Hybrid-Learning Model with Ethno-STEM approach: Expert validation on the use of SPADA learning applications

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ABSTRACT

The use of online learning applications is very helpful in the learning process. The online learning application used allows lecturers and students to carry out the learning process actively. The use of the application requires careful planning. One of them is doing expert validation test.

From the expert validation test on the SPADA learning application, it is divided into 2 main aspects, namely the menu display aspect and the content aspect. In the aspect of the menu display, it is divided into 12 indicators and the content aspect is divided into 6 indicators. So there are a total of 18 indicators. Of the 18 indicators, the most important thing with a score of 5 is that the Spada application can be used as a learning platform for lecturers and students very well. While the lowest with a score of 4 in the SPADA application aspect can monitor the development of student learning.

Keywords: Ethno-STEM, Hybrid-Learning

1. Introduction

   The rapid advancement of information technology supports the implementation of learning

   electronic based (e-learning). E-learning has a number of advantages students can share information with each other and can access learning materials at any time and evaluations that can measure concept understanding student. With conditions like this, students are expected to be able to strengthen their understanding the concept of learning materials. E-learning can train students' independence in technical and

experience using it. In addition, e-learning can also help teachers in unifying student activity with various assignments given, discussion forums and other activities, so that the character of students can be described through e-learning Currently, there are quite a number of agencies or institutions that use e-learning as a means of learning, the use of e-learning in learning

proved successful. In research (Syawaludin et al., 2019), learning using e-learning is very important effective when combined with guided inquiry learning methods. Based on The problems above have been explained that e-learning can be used as a learning innovations that can ease the burden on teachers in teaching. Aim of this research is to develop a Software Learning Management System.

2. Literature Review

The development of science and increasingly advanced technology, with use of computer and internet technology provides many offers and options for world of education in supporting the process learning (Abubakar, 2021). The learning model that used today really needs to be developed to meet the demands of the world of work and keep pace with the development of science and technology (Abubakar, 2021). Advances in information technology and communication (ICT) has been so fast and has helped many activities people, especially in the field of education. The advantages of using ICT in the field of education is limitless to space and time. Developments in the field of ICT This is an opportunity for the world of education in Indonesia in improving the dynamics learning activities by providing online learning resources which can be accessed anytime and anywhere One of the ICTs is e-learning-based media. Along with the development of ICT increasingly rapidly, the need for concepts and ICT-based teaching and learning mechanisms become a necessity that cannot be postponed again. The concept which later became known as The term e-learning brings influence the process of educational transformation conventional into digital form, both content and the system. E-learning-based media is one of the media with internet application assistance that can connecting students and teachers in learning in online classrooms (Abubakar, 2021). The very basic concept of e-learning is that in the learning process, between teachers and students cannot be separated either from terms of place and time(Elliott, 2015). Web-based physics learning media considered to be able to overcome the limitations of teaching and learning process and can facilitate students in understanding the material physics. Using the e-learning model is very assist in the

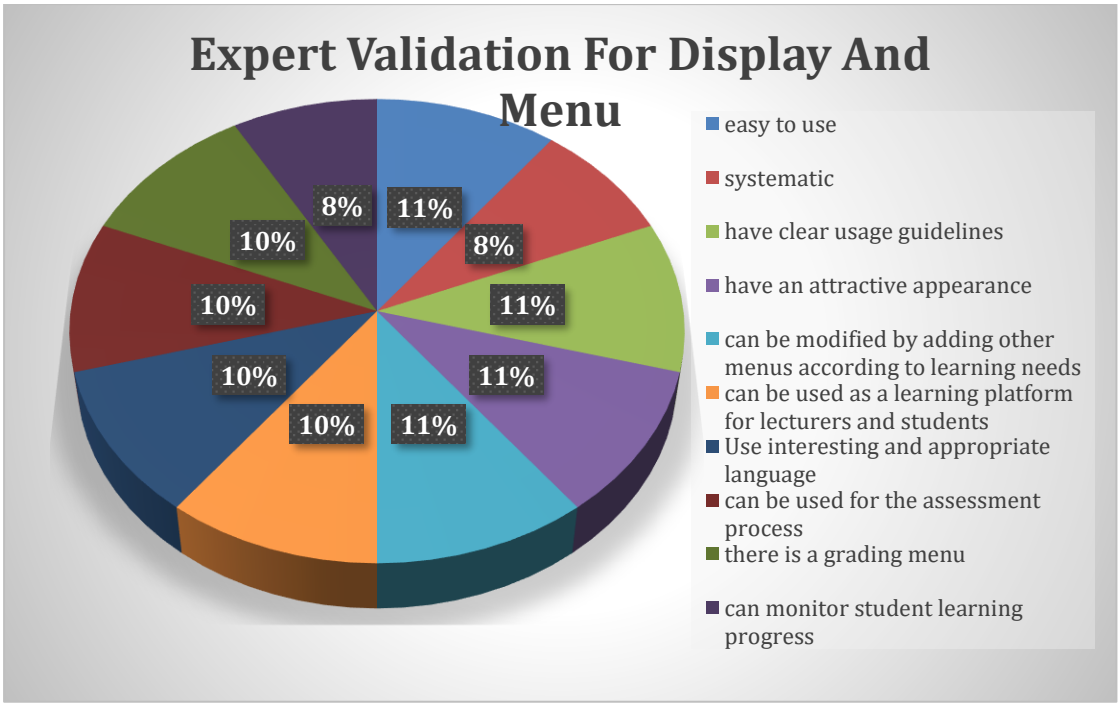
learning process, considering the practical aspects of e-learning it's like saving face-to-face time and global access. Through e-learning materials learning can be accessed anytime and from anywhere, in addition to the material that can be enriched with various sources learn including multimedia quickly can be updated by students. To create learning media web-based can use web-based instruction authoring tools to build or run the process according to programming commands, for example office, Learning Management System, Course Management System, and others. Learning Management System is one learning management system that has high potential in the future and need to be considered in the process application at all institutional levels higher education. Learning Media web-based is considered to be able to overcome limitations on the teaching and learning process and can facilitate students in understand physics material. E-learning Web-based can be interpreted as a media learning displayed using electronic devices in the form of the WebFrom multiple devices software for e-learning-based media, LMS delivers essential features supporting learning, for example: assignments, quizzes, communication, collaboration and features main that can upload various learning material format. The advantages of online learning resources as learning media can support students' ability to collect sources of information as learning material (Herde et al., 2016). Use of web-based learning resources more profitable because of the interactivity and accessibility, and can improve students' active independence in learning. On Basically, e-learning-based media can function as a supplement that is optional, complement, and substitution in Learning Activities. The application of e-learning media becomes flexible according to needs and the state of the learning process.

3. Methods

The method used in this research is research development. Product test using Pre Experimental Design with type Pretest and Posttest One Group Design. The research procedure is divided into three stages, namely preliminary study, design and development. Research instruments in the form of expert test questionnaires, questionnaire responses, written tests and character observation sheets. Before being tested, done expert validation on LMS media and teaching materials. Expert validation results show a percentage of 89.81% of the total indicators developed, meaning that the LMS is valid used as learning. The data analysis technique used normality test and gain test. Normality test used to test the research data is normally distributed or not. Gain test used to measure improvement in concept understanding and development

4. Data Analysis

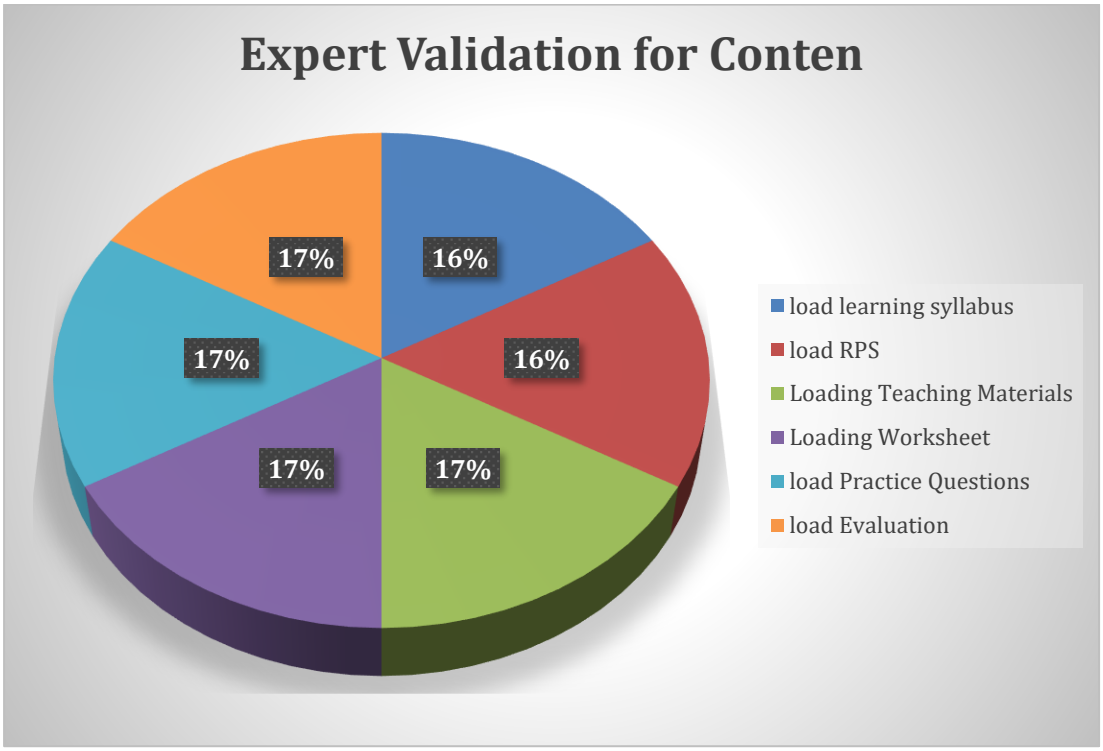
Before being used for research, validation was carried out on the LMS software. Results expert validation shows that LMS software obtains a percentage of 89.81% with very good category. Based on the results of expert validation, it can be concluded that the LMS software meets the requirements as teaching materials for accompanying students in high school. LMS software is categorized as valid for use in learning. Besides containing the main material is optical tools, LMS software is also equipped with instructions usage, competencies achieved, practice questions, online assignment questions, materials supporting enrichment,links to related learning resources and discussion forums. LMS Software can also be accessed repeatedly and provide new experiences for students. Thing This is in accordance with [3], namely LMS users will get a new experience that different from conventional learning methods at picture 1



Picture 1. Expert Validation for Display and Menu

Student response data obtained by using the questionnaire method. Questionnaire responses are filled in after students use the LMS software. There are three aspects that become the focus of questions on the response questionnaire, namely the use of LMS, presentation of material and appearance of the LMS. Aspects of using the LMS contain questions about ease of use, economic value of use and responsiveness of use (Kholifatu

et al., 2020). The results of the student response questionnaire for the use aspect got a percentage of 84.31%, meaning that LMS is easy to use, can make learning easy fun and relatively inexpensive to use. The results of the questionnaire analysis of the response aspects of the presentation of the material get a percentage of 83.33%, meaning that the presentation of the material on the LMS is good. Questionnaire analysis results the response aspect for graphic design on the LMS gets a percentage of 82.71% for at picture 2



Picture 2. Expert Validation for conten

This means that the graphic design on the LMS has a good and attractive appearance. Student responses after using LMS based on data analysis were divided into three aspects, namely response to use, presentation of material and graphic design. Aspect the use response obtained a percentage of 84.31% with a very high category good, which means LMS is easy to use, can make learning fun and relatively inexpensive to use (Kennedy et al., 2015). The results of the analysis of the response aspects of the presentation of the material obtained a percentage of 83.33%, which means that the presentation of the material on the LMS is good. Response aspect analysis results for graphic design on LMS, the percentage is 82.71%, which means LMS design has a good and attractive appearance (Koenig, 2011).

The results of the analysis of understanding the concept of the material show a moderate increase of 0.56 with a gain test. Therefore, it can be said that the LMS at Physics learning is effective in increasing students' mastery of concepts (Ogungbade Aderonke & Ipadeola Oluwaseun, 2021). Analysis result character development shows that LMS shows the existence of development of student character values, but from the gain test carried out, the result of the gain value is 0.16 with a low category, meaning that it has not been effective in developing student character. This is due to the positive development of student character values takes longer.

5. Conclusion

In this study, it was found that an LMS containing character education for learning. The stages in making an LMS in general are designing system design includes the design of templates, databases and flowcharts, perform coding with the PHP programming language, Installation on the hosting server and fill out teaching materials on the LMS. After the LMS has been created, then do it expert validation in terms of media and materials. The results of the expert test data analysis showed that the overall average was 89.81% with a very good category, meaning that the LMS was ready used as learning.

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7. References

Abubakar, H. O. (2021). Availability and Use of Audio-Visual Materials For Teaching Mathematics At The senior Secondary School in Ibadan, South-West Local Government, Oya State. *Library Philosophy and Practice*, 68–70.

Elliott, J. C. (2015). A review of Teaching Models: Designing Instruction for 21st Century Learners. In *Education Review // Reseñas Educativas* (Vol. 22). https://doi.org/10.14507/er.v22.1865

Herde, C. N., Wüstenberg, S., & Greiff, S. (2016). Assessment of Complex Problem Solving: What We Know and What We Don’t Know. *Applied Measurement in Education*, *29*(4), 265–277.

Kennedy, G., De Barba, P., Coffrin, C., & Corrin, L. (2015). Predicting success: How learners' prior knowledge, skills and activities predict MOOC performance. *ACM International Conference Proceeding Series*, *16-20-Marc*, 136–140.

Kholifatu, N., Habibillah, N., & Wicaksono, A. G. (2020). *THE PRANATA MANGSA IN THE PERSPECTIVE OF AN ETHNOSCIENCE APPROACH AS NATURAL SCIENCE TEACHING*. *2020*, 459–467.

Koenig, J. A. (2011). 21 ST CENTURY SKILLS Summary of a Workshop. In *Social Sciences*.

Ogungbade Aderonke, A., & Ipadeola Oluwaseun, L. (2021). From Classroom to the Field of Library Practice: the Gaps and its Cost in the Librarianship Profession. *Library Philosophy and Practice*, *2021*, 1–15.

Syawaludin, A., Gunarhadi, & Peduk, R. (2019). Jurnal Internasional Pengajaran. *Jurnal Internasional Pengajaran*, *12*(4), 327–342.