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**Teachers' Perception About Islamic Values Integration Into Mathematics Learning Through Comics**

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## TEACHERS' PERCEPTION ABOUT ISLAMIC VALUES INTEGRATION INTO MATHEMATICS LEARNING THROUGH COMICS

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### Abstract

*Aceh is one of 34 provinces in Indonesia that has a local education goal, that is, the education is implemented based on Islamic values. The integration of Islamic values into mathematics learning can be implemented by using learning media. This research is an early phase of developmental research. The purpose of this study was to investigate teachers' perceptions of the integration of Islamic values into mathematics learning through comics. The participants were 40 junior high school mathematics teachers in Banda Aceh who join the PMRI workshop. Data were collected through an open-ended questionnaire consisting of 11 questions and then analyzed descriptively. The results showed that teachers (87.5%) believed that Islamic values and mathematics are integrated; moreover, mathematics teachers and religion teachers play a major role in teaching Islamic values. The majority of teachers (95%) believed that the knowledge of Islamic values influences the way they teach. However, more than half of teachers (62.5%) had never attended a workshop or seminar, or read articles that discuss the integration of Islamic values into mathematics learning through comics. The result of the study also showed that the mathematics comics in Islamic values were limited. Therefore, it is necessary to develop mathematics comics in Islamic values contexts.*

**Keywords:** *Integration; Islamic Values; Mathematics; Comics.*



## A. Introduction

The objective of national education is to create a man that has faith and fear of God almighty, was noble, healthy, knowledgeable, skilled, creative, independent, and responsible (Indonesian Education Law No. 22 of 2003). This objective is aligned with Indonesian character education that aims to expose students to noble character values; thus, the students could implement the values in their daily life or activities (Jalil, 2012; Ngamanken, 2014; Hasibuan, Syah, & Marzuki, 2018). The government expects the next generation to be excellent in which they have good and strong characters.

Education at schools must be able to develop values in students through religious education. It can be achieved by adapting science and technology advancement (Maafi, 2011). This statement is supported by Abdussakir (2018) stating that in Islam, science and religion are not separable. Moral degradation and lack of religious values require the need for education reform (Rahman, Abdurrahman, & Kadaryanto, 2015; Irawan & Kencanawaty, 2017; Maryati & Priatna, 2017). Teachers as educators take a responsibility to cultivate noble character values for students. Kasim and Yusoff (2014) argue that the role of teachers in learning is not only transferring knowledge but also integrating moral and spiritual values, building students' personalities and character by facilitating, motivating, and guiding students in their learning.

Aceh is one of 34 provinces in Indonesia that has a local education goal, which is character education based on Islamic values. This goal accords with the Aceh *Qanun* (Islamic regional regulations), Number 5 of 2008, stating that education in Aceh is based on Qur'an and Hadith, Pancasila as the Indonesian philosophy, the 1945 Constitution, and culture. This goal will be achieved if teachers have provisions and tools that can support learning.

The integration of Islamic values into learning has not yet been optimal. According to Thaib (2013) and Suraiya (2015), the implementation of Islamic values in Aceh has not been thoroughly enacted since Islamic education is simply interpreted as subjects, such as *fiqh*, *Quran hadith*, *aqidah akhlak*, and so on. Besides, Islamic values can be integrated with other subjects, such as mathematics. Suyitno (2014) states that mathematics is also related to religious life.



Mathematics has several characteristics. One of them is that it studies abstract objects, logical and deductive mindset, and symbols that are empty of meaning. Furthermore, it is systematic and relies on the context. The contexts provided in learning can be gained from nature, social life, culture, economy, and religion. Contexts play an important role to achieve the goals of learning mathematics because they can help students understand lessons meaningfully (Johnson, 2002). In the study of mathematics, religion, and culture, these characteristics provide opportunities to give a specific meaning to mathematical symbols, especially when the scope of the discussion enters the realm of religion (Abdussakir, 2017). Therefore, Islamic values are used as one of the contexts in mathematics learning.

The integration of Islamic values into mathematics learning can be conducted using learning media. One of the media that can be employed is comics. Comics are media that consist of fiction and non-fiction ideas conveyed through visual images, including cartoons, designed to create humor to deliver the essential part of comics (Toh et al, 2016). The previous study conducted in Singapore found that comics and cartoons could increase students' motivation and interest, especially in learning mathematics (Toh et al, 2017).

Integrating Islamic values into mathematics learning through comics is a new practice. Due to the limitation of tools, such as learning instruments and media, to convey learning to students, it is necessary to explore teachers' perceptions and understanding of Islamic values in mathematics learning through comics. Perception plays an important role in delving into knowledge fundamentally and the initial knowledge obtained can provide an interpretation toward the object being studied so that it will produce an assessment or response (Pride & Ferrel, 2005). Therefore, the teacher's perception of the integration of Islamic values into mathematics learning through comics needs to be investigated before the enactment of the learning process integrating Islamic values. This present study aims to determine teachers' perception of the integration of Islamic values into mathematics learning through comics.



## **B. Method**

This current study is an early phase of developmental research, particularly the preliminary phase of the Plomp model (Plomp, 2013). The main purpose of this study is to define the opinions, attitudes, and behaviors of a group of people about a particular subject. Data were collected by administering an open-ended questionnaire adapted from Mansour (2008a). Initially, it consisted of seven questions about teacher belief and then added another four questions. The additional questions were made based on justification by the team of PRP-PMRI Universitas Syiah Kuala and then were validated by four validators.

The questionnaire was distributed to 60 junior high school mathematics teachers in Banda Aceh who join the workshop held by the Research Center of Realistic Mathematics Education in Indonesia, (PRP-PMRI) Universitas Syiah Kuala. However, only 40 teachers participated in this study. They consisted of males and females, aged 25 to 50 years with various teaching experiences ranging from 2 to 20 years. They also experienced teaching at different schools. The participants often receive training on learning based on contexts. Due to the Covid-19 outbreak, the questionnaire was created via Google Form and the link was posted on the WhatsApp group of the mathematics teacher association. The data were analyzed descriptively in the form of a percentage to describe the teachers' perceptions.

## **C. Result and Discussion**

This study aims to investigate teachers' perceptions of integrating Islamic values into mathematics learning. The teachers demonstrated their perceptions through the questionnaire. For this purpose, the findings obtained from the analyses were interpreted and discussed along with the literature.

### **1. Result**

The results of the questionnaire gathered from 40 teachers who were teaching in grades 7, 8, and 9, regarding their perception of the integration of Islamic values into mathematics learning are presented in Table 1.





Table 1 Teachers' responses to the questionnaire

No.	Question	Choices	N	%
1.	How is the relationship between Islamic values and mathematics?	Contradicting	0	0
		Independent	0	0
		Dialog (mathematics is adjusted to Islamic values)	5	12,5
		Integrated	35	87,5
2.	Who is responsible for teaching mathematics with Islamic values?	Mathematics teacher	8	20
		Religion teacher	0	0
		Both	32	80
3.	Does the knowledge of Islamic values that a teacher has to affect the way she/he teaches?	Affect	38	95
		Does not affect	2	5
4.	When does the teacher start teaching the relationship between Islamic values and mathematics learning in the classroom?	When students ask	0	0
		When provided in the textbook	1	2,5
		When the topic supports doing so	37	92,5
		Never	2	5
5.	Are you sure that the content of Islamic values can be connected to mathematics?	Sure	37	92,5
		Not sure	3	7,5
6.	How do you implement Islamic values in mathematics learning?	During apperception	16	40
		During main activities	12	30
		During closing activities	12	30
7.	Have you ever participated in a workshop or seminar, or read an article about the integration of Islamic values into mathematics learning?	Ever	15	37,5
		Never	25	62,5
8.	Mathematics learning integrating Islamic values is presented in the form of learning media like comics.	Agree	37	92,5
		Disagree	3	7,5
9.	Have you ever seen or read an Islamic comic?	Ever	24	60
		Never	16	40
10.	Have you ever read a mathematics comic that contains Islamic values?	Ever	4	10
		Never	36	90
11.	Do you think the application of learning media in the form of mathematics comics within the context of Islamic values can motivate students in learning?	Yes	40	100
		No	0	0

Remark: n = the number of respondents



## 2. Discussion

The finding showed that five respondents (12.5%) believed that the relationship between Islamic values and mathematics is viewed as 'dialogue', that is, mathematics is adjusted to Islamic values. These teachers argued that Islamic values higher than mathematics cannot be immediately proven mathematically while mathematics is limited and cannot answer all problems. They believed religion can suggest possible answers to questions that mathematics cannot solve. There are limitations in mathematics so that it has to be adjusted to Islamic values. In contrast to the teachers' point of view who chose 'dialogue' as the answer, the majority of teachers (35 teachers or 87.5%) chose 'integrated' as their answers. This means that the teachers choosing 'integrated' as the relationship between Islamic values and mathematics learning viewed that mathematics is part of religion, thus, they are inseparable and related to one another. Based on the teacher's argument also mentioned that some Islamic values such as praiseworthy attitudes, could be found in mathematics, for example, the consistent and systematic nature of rules and many verses of the Qur'an explain mathematics terms. The finding relates to Barbour (2000) that the majority of the teachers believed there was an integration relationship between science and religion, they viewed God as the creator of everything but also viewed science as a part of God's creation.

The second item of the questionnaire shows 32 teachers (80%) suggested that both mathematics teachers and religion teachers have a responsibility in teaching mathematics with integrates Islamic values. The teachers gave different reasons to support the statement. Most of them argued that mathematics teachers need to connect mathematics with Islamic values in learning so that it is more contextual. All subjects at schools are interconnected, and so are mathematics and religion. Mathematics learning contains many values and it is more meaningful for students when linked to religious values. This is aligned with Poole (1996) stating that compatibility is needed between religious education and science education. Thus, a collaboration between mathematics teachers



and religious teachers is necessary for teaching mathematics with the integration of Islamic values.

The responses of 38 teachers (95%) for the third item indicated that their knowledge of Islamic values affects the way they teach. The majority of the teachers contended that if mathematics learning is not underpinned by Islamic knowledge, it will remain a meaningless ordinary lesson. Islamic knowledge supports moral and character education as well as awareness of the greatness of Allah. Personal religious experience is one of the most influential social factors in acquiring new experiences or interpreting the experiences and it influences teachers' pedagogical beliefs and practices (Roth & Alexander, 1997; Shipman., Et al 2002; Colburn & Henriques, 2006; Stolberg, 2007). The finding is confirmed by the study of Mansour (2008b) reporting that a person's religious knowledge or personal religious belief affects the way he teaches, especially the way the teacher interprets his experiences with religious knowledge he has, which turns into a pedagogical belief. Chan and Wong (2014) also found there is an effect of mathematics teacher's religious knowledge on their teaching and learning practices in the classroom. Hence, the teacher's knowledge of Islamic values influences the way he teaches mathematics integrated with Islamic values.

Furthermore, the fourth item based on the questionnaire showed 37 teachers (92.5%) stated that they will start teaching mathematics with the integration of Islamic values in the classroom if the topic supports doing so. On average, they reasoned that not all mathematics topics can be directly connected to Islamic values; hence, the topic that underpins to integrate Islamic values will strengthen their arguments and explanations further while teaching in the classroom, and their explanations do not seem imposing.

The responses of 37 teachers (92.5%) for the fifth item indicated that they agreed which Islamic values could be integrated with mathematics. And bite part of respondents (3 teachers) argued disagree. Based on Table 1, the seventh item interprets that 25 teachers (62.5%) had never attended a workshop or seminar, or read articles about the integration of Islamic values into mathematics learning. Only 15 teachers (37.5%) responded 'have



ever' to do so, but they mostly read the articles. The majority of them expressed that they had read the articles about research on the effect of Islamic values in mathematics learning and the development of Islamic values-based questions in mathematics learning for students. However, they had never participated in a workshop, specifically on the implementation of Islamic values in mathematics learning. Regarding this issue, Bausor and Poole (2002) recommend three ways that help teachers teach science and religious issues from a pedagogical perspective: (1) offering courses; (2) offering assistance to providers of early teacher education in dealing with these issues; (3) producing written and other materials that help teachers implement spiritual or religious values in teaching. So, the finding recommends demonstrating Islamic issues while learning mathematics.

The majority of the teachers (36 teachers or 90%) had never seen and read mathematics comics that contain Islamic values. The teachers stated that mathematics comics are rarely found in bookstores as well as in textbooks. Among the four teachers (10%) who answered they had ever seen such mathematics comics, only one teacher conveyed, "I have read comics from examples of math problems that embed Islamic values." Based on his statement, one would conclude that the scarcity of comics as learning media becomes an issue.

Moreover, most of the teachers (92.5%) agreed that the implementation of mathematics learning media in the form of comics can be integrated with Islamic values. They believed that comics are such attractive media of learning that they make students interested in mathematics and add up to new media for teaching. The teachers also suggested that mathematics learning utilizing comics is a creative way to motivate students to learn. The findings are consistent with previous studies reporting that comics increased students' motivation and interest, particularly in learning mathematics (Cho, 2012; Sparrow, Kissane, & Hurst, 2010). Comics and cartoons can foster students' motivation and interest, especially in learning mathematics (Toh, et al 2016). Hence, the perception

of teachers who agreed with the application of comics as mathematics learning media can be developed.

Based on the results of the questionnaire on teachers' perceptions of the integration of Islamic values into mathematics learning through comics, the teachers supported mathematics learning that integrates Islamic values. The teachers suggested providing training and media that could help them implement such learning at schools. They also stated that the mathematics comic media with the integration of Islamic values have not been employed yet. They believed that it can motivate students to learn mathematics and at the same time encourage them to cultivate Islamic values. Therefore, it is necessary to design mathematics comics that integrate Islamic values. According to (Indaryati, 2015; Toh et al., 2017; Özdemir, 2017; Mamolo, 2019) comics media which applied in mathematics learning can improve learning outcomes, increase students' involvement, students motivation, and obtain positive responses from students and teachers. If it is enacted well, the goal of Aceh education to create Aceh as an implementer of Islamic law-based education and character values through learning at schools can be achieved as well.

#### **D. Conclusion**

Based on the results of this research, it is found that the majority of teachers supported and believed that Islamic values and mathematics could be integrated; they believed that their knowledge of Islamic values affects the way they teach in class. Almost all teachers had never attended a workshop or reading articles and never found comics that discuss the integration of Islamic values into mathematics learning. They also agreed with the implementation of learning media, such as comics, as mathematics learning media that integrate Islamic values. Further research developing integration of Islamic values into mathematical trough comics is necessary to increase students outcome, motivation and raise the character.



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