

Needs Analysis of Physics Learning Media Development

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ABSTRACT

Learning media is one of the important aspects in physics learning. This research aims to analyze the needs of physics learning media development. The research was conducted in four high schools in Malang Regency. We have distributed questionnaires to 9 physics teachers and 143 students. The questionnaire for students consists of three aspects, namely student response, learning experience, and media needs. The questionnaire for teachers consisted of two aspects, namely experience in learning, and media needs. The results of this study show that learning still needs innovative media development, one of which is Lectora Inspire-based media. Lectora Inspire-based media has several advantages that will be discussed in this article.

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1. INTRODUCTION

In an era where technology continues to develop rapidly, the role of learning media is becoming increasingly vital in the educational process. As stated by McLuhan [1], a media theorist, "Media is the message conveyed and is the tool used by humans to convey that message." In the context of education, learning media is not only a tool to convey messages, but also a bridge that connects students with broad knowledge and understanding. In his famous book, "Understanding Media: The Extensions of Man," McLuhan highlighted how media not only affects the way we understand the world but also affects the way we learn and interact with information. In the era in which we live now, where the younger generation is growing up in a technology-dominated environment, learning media is key to creating relevant, engaging, and effective learning experiences.

Learning media can stimulate students' senses, clarify complex concepts, and create a dynamic learning environment. By using images, audio, video, interactive simulations, and other technologies, learning media allows educators to customize learning experiences to suit individual learning styles, increase student engagement, and facilitate deeper understanding. As stated by Jonassen [2], an expert in education and technology, "Learning media provides a means that can help students to develop cognitive skills, acquire domain knowledge, and overcome challenges in understanding abstract concepts." In other words, learning media is not just a tool, but also an integral part of the modern educational process.

In this context, the importance of developing and utilizing effective and innovative learning media cannot be ignored. As educators, we have a responsibility to integrate learning media into our teaching practices in ways that improve the quality of learning and prepare future generations to face the challenges of an increasingly complex world.

In learning Physics, learning media plays an important role in conveying essential concepts. This is important to overcome students' difficulties in understanding physics concepts [3]-[7]. In learning, students are required to be active, critical, innovative, and creative during learning [8]. Various kinds of learning resources that can be used as a means in the learning process can be in the form of audio and audio-visual. Audio-visual media is an intermediary medium for presenting material that is absorbed through sight and hearing with the hope of helping students gain knowledge [9]. The learning process that uses adequate teaching materials can keep up with technological developments and the demands of the times. Through learning that uses information technology, students will be interested in learning [10].

The needs of students and teachers in the learning process in the form of media can be known by conducting a needs analysis. Needs analysis can be done by distributing questionnaires and interviews. Based on the results of the interview, it was concluded that one of the applications that can be used as learning media is Lectora Inspire. This article will discuss the results of the needs analysis that we have found.

2. METHOD

This research was a descriptive study that aims to reveal the needs of the field in the use of physics learning media. The data collection technique used in this study was to use a needs questionnaire that was distributed directly to students and physical teachers. This research was conducted in Malang Regency. The population of this study were physics teachers and students from 4 high schools in Malang Regency. This study uses direct observation techniques and the distribution of questionnaire sheets filled by teachers and students to determine the level of needs of physics teachers and high school students on physics learning media based on the Lectora Inspire application. The data analysis technique in this study uses quantitative data analysis techniques and is concluded quantitatively. Quantitative analysis techniques in this case the questionnaire needs of physics teachers and high school students based on the answers to the research questionnaire filled by 9 physics teachers and 143 students. Each question item used in the questionnaire was tested for validity and reliability to determine whether the instrument was suitable for use to obtain the data needed by the researcher.

The stages of implementing this research began with determining the research subject, namely class XI MIPA, and then we compiled instruments in the form of observation sheets and questionnaires of teacher and student needs. The validity and reliability of the instrument were tested to determine whether the research instrument was good or not [11]. Researchers distributed needs questionnaires to respondents. The last step taken by researchers is to analyze the data. Each questionnaire item is scored using a Likert scale assessment with a score of 1 to 4 [12], with 1 for strongly disagree, 2 for disagree, 3 for agree, and 4 for strongly agree. The next step is to analyze the percentage of scores given by teachers and students. The needs of teachers and students for learning media based on the Lectora Inspire application are used as a percentage of the assessment, namely 0%-25% for strongly disagree, 26%-50% for disagree, 52%-75% for agree, and 76%-100% for strongly agree [13].

3. RESULTS AND DISCUSSION

Based on the response data from the needs analysis of Lectora Inspire-based learning media development, we can see an interesting pattern of student responses, learning experiences, and media needs. The response data is shown in Table 1. First, 82.52% of student responses are in the strongly agree category. Students' responses being in the agreed category might indicate that some students might have some doubts or additional needs related to the Lectora Inspire-based learning media. This could be an area that needs further attention to understand the student's perspective better. On learning experience, the percentage was 83.74% in the strongly agree category. The higher percentage in the "Strongly Agree" category for the learning experience indicates that in general, students were comfortable and satisfied with the learning experience they had. This is a positive aspect that needs to be maintained and improved in the development of learning media. On the media needs aspect, 95.98% of responses were in the strongly agree category. The high "Strongly Agree" category for media needs indicates that students feel that the Lectora Inspire-based learning media suits their needs. This indicates that there is a match between the teaching methods used and students' preferences in terms of learning media. The overall average percentage is 87.41% in the strongly agree category. The overall average percentage which is in the "Strongly Agree" category shows that in general, students have a very positive perception of the need for Lectora Inspire-based learning media development. However, keep in mind that there are differences in the level of agreement between different aspects.

Table 1. Aspects Observed on Students' Needs

Aspects observed	Percentage score	Category
Student response	82.52%	Strongly agree
Learning experience	83.74%	Strongly agree
Media needs	95.98%	Strongly agree
Average	87.41%	Strongly agree

Table 2. Aspects Observed on Teachers' Needs

Aspects observed	Percentage score	Category
Experience in learning	82.52%	Strongly agree
Media needs	83.74%	Strongly agree
Average	87.41%	Strongly agree

From the above discussion, it can be concluded that while there is some need for further attention in terms of student responses, overall, the Lectora Inspire-based learning media seems to match the needs and preferences of students in their learning experience. Therefore, further analysis needs to be done to understand the areas where student responses could be improved, as well as capitalize on the strengths of the learning experiences and media needs that have been affirmed by the students. Furthermore, teachers' responses on physics learning media needs as shown in Table 2.

The data presented in Table 2 provides insights into the aspects observed on teachers' needs, showcasing the percentage scores along with corresponding categories. In the experience in Learning aspect, we get a percentage score of 82.52% falling under the "strongly agree" category, which indicates that a significant majority of teachers perceive the need to enhance their experience in learning. This suggests that they are inclined towards continuous learning and professional development to improve their teaching methodologies, subject knowledge, and pedagogical approaches. Teachers recognizing the importance of their own learning experiences is crucial for maintaining relevance and effectiveness in their roles. In another aspect, namely media needs, the high percentage score of 83.74% categorized as "strongly agree" highlights the importance of media in meeting the needs of teachers. This could refer to various forms of media such as digital resources, educational videos, interactive software, and online platforms used for teaching purposes. It indicates that teachers value the integration of media into their instructional strategies to engage students, enhance learning experiences, and cater to diverse learning styles. Acknowledging the significance of media in education reflects a recognition of the evolving landscape of teaching and the importance of incorporating technology into educational practices.

For all aspects, the average percentage score of 87.41% also falling under the "strongly agree" category further reinforces the consensus among teachers regarding their needs. This average reflects a combination of the percentages for both experience in learning and media needs. It suggests a strong collective agreement among teachers on the significance of these aspects in their professional lives. This level of agreement indicates a common understanding among educators about the essential elements required to facilitate effective teaching and learning experiences.

In summary, the data underscores the importance of continuous learning experiences for teachers and the integration of media in educational practices. Recognizing and addressing these needs are vital for empowering teachers to adapt to changing educational paradigms, cater to diverse student populations, and foster enhanced learning outcomes. Additionally, these findings can inform educational policymakers, curriculum developers, and professional development providers in designing initiatives and resources that align with teachers' needs and contribute to overall educational excellence.

The results of the questionnaire analysis of learning media development needs show that students and teachers want learning media that can make students learn independently. The learning resources used by teachers currently make students less interested in learning because they only use pictures and text. Learners and teachers suggest the development of media that can be used by students. Based on the research data, it is necessary to develop learning media based on the Lectora Inspire application. The Lectora Inspire application was chosen because it can be used as a student self-learning facility and can be used as a medium that can help teachers explain the material. Learning media based on the Lectora Inspire application is teaching material designed in accordance with the curriculum and is attractively packaged so that it allows students to learn independently in a certain unit of time. This teaching material is also loaded based on the competencies that must be achieved in learning. The learning process using electronic-based media will be more effective and efficient [14]. Learning by using technology in media or tools will have a significant effect on the learning process [15]. Student attention in the learning process will increase more actively if learning using a computer because it can accommodate several components in the form of text, video, animation, images, audio, and interactive simulations [16].

Most of the learning media are packaged in the form of printed media in the form of books or printouts that are less practical and less attractive to use as media in the learning process [15]. This can be proven that there is a need for innovation in the development of learning media in accordance with technological developments, especially application-based learning media. Therefore, the development of learning media with Lectora Inspire can be an alternative.

Lectora Inspire has several advantages that make it a popular choice for making learning media. These advantages include (1) ease of use. Lectora Inspire has an intuitive and easy-to-use user interface, making it suitable for beginners as well as experienced users in creating learning media; (2) interactive features. Lectora Inspire is equipped with a wide range of interactive features that allow content creators to create engaging and interacting learning media, such as quizzes, simulations, and games; (3) Cross-Platform compatibility. Content created with Lectora Inspire can be easily accessed and run on various devices and platforms, including desktops, laptops, tablets, and smartphones; (4) various templates are available. Lectora Inspire provides various templates that can be used as the basis for creating learning media. This makes it easier for content creators to develop learning materials without having to create everything from scratch; (5) integration with a Learning Management System (LMS). Content created with Lectora Inspire can be easily integrated with various commonly used LMS, such as Moodle, Blackboard, and Canvas; (6) tracking and reporting capabilities. Lectora Inspire is equipped with tracking and reporting features that allow teachers to track participants' learning progress and generate reports that are useful for evaluation and analysis; (7) support and an active user community. Lectora Inspire is backed by a strong company and has an active user community. This allows users to get technical support and share experiences and knowledge with fellow users. With these features and advantages, Lectora Inspire is an excellent choice for creating interactive, engaging, and effective learning media.

4. CONCLUSION

Based on the results of the needs analysis, there is a need for improvement in physics learning that has been running so far. By looking at the needs in the field, it is necessary to develop more innovative learning media. It is no longer just using printed books. On the other hand, by looking at the advantages of Lectora Inspire, it is very likely to be used in developing physics learning media.

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