



Islamic Values in Science-Based Entrepreneurship Education an Analysis of Physics Education Students Performance Based on the Noble Traits of the Prophet Muhammad

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Abstract: This study investigates the integration of Islamic values into science-based entrepreneurship education by analyzing the academic and entrepreneurial performance of undergraduate students in a physics education program. The research is centered on four noble traits of the Prophet Muhammad—Sidiq (honesty), Amanah (trustworthiness), Fathonah (intelligence), and Tabligh (effective communication)—which serve as ethical and pedagogical foundations in assessing students' entrepreneurial potential. Performance tasks consisted of observation-based feedback, business proposal development, and the creation of educational technology designs. A mixed-method approach was employed, involving both qualitative and quantitative analysis of student submissions and classroom activities. The findings reveal that the internalization of these prophetic values significantly contributes to the development of students' creativity, entrepreneurial mindset, and engagement with technology. Moreover, the incorporation of Islamic ethical principles into entrepreneurship education not only enhances students' academic outcomes but also nurtures a strong sense of moral responsibility and ethical awareness. This suggests that prophetic values can serve as an effective framework for shaping future educators who are both innovative and ethically grounded. The study offers implications for curriculum development in Islamic higher education institutions seeking to balance character education with 21st-century skills.

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INTRODUCTION

Entrepreneurship education has become a vital component of higher education, particularly in the preparation of future educators in science-related fields. In physics education, students are

expected not only to master scientific content but also to cultivate critical life skills, such as innovation, leadership, and economic independence. These skills are essential for fostering adaptability and creativity, qualities

highly sought after in the modern workforce. Moreover, the development of entrepreneurial competencies in students aligns with the increasing demand for graduates who can navigate complex, rapidly changing environments, thereby contributing to their ethical grounding (Fayolle & Gailly, 2008).

Integrating entrepreneurship into physics education is seen as a multidimensional approach that helps shape well-rounded future educators who are not only experts in their scientific fields but also leaders capable of driving change in various sectors (Fayolle, 2013). In fact, entrepreneurship education offers students a unique opportunity to explore innovative problem-solving methods, which are particularly valuable in science education (Zhao, Seibert, & Hills, 2005). Therefore, embedding entrepreneurial principles into physics curricula can significantly enhance students' preparedness for the challenges of the 21st century, ultimately shaping them into dynamic educators who can inspire and lead in the classroom and beyond (Pittaway & Cope, 2007). In many educational contexts, however, entrepreneurship is often taught with an emphasis on technical and financial aspects, neglecting the importance of moral and ethical foundations. To address this gap, Islamic values can serve as a strong philosophical and pedagogical base for entrepreneurship education.

These values emphasize the cultivation of noble character traits, which are crucial for long-term success and societal impact. When entrepreneurial learning is infused with values such as honesty (*sidiq*), trustworthiness (*amanah*), intelligence (*fathonah*), and effective communication (*tabligh*), students are more likely to internalize ethical decision-making and social responsibility. These principles not only guide entrepreneurial practices but also encourage the development of socially responsible businesses that prioritize the well-being of society (Nurcholida, Utomo, & Hermawan, 2022). Moreover, embedding Islamic values into entrepreneurship education fosters the development of entrepreneurs who are morally grounded and driven by a sense of ethical responsibility (Sedkaoui, Saeed, & Al-Kilidar, 2022).

These prophetic traits, exemplified by the life and character of the Prophet Muhammad, provide a

timeless model of integrity-driven leadership. Within the context of science-based entrepreneurship, such traits can foster deeper reflection, moral awareness, and authenticity in business planning and execution. This is particularly important for undergraduate students in teacher education, who are expected to become role models and agents of change in their communities. For them, the integration of character and competency is not optional, it is foundational (Wibowo et al., 2022).

This study aims to analyze how prophetic character traits influence student performance in three core entrepreneurial learning tasks: Observation-Based Feedback, Business Proposal Development, and Educational Technology Proposals. By examining the interplay between value-based pedagogy and student outcomes, this research contributes to the discourse on moral education in science and entrepreneurship. The findings are expected to highlight the importance of Islamic ethical values in preparing competent and conscientious educators, particularly within the field of physics education. In doing so, this study offers a framework for developing entrepreneurship curricula that are both technically robust and morally anchored (Sulistyowati et al., 2025; Firdaus, 2024).

METHOD

This study applied a quantitative descriptive research design to analyze the integration of prophetic character traits in entrepreneurship education within a science-based context. The focus was to examine how core Islamic values influence students' performance in structured learning tasks related to entrepreneurship. The research was conducted among students of the fourth semester in the Physics Education study program at a public university in Indonesia. A total of 18 undergraduate students participated in the study, all of whom had enrolled in a course integrating entrepreneurship with educational technology and character development. To explore the embodiment of prophetic values, the study assessed student performance across three key tasks: Observation-Based Feedback, Business Proposal Development, and Educational Technology Proposal. Each task was intentionally designed to reflect and evaluate

specific noble traits of the Prophet Muhammad SAW, namely: honesty (sidiq), trustworthiness (amanah), intelligence (fathonah), and effective communication (tabligh). In the Observation-Based Feedback task, students were required to analyze a real or simulated business environment and provide constructive feedback. This activity was intended to measure the degree to which students demonstrated sidiq through accurate observation and truthful reporting of customer or stakeholder needs.

The Business Proposal Development task was used to evaluate the element of amanah. Students created original business plans that emphasized not only profitability and feasibility but also ethical responsibility and community relevance. Proposals were assessed based on clarity of vision, accountability, and alignment with trustworthy practices. The Educational Technology Proposal task integrated the values of fathonah and tabligh. Students were challenged to develop innovative educational tools or systems that applied technology to improve learning outcomes. The assessment focused on students' creativity, intellectual reasoning, and their ability to communicate complex ideas clearly and persuasively, both in written and oral formats. Each task was evaluated using a rubric-based assessment, which consisted of criteria aligned with the four prophetic traits. Scores ranged from 1 (poor) to 5 (excellent) for each criterion. The total score of each student for each task was calculated and used as the primary data for analysis.

The collected data were analyzed using descriptive statistical methods, including mean and standard deviation, to identify trends in performance across tasks. In addition, Pearson correlation analysis was used to determine the relationship between the embodiment of specific prophetic traits and overall student performance. These analyses aimed to provide empirical evidence on the influence of value-based learning on entrepreneurial competency in science education. The statistical approach provided clarity on how students applied noble character values, such as honesty, trustworthiness, intelligence, and effective communication, within practical and innovative contexts. This combination of descriptive and correlational methods ensured both the depth and relevance of the findings in evaluating the role of

character-based learning in enhancing student outcomes.

RESULT AND DISCUSSION

The analysis of the ideas proposed by the 18 students across the three tasks reveals a strong focus on improving customer experience, enhancing educational tools, and leveraging technology for innovation in both business and educational sectors. The most common feedback focused on customer comfort and satisfaction. Several students proposed adding more seating and shaded areas to improve customer comfort, while others suggested offering healthier food options like smoothies and salads. A significant number of students also highlighted the need for faster service through optimized ordering systems and training staff to be more friendly and efficient. Moreover, enhancing the customer experience through the introduction of loyalty and rewards programs was also a recurrent suggestion. These ideas collectively emphasize the importance of creating a welcoming and efficient environment for customers.

The business proposals presented by the students reflected a clear inclination towards education-focused initiatives. Many students suggested launching physics educational kits, mobile applications, and online tutoring platforms as potential business models. Other innovative business ideas included health-focused cafés, DIY kits for learning, and peer-to-peer learning platforms aimed at fostering collaborative education. Additionally, food-related business ideas such as food delivery services were proposed, offering convenience for customers who are unable to visit in person. These proposals indicate a combination of educational and health-conscious business solutions, emphasizing the students' ability to identify emerging needs and trends.

The educational technology ideas demonstrated a strong shift towards integrating advanced technology in learning environments. Several students proposed the development of interactive learning platforms, virtual reality simulations for physics labs, and mobile apps for personalized learning experiences. Other technological innovations included the introduction of augmented reality (AR) glasses for interactive demonstrations, smart classroom technology, and

gamification strategies to engage students in the learning process. Some students also suggested cloud-based collaborative tools and AI-powered learning assistants to support self-paced learning. These tech-driven solutions are aligned with the growing trend of incorporating digital tools to enhance educational outcomes. Overall, the proposed ideas highlight the students' creativity in identifying and addressing customer and educational challenges. The emphasis on integrating technology, particularly in the fields of education and customer experience, reflects a forward-thinking approach to solving contemporary issues in business and learning environments.

The results of the study reveal that students showed a high level of performance across all tasks, reflecting a strong alignment with the prophetic traits emphasized in the course. Quantitative analysis indicated consistent performance in Observation-Based Feedback, Business Proposal Development, and Educational Technology Proposal tasks. In the Observation Feedback task, students achieved a mean score of 86.5, indicating a clear understanding of customer or user needs. This result suggests that the trait of *sidiq* (honesty) was well demonstrated through accurate and reflective observations grounded in ethical reporting. In the Business Proposal component, the mean score was 87.5, showing students' ability to craft business ideas that were not only feasible but also trustworthy and socially responsible. This aligns strongly with the trait of *amanah* (trustworthiness),

which was embedded in the evaluation criteria of the proposals.

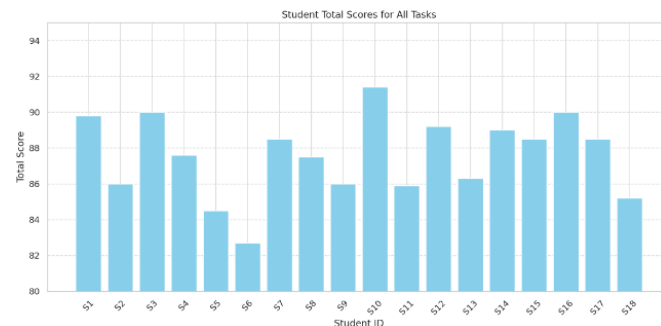


Figure 1. The histogram represents the distribution of total scores among the students.

The Educational Technology Proposal recorded the highest mean score of 88.0, reflecting students' intellectual creativity and effective use of educational technology solutions. The performance in this task emphasized the embodiment of *fathonah* (intelligence) and *tabligh* (communication), as students needed to both design innovative solutions and clearly articulate their educational value. The following table provides descriptive statistics for each task: Observation Feedback, Business Proposal, and Education Tech Proposal. The data shows the Mean, Median, Standard Deviation, and The range of scores for each task was calculated to provide a general overview of student performance. This helped identify both the average achievement and the distribution of results. The analysis also revealed how students varied in their responses across different tasks.

Table 1. Descriptive Statistics

Task	Mean	Median	Standard Deviation	Range
Observation Feedback	86.5	88	5.4	20
Business Proposal	87.5	88	5.2	12
Education Tech Proposal	88.0	88	4.3	12

The correlation matrix below shows the relationships between the three tasks and the total score. A strong positive correlation between Business Proposal and Education Tech Proposal (0.85) indicates that students who performed well in one task also tended to perform well in the other. This suggests that these two tasks may require

similar skills, such as critical thinking, structured writing, and the ability to propose practical and innovative solutions. The alignment between these two components could also reflect a consistent approach by students in handling project-based assignments. Similarly, the correlation between Observation Feedback and Total Score (0.81)

suggests that providing insightful feedback is associated with higher overall performance. This may indicate that students who are capable of analyzing and reflecting on others' performance are also more likely to excel in their own tasks.

Observation Feedback may require higher-order thinking skills such as evaluation, synthesis, and constructive critique, which are likely contributing to better outcomes across other performance areas.

Table 2. Correlation Matrix

Task	Observation Feedback	Business Proposal	Education Tech Proposal	Total Score
Observation Feedback	1.00	0.72	0.68	0.81
Business Proposal	0.72	1.00	0.85	0.93
Education Tech Proposal	0.68	0.85	1.00	0.91

The statistical analysis showed a strong positive correlation between the Business Proposal and Education Tech Proposal ($r = 0.85$), indicating that students who performed well in one task tended to do well in the other. This strong association is likely due to overlapping competencies required by both tasks, such as planning, innovation, critical thinking, and effective communication. The similarity in task demands may have allowed students to apply the same skill sets across both assignments, leading to consistent performance. A similarly high correlation was found between

Observation Feedback and Total Score ($r = 0.81$), indicating that students who demonstrated honesty and insight in their initial observations were more likely to succeed in later tasks. This suggests that early engagement through thoughtful feedback contributes to deeper understanding of academic expectations. The act of providing reflective observations may also enhance students' critical thinking and self-assessment abilities. As a result, strong performance in Observation Feedback appears to be a key predictor of overall academic success.

Table 3. Comparison of the mean scores

Student Group	Mean Total Score	Mean Observation Feedback Score	Mean Business Proposal Score	Mean Education Tech Proposal Score
High Scoring Group	92.0	90.0	93.0	92.0
Low Scoring Group	80.0	78.0	81.0	80.0

We compared the performance of the high-scoring group and the low-scoring group based on their total scores. The table below shows the comparison of the mean scores for Observation Feedback, Business Proposal, and Education Tech Proposal for each group. The high-scoring group performed better in all areas, demonstrating the strong relationship between high performance in individual tasks and overall success. These findings reinforce the importance of integrating Islamic values and prophetic character traits in science-

based entrepreneurship education. The high performance across all tasks reflects the students' ability to internalize and apply noble values such as honesty, trustworthiness, intelligence, and communication in practical contexts.

The trait of tabligh (effective communication) emerged as a critical skill across all three tasks. Whether conveying observations, proposing a business idea, or presenting an educational technology concept, students who communicated clearly and persuasively consistently achieved

higher scores. This confirms that communication is not merely a soft skill but a core entrepreneurial competency, particularly in science education. Fathonah (intelligence) was especially evident in the Education Technology Proposal, where students were challenged to integrate innovation with pedagogical relevance. Their ability to propose thoughtful and applicable technological solutions demonstrates the value of combining cognitive reasoning with ethical intent, a hallmark of value-based education.

Sidiq and amanah, meanwhile, were most clearly reflected in the Business Proposal task. Students were expected to demonstrate ethical awareness, realistic planning, and a sense of accountability in their entrepreneurial designs. The strong correlation between ethical grounding (as seen in Observation Feedback) and overall performance suggests that moral integrity forms the basis of sustained success, even in innovation-driven tasks.

The study supports the integration of prophetic values in entrepreneurship education, particularly in science teacher training. Embedding these values in practical assignments not only enhances students' performance but also nurtures future educators who are ethically grounded, intellectually capable, and socially responsible.

CONCLUSIONS

This study affirms the critical role of prophetic character traits, honesty (sidiq), trustworthiness (amanah), intelligence (fathonah), and effective communication (tabligh) in enhancing the entrepreneurial performance of physics education students. The integration of these Islamic values within science-based entrepreneurship education not only strengthens students' academic outcomes but also nurtures the ethical and leadership qualities required for their future roles as educators and professionals. The findings demonstrate that students who embody these traits tend to excel in tasks requiring observation, innovation, and ethical decision-making. This suggests that value-based education grounded in Islamic principles can serve as a powerful pedagogical foundation in teacher preparation programs, particularly in fields that demand both technical competence and moral integrity.

Future research could investigate the long-term influence of prophetic traits on graduates' career development, ethical behavior in the workplace, and their ability to foster these values in their own future students. Additionally, there is a need to explore how educational institutions can systematically and sustainably embed these noble values across diverse disciplines through curriculum design, instructional strategies, and institutional culture.

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AUTHOR CONTRIBUTIONS

Conceptualization, Taufik, M. and Syahril, A.; Methodology, Taufik, M.; Software, Taufik, M.; Validation, Taufik, M. and Syahril, A.; Formal analysis, Taufik, M.; Investigation, Taufik, M.; Resources, Syahril, A.; Data curation, Taufik, M.; Writing, original draft preparation, Taufik, M.; Writing, review and editing, Syahril, A.; Visualization, Taufik, M.; Supervision, Syahril, A.; Project administration, Syahril, A.; Funding acquisition, Syahril, A. All authors have read and agreed to the published version of the manuscript. All authors have read and agreed to the published version of the manuscript.

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CONFLICTS OF INTEREST

The authors, Taufik, M. and Syahril, A., declare no conflict of interest. The research was conducted independently, and the funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results, as the study was entirely self-funded by the authors.

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