Integration of Islamic values, mathematics, and career readiness competencies of prospective teachers in Islamic universities

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Abstract

This study aims to investigate career readiness toward understanding the integration of Islamic values and mathematics in prospective mathematics teacher students studying at Islamic tertiary institutions. This study involved 375 students consisting of 71 males (19%) and 304 females (81%). The data collection tool provides an online questionnaire with Google Forms related to demographics (place of education, age, and gender), a questionnaire about integrating Islamic values with mathematics, and a career readiness questionnaire for prospective mathematics teachers—data analysis using part analysis with SPSS. The results showed no direct influence between understanding the integration of Islamic values and mathematics on future mathematics teachers' competence and career readiness at Islamic tertiary institutions. Students tend to find it challenging to say between religion and mathematics teachers most responsible for teaching mathematics with Islamic values. They are not sure of the competence they have to relate the content of Islamic values to mathematics. In professional competence, students feel confused about how to start teaching the relationship between Islamic values and learning mathematics in class and when the application is taught.

Keywords: Career Readiness; Integration of Islamic Values and Mathematics; Islamic Religious College; Math Teacher Candidate.

Introduction

Education in society tends to be oriented toward how humans obtain as much material as possible and, conversely, abandon values related to religious values (Ma’zumi et al., 2020; Wafa & Hadi, 2020). Religious education has become very popular among students, and general education was neglected (Sugianto et al., 2023). Thus, it is rare to balance the two by increasing the discourse on the dichotomy between Indonesia’s Islamic education system and general education.

One form of educational dichotomy in Indonesia is the diversity of educational institutions. This means that pesantren, madrasahs, and schools have different styles and systems. Islamic boarding schools focus on religious studies, while schools only study general education (Firdaus, 2019; Tahir, 2021). This makes the relationship between science and religion even further away (Safitri et al., 2023; Triono et al., 2023). For this reason, integration is needed so there is no assumption that there is no relationship between the science of the hereafter and mathematics (Aziz, 2017; Marvavilha & Suparlan, 2018).

The purpose of education prioritizes the understanding and practice of religious values through the first Core Competency (K11) of the 2013 Curriculum, namely living and practising the teachings of the religion they adhere to in all subjects (S. Achmad, 2019). However, the fact is that currently, many Mathematics teachers do not understand or even apply it in every lesson (Nguyen & Tran, 2022; Trouche et al., 2019; Wabiser, 2022). Mathematics teachers only focus on achieving competency in mathematics.

Mathematics is the knowledge students need to achieve their educational goals at all levels of education (Darmayanti et al., 2022). Mathematics is said to be one means to achieve predetermined educational goals, namely changing students’ attitudes and behaviour levels (Vedianty et al., 2023), including their religious awareness (Rahmat, 2019; Tharaba et al., 2022). Thus, learning mathematics is expected to bring students success (Karim & Zoker, 2023), expressed in achievement and changes in religious awareness (Anam et al., 2019). In other words, learning mathematics can instil religious values in children. However, this hope has not been fully realized.
Mathematics learning is usually carried out in part rather than as an integral part of other subjects, including Islamic religious education (Ainurrofiq, 2019; Halistin et al., 2022; Muslimin et al., 2020; R. Putri et al., 2022). As a result of partial learning, mathematics learning seems stiff and rugged, isolates itself from real life, and eventually becomes a scourge (Nurmeidina & Rafidiyah, 2019; Putra et al., 2020; Simanjuntak & Imelda, 2018). Mathematics does not contribute to character development, and the ability to convey Islamic values is low. On the other hand, math scores tend to be low. This condition of low mathematics achievement is common for some predominantly Muslim students (Akib, 2016; Darmayanti et al., 2022; Mustafa et al., 2018).

Currently, curriculum integration, a merger between mathematics and religion, has been designed but not realized in the field (Dagley et al., 2016; Plasman & Gottfried, 2020). Today, there is still a strong perception in society that religion and science are two separate and irreconcilable entities. As for the status of each theory, it has its entity, even down to the organizing body. In other words, science does not care about religion, and religion does not care about science (Ma’zumi et al., 2020). This is an overview of prospective Yunanti’s. As a result of partial learning, several media related to Islamic values are developed for prospective teachers. Career readiness of future teachers is affected by a number of factors. A systematic review of the literature shows that there is a relationship between the Origin of Higher Education and the relationship between the variables. Several previous studies linking mathematics and Islamic values to the career readiness of future mathematics teachers at Islamic tertiary institutions. All respondents were asked to fill out a questionnaire using the Google Form media, and all information obtained will be kept confidential for research purposes. Participants were asked to complete a questionnaire containing name, place of study, age, gender, and semester level.

This research involved students who took the Mathematics Education/Tadirs Study Program at PTKI and were randomly selected via a Google form questionnaire. The average age of students in this study’s mathematics program was 20.62 years, with the youngest being 17 and the oldest 42 years old. The majority of students are female (304; 81%) and male (71; 19%), and more than half of them attend State Islamic Universities (198; 53%).

The instrument used is an online questionnaire that contains demographic information about where to study (Winson et al., 2023), age (Fikri et al., 2023), and gender (Safristi et al., 2023). The questionnaire shows that integrating Islamic values into learning mathematics contains 12 question items by modifying the questionnaire used by Putri (R. Putri et al., 2022). Yunanti’s professional and pedagogic competency questionnaire consists of 44 question items by Yunanti (Yunanti, 2022). Career readiness questionnaire with nine statements adapted by Kurniawati (Kurniawati, 2015). Cronbach’s alpha measured this questionnaire by obtaining a reliable criterion of 0.798.

Data were analyzed using the SPSS program. The descriptive analysis explains the sample’s demographic characteristics, especially the distribution of places of education, age, and gender. Data analysis techniques use path analysis to provide estimates of the relationship between variables directly and indirectly.

### Results and Discussion

#### Finding

### Table 1. Demographic Relationship with Research Variables (N = 375).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Understanding of The Integration of Islam and Mathematics</th>
<th>Professional Competence</th>
<th>Pedagogic Competence</th>
<th>Career Readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.615</td>
<td>.721</td>
<td>.366</td>
<td>.787</td>
</tr>
<tr>
<td>Age</td>
<td>.832</td>
<td>.975</td>
<td>.620</td>
<td>.330</td>
</tr>
<tr>
<td>Semester Level</td>
<td>.605</td>
<td>.235</td>
<td>.066</td>
<td>.596</td>
</tr>
<tr>
<td>College</td>
<td>.666</td>
<td>.000</td>
<td>.000</td>
<td>.070</td>
</tr>
</tbody>
</table>

The correlation analysis results between variables show a significant relationship between the Origin of Higher Education and Professional Competence (sig = 0.000) and Pedagogy (sig = 0.000). Student criteria based on gender, age, and semester level have no relationship to all research variables. The research results based on the hypotheses made explain the following.

### Table 2. Direct Effect (DE), Indirect Effect (IE), Total Effect (TE)

<table>
<thead>
<tr>
<th>Regression Models</th>
<th>Variable</th>
<th>Track</th>
<th>Standardized Coefficients</th>
<th>Sig</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>X to Y1</td>
<td>-</td>
<td>0.057</td>
<td>0.267</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>X to Y2</td>
<td>-</td>
<td>0.050</td>
<td>0.330</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>X to Z</td>
<td>-</td>
<td>0.004</td>
<td>0.917</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>Y1 to Z</td>
<td>-</td>
<td>0.560</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>Y2 to Z</td>
<td>-</td>
<td>0.535</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>II</td>
<td>X to Z</td>
<td>X – Y1 – Y2</td>
<td>0.592</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td></td>
<td>X to Z</td>
<td>X – Y1 – Y2</td>
<td>0.562</td>
<td>0.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>

The results of the data analysis can explain that there is no direct and indirect influence between understanding the integration of Islamic values and mathematics on the career readiness of future mathematics teachers. However, there is a relationship between professional and pedagogical competence toward the career readiness of future mathematics teachers at Islamic tertiary institutions.
Discussion

Mathematics and Islam are closely related where the material in learning mathematics is combined with the verses of the Koran as the highest source of knowledge in Islamic education (Huda et al., 2016; Imamuddin et al., 2020; Purwati et al., 2018; Stimpson & Calvert, 2021) so that it becomes a blend of mathematics and religion. Mathematics has a very close relationship with the spiritual tradition of Muslims. This means familiarizing oneself with the Qur’an can achieve happiness in this world and the hereafter. Thus, integrating the values of the Qur’an in learning mathematics is a very possible thing to do. By integrating the values of the Qur’an into learning mathematics, besides the values of knowledge, Islamic religious values and values in life are also obtained by students.

Integrating Islamic knowledge in tertiary institutions is very important to form human resources with character (M. Achmad, 2021; Aiziah, 2019; Fitriyawany et al., 2022)—higher education’s efforts to educate students to become professional teachers. Students generally gain knowledge in college, which is also obtained through internships at school. This knowledge includes knowing the direct implementation of the subjects being studied, knowing the overall activities in schools (Laila et al., 2023), knowing in more detail the educational needs in the field (Abidin et al., 2023), knowing how to prepare a learning process plan (RRP), which consists of knowledge of making teaching plans, teaching implementation, up to teaching evaluation, and even facilities and infrastructure, as well as student administration (Podkhodova et al., 2020; Yilmaz, 2020) so that it becomes a natural thing when students who take the Mathematics Education Study Program only master professional and pedagogical competencies.

PTKI designs a curriculum that has learning outcomes so that its graduates have a solid religious understanding and have a good mastery of mathematics material as a whole and holistically (Darmayanti et al., 2023), not dichotomously. It would be even better if it were coupled with skills in using mathematics in an applicable manner regarding human needs. The intended human needs are intrinsically oriented towards achieving taqarrub Allah (Anhar & Darmayanti, 2023; Darmayanti et al., 2022). PTKI should be able to deliver its students as graduates who emulate the figure of a Muslim mathematician. In Islamic civilization, specific names are considered to contribute to science, especially Mathematics, significantly. They were al-Khwarizmi, Tsabit bin Qurrah, Al-Karaji, Ibn Haytam, ‘Umar Khayyam, and Sharaf al-Din al-Tus. The Koran must inspire Muslim scholars in mathematics (Durmuş, 2020; Hussain & Ramli, 2017; D. et al., 2019).

However, so far, no research has stated that material about religion obtained while students are studying is a valuable support for prospective teacher students as strengthening religious competence in teaching mathematics. The research questionnaire results showed no direct effect between the Integration Understanding of Islam and Mathematics on students’ career readiness as prospective teachers. The fact is that students as prospective teachers do not yet have religious competence as expected by law. Students tend to find it challenging to say that between religion and mathematics teachers most responsible for teaching mathematics with Islamic values. They are not sure of the competence they have to relate the content of Islamic values to mathematics.

In professional competence as prospective teachers, students feel confused about how to start teaching the relationship between Islamic values and learning mathematics in the classroom and when applying Islamic values in learning mathematics is taught. Institutionally, PTKI can reform a curriculum integrating Islamic values and mathematics, including implementing the tri dharma of higher education. Since students are still hesitant to learn that integrates Islamic values and Mathematics, it is a challenge for Islamic education institutions (PTKI) and stakeholders to provide an “integrative environment” that can be a stimulant to deliver students to competence. Adequate to the career readiness of students as prospective teachers. The integrative environment includes the library’s availability of integrative mathematics textbooks/modules/LKS, including building a conducive learning environment. Moreover, what is no less important is that PTKI must be able to present an inspiring teaching figure. He is an individual teacher with an integrated understanding of religion and mastery of mathematics.

Conclusion

The conclusion that can be drawn from this study is that student demographics only show a significant relationship between the origin of tertiary institutions and professional and pedagogical competence. Gender demographics, age, and semester level have no relationship to all research variables. There is no significant influence on understanding the integration of Islamic and mathematical values that students get from the lecture process at PTKI. Religious material obtained by students does not contribute to the career readiness of prospective teachers. So far, students have only received professional and pedagogic competency reinforcement for their career readiness as future mathematicians.

Reference


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