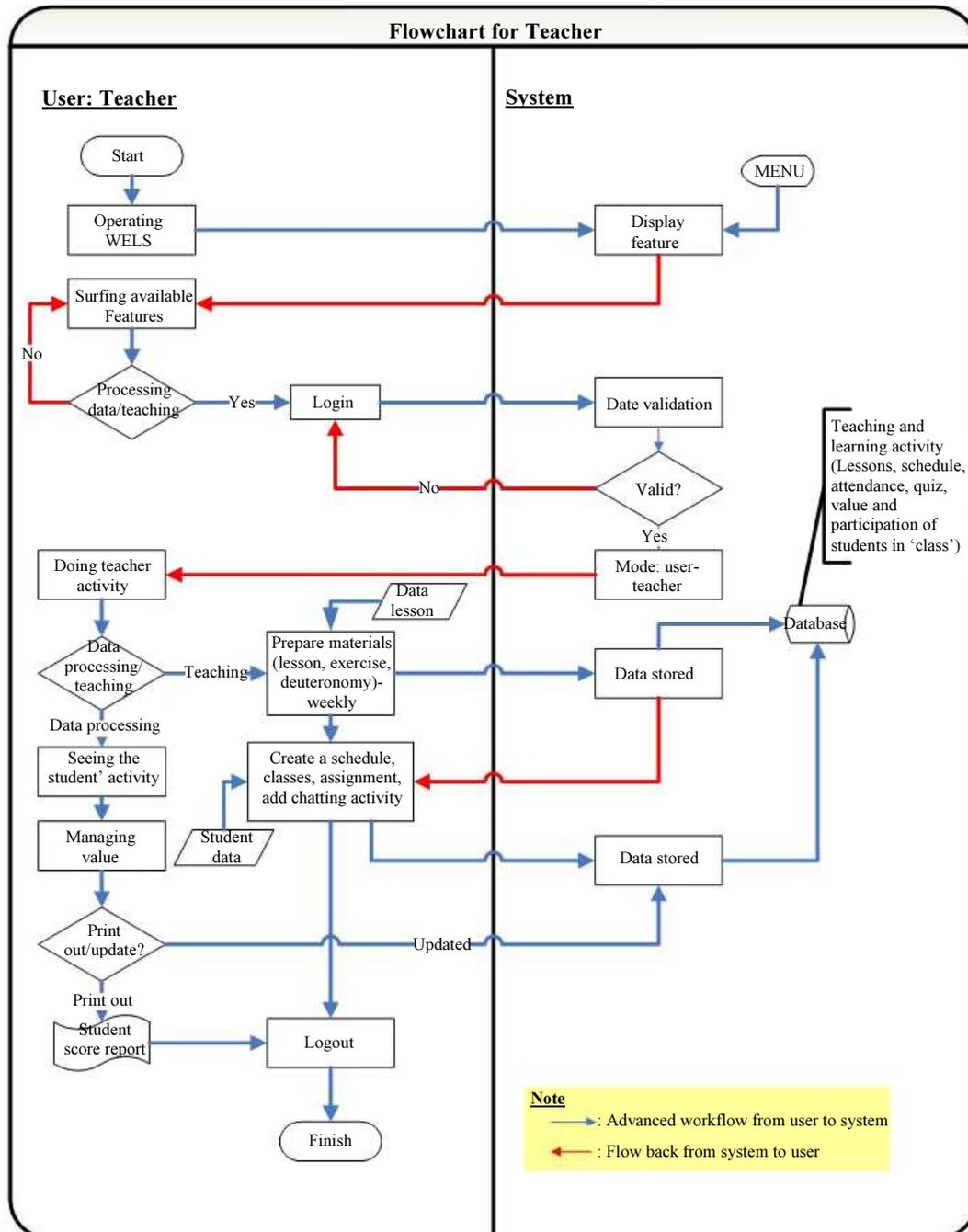

Fig. 3: Teacher access

Revision of the Product 2

Product 2 revision is done based on the evaluation of field trials. At this stage of revision, products include: (1) Clarify the title Subject, where previously the title subject matter not listed. The information shown is date per session, so students are hard-pressed to choose the material, (2) features "Attendance system" could not be used because of

the suitability of the schedule and (3) that features cannot be used because at that session has not yet been activated.

This flowchart from Fig. 3 described smoothness of teacher communication as user of WELS. It important, that WELS prototype in this case how the teacher activity during teaching. Teacher should be able to generate a number of learning resources which will be stored in the WELS program database for teaching and learning activity.
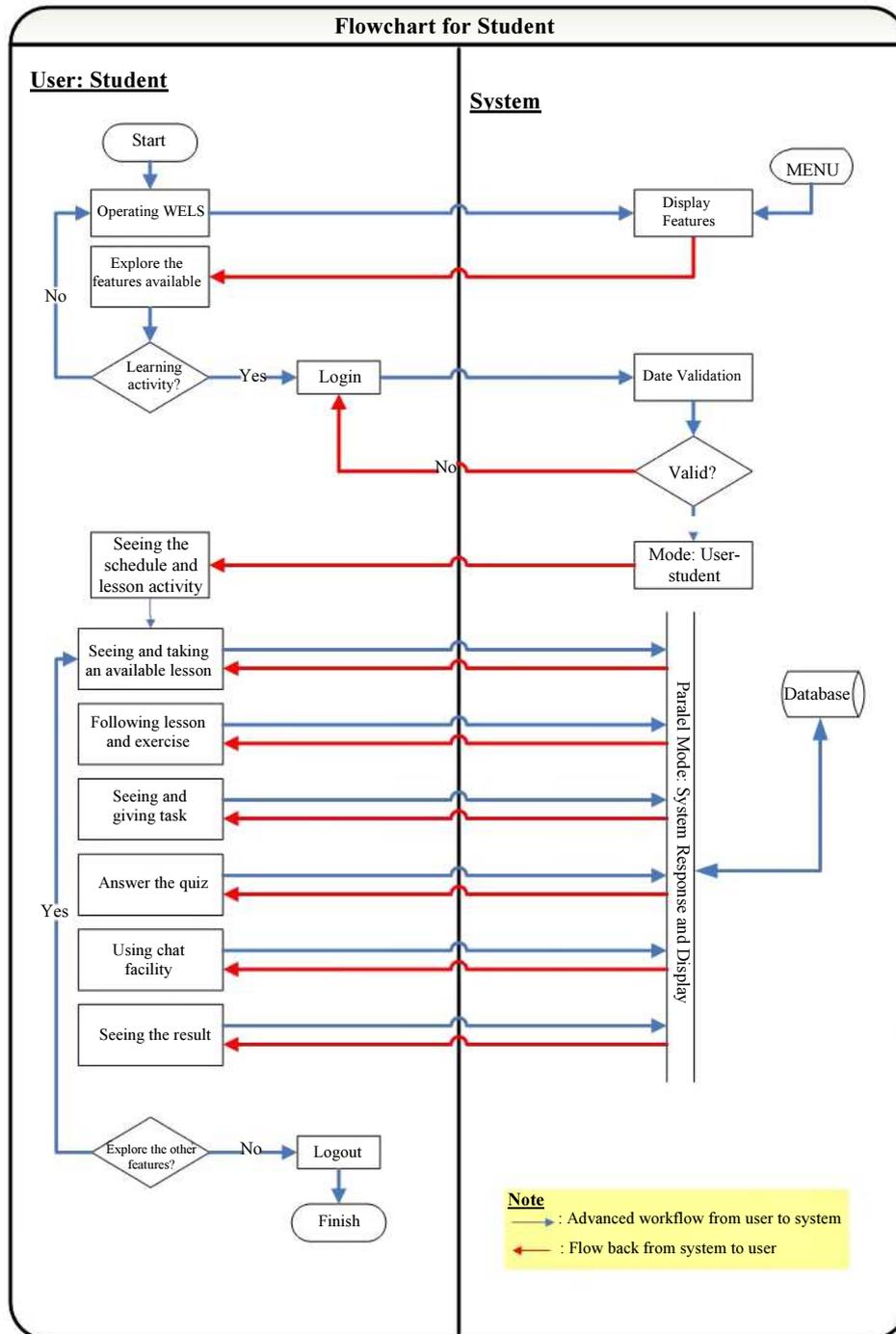

Fig. 4: Student access

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This flowchart from Fig. 4 described the process of smooth communication between students as users with WELS prototypes. The workflow of the system is expected to provide facilities for learning students interactively by utilizing the learning resources of the WELS program Database through Paralel Mode: Respons and Display.

The Operational Field Trial

The stage of operational field trials researchers are testing the feasibility of the system with a two-stage approach to the material on the training subject of Assembling Personal Computers in class X-A competency skills as computer and network improvements from previous trials. Product revisions at this stage are only done on technical features.

Revision of Product 3

This stage is actually no revisions, problems at the stage of field trials only on operational activities of the chat. So that repairs can be made at that time as well.

The Dissemination and Implementation of the Results of Product Development

This stage is a stage where students and teachers can use the web-based electronic learning systems in everyday teaching and learning activities. WELS can already be used in teaching and learning activities in accordance with the conditions and needs.

Result and Discussion

Development of WELS to Enhance the Effectiveness of the Study at Vocational High School "Dharma Nusantara"

The researchers do development process using the steps put forth by Sugiyono (2015:48), namely research and development of level 4. These steps comprise the potential and problems, the study of literature, information collection, product design, design validation, revision of design, product manufacturing, limited trials, product revision 1, main field trials, product revision 2, operational field trial, product revision 3, as well as dissemination and implementation. As for the measures put forward by the Borg *et al.* (2003) in Sugiyono (2015) are as follows:

Research and information Collecting. -include needs assessment, review of literature, small-scale study, research and preparation of report on state of the art of tea, (2) Planning-include defining the skills to be learned, stating objectives, identifying and sequencing learning activities and small-scale business feasibility testing, (3) Develop a Preliminary Form of a Product-Includes preparation of instructional materials, procedures and evaluation instrument, (4) a Preliminary Field Testing-Conducted in form 1 to 3 schools, using 6 to 12 subjects. Interview, observational and questionnaire data are collected and analyzed, (5) Main Product Revision-Revision of the product suggested by the preliminary field-test result, (6) Main Field Testing-Conducted in 5 to 15 schools with 30 to 100 subjects. Quantitative and pre-course and the post course subject are on performance are collected. Results are evaluated with respect to course objective and are compared with a control group of data, when appropriate, (7) Operational Product Revision-Revision of the product suggested by main field-test result, (8) Operational Field Testing-Conducted in 10 to 30 schools, involving 40-400 subjects. Interview, questionnaire and observational data collected and analyzed (9) Final Product Revision-Revision of the product suggested by operational field-test result, (10) Dissemination and Implementation-Report on the product at professional meetings and in journals.

After learning the system developed further do test process Improvement the effectiveness of Learning in the application of WELS with the acquisition of the data as it appears below.

The data in the Table 1 shows the increase in the average value on every test run. This suggests that the development of WELS can increase the effectiveness of the study at Vocational High School "Dharma Nusantara". Through WELS all data and learning information that students need can be easily obtained from the existing cloud base in the system, as explained by Molamoganyi Gorata *et al.* (2017) which states that Cloud scenarios face a huge amount of data which is known as big data, as such, the replication method affect the storage and communication cost directly. Based on the table presented above, the increased effectiveness can be seen in the Fig. 5.

Table 1: Improvement of learning effectiveness

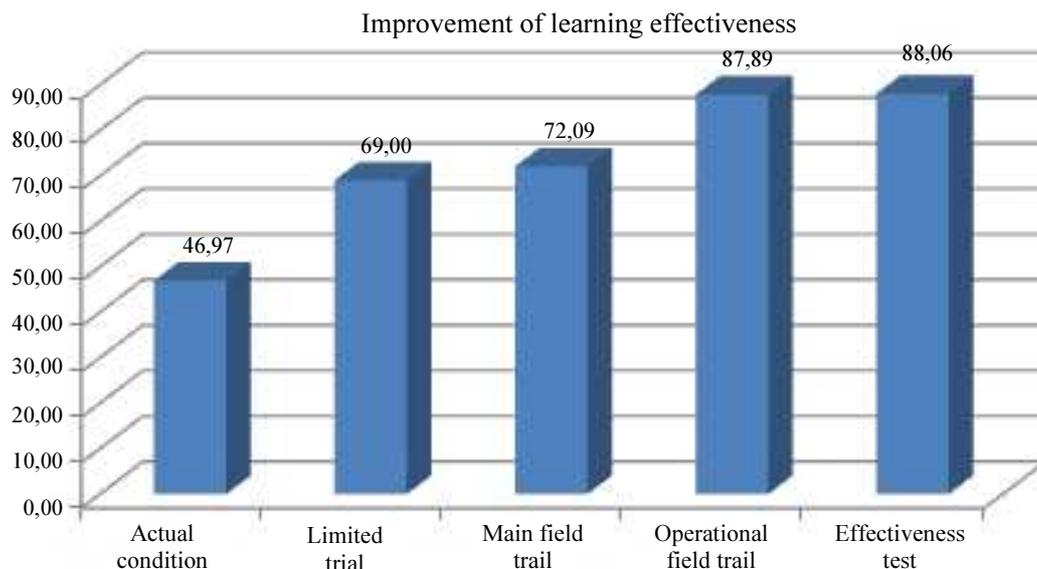| No	Kind of trial	Value	Average
1	Actual Condition	1644	46.97
2	Limited Trial	690	69.00
3	Main Field Trial	2333	66.66
4	Operational Field Trial	3977	87.91
5	Effectiveness Test	3082	88.06

Fig. 5: Increase the effectiveness of Learning

Development of web-based electronic learning system was successfully applied in order to achieve effective learning without worrying about the problems of distance learning, (Heshmatpanah and Neyestanak, 2011). The time as well as to educate students and teachers to be more prepared for the technological developments in the field of learning. This kind of learning can be said also as distance learning or system known as e-learning. This result support to Al-Hasani and Elgazzar (2015) An Initial list of instructional design standards of the two e-Learning Multimedia Educational Computer program Instructional designs were derived. Changes in the concept of learning not an easy thing to be implemented. Need for education to teachers and students to learn, adapt and utilize this system of distance learning, In addition, the required presence of conditioning in order to make this web-based learning activity can be implemented in Dharma Nusantara. Husna and Wahyuni (2008) explain the importance of Human Resources, that "through the efforts of the Human Resources education quality can be improved. While the quality of education depends very much on learning model developed. Therefore various models of learning need to be continuously developed because the learning process is still being an influential factor in education efforts. One of the models of learning that is now needed is information technology-based learning (E-Learning), a more open, easy and quick to be accessed by anyone, such as distance education. The statement confirms that e-learning has contributions to the teacher in teaching to their students in a dynamic, interactive and nonlinear access to the text, graphics and animations in a new environment so that students and teachers have new knowledge especially in the field of information and communication technology.

The Application of WELS Effective in Learning Activities

The application of web-based electronic learning system developed in this study has the following advantages: (1) For students, with the presence of e-learning activities, allow the growing flexibility of the higher learning activities, i.e., students not only able to access learning materials when in class but can also do so repeatedly according to their needs by downloading it via the internet. Students also can learn themselves faster to enhance knowledge and expand their insights, learn interactively through communication with other speakers that can motivate the spirit of student learning, as well as develop ability in the field of research at the same time can also increase sensitivity to the various problems that exist and (2) for teachers, with the utilization of the internet and teacher have a chance developing the professional ability of them namely increasing knowledge, share resources among fellow teachers with the same subjects, publishing and publication, in collaboration with teachers in foreign countries as well as participate in forums and colleagues both locally and internationally.

The application of web-based electronic learning system has functioned as (1) Additional (Supplement) like asynchronous system (Oluwaniyi *et al*., 2015). The web-based asynchronous e-learning system will reduce the constraints of the classical learning system and save time and resources. It is said to function as an additional (supplement), if the student has freedom of choice, whether to make use of electronic learning materials or not. In this case, there is no obligation/necessity for students to access learning materials electronically.

Though their nature optional, students who use it will have additional knowledge or insight, (2) Complementary (complement). It is said to function as a complement of electronic learning materials when added to supplement accepted student learning material in the classroom (Lewis and Goodison, 2004). As a complementary means of electronic learning materials are to be materials, (3) Enrichment (reinforcement) or repair (remedial) for learners in the following activities of conventional learning, (4) a substitute (substitution). Some schools in developed countries provide some alternative models of learning activities to students.

The flow of the application of web-based electronic learning system was initiated by the work undertaken by the management systems that involve: (1) An administrator; working on various activities administering learning as a preparation phase of teaching and learning activities between teachers and students, (2) teachers; working on a wide range of activities to teach students online and (3) students; see a list of the subjects that must be followed. Thus it can be concluded that the problems of the system of learning in a classroom that had occurred in the Vocational High School of "Dharma Nusantara" can be resolved.

The Relationship between the Applications of WELS that has been Developed with Increasing Effectiveness Study at Vocational High School "Dharma Nusantara"

Researchers test the relationship between the development of web-based electronic learning system by improving the effectiveness of learning. To that end, researchers are formulating a hypothesis as follows:

H_0: There is no relationship between the development of web-based electronic learning a system with increased effectiveness study at Vocational High School "Dharma Nusantara".

H_1: There is a significant and positive relationship between the development of web-based electronic learning system with increased effectiveness study at Vocational High School "Dharma Nusantara".

Or it can be written with the test hypothesis as follows:

H_0: $t < 0$
H_1: $t > 0$

For testing the hypothesis, then in the methodology used, will test the correlation included Kendall Tau (t) whose results can be seen in the Table 2.

So there is a positive relationship as big as These findings suggest that the model designed for the general didactic tutor Lourdes *et al.* (2013), is required in online learning such as WELS 0.764 between the development of web-based electronic learning system with increased effectiveness study at Vocational High School "Dharma Nusantara". In order to prove whether the coefficients that can be imposed on the population where the sample is taken then it needs to be tested for their significance by using the formula *z*. In this case the extent of his error of 5%. These findings suggest that the model designed for the general didactic tutor Lourdes *et al.* (2013), is required in online learning such as WELS. From this point of view, a reasonable design helps to improve the extensibility and flexibility of the framework, (Paydar and Kahani, 2011).

$$z = \frac{\tau}{\sqrt{\frac{2(2N+5)}{9N(N-1)}}} = \frac{0,74}{\sqrt{\frac{2(2.35+5)}{9.35(35-1)}}} = \frac{0,74}{\sqrt{\frac{2(75)}{315(34)}}} = \frac{0,74}{0,12} z = 6,19$$

A *z*-count value above then compared to the value of *z*-table. To test the two-party, then 1% error level is divided into two, becomes 0.5%. Next, the value of *z* can be seen on the normal curve with $z = 0.495$ (0.495 retrieved from 0.5-0.005). On normal curve table, 495 figure does not exist, but the most figures approach is a number 4951. Based on these figures, then $z = 2.58$ price. To be able to give an interpretation of whether the price is significant or not then be able to use a provision that if the count is greater than the *z*-table, then the coefficient of correlation being found is significant. It turns out that calculating *z* 6.19 is greater than the *z* table 2.58. Thus it can be concluded that the correlation between the development of web-based electronic learning system with increased effectiveness study of 0.74 was significant. It can also be described by a normal curve as follows.

Table 2: Correlation of Kendall Tau (t)

			Developing WELS	Improvement of Learning Activities
Kendal'tau_b	Development of WELS	Correlation Coefficient	0.764	0,764
		Sig, (2tailed)		0,000
		N	35	35
	Improvement of Learning Effectiveness	Correlation Coefficient	0,764	1,000
		Sig. (2 tailed)	0,000	
		N	35	35

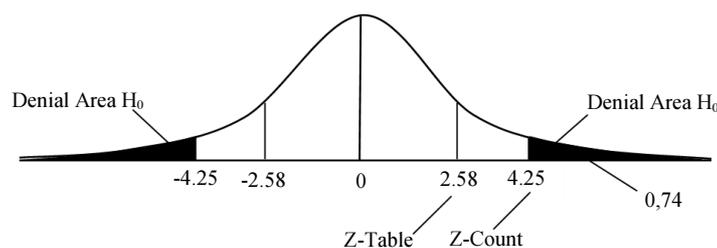**Correlation is significant at the 0.01 level (2-tailed)

Fig. 6: The applicability of test 2 party

Testing is done to prove the existence of a relationship (Correlation) between the application of web-based electronic learning system with increased effectiveness of study at Vocational High School "Dharma Nusantara". In the draft of correlational research, research using correlational statistic test to describe and measure the degree of interrelationship or relation between two variables. In this draft, the researcher does not attempt to control or manipulate variables as in the experiments. Creswell (2015:664), "correlation is a statistical test to determine the inclination or pattern for two or more variables or two data sets to very consistently."

It has been proven by the presence of a positive relationship between the development of WELS with the improvement of study effectiveness in Vocational High School "Dharma Nusantara", based on the curve in Fig. 6 that calculating $z = 0.74$ 6.19 is located in the rejection of H_0, H_1 then accepted.

Based on the calculation of z-count above, then it can be inferred that the hypothesis that states there is no positive relationship between development of web-based electronic learning system with increased effectiveness study at Vocational High School "Dharma Nusantara" at the level of 0.01 rejected, meaning that in this study it was proved that there was a significant positive relationship. This result it's was relevant with the result of research from Elabaid and Elobaid (2017) that However, students are convinced of ICT and e-learning utility and applicability. This opens new perspectives to find and adopt more effective tools to improve implementation of e-learning in teaching and learning.

Conclusion

From this research can be concluded that the development of electronic learning system which is then produced with WELS has been done by using the stages of research and development. The development research process undertaken through the revision test stage on prototypes generated in the trial is limited to a wider trial. The results of the revision test model that has obtained information learning through WELS can improve the quality of learning in vocational school level

"Dharma Nusantara". Further research is able to prove that the application of WELS-based learning has resulted in improved learning outcomes are quite good by learners who learn about computer engineering and network at the vocational school level. Likewise from this study obtained information that WELS learning is able to produce a fairly positive relationship with improving the quality of learning vocational high school students at Indonesia like "Dharma Nusantara".

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Author's Contributions

Deni Darmawan: Design the research plan, Data analysis, contribute to the writing of the manuscript and revised.

Handy Kartawinata: Data analysis and writing the manuscript, Edit and revised.

Widya Astorina: Data collection, Edit figure.

Ethics

This article is original and contains unpublished material. Participants are made known that their feedbacks will be contributing to a research project. The corresponding author confirms that all of the other authors have read and approved the manuscript and no ethical issues involved.

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