



Analysis of Teacher's Needs for the Contextual-Based Reaction Rate E-module Integrated with Islamic Values

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Article Info	Abstract
Received: Jul 15 th , 2024 Revised: Oct 10 th , 2024 Accepted: Oct 27 st , 2024	E-modules as learning support function to facilitate students' understanding in order to obtain meaningful learning. This study aims to explore teachers' needs for contextual-based e-modules integrated with Islamic values in the reaction rate material. The method used is an exploratory survey with a semi-open questionnaire technique, then the results obtained are analyzed using content analysis. The results of the study showed that participants still had difficulty finding sources/media that integrate Islamic values in chemistry material, especially reaction rate material. This makes contextual-based e-modules integrated with Islamic values in reaction rate material important to be developed as chemistry learning media. This e-module can help participants in preparing learning media. Thus, it can be seen that overall it is still necessary to develop contextual-based e-modules integrated with Islamic values in reaction rate material.
Keywords: e-module, contextual, integration Islamic values, reaction rate	

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INTRODUCTION

During January-April 2019, the Indonesian Child Protection Commission (KPAI) recorded 37 cases of juvenile delinquency at various levels of education. The number of brawls between students has also increased from year to year. In 2017, juvenile delinquency in Indonesia was 12.9% and then increased by 2% in 2018 (Hardin & Nidia, 2022). An increase also occurred in juvenile criminal acts such as physical and psychological violence. In 2018-2021 in Indonesia there was an increase in juvenile delinquency of 10.7% (Murni & Feriyal, 2023). Juvenile delinquency can be overcome through character education by combining Islam and science (Siregar, 2024). Therefore, learning media that is integrated with Islamic values is needed. However, so far there are still few learning media that integrate classroom material with Islamic values (Ihsanudin, 2023).

One of the learning media that can be integrated with Islamic values is a module. A module is one of the educational tools to support learning that contains learning materials, learning methods, limitations, and how to evaluate learning that is designed systematically to achieve learning objectives (Erdi & Padwa, 2022). The learning tool discusses one topic that can be printed or non-printed (Kemdikbud, 2024). Non-printed modules or electronic modules (e-modules) have many advantages over printed modules. The advantages of e-modules are that they are more interesting and interactive because they contain images, videos, and sounds so that they attract more students' attention (Endaryati et al., 2021).

The presence of images, videos, and sounds can increase students' learning motivation (Khoiriah et al., 2022), especially in subjects that are considered difficult. One of the subjects that is considered difficult by students is chemistry because chemistry material contains many concepts related to reactions and calculations that are abstract (Samosir & Nainggolan, 2022). One of the chemistry materials that is less popular with students is the reaction rate material (Muliaman, 2021). This is because the reaction rate is a complex material because it is a combination of abstract knowledge in the form of reaction rate equations, reaction rate orders that require calculation

practice, factors that influence reaction rates, and collision theories (Muliaman, 2021). Thus, students need to get meaningful learning so that they can develop good mastery of chemical concepts.

Meaningful learning can be done by increasing students' interest in finding conceptual relationships with the knowledge they have. This process encourages students to actively seek, find, and use their knowledge to obtain lesson concepts (Siraga & Silaban, 2020). The learning process that emphasizes students to relate learning materials to real-life contexts is called learning with a contextual approach (Suastika & Rahmawati, 2019). The application of a contextual approach aims for students to gain a deep understanding, so that they are able to apply the concepts learned to new situations in life (Andriani et al., 2019).

Based on Harahap's research (2024), contextual-based chemistry learning modules are effective in increasing student motivation and learning outcomes. In addition, Islamic values are an inseparable part of the formation of a person's character. Research by Ningrum, Supardi, Jumaeri, and Haryani (2020) shows that students experience an increase in character after the implementation of integrated education with religious or Islamic values. The application of contextual-based learning and the integration of Islamic values in learning both have advantages. However, so far there has been no learning media, especially e-modules, that combine the two in the reaction rate material. Therefore, this study was conducted to explore the characteristics of e-modules needed by teachers in schools.

METHOD

Research Methods

The research method used is an exploratory survey with a qualitative approach. The purpose of this study is to explore the characteristics of e-modules needed by teachers in schools, especially Islamic-based high schools. The focus of this study is to explore the current condition of chemistry learning, teachers' understanding of the meaning of the independent curriculum, learning media, and the application of a contextual approach integrated with Islamic values. In addition, it also explores the urgency of implementing contextual learning and integrated Islamic values, obstacles to implementing chemistry learning, teachers' opinions on e-modules designed with a contextual approach integrated with Islamic values, and solutions to e-modules needed by teachers in schools.

Research Participants

This study involved 5 chemistry teachers of Madrasah Aliyah (MA) in the Special Region of Yogyakarta from 4 different schools. The selected teachers had a minimum of 10 years of teaching experience, knew about contextual learning, and knew about integrated learning of Islamic values. The selection of research participants was based on purposive sampling technique.

Data Collection Technique and Instrument

The data collection technique in this study used a questionnaire technique and the type of data obtained was qualitative. The questionnaire used was semi-open and adapted from Nugrahani (2024). The adapted questionnaire was then validated by a chemical education expert. The questionnaire grid is shown in table 1.

Table 1. Questionnaire Grid

Aspect	Indicator	Amount Item
Chemistry learning conditions	Implementation of the independent curriculum	1
Understanding	Understanding of learning media	2
	Understanding of contextual approaches and integration of Islamic values	2
Urgency	The need for effective and efficient learning media	2
	Urgency of e-learning modules	1
	Urgency of implementation contextual learning, integration of Islamic values, and strengthening student character	3
	Experience using e-module	3

Aspect	Indicator	Amount Item
Constraints	Constraints on implementing the independent curriculum	1
	Constraints on using e-learning modules	1
	Constraints on implementing contextual learning and integration of Islamic values	2
Teacher's Opinion	Teacher's opinion regarding the e-module to be developed	3
Solution	Content, characteristics, and delivery system	3
Comment	Comments and suggestion from respondent	1
Total Items		25

Data Analysis

The data analysis technique used in this study is content analysis with open coding. Each question is categorized based on the aspect or focus of the research and the coding process is carried out for each question. The coding process is carried out twice, namely primary and secondary coding. Furthermore, the coding results are analyzed for each aspect.

RESULTS AND DISCUSSION

The purpose of developing a contextual chemistry e-module integrated with Islamic values in the reaction rate material is to help improve the quality of learning resources in schools, make it easier for students to understand lessons, and improve critical thinking skills because of the integration of Islamic values that are linked to phenomena around students (Kurniawan & Hadi, 2023). In addition, the existence of this e-module can also add references to learning media for teachers in carrying out learning activities. In addition, the existence of this e-module can be used to improve students' knowledge and understanding, especially in the reaction rate material and its relationship to Islamic values. The results of the analysis of teacher needs for contextual e-modules integrated with Islamic values in the reaction rate material are as follows.

Chemistry Learning Conditions

The Madrasah Aliyah (MA) where this research was conducted has implemented the independent curriculum. The independent curriculum has been implemented starting from class X or phase E. The preparation of lesson plans has used teaching modules as learning tools. In addition, MA also applies subject grouping into science and social studies.

Teacher's Understanding

Based on questions from the questionnaire that have been filled out by participants, answers were obtained regarding teacher's understanding of learning media, contextual approaches, and integration of Islamic values. The results can be seen in table 2.

Table 2. Analysis of Teacher's Understanding

No.	Question	Answer Analysis
1.	In your opinion, what is meant by learning media?	Tools or materials to help deliver learning materials
2.	What types of learning media do you know?	<ul style="list-style-type: none"> • Electronic media (visual media, audio, video, images interactive, and IT-based learning media such as Quiziz, wordwall, workshett, kahoot) • Print media (modules, printed images, books) • Teaching aids (3-dimensional media such as molymod)
3.	In your opinion, what is meant by "Contextual Approach"?	Relating to the daily life of students as an implementation of the knowledge gained in real life

No.	Question	Answer Analysis
4.	In your opinion, what is meant by "Integration of Islamic Values" ?	Integration of Islamic values into learning

All participants know that learning media are tools, sources, facilities or infrastructure that help deliver material and can be in print or electronic form. Then all participants also know that the contextual approach is a learning concept that connects material with the real life conditions of students (Kadir, 2013) especially the daily lives of students. In addition, participants also know about the integration of Islamic values in learning.

Urgency

There are four important reasons for using media in the learning process, namely improving the quality of learning, demands of new paradigms, meeting market needs, and the vision of global education. In addition, the use of learning media can also affect the attitudes, knowledge, and skills of students. Not only for students, but learning media also affects the ability of educators to teach and the learning atmosphere that is formed (Batubara, 2020).

The use of e-modules, the application of contextual approaches, and the integration of Islamic values in chemistry learning have their own urgency and objectives. The following are the results of the analysis of participant answers regarding the urgency of using e-modules, the application of contextual approaches, and the integration of Islamic values presented in Table 3.

Table 3. Analysis of Answers Regarding the Urgency of Using E-modules, Application of Contextual Approaches, and Integration of Islamic Values

No.	Question	Answer Analysis
1.	In your opinion, what kind of learning media is effective and efficient?	Appropriate to support learning materials so that they can achieve the desired goals. In addition, it is easy to use and has an attractive appearance.
2.	In your opinion, what kind of e-module is effective and efficient?	Clear and easy to understand, easy to use and easy to access.
3.	In your opinion, what is the urgency of having an e-module?	E-modules can help students learn independently, can be a means to integrate new learning concepts outside of printed books, and can overcome space and time limitations.
4.	In your opinion, what is the urgency of implementing a contextual approach in chemistry learning?	The subject matter is linked to the context of real life so that students get meaningful lessons.
5.	In your opinion, what is the urgency of integrating Islamic values in chemistry learning?	Students can understand that the source of knowledge comes from Allah SWT through the Qur'an, hadith and the universe
6.	In your opinion, what is the urgency of integrating Islamic values in chemistry learning to strengthen students' character?	Increasing students' faith in Allah SWT (strengthening faith in Allah SWT)

The existence of modules as a learning tool can help students learn independently (Rosa, 2015) so that it is easier for students to learn learning materials (Erdi & Padwa, 2022). E-modules are one of the learning media that follow technological developments. E-modules are widely developed because they can be accessed anywhere and anytime, and have good effectiveness (Erdi & Padwa, 2022). In addition, its more attractive appearance because of the images and videos makes e-modules in great demand to be developed.

Furthermore, a contextual approach needs to be applied in learning, especially chemistry subjects, so that students can build knowledge actively through thinking. This is in line with one of the main components of the contextual approach, namely constructivism (Constructivism) (Kadir, 2013). Constructivism requires students to build their own understanding from new experiences based on existing knowledge (Kadir, 2013). In addition,

students will also adjust the new information obtained with the knowledge they already have with the help of social interactions between students and teachers (Nababan & Sipayung, 2023).

Next, the integration of Islamic values in learning can help students develop into human beings who have faith and piety towards Allah SWT and have noble morals (Kurniawan & Hadi, 2023) so that students can think and act morally in any situation. In addition, the integration of Islam in chemistry learning makes students more familiar with the creator and his creations and students are able to think critically according to scientific phenomena (Kurniawan & Hadi, 2023). This allows students to strengthen their faith in Allah SWT.

During the chemistry learning process, there were still few participants who used contextual-based e-modules with the integration of Islamic values. The percentage of participants who had used contextual-based e-modules integrated with Islamic values can be seen in Figure 1.

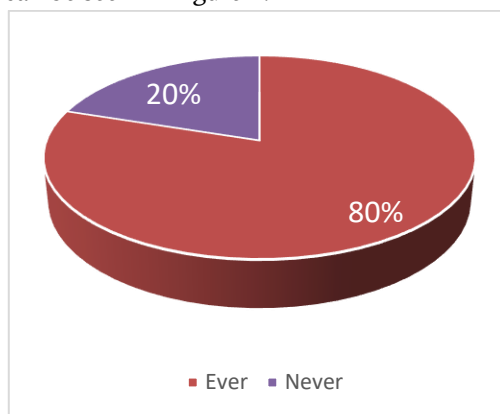


Figure 1. Experience of Using Contextual-Based E-modules Integrated with Islamic Values

One participant said that *"the existence of contextual-based e-modules integrated with Islamic values can make it easier to explain material that is integrated with Islamic values"*.

Chemistry Learning Constraints

The percentage of participants who experienced constraints in the chemistry learning process can be seen in Figure 2.

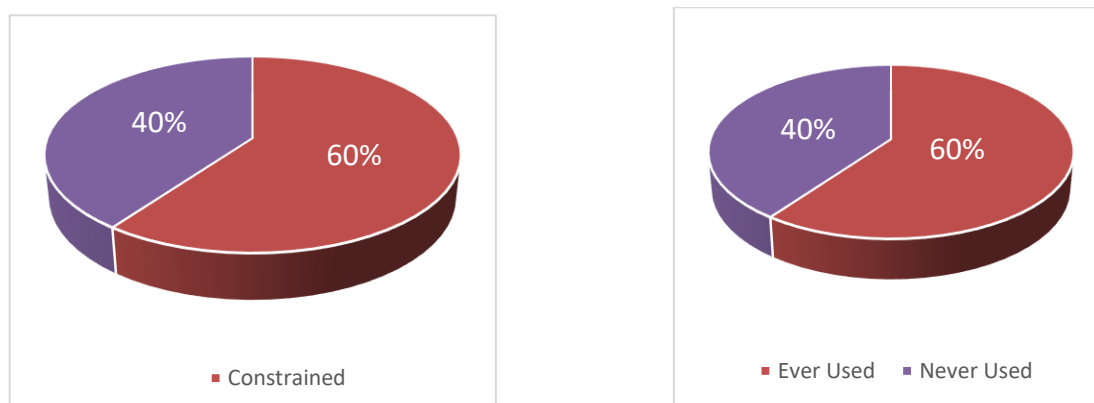


Figure 2. Participants Experiencing Constraints in the Learning Process

Participants mentioned several constraints related to the use of chemistry learning media in the implementation of the independent curriculum, such as difficulties in preparing learning media. This is supported by the following participant answers.

P1 : *"The sequencing of teaching materials is not right, for example, the reaction equation is given in front before students know the element symbols. This makes it difficult for teachers to prepare learning media."*

A total of 60% of participants experienced constraints in the implementation of the independent curriculum, especially related to the use of learning media. These constraints are in the form of difficulties in preparing learning

media. This is influenced by several factors such as limited time and skills to create learning media (Rahim et al., 2019).

Only a few participants use e-modules in learning. While some others have not used e-modules in the learning process. This is caused by several things such as difficulties in conditioning students and difficulties in accessing learning media. This is supported by the following participant answers.

P1: "Difficulty in conditioning students to use learning media"

P2: "Difficulty in accessing learning media"

E-modules are more effective and efficient when compared to printed modules because they can increase students' learning motivation. However, in its implementation, several obstacles were encountered in the learning process. These obstacles include difficulty in accessing e-modules because the application is paid and the internet network is unstable (Wahyuni et al., 2023).

All participants have implemented a contextual approach and have integrated Islamic values in chemistry learning, especially in the reaction rate material. However, participants encountered obstacles in its implementation. An analysis of the obstacles faced during the chemistry learning process in schools is presented in Table 4.

Table 4. Constraints on Chemistry Learning

No.	Questions	Answer Analysis
1.	What obstacles do you feel in implementing a contextual approach, especially in the reaction rate material?	Limited time and lack of learning resources/media
2.	If you have ever integrated Islamic values in chemistry learning, especially in the reaction rates material, what obstacles do you feel?	Limited time and lack of learning resources/media

Limited time in chemistry learning is also an obstacle in implementing a contextual approach. Limited learning time makes teachers only focus on delivering concepts or materials without emphasizing their relationship to phenomena around students. This condition makes learning less meaningful for students. The lack of learning resources/media that link Islamic values to chemical materials, especially reaction rates, is a separate obstacle that must be faced.

Based on these obstacles, participants expect e-modules that contain illustrations/animations, life phenomena around students, contain practice questions, contain material contexts that are integrated with Islamic values, have an attractive, clear and easy-to-understand appearance. In addition, it is necessary to design e-modules that are designed according to the learning objectives to be achieved. This aims to ensure that this e-module can provide a meaningful learning experience for students.

The results of this study are used as a reference in developing contextual e-modules integrated with Islamic values in the reaction rate material. All participants think that this e-module is very important to support the teaching and learning process and is very useful for educators and students so that students can more easily understand the concept of the material and its relationship to Islamic values. The development of an e-module based on contextual integrated Islamic values received a positive response from all participants because it was considered very good at fostering students' morals and character and increasing students' interest in learning. Participants hoped that the e-module to be developed would be easy to use and access. In addition, there were several suggestions from participants as follows.

P1: "Integration with religious values must be adjusted to strong arguments and not cause misconceptions."

P2: "The more emphasized in terms of practicum, the more interesting it will be."

P3: "Interesting, in accordance with current technological developments."

CONCLUSION

Based on the needs analysis that has been carried out, it can be concluded that participants still have difficulty finding sources/media that integrate Islamic values in chemistry materials, especially reaction rate materials. This makes contextual-based e-modules integrated with Islamic values in reaction rate materials important to be developed as chemistry learning media. According to the participants' answers, the existence of this e-module can help participants in linking chemistry materials, especially reaction rate materials, with Islamic values so that they can increase their faith and piety to Allah SWT. In addition, the existence of this e-module can help participants in preparing learning media.

This study has limitations, namely that the participants used are 5. This is because these 5 participants meet the predetermined research criteria. Meanwhile, the hope of this study is the sustainability of the preparation of e-module products. Furthermore, the products that have been made need to be tested on students. Then it can also be developed on other materials.

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