Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 2, April 2022
DOI : https://doi.org/10.33395/sinkron.v7i2.11292
e-ISSN : 2541-2019
p-ISSN : 2541-044X

Development of Web-Based Learning Evaluation Tools in Vocational High Schools

Mas'ud Muhammadiah[1)*], Abdul Wahab[2)], Susilo Surahman[3)], Pandu Adi Cakranegara [4)], Maria Purnama Nduru [5)]
[1]Universitas Bosowa Makassar, [2]Universitas Muslim Indonesia, Makassar
, [3]UIN Raden Mas Said Surakarta, [4]Universitas President, Cikarang, [5]Universitas Flores
Jl.Sam Ratulangi
[1)] masud.muhammadiah@universitasbosowa.ac.id, [2)] abdulwahab79@umi.ac.id, [3)] susilo.surahman@iain-surakarta.ac.id, [4)] pandu.cakranegara@president.ac.id, [5)] mariapurnamand@gmail.com

Submitted : Feb 8, 2022 | **Accepted** : Mar 20, 2022 | **Published** : Apr 1, 2022

Abstract: The use of school information systems that still use manual means in terms of learning evaluation makes it difficult in terms of assessment. This article will explain how to design a web-based school evaluation system at a vocational school. In this study the methods used are research and development methods and data retrieval methods by making observations and interviews. The results of the final product research learning evaluation tool that can be used in vocational schools and can facilitate schools in making learning evaluation tools. Development and research results can then be concluded that the process of developing web-based learning evaluation tools consists of *assessment, design, development, implementation,* and *evaluation*. Product results in the form of web-based learning evaluation tools . Based on the tests conducted, the development of web-based learning evaluation tools on aspects of software engineering, learning media and visual communication can be categorized as very feasible, so that this learning medium can be used as a learning medium to help the learning process. Based on the results of field tests, students' responses to web-based learning evaluation tools from the motivational aspect get a percentage of 81.94% (category "Very Good"), gain with a percentage of 83% (category "Very Good"), and convenience with a percentage of 76.61% (the category of "Very Good"), and usefulness with a percentage of 83.65% (category "Very Good"), and when on average get a percentage of 76.61% categorized as "Good".

Keywords: Development, Web Based Learning, Evaluation Tools, Vocational School

INTRODUCTION

Vocational High School (SMK) is a vocational education institution that has the task of preparing its learners to be able to work in certain fields. (Beilmann & Espenberg, 2016) states that vocational education is a continuation of basic education that has the main goal to prepare the workforce according to the demands of the world of work, including self-development in both the physical, intellectual, emotional, and spiritual dimensions. In its development, SMK is required to be able to produce quality human resources, which accelerate with the development of science and technology (Beilmann & Espenberg, 2016; Deebom & Zite, 2020; Ismail et al., 2018; Leijten & Chan, 2012; Radosavljevic et al., 2020).

Vocational students must be more active in keeping up with the development of technology, especially information technology which is currently needed by every aspect of human life. To make this happen, vocational students began to empower existing technologies to help learning activities in school or outside of school. Similarly, vocational teachers are required to participate actively in responding to current technological developments, especially in helping to teach and Learning Activities (KBM) in the classroom(Estriyanto et al., 2017; Irfan, 2017; Jaedun et al., 2020; Mahendra et al., 2019; Munadi & Soenarto, 2019; Wagiran, 2011). According to (Hobri et al., 2020)"teachers should know how to deal with learners, help solve problems, manage classes, organize teaching materials, determine classroom activities, compile study assessments, determine methods or media, and even answer questions wisely". For this reason, it is expected that teachers can improve the quality of learning by developing learning methods and utilizing technology-based learning media.

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 2, April 2022
DOI : https://doi.org/10.33395/sinkron.v7i2.11292
e-ISSN : 2541-2019
p-ISSN : 2541-044X

The learning process with the help of information technology is identical to the process of conveying information or the communication process. In connection with that, in multimedia learning activities with internet technology required a medium and means that function as learning aids. This media is a website or site. A website or site is a collection of pages that displays text data information, still or motion image data, animated data, sound, video and/or a combination of all of them. Static and dynamic forms a series of interrelated buildings in which each is connected to a network of pages (hyperlinks). The collection of pages is placed on the internet network so that everyone can access multimedia learning materials anytime and anywhere. With the help of internet information technology, learners or students can search for any learning materials and have a very wide scope.

Evaluation is an especially critical component in the implementation of education. With a good evaluation system, the quality of learning is expected to increase. To improve the quality of learning, evaluation should be done by paying attention to all areas owned by learners . However, the evaluation of education conducted so far is felt to have not provided sufficient distribution for the improvement of the quality of education.

It is so important to develop a web to measure students' abilities, *a web* for a Vocational High School with the main program *Adobe Dreamweaver CS5*. This system is expected to help the process of Teaching and Learning Activities, With the absence of learning evaluation media that can facilitate teachers and students, so researchers design web-based learning evaluation tools.

LITERATURE REVIEW

Learning Evaluation

According to the great Indonesian dictionary, evaluation means assessment. While the evaluation according to (Arikunto, 2013) is "an activity to collect information about the work of something, which is then used to determine the right alternative. in making decisions." (Sara, 2016) mentions that evaluation is "a process for measuring the level of achievement of goals". Nurgiyanto further explained that the evaluation that synergizes with assessment, is not the same concept as measurement and test although these three concepts are often obtained when problems educational evaluation is discussed.

It is said that assessment deals with quantitative and qualitative aspects, measurement is related to quantitative aspects whereas tests are only one of the assessment instruments. Although different, these three concepts are one and need each other. Measurement is the process of determining the quality of an object by comparing the measuring instrument with the object being measured.

Assessment is the process of determining the quality of an object by comparing the results of the measurement with certain assessment standards, The test is a specially designed data collection tool, which distinguishes it from the Evaluation is that evaluation includes qualitative aspects and quantitative aspects. Thus, evaluation can be interpreted as one of the activities that are designed to determine the state of an object by using an instrument and its results compared to an object. Benchmark to come to a conclusion.

Although evaluation has a broad meaning but at first evaluation is often associated with the learning achievement of learners. The results obtained from the evaluation that will be used by teachers to improve and improve learning programs and activities, from the above opinions can be concluded that the evaluation can be concluded. It is defined as planned activity to know the state of an object using an instrument and its results are compared to a benchmark to obtain a conclusion. Evaluation activities cannot be abandoned in any activity such as business activities, economy, construction, manufacture, education and so on, with this evaluation will be able to Know some aspects that are lacking or weaknesses in a project that has been implemented, so that with this evaluation activity will demand improvements . In such activities, thus evaluation will be very important presence in an activity, because by evaluation can provide criticism and advice. which builds for the continuity of an activity in order to remain existing and perfectional. The evaluation function in education cannot be separated from the purpose of the evaluation itself. The first thing to consider in any evaluation activity is the purpose of the evaluation. Teachers must know and understand in advance about the purpose and function of evaluation because teachers will have difficulty in their implementation. According to (Wanzer, 2021) the purpose of learning evaluation is to know the effectiveness and efficiency of learning systems, both concerning the objectives, materials, methods, media, learning resources, environment and the research system itself.

Characteristics and Principles of Evaluation

Evaluations conducted in a teaching and learning process, have several important characteristics. These characteristics according to (Smith & Hasan, 2020) namely: 1) Have indirect implications for students

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 2, April 2022
DOI : https://doi.org/10.33395/sinkron.v7i2.11292
e-ISSN : 2541-2019
p-ISSN : 2541-044X

evaluated. 2) More incomplete because the evaluation is not done in general. 3) Has a relative meaning nature depending on the measuring instrument used by the teacher. In addition to having characteristics as mentioned above, there is also the principle of evaluation. The existence of the evaluation principle for. A teacher has an important meaning because by understanding the principles of evaluation, it can be used as a guide to conduct evaluations correctly. Some principles of evaluation according to (Omosewo et al., 2013): 1) Continuous Principles, meaning implemented continuously. 2) The principle is thorough, meaning the overall aspects in the program in the evaluation. 3) Objective principle has a degree of freedom from the evaluator's subjectivity. 4) The principle of cleverness and authentic, which is consistent and really measures what must be measured. The principle of using criteria, namely using the criteria that have been established. 6) The principle of usefulness, namely the evaluation carried out should be something useful both for the benefit of leaders and subordinates.

METHOD

Based on the formulation of the problems that have been raised, the type of research used in this research is development research that produces products in the form of learning media. Research and development methods are research methods used to produce a particular product and evaluate the effectiveness of that product (Sugiyono, 2013: 297). Development research conducted by researchers refers to development measures according to Borg &Gall. The explanation of each step of Borg and gall development is as follows: (1) collect information; (2) planning (defining skills, formulation of objectives, determination of learning sequences); (3) develop the initial product form (preparation of learning materials and evaluation equipment); (4) conduct initial field trials; (5) revise the results of the trial; (6) conduct a major field test; (7) perfect the field test product. The procedure of developing web-based learning evaluation tools uses models adapted from models developed by Sugiyono. The design and flow of the research can be described in several stages as follows:

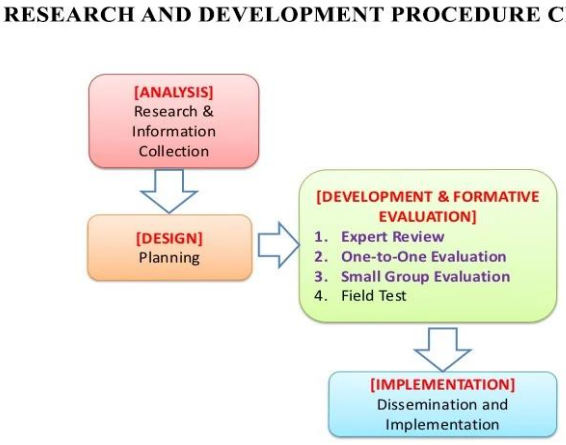


Figure 1. Chart of research and development procedures

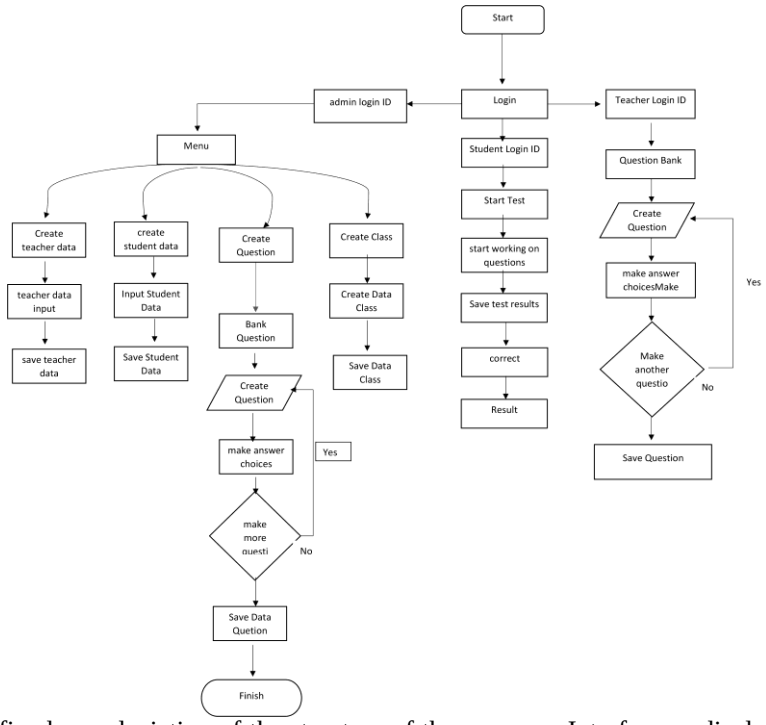
In data collection the technique used is to use observation techniques directly and use documenter studies. Data collection tools using interviews and questionnaires. To perform validation, researchers use validation from two validators who are experts in learning media.

RESULT

Learning evaluation tool is made to conduct computerized learning outcome evaluation activities, this learning evaluation tool has received validation of media experts and material experts, namely lecturers who are competent in media feasibility assessment. Flowchart application as stated under figure 2

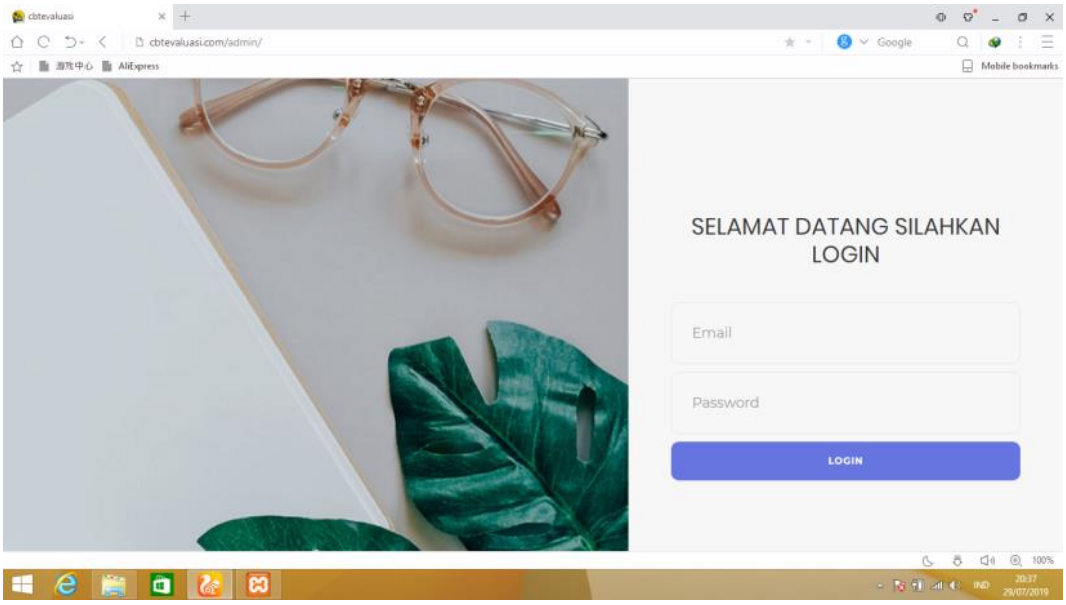
*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 2, April 2022
DOI : https://doi.org/10.33395/sinkron.v7i2.11292
e-ISSN : 2541-2019
p-ISSN : 2541-044X



Interface Design

Interface is defined as a depiction of the structure of the program. Interface or display design is made to facilitate interpretation into programming. Interface design is a continuation of the flowchart design that has been made before. Here is interface design in a web-based learning evaluation tool. Home page / *Login* Page Design the home page in this *software* in the form of *a Login* menu to enter on the main page. On the home page there are three login menu options, namely *the login* menu as a teacher, *the login* menu as a student, and the *login* menu as an administrator. The Home page presented in this learning evaluation media displays the user status. In addition, each user can only run the menu that has been set. The *User* page displays a menu of distinct functions for each *user*.



*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 2, April 2022
DOI : https://doi.org/10.33395/sinkron.v7i2.11292
e-ISSN : 2541-2019
p-ISSN : 2541-044X

Figure 3.Login Menu page

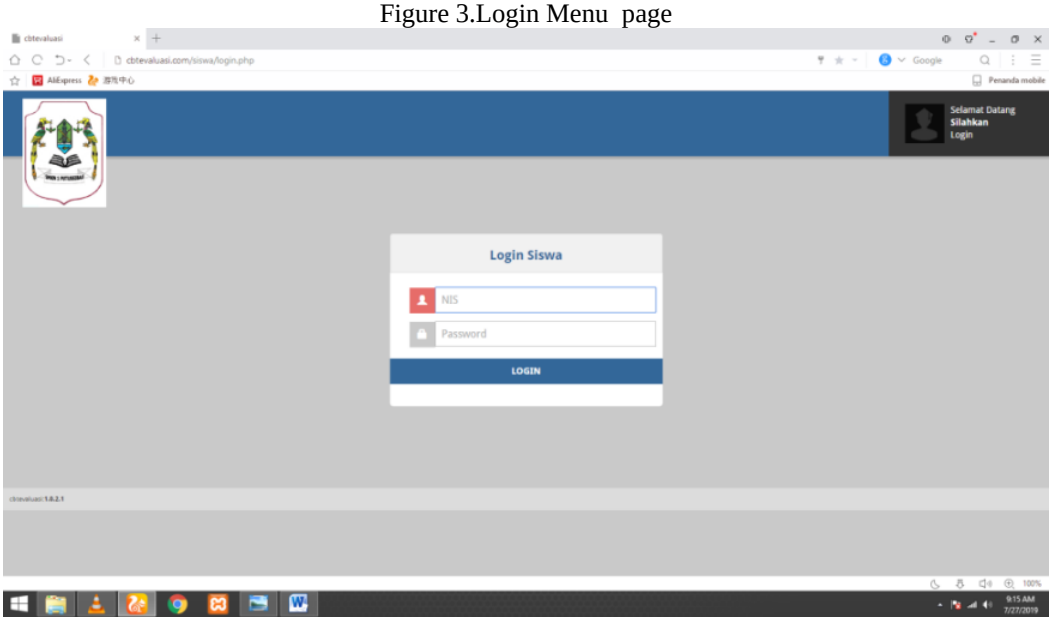


Figure 4. Student Login Menu Interface

Discussion

Several stages are conducted in research to produce the final product of learning evaluation tools, namely, 1) reviewing potential problems in the field, 2) setting goals in research. and the development to be conducted, 3) make an initial design of the media to be developed, 4) make a learning evaluation tool, 5) validation of media experts and material experts, 6) from the results Validation then performs product revisions if needed, 7) field trials and field trial analysis, 8) the final product. While the stages in the development of learning evaluation tools are divided into two stages. The first stage is the initial design process which includes: (1) gathering information about the concept of learning evaluation tools, (2) material design, (3) analysis of user needs, and (4) Create a storyboard. For the second stage is the stage of the process of developing learning evaluation tools that include (1) analysis of technical specification requirements, (2) program design which includes Entity relationship diagram (ERD) design, Data Flow Diagram (DFD), and interface design, and (3) design implementation.

Feasibility tests conducted by expert lecturers show that the learning evaluation tools developed are worth using in learning evaluation with revisions according to advice. All aspects that are considered qualified by a media to be said to be worthy, namely entering the range of criteria "Very Worthy". The feasibility test conducted includes several aspects as described in the discussion above, namely covering general aspects, material substance aspects, software engineering aspects, and aspects of visual communication. Get comments that the evaluation tools developed are already good. Some of the assessment items that received an "Excellent" rating included general aspects by 93.3%, software engineering aspects by 91.65%, and visual communication aspects by 93.33%.

The student's response to the overall learning evaluation tool has entered the category of at least "Good". Of the several points of assessment that get a score of "Very Good" including in the aspect of ministry that gets a score of 82.9%. The results of the above research are an overview of how the response of learning evaluation tools. Researchers realize that this medium is still far from being said to be perfect. But this media can still be used as an alternative in learning evaluation that can at least make learning evaluation activities a little better.

CONCLUSION

Based on the results of development and research, it can be concluded that the process of developing web-based learning evaluation tools consists of *assessment*, *design*, *development*, *implementation*, and *evaluation*. Product results in the form of web-based learning evaluation tools . Products are assessed from software aspects, learning media aspects and visual communication aspects. The feasibility of learning media by media experts is 92.76% (category "very feasible"), while the results of testing values by material experts amounted to 93.59%. (category "very worthy"). On the assessment of student response by grades obtained by 82.65% (category "Excellent"). Based on the tests conducted, the development of overall web-based learning

*name of corresponding author

e-ISSN : 2541-2019
p-ISSN : 2541-044X

evaluation tools on aspects of software engineering, visual learning and communication media can be categorized as very feasible, so that this learning medium can be used as a learning medium to help the learning process. Based on the results of field tests, students' responses to web-based learning evaluation tools from the motivational aspect get a percentage of 81.94% (category "Very Good"), gain with a percentage of 83% (category "Very Good"), and convenience with a percentage of 76.61% (the category of "Very Good"), and usefulness with a percentage of 83.65% (category "Very Good"), and when on average get a percentage of 76.61% categorized as "Good".

REFERENCES

Arikunto, S. (2013). *Prosedur penelitian suatu pendekatan praktik*.

Beilmann, M., & Espenberg, K. (2016). The reasons for the interruption of vocational training in Estonian vocational schools. *Journal of Vocational Education and Training*, *68*(1). https://doi.org/10.1080/13636820.2015.1117520

Deebom, M., & Zite, N. B. (2020). Assessing Technical Vocational Education Training Skills Needed for Graduates Employment in a Post-Oil Boom Economy, Nigeria. *International Journal of Modern Innovation and …*. http://www.ijmik.com/index.php/ijmik/article/view/6

Estriyanto, Y., Kersten, S., Pardjono, P., & ... (2017). The missing productive vocational high school teacher competency standard in the Indonesian education system. *Journal of Technical …*. https://publisher.uthm.edu.my/ojs/index.php/JTET/article/view/1499

Hobri, Ummah, I. K., Yuliati, N., & Dafik. (2020). The effect of jumping task based on creative problem solving on students' problem solving ability. *International Journal of Instruction*, *13*(1). https://doi.org/10.29333/iji.2020.13126a

Irfan, R. (2017). *Developoing A Computer and Network Engineering Major Curriculum For Vocational High School (VHS) in Indonesia*. core.ac.uk. https://core.ac.uk/download/pdf/353950901.pdf

Ismail, M. E., Hashim, S., Ismail, I. M., & ... (2018). The use of Massive Open Online Course (MOOC) among vocational students. *Journal of …*. http://umkeprints.umk.edu.my/id/eprint/10561

Jaedun, A., PH, S., & Galih, N. (2020). The Relevance of Vocational High School Curriculum of Construction Engineering & Property to the Needs of Industries in Indonesia. *Talent Development & Excellence*. http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=18690459&AN=144307420&h=yeQGKIXD7MCf%2B4f9y6QDTkAioFtQY5LpDFrDaoO0LgWVUV2G9XaaP4WVaa0Mfx0Tp8UL74UTv66%2B%2BbRh3%2FJgwg%3D%3D&crl=c

Leijten, F., & Chan, S. (2012). *The effectiveness of peer learning in a vocational education setting*. voced.edu.au. https://www.voced.edu.au/content/ngv:55969

Mahendra, S., Soenarto, Sofyan, H., & Rohmantoro, D. (2019). The teacherpreneur character of vocational high school teacher in Indonesia. *International Journal of Recent Technology and Engineering*, *8*(2). https://doi.org/10.35940/ijrte.B3786.078219

Munadi, B. A., & Soenarto, S. (2019). Indonesian Journal of Science and Education. In *Indonesian Journal of Science and Education*. core.ac.uk. https://core.ac.uk/download/pdf/270149707.pdf

Omosewo, O. E., Akanmu, M. A., & Asebiomo, M. A. (2013). Evolution of functional basic and senior secondary education curriculum in Nigeria: Implications for effective implementation. In *Evolution*. core.ac.uk. https://core.ac.uk/download/pdf/234634807.pdf

Radosavljevic, S., Radosavljevic, V., & ... (2020). The potential of implementing augmented reality into vocational higher education through mobile learning. *Interactive Learning …*. https://doi.org/10.1080/10494820.2018.1528286

Sara, H. A. (2016). *Evaluation of Vocational Training Programmes in Reformatory Institutions in Northern Nigeria*. unn.edu.ng. https://www.unn.edu.ng/publications/files/images/SARA, HABIBU ABDULKADIR.pdf

Smith, J. D., & Hasan, M. (2020). Quantitative approaches for the evaluation of implementation research studies. *Psychiatry Research*, *283*. https://doi.org/10.1016/j.psychres.2019.112521

Wagiran. (2011). Teacher Technology Competence : The Urgently to Improving Vocational High School Teachers Competence in Indonesia. *Faculty of Technique*, *02*(1).

Wanzer, D. L. (2021). What Is Evaluation?: Perspectives of How Evaluation Differs (or Not) From Research. *American Journal of Evaluation*, *42*(1). https://doi.org/10.1177/1098214020920710

Waryanto. (2018). Apa itu website? Simak pengertian, jenis & manfaatnya! In *Niagahoster Blog*.

*name of corresponding author