VAK-Based E-Module for Grade IV Elementary School Students

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A R T I C L E   I N F O

A B S T R A K

Kurangnya kemampuan guru mengembangkan bahan ajar menyebabkan kebosanan. Tujuan penelitian ini yaitu untuk mengembangkan e-modul pembelajaran berbasis Visual Auditori Kinesthetic (VAK) yang ditujukan untuk siswa di kelas empat sekolah dasar adalah sol usi yang dapat ditawarkan peneliti. Penelitian ini merupakan penelitian pengembangan berbasis mixed method menggunakan model penelitian 4 D (Four-D). Metode pengumpulan data menggunakan observasi, wawancara, dan kuesioner. Subjek penelitian yaitu 4 ahli dan 1 guru. Subjek uji coba ditunjukan kepada siswa kelas IV SD. Teknik analisis data menggunakan analisis deskriptif kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa ahli materi dan ahli media melakukan pengujian produk, sedangkan guru dan siswa melakukan penilaian. Hasilnya menunjukkan hasil untuk ahli materi secara keseluruhan sebesar 91 persen dengan kategori sangat baik, ahli media secara keseluruhan sebesar 89 persen dengan kategori sangat baik, praktisi secara keseluruhan sebesar 95 persen dengan kategori sangat baik, dan siswa secara keseluruhan sebesar 93 persen dengan kategori sangat baik. Oleh karena itu, dapat disimpulkan bahwa e-modul pembelajaran yang berfokus pada materi yang hemat energi untuk siswa kelas IV Sekolah Dasar layak digunakan. Implikasi penelitian ini yaitu e-modul pembelajaran ini, dapat membantu guru dan siswa sebagai sarana pembelajaran sebagai penunjang pembelajaran khususnya pada materi berhemat energi.

A B S T R A C T

Lack of teacher ability to develop teaching materials causes boredom. The aim of this research is to develop a Visual Auditory Kinesthetic (VAK) based learning e-module aimed at students in the fourth grade of elementary school, a solution that researchers can offer. This research is a mixed method-based development research using the 4 D (Four-D) research model. Data collection methods use observation, interviews and questionnaires. The research subjects were 4 experts and 1 teacher. The test subjects were shown to fourth grade elementary school students. The data analysis technique uses qualitative and quantitative descriptive analysis. The research results show that material experts and media experts carry out product testing, while teachers and students carry out assessments. The results show overall results for material experts are 91 percent in the very good category, overall media experts are 89 percent in the very good category, practitioners overall are 95 percent in the very good category, and students overall are 93 percent in the very good category. Therefore, it can be concluded that learning e-modules that focus on energy-saving materials for fourth grade elementary school students are suitable for use. The implication of this research is that this learning e-module can help teachers and students as a learning tool to support learning, especially in energy saving material.

1. INTRODUCTION

Education is an experience that provides understanding, insight and harmony so that students can grow and develop (Ahmad, 2011; Fallis, 2013). Education is education by teachers for students. Adults are expected to be role models, learning, guiding, driving to advance moral ethics, and exploring the knowledge of each individual (Pristiwanti, et al., 2022; Fallis, 2013). Education is an important factor for society. Educated people can think logically. Education can make society better. Through education, a

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person is educated to be useful for the homeland, homeland and nation (Alpian, et al., 2019; Hughes, 2008). A quality generation can be formed, so that life in society can be more prosperous.

In education, every person will experience a learning process. Learning is essentially a process, namely the process of organizing and organizing the environment around students so that they can grow and be encouraged to carry out the learning process. Learning must also be a process where educators guide or support students in carrying out the learning process (Pane & Darwis Dasopang, 2017). In the learning process there are various parties involved in the learning process, not only educators and students, but the role of teaching materials is very important in the learning process (Aryawan et al., 2018; Nurdyansyah, 2018). Learning is a human process that occurs throughout life. From birth, from a baby learning to breastfeed and understanding their parents' advice as they grow and develop, to becoming an adult and starting to understand school material from elementary to college, learning is a fundamental part of human life (Agustin Adhaningrum, 2020; Nuraeni & Habibi, 2021; Siregar & Widyaningrum, 2015). Learning is a search for new information and knowledge about everything that exists in nature. Learning brings change to everyone who does the learning (Setiawati, 2018). Natural siences (science) is one of the subjects taught in elementary schools. Science is related to finding out about nature systematically (Acesta, 2020; SisteIswanto et al., 2018). In other words, science is not just mastery of a collection of knowledge in the form of facts, concepts and theories. It is hoped that science education can be used as a place for students to get to know themselves and their environment better, as well as develop students' perspectives by applying direct experience by carrying out scientific investigations in order to understand the natural surroundings (Asro, 2015; Larasanty, 2020). Science learning has a very broad scope, which students may not be able to get fully at the educational level, especially for elementary school students, because the learning time is short but contains a wide range of topics.

Based on the results of initial observations, there are several problems including: Lack of learning materials. Teachers only use K13 and KTSP books, as well as other references, as learning resources. The teaching materials used are still printed materials, the clarity of the material in the teaching materials used is difficult for students to understand. Apart from that, the teaching materials used in learning look boring and monotonous because they only contain lots of thick writing and pictures. Textbooks with an unattractive appearance make students uninterested in reading them. There is a lack of digital teaching materials, and teaching materials used to instill students' daily concepts have not been widely implemented in schools. However, in reality, research schools found that there were no e-modules that could be used to support science learning in schools and they still used K13 books, KTSP and other references as learning references (Okta Priantini & Widiastuti, 2021; Sriyanti et al., 2021). For e-modules themselves, SD Negeri 1 Panji is still planning to provide e-modules for learning. Apart from that, around 40% of the children at SD Negeri 1 Panji, from class IV students, can access learning using technology such as using smartphones. For this reason, e-modules are needed for students so that students can learn better, whether at school or when studying independently, and are more familiar with technology. Therefore, selecting various learning models is necessary.

The solution that can be done to solve this problem is to develop VAK-based e-modules which are highly recommended for science lessons in elementary schools, especially for science lessons in class IV, in Always Save Energy learning because VAK-based e-modules can help students. to increase student motivation when studying because VAK-based e-modules have an attractive design, and help students want to learn because there is quite extensive learning material, and can teach students to be able to learn independently, so that students are not only focused on learning in school, but can also learn more when alone at home, so that what students learn can be better understood. One learning model is the VAK (Visual Auditory Kinesthetic) learning model. The Visual Auditory Kinesthetic (VAK) learning model is an alternative model that can be used to overcome and improve students' science learning outcomes. In applying the VAK model, students must optimize the experience. The VAK learning model seeks three learning modalities, namely seeing, hearing and moving so that students can learn comfortably. Learning that applies this model prioritizes learning experiences (Rukmana et al., 2018; Widya Adnyani & Wiarta, 2020). Apart from that, VAK-based e-modules can help students with a learning model that helps students learn to use all the sensory tools they have so that student learning outcomes can be maximized.

Previous research findings state that the VAK learning model can help students and create a pleasant science learning atmosphere (Dewi et al., 2023). The visual auditory kinesthetic learning model and learning motivation influence the social science knowledge competency of fourth grade elementary school students (Parbawa, 2018). This product is designed in such a way that it forms teaching materials that are practical, systematic, and also easy to use and understand. This learning e-module product is used as learning material for students, and can also be used by teachers as teaching material. The benefits of this learning e-module, of course, help teachers and students as a learning tool to support learning,

especially regarding energy saving material. The aim of this research is to create a VAK-based e-module for fourth grade elementary school students.

2. METHOD

This research is a mixed method-based development research using the 4 D (Four-D) research model. The 4D (Four-D) model is used as a research and development model. The 4D development model can be adapted to the four Ps, namely definition, design, development and deployment. Development research is a method for creating a particular work or improving existing work, as well as for evaluating the effectiveness of that work. This research is based on Thiagarajan's Four D Model, which consists of four stages. First, define. Development conditions are established and defined. Requirements analysis in other models is a term often used for this phase. Each product requires different analysis. In general, this definition includes needs analysis. This analysis is usually carried out through literature research or preliminary research. Second, design, one of the tasks that must be completed at this stage is creating a standard test as the first method, choosing learning media, adjusting the presentation style, simulating. Learning simulations also involve peer assessment. Third, develop (development) is divided into two processes: expert assessment and development assessment. The expert assessment method validates or evaluates the suitability of a product design. In this activity, experts in the field carry out evaluations. The learning materials and designs that have been created are improved with the suggestions given. Product development trials on real subjects are known as development trials. These tests collect information about responses, reactions, or comments from target users of the model. The test results are used to develop new products. After the product has been repaired, it is tested again until it produces good results. Fourth, Disseminate, namely validation testing, packaging, distribution and adoption. Products that have been revised during the development stage are then applied to their actual purpose in the validation testing stage. Measuring the achievement of objectives is carried out during implementation. Measurement determines how effective the product is. Developers must review results to ensure that goals are achieved after the product is implemented. Deployment is the final activity. The packaging stage is skipped, and the e-module created is disseminated directly to be adopted and absorbed by others. Data collection methods were obtained from various supporting book sources in the field and learning resources contained in the syllabus which were then analyzed qualitatively. Data collection methods use observation, interviews and questionnaires. The research subjects were 4 experts and 1 teacher. The test subjects were shown to fourth grade elementary school students. The data analysis technique uses

3. RESULT AND DISCUSSION

Result

This research is a mixed method-based development research using the 4 D (Four-D) research model. In the define stage, the results of the analysis show that there are several problems, including a lack of learning materials. Teachers only use K13 and KTSP books, as well as other references, as learning resources. The teaching materials used are still printed materials, the clarity of the material in the teaching materials used is difficult for students to understand. Apart from that, the teaching materials used in learning look boring and monotonous because they only contain lots of thick writing and pictures. Textbooks with an unattractive appearance make students uninterested in reading them. There is a lack of digital teaching materials, and teaching materials used to instill students' daily concepts have not been widely implemented in schools. However, in reality, schools found that there were no e-modules that could be used to support science learning in schools and they still used K13 books, KTSP and other references as learning references. For e-modules themselves, SD Negeri 1 Panji is still planning to provide e-modules for learning. Apart from that, around 40% of the children at SD Negeri 1 Panji, from class IV students, can access learning using technology such as using smartphones. For this reason, e-modules are needed for students so that students can learn better, whether at school or when studying independently, and are more familiar with technology.

In the design stage, the E-module created is composed of several parts. The first part is the front cover which contains the title of the teaching material, supporting images, title of the material, class, and the author's identity. After that, the introduction is in the form of a foreword on the second page. The next section is the concept map page, followed by learning competencies and indicators, and then learning objectives. The contents of the e-module are on pages 6 to 19 which discuss energy and how to save it. Then the last part is a thank you. On pages 1 to 19 there is audio that can be played. The development of teaching materials is carried out based on an analysis of existing problems in the field and student needs. The appearance of the E-Module is presented in Figure 1.

Figure 1. E-Module Display

Third, develop (development), product trials are carried out on learning e-module products to determine their validity. Carrying out trials to determine its validity through scores/values. After passing the product validity testing stage, the media product needs to be revised based on comments. The obtained media validity test scores/values are then analyzed to obtain the validity of the e-module. Data analysis was carried out by calculating the average score. Material validity is 91% in the very good category, media validity results are 89.5% good. The e-module teaching materials can be said to have very good qualifications. Comments and suggestions for E-module products are presented in Table 1.

Table 1. Comments and Suggestions for E-Module Products

Expert 1	• Already well
Expert 2	• Add the source of the images used in the e-module and write them below the image
	• It is best to add a bibliography at the end of the e-module
Expert 3	• Revision of learning objectives
Expert 4	• Choose a type of writing that is easy to understand on KD and Indicators
	• Don't forget to add appropriate punctuation at the end of the sentence
	• Add evaluation questions

Based on the obtained scores/test values from practitioners and students, it is also carried out to determine the scores/values from the responses of practitioners and students. To find out the score, one teacher is needed. The results of the research show that the validity of practitioner responses is 95% in the good category, and the validity of student responses is 93.2% in the very good category. E-module teaching materials can be said to have very good qualifications based on the results of validity tests from practitioner and student responses.

Discussion

The development of a VAK-based e-module for fourth grade elementary school students obtained valid content validity and received a response in the very good category. In terms of material, interactive e-modules have been developed based on analysis of student conditions and needs and curriculum analysis. Apart from that, the thematic material in the interactive e-module is in accordance with basic competencies, learning objectives, the correctness of the concept of integration, and good presentation of the material. E-module learning media is called independent learning media because it is equipped with instructions for independent learning, so that students can carry out learning activities without the direct presence of a teacher (Bock et al., 2018; Sofyan et al., 2020). Learning does not merely encourage students to know (learn to know), but also learn to do (learn to do), learn to be (learn to be), and learn to live together (learn to live together). The existence of the module also prioritizes joyful learning without pressure and fear but which is meaningful for students (Agung et al., 2020; Ningsih & Mahyuddin, 2021; Susilawati et al., 2020). The concept of integration contained in the material in the e-module is appropriate, that as an integrated learning model, integrated learning has characteristics such as, being

student-centered, providing direct experience, the separation of subjects is not very clear because it discusses themes, presents concepts from various subjects, is flexible, learning outcomes are in accordance with students' interests and needs, also uses the principle of learning while playing. Elementary school children, children still think about things that are real (concrete), so when learning children still need direct demonstrations to gain direct experience (Indah Junia & Sujana, 2023; Ningsih & Mahyuddin, 2021). So that the material developed is in accordance with student characteristics. Apart from that, e-modules are communicative, interactive learning media that make it easier for students to learn.

VAK-based e-module for fourth grade elementary school students pay great attention to the design of text messages. It is very important to pay attention to design so that the material is easy to understand and attracts students' interest in learning so that students become motivated when using it in the learning process (Astra et al., 2020; Sukarman et al., 2021). Electronic modules or E-Modules are a means of teaching materials for learning which contain interesting and structured methods, learning materials and evaluation methods to achieve the expected learning electronically (Ningsih & Mahyuddin, 2021; Sukarman et al., 2021). E-Modules make it easier for students to learn without requiring a lot of money because they are digital and can be taken anywhere (Mohzana et al., 2023; Wibowo & Pratiwi, 2018; Zahara Konita, 2021). Apart from that, the Visual Auditory Kinesthetic (VAK) learning model is an alternative model that can be used to overcome and improve students' science learning outcomes. In applying the VAK model, students must optimize the experience. The VAK learning model seeks three learning modalities, namely seeing, hearing and moving so that students can learn comfortably. Learning that applies this model prioritizes learning experiences (Rukmana et al., 2018; Widya Adnyani & Wiarta, 2020). Apart from that, VAK-based e-modules can help students with a learning model that helps students learn to use all the sensory tools they have so that student learning outcomes can be maximized.

This finding is strengthened by previous research findings stating that the E-module is applicable to strengthen mastery of physics material in skill competencies in vocational schools (Basyaruddin & Ellianawati, 2021). The flipbook application-based e-module in elementary schools is valid and suitable for use (Kumalasani & Eilmelda, 2022; Ramadhina & Pranata, 2022). Improving biology learning outcomes through e-modules based on problem based learning (Pramana et al., 2020).The VAK learning model can help students and make the science learning atmosphere enjoyable (Dewi et al., 2023). The visual auditory kinesthetic learning model and learning motivation influence the social science knowledge competency of fourth grade elementary school students (Parbawa, 2018). This product is designed in such a way that it forms teaching materials that are practical, systematic, and also easy to use and understand. This learning e-module product is used as learning material for students, and can also be used by teachers as teaching material. The limitation of this research is only the development stage. The implication of this research is that this learning e-module can help teachers and students as a learning tool to support learning, especially in energy saving material.

4. CONCLUSION

E- module VAK-based developed using the ADDIE module as a whole is valid with very good qualifications. The content in the e-module is very interesting and complete because it contains pictures, audio, video and quizzes so that it can be used by teachers and students in the learning process, as well as teaching material that can enable students to learn independently with or without assistance from teachers and parents. It is recommended that this e-module be utilized properly so that the learning resources used in thematic learning are not only student handbooks and limited textbooks. The use of interactive e-modules, apart from adding digital learning resources, is also expected to be able to foster students' interest in learning and curiosity, so that they are active during the learning process.

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