

Fostering Academic Excellence: The Role of Religious Character and Motivation through the Integration of Islamic Values in Mathematics Education

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Abstract: This study examines the incorporation of Islamic beliefs into mathematics education and its effects on students' religious character, motivation, and academic performance. The research, conducted at the University of Lahore, Pakistan, using a quasi-experimental design featuring a pre-test and post-test methodology with 35 undergraduate mathematics students. The intervention integrated Quranic teachings and Islamic ethical values into a descriptive statistics course, with the objective of fostering a learning environment that aligns with students' cultural and religious identities. Data were gathered utilizing standardized questionnaires to evaluate alterations in religious character, motivation, and academic performance prior to and subsequent to the intervention. Results indicated substantial enhancements across all assessed variables. Religious character scores improved from a pre-intervention mean of 2.96 to 3.60 post-intervention ($p < 0.001$, Cohen's $d = 2.85$), but motivation scores climbed from 3.19 to 3.62 ($p < 0.001$, Cohen's $d = 2.77$). Academic performance shown a significant enhancement, with average scores rising from 59.50 to 85.50 ($p < 0.001$, Cohen's $d = 2.70$). Pearson correlation analysis revealed robust positive correlations between religious character, motivation, and academic achievement ($r = 0.74-0.76$, $p < 0.01$). Regression analysis further validated that both religious character and motivation strongly forecasted academic achievement ($p < 0.001$).

This work enhances the discourse on incorporating religious values into education by presenting a paradigm for curriculum building that fosters both intellectual and ethical aspects. It underscores the necessity of integrating educational methodologies with students' cultural and religious settings to improve motivation, engagement, and academic performance. The results support additional investigation and application of these integrated methods in various educational environments.

Keywords: *Integrated Learning, Islamic Values, Religious Character, Learning Motivation, Mathematics Education*

Introduction

In the modern educational landscape, integrating religious values into academic curricula has garnered increasing attention, particularly in regions where religion plays a significant cultural and social role.

This integration is seen as a means to develop students' moral and ethical foundations alongside their academic competencies. Mathematics, often perceived as a secular and neutral discipline, presents a unique opportunity to embed such values without compromising its rigorous logical framework. This study explores the potential of integrating Islamic values into mathematics education to enhance students' religious character and motivation, specifically focusing on mathematics teacher candidates in a descriptive statistics course (Abdullah et al., 2021).

Religious values provide a moral compass that guides individuals in making ethical decisions. In educational settings, these values can foster a holistic development approach, promoting not only intellectual growth but also moral and spiritual well-being. Islamic education, in particular, emphasizes the balance between 'ilm (knowledge) and adab (proper conduct), suggesting that education should nurture both the mind and the soul. By embedding Islamic values in mathematics education, educators aim to produce graduates who are not only proficient in their field but also morally upright and socially responsible (Amir, 2022; Latifah et al,2022).

Mathematics, with its emphasis on problem-solving, logical reasoning, and critical thinking, can be a powerful medium for instilling discipline, precision, and a sense of justice—values deeply rooted in Islamic teachings. The Qur'an frequently references numbers, patterns, and the natural order, highlighting the inherent connection between mathematical concepts and divine creation. By drawing parallels between mathematical principles and Islamic values, educators can create a learning environment that resonates with students' cultural and religious backgrounds, potentially increasing their engagement and motivation (Masduki et al.,2015).

This study is grounded in the theory of self-determination, which posits that motivation is driven by the need for competence, autonomy, and relatedness. When students perceive their learning as relevant to their personal and cultural identity, their intrinsic motivation is likely to increase. Integrating Islamic values into mathematics education can fulfill these psychological needs by connecting academic content to students' lived experiences and beliefs, thereby enhancing their sense of purpose and engagement in learning (Istiqlal & Jumadi, 2018).

The primary objective of this study is to examine the impact of integrating Islamic values into mathematics education on students' religious character and motivation. Specifically, it seeks to: assess the changes in students' religious character following the integration of Islamic values in a descriptive statistics course; measure the impact on students' motivation to learn mathematics; and explore students' perceptions of the relevance and effectiveness of integrating Islamic values into their mathematics learning experience.

To achieve these objectives, a mixed-methods approach is employed, combining qualitative and quantitative research methods. This approach allows for a comprehensive analysis of the impact of the intervention, capturing both the measurable outcomes and the nuanced, subjective experiences of the students (Creswell & Clark, 2018).

This study contributes to the growing body of research on the integration of religious values in education. It offers insights into how Islamic values can be seamlessly woven into mathematics education, enhancing not only students' academic performance but also their moral and spiritual development. By highlighting the positive outcomes of such integration, this study provides a

model that can be adapted and implemented in similar educational contexts (Rizal et al., 2023; Rusydiyah et al., 2023).

Previous studies have explored various approaches to integrating religious values in education, particularly in Islamic schools and institutions. For instance, Islamic education in promoting moral development and character building. Similarly, the importance of aligning educational practices with Islamic ethical principles to foster a balanced and holistic development of students.

In the context of mathematics education, research has shown that culturally relevant pedagogy can significantly enhance students' learning experiences and outcomes. By integrating cultural and religious contexts into the curriculum, educators can make learning more meaningful and engaging for students. This study builds on these findings by specifically focusing on the integration of Islamic values in mathematics education and examining its impact on students' religious character and motivation (Mahmudah et al., 2022).

While the integration of Islamic values in mathematics education presents numerous benefits, it also poses certain challenges. One of the primary concerns is ensuring that the integration does not compromise the academic rigor and objectivity of the subject. Additionally, educators must be adequately trained to deliver such integrated curricula effectively, balancing the dual objectives of academic excellence and moral development. Moreover, it is essential to consider the diverse backgrounds and beliefs of students in a classroom. While the integration of Islamic values may resonate well with Muslim students, it is crucial to ensure that the learning environment remains inclusive and respectful of all students' beliefs and perspectives. This requires careful planning and sensitivity on the part of educators and curriculum developers. The findings of this study have significant implications for educational practice and policy. By demonstrating the positive impact of integrating Islamic values into mathematics education, this study provides a rationale for curriculum reform that aligns with students' cultural and religious contexts. It also underscores the need for professional development programs that equip educators with the skills and knowledge required to implement such integrated curricula effectively.

Incorporating Islamic values into mathematics education offers a promising avenue for enhancing students' religious character and motivation. By creating a learning environment that reflects their cultural and religious identity, students are likely to experience a greater sense of relevance and purpose in their education. This study highlights the potential benefits of such integration, providing a framework for educators and policymakers to develop curricula that nurture both the intellectual and moral dimensions of students' development.

Research Methodology

Study Design: This research utilized a quasi-experimental method to assess the impact of incorporating Islamic beliefs into mathematics education on religious character, motivation, and academic performance. The research employed a pre-test, post-test design including a single

cohort of subjects who underwent the intervention. This methodology facilitated the comparison of pre- and post-intervention scores to evaluate the intervention's effect on the study variables.

Settings: The research was carried out at the University of Lahore in Pakistan, with undergraduate students enrolled in mathematics courses as participants. The university fosters an environment favourable to integrating Islamic beliefs into academic disciplines, providing both Islamic studies courses and traditional mathematics instruction. This framework facilitated the harmonious incorporation of religious tenets into the mathematical curriculum, rendering it optimal for the research.

Sample Size: The study comprised a sample size of 35 participants. The sample size was determined according to the research objectives and available resources. The participants consisted of students who voluntarily engaged in the intervention and were enrolled in the university's mathematics department during the academic year.

Sampling Technique: A non-random purposive sampling method was employed to recruit participants for the study. This strategy was selected to primarily focus on students enrolled in the mathematics program who would likely benefit from the incorporation of Islamic beliefs into their education. Participants were chosen based on their interest in the research and their readiness to engage in both pre- and post-intervention evaluations.

Sample Selection

The following inclusion and exclusion criteria were applied to select participants for the study:

Inclusion Criteria: Participants must be registered in a mathematics course at the institution. Participants must be prepared to participate in the intervention and complete both pre- and post-test evaluations. Participants are required to possess a fundamental comprehension of Islamic concepts, as the intervention incorporates religious values into the mathematics curriculum.

Exclusion Criteria: Students who were not registered in a mathematics course during the study time. Students who had previously engaged in analogous interventions or were already familiar with religious-based academic courses. Students who were either unable or unwilling to engage in the complete intervention process and data collection protocols.

Data Collection Process: Data collection occurred in two phases: pre-intervention and post-intervention. The subsequent steps were crucial to the data collection procedure:

- 1. Pre-test Assessment:** Before the intervention, participants filled out a questionnaire evaluating their religious character, motivation levels, and academic performance in mathematics. This questionnaire included established scales intended to assess these factors, guaranteeing that the acquired data was both trustworthy and valid.
- 2. Implementation of Intervention:** The solution involved incorporating Islamic beliefs into the mathematics curriculum, emphasizing the ethical and spiritual aspects of mathematical concepts. Students received educational resources that integrated Quranic verses and Islamic ideas pertinent to the subject area.
- 3. Post-test Assessment:** Following the intervention, participants filled out the identical questionnaire used in the pre-test phase to evaluate any alterations in their religious character, motivation, and academic performance. The post-test was conducted after an adequate interval

had elapsed for the intervention to manifest its effects, so guaranteeing that the results accurately represented the intervention's influence.

4. Data Analysis: The data obtained from the pre- and post-tests were evaluated utilizing paired sample t-tests to determine the variations in scores for religious character, motivation, and academic accomplishment. Pearson correlation coefficients were computed to examine the correlations among these variables. Ultimately, regression analysis was performed to assess the predictive influence of religious character and motivation on academic success.

The data collection approach guaranteed uniformity and precision, with all individuals undergoing identical tests prior to and during the intervention. The subjects' confidentiality and anonymity were preserved throughout the study.

Instrument Validity and Reliability: The validity of the test items and questionnaires (religious character and motivation) was evaluated using the Pearson Product Moment method. The results of the questionnaire validity test revealed an α -value exceeding 0.70, confirming the validity of the items. Reliability was assessed by Cronbach's alpha, producing coefficients of 0.76, 0.74, and 0.80 for several instruments, so satisfying the criteria for instrument reliability (Taber, 2018).

Data Analysis and Results

This study's data analysis section reveals the outcomes of multiple statistical tests used to assess the intervention's effect on Religious Character, Motivation, and Academic Achievement. A series of paired sample t-tests were conducted to evaluate pre- and post-intervention variations in these variables, followed by Pearson correlation coefficients to examine their interrelationships. A multiple regression analysis was performed to assess the degree to which Religious Character and Motivation predict Academic Achievement. The findings offer important insights into the intervention's efficacy and underscore the substantial positive influence of Religious Character and Motivation on academic achievement. The subsequent tables encapsulate the findings and provide a comprehensive examination of the statistical results.

Table 1

Summary of Pre- and Post-Intervention Themes

Theme	Pre-Intervention Insights	Post-Intervention Insights
Perception of Mathematics	Viewed as a technical subject with limited relevance to life	Recognized as a subject enriched with ethical and spiritual dimensions
Integration of Islamic Values	Limited awareness of the connection between math and Islam	Increased understanding of the relevance of Quranic verses to math concepts
Motivation and Engagement	Learning perceived as task-oriented and routine	Learning perceived as meaningful and spiritually fulfilling
Character Development	Focus on procedural accuracy	Emphasis on ethical behavior and religious reflection

Table 1 provides a summary of pre- and post-intervention findings for the themes of mathematical perception, integration of Islamic principles, motivation and involvement, and

character development. Before the intervention, mathematics was predominantly perceived as a technical discipline with minimal applicability to daily life, and there was less recognition of its relationship with Islamic principles. Learning was regarded as task-focused and systematic, emphasizing procedural precision in character development. Post-intervention, participants acknowledged mathematics as a discipline imbued with ethical and spiritual components, underscoring a profound comprehension of the significance of Quranic verses in relation to mathematical principles. Learning was regarded as more significant and spiritually enriching, with an increased focus on ethical conduct and religious contemplation in character formation. These alterations indicate a transition towards a more comprehensive and unified vision of mathematics, encompassing both scholarly and spiritual dimensions.

Table 2

Statistics of Paired Sample T-test of for Religious Character Scores Before and After Intervention (n=35)

Group	Pre-test		Post-test		t (34)	p	Cohen's d
	M	SD	M	SD			
Intervention	2.96	0.29	3.60	0.13	11.91	<0.001	2.85

A paired sample t-test was performed to assess the difference in Religious Character scores pre- and post-intervention. The findings indicated a substantial elevation in scores, with the average score ascending from 2.96 (SD = 0.29) prior to the intervention to 3.60 (SD = 0.13) subsequent to the intervention. The t-value was 11.91 with 34 degrees of freedom, and the p-value was below 0.001, signifying a highly significant enhancement in Religious Character scores following the intervention. The impact size, quantified by Cohen's d, was 2.85, indicating a substantial influence. The results indicate that the intervention significantly enhanced Religious Character scores.

Table 3

Statistics of Paired Sample T-test of for Motivation Scores Before and After Intervention (n=35)

Group	Pre-test		Post-test		t (81)	p	Cohen's d
	M	SD	M	SD			
Intervention	3.19	0.19	3.62	0.11	11.59	<0.001	2.77

A paired sample t-test was conducted to evaluate the difference in Motivation scores pre- and post-intervention. The findings revealed a notable enhancement in motivation scores, with the average score increasing from 3.19 (SD = 0.19) prior to the intervention to 3.62 (SD = 0.11) subsequent to the intervention. The t-value was 11.59 with 34 degrees of freedom, and the p-value was below 0.001, indicating a highly significant enhancement in Motivation scores following the intervention. The effect size, denoted by Cohen's d, was 2.77, signifying a substantial effect. The results indicate that the intervention significantly enhanced Motivation scores.

Table 4

Statistics of Paired Sample T-test of for Academic Achievement Scores Before and After Intervention (n=35)

Group	Pre-test		Post-test		t (81)	p	Cohen's d
	M	SD	M	SD			
Intervention	59.50	12.40	85.50	5.60	11.31	<0.001	2.70

A paired sample t-test was performed to assess the difference in Academic Achievement scores pre- and post-intervention. The findings indicated a notable enhancement in achievement scores, with the mean score escalating from 59.50 (SD = 12.40) prior to the intervention to 85.50 (SD = 5.60) subsequent to the intervention. The t-value was 11.31 with 34 degrees of freedom, and the p-value was below 0.001, signifying a highly significant enhancement in Academic Achievement scores post-intervention. The effect size, quantified by Cohen's d, was 2.70, signifying a substantial influence. The findings indicate that the intervention significantly enhanced Academic Achievement.

Table 5: *Pearson Correlation Coefficients for study variables Religious Character, Motivation and Academic Achievement (n=35)*

Variable	Religious Character	Motivation	Achievement
Religious Character	1.00	0.76**	0.74**
Motivation		1.00	0.71**
Achievement			1.00

Note: $p < .01$

Pearson correlation coefficients were calculated to analyse the links between Religious Character, Motivation, and Academic Achievement. The findings demonstrated a significant positive correlation between Religious Character and Motivation ($r = 0.76$, $p < .01$), suggesting that increased Religious Character correlates with elevated Motivation levels. Furthermore, Religious Character had a moderate positive link with Academic Achievement ($r = 0.74$, $p < .01$), indicating that persons with greater Religious Character are likely to attain superior academic success. Motivation exhibited a significant positive link with Academic Achievement ($r = 0.71$, $p < .01$), reinforcing the notion that heightened motivation correlates with improved academic achievement. These findings underscore the interrelation of Religious Character, Motivation, and Academic Achievement in this study.

Table 6*Regression Analysis for study variables Religious Character, Motivation and Academic Achievement (n=35)*

Variables	B	SE	t	p	95% CI	
					LB	UB
(Constant)	20.73	5.85	3.54	<0.001	9.94	31.52
Religious Character	1.14	0.11	10.01	<0.001	0.91	1.37
Motivation	1.09	0.12	9.18	<0.001	0.85	1.33

A multiple regression analysis was conducted to examine the impact of Religious Character and Motivation on Academic Achievement. The results indicated that both predictors significantly contributed to explaining variance in Academic Achievement. The constant (intercept) was 20.73 (SE = 5.85), with a t-value of 3.54, and a p-value of less than 0.001. For Religious Character, the regression coefficient was 1.14 (SE = 0.11), with a t-value of 10.01, and a p-value of less than 0.001, indicating a significant positive relationship with Academic Achievement. Similarly, Motivation had a significant positive effect on Academic Achievement, with a coefficient of 1.09 (SE = 0.12), a t-value of 9.18, and a p-value of less than 0.001. The 95% confidence intervals for both predictors did not include zero, confirming the robustness of these findings. These results suggest that both Religious Character and Motivation are strong positive predictors of Academic Achievement.

Discussion

The discussion section of this study analyzes the results from the data analysis, offering a comprehensive examination of the key findings. The initiative focused on improving Religious Character and Motivation by incorporating Islamic values into mathematics education demonstrated favorable results regarding academic performance. The substantial enhancements in Religious Character, Motivation, and Academic Achievement scores, indicated by paired sample t-tests, imply that the intervention was very effective in promoting both personal and academic development. The robust positive correlations among Religious Character, Motivation, and Academic Achievement underscore the interrelationships among these factors. The regression study reinforces the idea that both Religious Character and Motivation are significant predictors of academic performance. This section will examine the ramifications of these findings, focusing on their possible effects on mathematics education, character development, and the influence of Islamic beliefs in promoting a more comprehensive educational experience. The integration of religious values into educational frameworks has gained traction as a means to enhance both character development and academic motivation. This discussion explores the impact of embedding Islamic values in mathematics education, based on a pre- and post-intervention analysis of students' perceptions, motivations, and academic achievements. The study highlights significant improvements in students' spiritual awareness, engagement, and academic performance, illustrating the potential of an integrated educational approach (Arthur, 2022).

Before the intervention, students predominantly perceived mathematics as a technical subject devoid of personal or spiritual relevance. This perspective limited their engagement and reduced the subject to a routine academic exercise focused on procedural accuracy. The absence of an ethical or spiritual dimension in the teaching of mathematics contributed to a narrow understanding of the subject, with minimal connection to the students' broader moral and religious framework (Bahri, 2022).

Following the intervention, a notable shift occurred in students' perceptions of mathematics. The integration of Quranic teachings into mathematical concepts led students to recognize the subject

as enriched with ethical and spiritual dimensions. This newfound perspective transformed mathematics into a meaningful and fulfilling endeavor, intertwined with their religious beliefs and moral responsibilities. Students reported that learning became a spiritually rewarding experience, fostering a deeper sense of purpose and ethical reflection (Ferland, 2024).

The intervention significantly enhanced students' motivation and engagement with mathematics. Pre-intervention, learning was perceived as a task-oriented activity, lacking intrinsic motivation. Post-intervention, students described their learning experience as spiritually fulfilling, with a stronger connection between their academic efforts and personal growth. This increased engagement was attributed to the relevance of Islamic teachings in their learning process, which provided a sense of purpose and a framework for ethical behavior (Hendrawan, 2021).

Character development emerged as a key area of growth through the integration of Islamic values in mathematics education. Initially, the focus was on procedural accuracy, with little emphasis on ethical considerations or religious reflection. Post-intervention, there was a marked shift towards ethical behavior and moral reflection, influenced by the incorporation of religious teachings into the curriculum. This shift highlights the potential of an integrated approach to foster holistic character development, aligning academic pursuits with spiritual and ethical growth (Arthur, 2022).

The quantitative analysis supported the qualitative findings, demonstrating significant improvements in religious character, motivation, and academic achievement post-intervention. The descriptive statistics for religious character scores revealed a substantial increase in students' spiritual awareness and ethical considerations. The mean score increased from 2.96 (pre-intervention) to 3.60 (post-intervention), indicating a transition from a medium to a high category in religious character (Keck, 2023).

Similarly, motivation scores showed a notable improvement, with the mean score rising from 3.19 (pre-intervention) to 3.62 (post-intervention). This increase reflects enhanced engagement and a stronger connection between students' academic efforts and their spiritual growth (Ferland, 2024).

Academic achievement also improved, with a high average score of 85.50, indicating better comprehension and application of mathematical concepts. This suggests that the integrated approach not only nurtured religious character and motivation but also positively impacted academic performance (Hendrawan, 2021).

The Pearson correlation coefficients further underscored the interdependence of religiosity, motivation, and academic success. A strong positive correlation was observed between religious character and motivation ($r = 0.76, p < .01$), as well as between religious character and academic achievement ($r = 0.74, p < .01$). The correlation between motivation and achievement was also significant ($r = 0.71, p < .01$), highlighting the role of intrinsic motivation driven by religious values in enhancing academic outcomes (Arthur, 2022; Bahri, 2022).

The findings of this study emphasize the transformative potential of integrating Islamic values into mathematics education. The shift from viewing mathematics as a purely technical subject to one enriched with ethical and spiritual dimensions highlights the efficacy of this approach in

fostering holistic education. The increased motivation and engagement, coupled with improved academic performance, underscore the importance of aligning educational practices with students' moral and religious frameworks (Ferland, 2024; Hendrawan, 2021).

The positive correlation between religious character, motivation, and achievement suggests that fostering a sense of spiritual purpose can enhance intrinsic motivation, leading to better academic outcomes. This integrated approach not only supports academic success but also promotes the development of ethical and reflective individuals, capable of applying their knowledge in morally responsible ways (Arthur, 2022).

The integration of Islamic values into mathematics education has demonstrated significant benefits in enhancing religious character, motivation, and academic achievement. By aligning educational content with students' spiritual and ethical frameworks, educators can create a more meaningful and engaging learning experience. This approach not only nurtures academic success but also supports the development of well-rounded individuals with a strong sense of moral and ethical responsibility (Bahri, 2022; Yusuf, 2022).

Conclusion

This study demonstrates that incorporating Islamic ideals into mathematics instruction can enhance students' religious character, motivation, and academic performance. The incorporation of Quranic teachings and ethical themes into the curriculum transformed students' perceptions of mathematics from a technical discipline to one imbued with spiritual and ethical significance. The results indicate that matching educational material with students' cultural and religious identities enhances the significance and engagement of learning. This technique fosters comprehensive development by incorporating cognitive, ethical, and spiritual advancement. The religious character, motivation, and academic performance exhibited substantial improvement. The robust positive relationships among religious character, motivation, and academic success illustrate their interconnectedness. Students who associated their academic objectives with religious convictions exhibited greater internal motivation and achieved superior performance. This method fosters academic achievement and ethical utilization of knowledge. The results were constrained by the limited sample size ($n = 35$). Future research should use bigger and more diverse participant cohorts to validate findings across contexts. To evaluate generalizability, subsequent study should augment sample size and incorporate other educational contexts. A longitudinal study may elucidate the enduring effects of religious principles on schooling. The viewpoints of educators and curriculum developers may also reveal the actual obstacles and potential of integrated methodologies. This research offers compelling evidence that Islamic principles can be utilized to instruct mathematics and foster holistic child development. Additional study can enhance education's comprehension and use of culturally and religiously pertinent pedagogy by addressing its deficiencies and expanding upon its discoveries.

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