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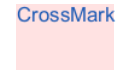
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Validity of Integrated Inquiry-Based E-book Character Education to Minimize Bullying and Improve Student Scientific Literacy

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Abstract. The use of information technology plays an important role in online and offline learning. Schools must also be ready to learn using the learning method from home during the pandemic. One alternative is to use a computer as a learning medium. Learning by utilizing computer media is very much needed in the era of the pandemic and the new normal. The purpose of this research is to create an inquiry-based e-book media that is integrated with character education in order to reduce bullying and improve students' scientific literacy. This is a development study based on the Four D development model. This research focuses on developing an inquiry-based integrated e-book product for character education. The data collection technique employs a validation sheet created by material expert lecturers and media experts who are knowledgeable in their respective fields. The Aiken'V test was used in the data analysis technique. The findings of the e-book feasibility test the validity value for character education is 83%, with very valid criteria. Character education-based inquiry e-books can be used and implemented in science education.

INTRODUCTION

Based on the results of the 2018 PISA, bullying is often experienced by students, in addition, data from the Indonesian Child Protection Commission (KPAI) in 2011–2017 shows that as many as 26 thousand reports regarding cases experienced by children, of which 34% of the reports were cases of violence involving children. occurs in children [1]; (a) The 2018 PISA results show that the scientific literacy of Indonesian students is ranked 72 out of 79 countries [2], this is even lower than the 2015 PISA results; (b) In addition, the closure of educational institutions due to the COVID-19 pandemic has a great influence on the learning process and educational curriculum [3]. The government's decision to suspend all educational activities in schools, learning must be carried out online [4].

Based on the results of field studies conducted in several schools in the city of Mataram, it shows that: (a) students' science learning outcomes are generally low, this is evidenced by the students' learning outcomes that are still below the minimum completeness criteria score of 75. The lower the learning outcomes of students, the lower their scientific literacy [5-6] (b) Initial research on the level of emotional management skills in junior high school students is in the very low category. These data can be interpreted that the skill level of managing emotions of junior high school students is in a low category, which means that many students have the potential to have a high tendency to bully [7]. In addition to these problems, Indonesia is also faced with the problem that there are still some teachers who rarely develop learning media in schools [8-9].

The use of android as a learning medium can be an alternative in learning. Learning using digital/android media can be done by providing digital teaching materials in the form of an integrated inquiry-based e-book (e-book). The purpose of this research is to develop an inquiry-based e-book that is integrated with appropriate, practical and effective character education to minimize bullying and improve students' scientific literacy. The e-book developed in this study is an e-book that uses the stages of guided inquiry and is integrated with character values with characteristics in the form of text, graphics, images, photos, audio, video, and animation in an integrated manner using a computer.

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The importance of developing an integrated inquiry-based e-book for character education that is beneficial to society and science and technology. Currently, Indonesian schools have facilities and infrastructure to support learning activities, but they have not been effectively researched and used as learning resources. The importance of research on integrated inquiry-based e-books in character education to minimize bullying and improve students' scientific literacy.

EXPERIMENTAL DESIGN

This type of research is known as R&D, which refers to the 4D development model developed by Thiagarajan, Semmel, and Sivasailam [10]. The purpose of this research is to create an inquiry-based integrated e-book product for character education that is feasible to be implemented in science learning.

By filling out a validation sheet, material specialist lecturers and media experts validate an integrated inquiry-based e-book for character education. Furthermore, the validator is required to make a general assessment and recommendation on the integrated inquiry-based character education e-book that has been developed, as well as whether the teaching materials created are legitimate or invalid. A validation questionnaire sheet was utilized to collect data. Using the Aiken's V formula, expert validation data were assessed to establish the level of validity.

RESULT AND DISCUSSION

This study uses a 4-D model that is focused on the development stage, which includes validity testing. The development of an inquiry-based e-book that integrates character education first goes through the define and design stages. At the define stage, content analysis, and literature review are appropriate. Many parts are decided in this section, such as the equipment needed, the number of instruments to be developed, the type of instrument selected, the material determined, namely the Motion of Living Things in the Surrounding Environment, Motion of Objects in the Surrounding Environment, Simple Work and Planes, Structure and Functions of Plants and the Human Digestive System, and who will be involved in this study. In addition, student analysis, task analysis, concept analysis and specification of learning objectives were also carried out.

The primary goal of the design phase is to prepare prototype devices for testing, media selection, and format selection. An inquiry learning model is used in the android-based learning e-book product. According to Eggen and Kauchak [11], there are several steps to guided inquiry learning in general, including orientation, problem formulation, hypothesis formulation, data collection, hypothesis testing, and conclusion formulation. These steps are intended to emphasize the significance of resolving various problems depicted in the developed e-book media [12]. In addition to development in terms of learning activities that are tailored to the learning model's syntax. Inquiry learning aims to provide students with opportunities to develop intellectual skills (thinking skills) through reflective thinking processes [13]. At the design stage, the researcher compiles an inquiry-based E-book product that integrates character education by making flowcharts and storyboards. Then collect supporting materials such as photos, videos, animations, and pictures. All materials collected are then entered into the Adobe Flash computer program application with reference to flowcharts and storyboards. Making flowcharts and storyboards aims to provide an overview of the form and content of the appearance of the e-book. Flowcharts and storyboards became the first reference for researchers to develop e-books into complete products using Adobe Flash CS 6. The results of the integrated inquiry-based E-book product for character education are then packaged in an application and included in the learning Compact Disc (CD) as a product design to support the learning process. Inquiry-based e-books integrated with character education are also equipped with user manual features that make it easier for students to understand the media developed and e-books have been facilitated with character education indicators, guided inquiry phases, and student scientific literacy indicators. The character education indicators used to consist of 6 indicators consisting of curious, initiative, persistent, adaptive, leadership, social and cultural sensitivity.

The character indicators in the e-book are intended to reduce bullying by fellow students. According to Wijayanti and Uswatun [14], cultivating character education since school age plays a critical role, particularly in efforts to combat bullying caused by a variety of factors, including the influence of television viewing. Because of the numerous negative consequences of bullying, character education is critical for developing healthy character and morals in children. This research and development have resulted in an e-book application. The researchers created and designed this e-book product with the goal of being able to be used by teachers to deliver learning materials as well as an independent learning resource that students can use outside of school at any time, particularly during learning and

4 learning during the Covid-19 pandemic. The results of developing an integrated inquiry-based e-book for character education are presented in Figure 1.



FIGURE 1. Results of e-book development

The validator made suggestions for improvement during the design of this e-book, such as including material and media aspects. Furthermore, animations and simulations used in inquiry-based character education e-books must be accompanied by usage instructions. Furthermore, the images of each activity that aids learning must be of high quality. Students will be happier and more enthusiastic about learning activities if high-quality images, animations, and simulations are used [17]. The media created as the first draft has been validated by material experts and media experts who look at aspects of content, presentation, and learning activities. Table 1 shows the validation results.

TABLE 1. E-book validation test results

Product	Product Design (%)	Media Content (%)	Average (%)	Criteria
E-book	85	83	84	Very Worthy

Based on Table 1 above, shows that the average percentage of product validation/feasibility results is 84% with very feasible criteria. This means that the product developed can be implemented in learning. In line with the research of Yustiqvar, et al [18]; Kartika, et al [19] products that have been developed that get the appropriate criteria from expert validators can be used as trials in the learning process. In addition, according to Ramdani, et al [20] android-based learning media is suitable for use in learning because it can increase students' learning motivation.

This inquiry-based integrated character education e-book that was developed is suitable to be applied in science learning because it has been facilitated with steps to develop scientific literacy and to minimize student bullying actions. E-books are made to be used independently by students. However, in general, this e-book can also be used as a presentation medium by teachers during a pandemic. This media is used in learning with the inquiry learning model.

Inquiry-based e-books integrated with character education can be used as learning media for junior high school students because the average value of eligibility shows that the application is feasible, students can study science material for class VIII using this application on their smartphones. In addition, students can also evaluate their knowledge by following the quiz section on the developed android media.

This android-based media has the advantage that it can be used independently both at school and outside of school because this media is easy to get, just download it via Google Drive so it can be used practically and can be downloaded via gadgets or via computers. This learning media is also equipped with a discussion and at the end of the evaluation, there is an assessment score to determine the level of student achievement using this learning media. This is in accordance with research from Muryoah & Fajartia [21] which shows that android-based learning can improve student learning outcomes.

This research is supported by research conducted by Martono & Nurhayati [22] which results in 95% of users feeling comfortable and satisfied in using mobile learning applications. Sunarto, et al [23] also conducted an android-based study with the results of the average percentage score of the questionnaire being 77.91% or within good criteria.

CONCLUSION

Character education that is integrated and inquiry-based E-books are generally thought to have a high level of validity. This demonstrates that the generated product can be used in science classrooms. Furthermore, the feasibility and effectiveness of an integrated inquiry-based e-book on character education will be assessed in this project.

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