Development of E-Modules of Hydrology Cycle Integrated With Verses of The Qur'an: A Needs Analysis Review

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Abstract
Water resources constitute a pivotal facet of human existence and environmental equilibrium, particularly within the purview of geography. In 21st-century education, the imperative is to impart contemporary and germane insights into the hydrological cycle through innovative pedagogical methodologies and media. A cornerstone of innovative learning lies in the provision of adaptable educational resources, furnishing an efficacious alternative to augment students' comprehension of scholastic materials. The integration of Quranic verses in geography education emerges as a stratagem to endow students with supplementary value, instilling moral and ethical perspectives on the stewardship of natural resources. Consequently, this study adopts a qualitative descriptive research methodology, employing questionnaires disseminated to 30 students and 2 teachers. Subsequent data analysis reveals a conspicuous demand for the development of geography learning e-modules, with a specific emphasis on integrating Quranic verses into hydrological cycle materials. Foreseen as instrumental, these e-modules are poised to facilitate students' apprehension of abstract phenomena intrinsic to geography education, where visual comprehension is frequently challenging. The assimilation of e-modules is anticipated to underpin a profound understanding of intricate topics, exemplified by the nuanced dynamics of the rain phenomenon within the Hydrosphere.

Keywords ; E-Module, Hydrological Cycle, Quranic Verses

PENDAHULUAN

The expeditious adoption of technological and informational advancements propels swift societal innovations across diverse realms. The advent of the Fourth Industrial Revolution has rendered information technology an indispensable facet of individuals' daily lives. Within the educational milieu, this necessitates a paradigm shift, compelling institutions to leverage technology to meet the exigencies of future needs (Lestari et al., 2023; Himmetoglu et al., 2020; Ciolacu et al., 2017). Education 4.0 has ushered in a

myriad of novel educational programs, particularly noteworthy in the Indonesian context. An illustrative instance is the Merdeka Curriculum, conceived as a successor to the 2013 Curriculum. This innovative curriculum is meticulously designed to inculcate the foundational values of Pancasila and Bhineka Tunggal Ika, quintessential to the Indonesian ethos (Vhalery et al., 2022, Saminan et al., 2023). The common thread between these educational frameworks lies in their commitment to student-centered learning. However, this pedagogical ideal often encounters disjunction with the realities on the ground, where students frequently encounter challenges in manifesting creative ideas within the learning process. Consequently, educators are tasked not merely with assisting students but actively participating in the pedagogical process to bridge this gap (Purnama, 2018; Khairul et al., 2024).

In attaining educational objectives, educators must adeptly craft instructional materials tailored to students' characteristics, seamlessly integrated into the broader spectrum of learning resources. As posited by Prastowo (2011), teaching materials encompass a comprehensive array of systematically organized elements, comprising informational, tangible, and textual components. These materials delineate a holistic representation of the competencies students are expected to master, serving as pivotal tools in both the planning and evaluative phases of the learning process. Examples of such materials encompass textbooks, modules, handouts, LKS (Student Worksheets), models or mockups, audio teaching aids, interactive instructional materials, and the like, as articulated by Yani and Ali (2022).

In the realm of education, electronic modules, colloquially known as e-modules, have witnessed a burgeoning ascent as pivotal pedagogical tools. These digital modules offer students a dynamic and immersive learning experience, affording them the autonomy to progress at their individual pace and align their studies with their preferred learning modalities. This educational paradigm shift is underscored by the integration of diverse multimedia elements, encompassing videos, quizzes, interactive exercises, and simulations, thereby enriching the overall pedagogical landscape (Aulakh et al., 2023). This transformative trend is equally germane within the sphere of geography education, where e-modules emerge as facilitators for a nuanced understanding of abstract terrestrial phenomena. Geography, construed as the systematic inquiry into Earth's physical attributes, climate, demographic dynamics, and diverse planetary occurrences, investigates the intricate interplay between humanity and its surrounding environment. This holistic exploration extends to unraveling the reciprocal influences and interactions between individuals and their habitat. Geography, as a discipline, empowers learners to discern patterns in resource allocation, land utilization, and the ramifications of human activities on the natural milieu. Through the lens of geography, individuals gain profound insights into the intricate complexities of our world, thereby fostering informed decision-making in their engagements with it.

In order to comprehend and solve global issues like urbanization, water scarcity, climate change, and natural disasters, geography is also crucial (Bloschl, 2005 Bengtsson et al., 2014). We can better comprehend how Earthly phenomena, like the rainy phenomenon, come about by studying geography. We frequently believe that the rain

phenomenon is disastrous as floods will result from it if it persists. Nonetheless, if we recognize the significance of the rain phenomenon—namely, its ability to disperse water around the planet. Understanding the hydrological cycle is necessary in order to comprehend this occurrence.

The hydrological cycle, commonly referred to as the water cycle, constitutes a pivotal process governing the movement and distribution of water on Earth. This intricate cycle entails the perpetual movement of water from the Earth's atmosphere to its surface, infiltrating underground reservoirs, and subsequently returning to the atmosphere. A profound comprehension of the hydrological cycle holds paramount significance across various dimensions of our lives, encompassing agriculture, water resource management, and the prognostication of natural calamities like floods and droughts (Clark et al., 2016; Yang et al., 2021). These natural phenomena, often stemming from imperceptible triggers, necessitate a comprehensive examination through both scientific and religious perspectives (Lorenz, 2013; Saminan et al., 2023). In explicating these phenomena scientifically, humanity grapples with the inherent limitations of our cognitive capacities during specific historical epochs. Consequently, a direct understanding of the intricate purpose underlying the creation of all entities for the collective well-being of creatures remains elusive. This void can potentially be addressed through the incorporation of e-modules, fostering a spiritual disposition. In instances where the naked eye falls short in comprehension, the magnificence of God's creation becomes evident. This is elucidated in Quranic verses such as [30]:48, affirming that rain descends with a predetermined measure according to the divine will. The uncertainty of future events, including the timing of rainfall, underscores the omniscience reserved solely for Allah SWT (Johan et al., 2018)

The main aim of this e-module is to provide a thorough explanation of the hydrological cycle, including all of its various components and processes, all of which are deeply entwined with verses from the Qur'an. The study then attempts to carry out a preliminary needs analysis, identifying the necessary conditions for the creation and incorporation of an e-module on the hydrological cycle that includes verses from the Qur'an. Highlighting the great importance of this kind of integration particularly for the development of spiritual attitudes in the context of geography education is the main objective.

METODE PENELITIAN

This study employed a descriptive research method with a survey design to analyze the need for developing geography e-modules integrated with Quranic verses. The data were collected from 30 students and 2 geography teachers at a Madrasah Aliyah in Aceh Province, Indonesia. The participants were selected using purposive sampling, considering their direct involvement in geography learning and their relevance to the research objective.

The primary data collection instrument was a perception questionnaire adapted from Cohen (1995) and Vilmala et al. (2022), consisting of 10 items, including 8 closed-ended questions and 2 open-ended questions. The closed-ended questions were designed to measure students' perceptions of the use of technology, e-modules, and the integration of Quranic verses in geography learning, while the open-ended questions explored students' opinions and challenges in using interactive e-modules. In addition, semi-structured

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interviews were conducted with selected students and teachers to obtain deeper insights and to support data triangulation. Classroom observations were also carried out to understand the current use of learning media in geography learning.

The data collection process was conducted during the academic year in a classroom setting. Quantitative data from closed-ended questionnaire items were analyzed using descriptive statistics, particularly percentages, to identify the level of students' perceptions and needs. Meanwhile, qualitative data obtained from open-ended responses, interviews, and observations were analyzed using descriptive qualitative analysis through data reduction, categorization, and interpretation. Triangulation of data sources was applied to ensure the validity and credibility of the findings. The questionnaire can be seen in Table 1.

Table 1
Student perception statements

No.	Statement
1	Do I know about e-modules?
2	In your opinion, do you think geography lessons are currently using technology?
3	Have I ever used electronic devices such as computers or cell phones for learning?
4	Do you think that interesting and interactive learning products or product designs make for interesting learning?
5	I know the importance of Quranic verses being integrated into learning.
6	I want a learning module that provides a visualization with images, videos, and animations.
7	I think that integrating Quranic verses into geography learning, especially on the hydrologicalcycle, can contribute to students gaining new knowledge.
8	I am sure I am interested in learning more about the hydrological cycle integrated with Quranic verses in geography learning?
9	What do you think, if I will integrate Quranic verses into e-modules of the hydrological cyclethrough Geography learning? (give your opinion in several sentences)
10	Give your opinion on the challenges and obstacles when using interactive e-modules online.(explain in a few sentences)

HASIL DAN PEMBAHASAN

The author should start with introducing the table, inserting the table, and providing some explanation about the table content. The results of a survey given to 30 students in one of the secondary schools in Aceh about their perception of the need for learning media in the form of e-modules integrated with Quranic verses can be seen in Figure 1.

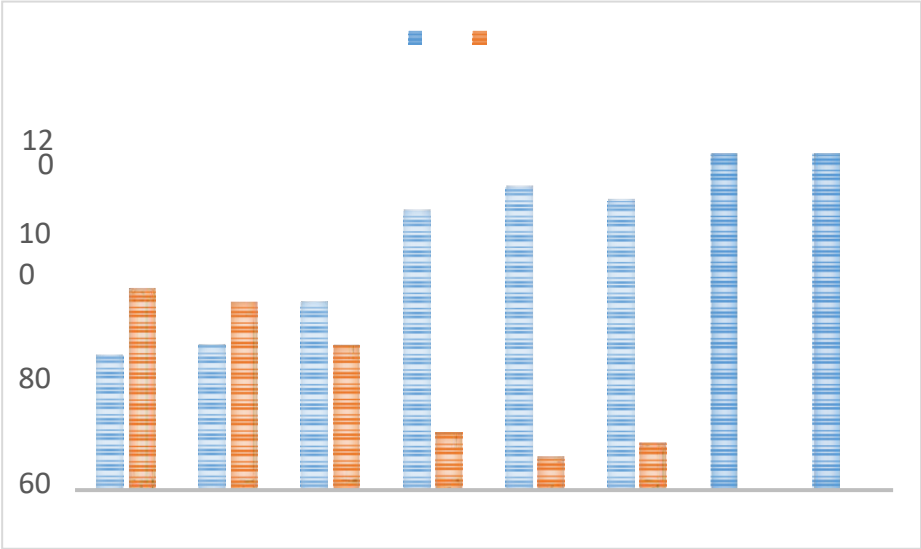

Figure 1. Students' perception of the need for Geography learning e-modules integrated with Quranicverses

Figure 1 shows that students have an understanding of the need for e-modules integrated with Quranic verses. As many as 40% of respondents are aware of e-modules (P1). Although there have been many learning media used by educators in Indonesia, e-modules are the latest for students in Madrasah Aliyah where this research data was collected. Specifically, the use of e-modules is still a learning trend now and in the future. 53% (P2) of geography lessons have not integrated technology into learning. There are no platforms or tools to specifically support online collaboration between students or knowledge sharing through social media or forums.

As many as 56% (P3) of respondents know the many benefits of using electronic devices or cell phones during learning. The use of technology can lead to positive learning. Many respondents agreedthat interesting and interactive learning products or product designs make learning interesting, namely 84% (P4). Respondents also know how important it is to integrate Quranic verses into Geography learning as much as 90% (P5). So 86% of respondents want the use of technology such as learning e-modules by providing visualization with images, videos, and animations that can explain geographic phenomena that often occur in everyday life and are related to verses (P6). A total of 100% of respondents agreed that integrating Quranic verses into geography learning, especially on the hydrological cycle, can create new knowledge for students (P7). Overall, 100% of respondents were interested in learning more about the hydrological cycle integrated with Quranic verses in geography learning (P8).

Respondents mentioned various statements related to integrating Quranic verses into the e-modules of the hydrological cycle through Geography learning is a necessity in learning because the form of learning material is presented in a digital format. E-modules can include a variety of content such as text, images, audio, video, and other interactive elements. The main purpose of e-modules is to provide a more flexible and interactive learning experience, allowing students to learn independently or with teacher guidance.

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Integrating Quranic verses into the e-module of the hydrological cycle in Geography learning can be an interesting and meaningful approach. According to the results of research (saminan et al., 2023) Al- Quran verses can provide a spiritual and ethical dimension to geography learning, providing students witha more holistic understanding of the importance of protecting the environment and water resources, supporting the values of conservation and environmental management. As an example from the Quranic verse Ar-Ruum verse 48, namely "Allah is the One who creates the wind, then He brings the clouds, thenHe spreads them out in the sky and He breaks them into two parts, so it rains from between them; then with the rain, He brings life to the dead earth. Such is (His) resurrection." The verse explains how the hydrological cycle makes the rain phenomenon that we often need.

Respondents also had various perceptions about the challenges and obstacles they felt when usinginteractive e-modules online, namely: not all students have stable internet access, so it becomes an obstacle when students want to access the material. However, it will be very interesting when learning can incorporate technology that can bring students to the level of ability to explain scientific in aspects of knowledge, behavior, and attitudes. It is a challenge for educators to package materials in the form of e-modules that integrate Quranic verses. Aceh Province itself is currently one of the strongest enforcement of Islamic law. This means that integrating Quranic verses into learning, especially geography, is very potential for the world of education in Aceh in addition to Islamic boarding schools.

Explaining certain geographic phenomena can be a daunting task, especially when they are abstract, such as the occurrence of rain. state students in understanding the phenomenon are packaged in a form called e-module. This is in line with (Aulakh, 2023 and Lestari 2023) that this E-module will provide a variety of content such as text, images, audio, video, and other interactive elements. So that abstract phenomena can be explained by students. To make a phenomenon real, it is necessary to integrate it with the verses of the Quran.

Figure 2 explains how students can think and explain and be accepted by common sense that every phenomenon and disaster has been designed by God. This will strengthen our gratitude towards God's creation and strengthen one's faith at the level of spiritual attitude.

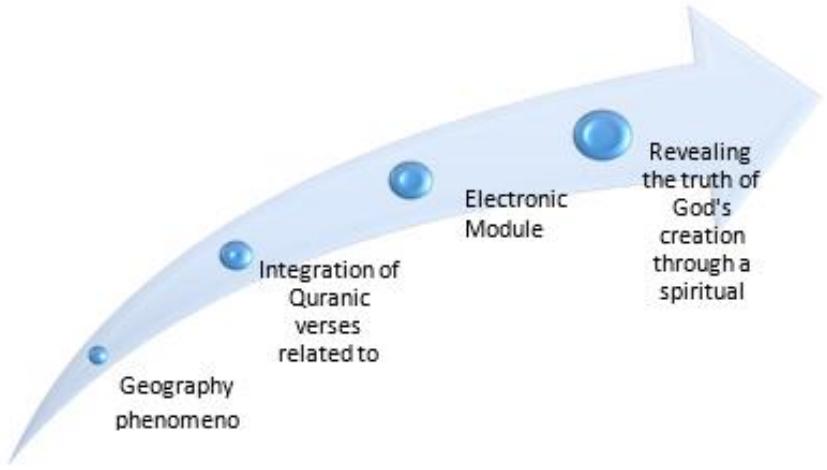

Figure 2. Terminology of needs for e-modules integrated with Quranic verses

KESIMPULAN

This study aimed to analyze the need for developing geography e-modules on the hydrological cycle integrated with Quranic verses based on students' and teachers' perceptions. The findings indicate a strong need for the development of such e-modules. Most students showed positive responses toward the use of technology-based learning media and expressed interest in e-modules equipped with visualizations such as images, videos, and animations to help them understand abstract geographic phenomena. In addition, students demonstrated positive perceptions of integrating Quranic verses into geography learning. This integration not only supports students' conceptual understanding of the hydrological cycle but also provides deeper meaning by connecting scientific knowledge with spiritual values. This indicates that the integration of technology and Islamic values can support more contextual and holistic learning. These findings provide empirical evidence that the development of geography e-modules integrated with Quranic verses is a relevant and necessary need, particularly in the educational context of Aceh. The development of such e-modules has the potential to improve learning quality, enhance student engagement, and support the integration of scientific knowledge and spiritual values in geography education

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