Crossref DOI: https://doi.org/10.71085/rjhsa.04.04.137

A double-blind, peer-reviewed, open-access, and an HEC-recognized Y-category Journal

Research Journal of Human and Social Aspects

Web link: https://rjhsa.cclll.org

P-ISSN: 3006-9696, E-ISSN: 3006-970X

Volume 4 Issue 4, 2026, Page Rang: 50-59



Examining the relationships and relative predictive contributions of Artificial, Moral, and Spiritual Intelligence to academic achievement among PhD scholars in Punjab, Pakistan

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Article information

Article History:

Received: 2026-08-02

Received in revised form: 2026-09-01

Accepted: 2026-09-11

Published Online: 2026-10-01

Keywords:

Artificial Intelligence; Moral Intelligence; Spiritual Intelligence; Academic Achievement; PhD Scholars.

ABSTRACT

As AI becomes more prevalent in higher education, PhD scholars have opportunities to leverage AI tools and technologies to enhance their learning, research, and academic productivity. But there are also moral and spiritual attributes which influence scholars' academic aspirations, drive and choices that could also be linked to academic performance. Thus the present study examined the relationship between Artificial Intelligence (AI), Moral Intelligence (MI), Spiritual Intelligence (SI) and Academic Achievement (AA) among PhD scholars of Punjab, Pakistan. The research design was quantitative correlational while the data collection was done by using a structured questionnaire with 5-point likert scale. Pearson correlation analysis revealed significant positive correlations between AI and AA ($r = .712$, $p < .001$), MI and AA ($r = .699$, $p < .001$) and SI and AA ($r = .469$, $p < .001$). The highest correlation found was between AI and AA. Multiple regression analysis revealed that AI and MI significantly positively contributed to academic achievement, with AI contributing more ($\beta = .455$, $p < .001$) than MI ($\beta = .419$, $p < .001$). SI did not appear significant ($\beta = .014$, $p = .566$). The model explained 62.4% of the variance in academic achievement ($R^2 = .624$, $p < .001$). The results underline the significance of AI and MI in the context of academic performance of doctorate degree holders but the role of SI needs to be explored in conjunction with other factors.

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The Journal is published quarterly (March, June, September & December) by the Centre for Children Literacy and Lifelong Learning (CCLLL), Pakistan. **Web link:** https://cclll.org

1. Introduction

Artificial intelligence (AI) is an integral component of today's life, impacting numerous items and services that we use daily. Human intelligence (HI) and AI intelligence (AI) are becoming a significant issue in the development of AI. AI is fast and efficient, can handle a lot of information, but lacks creativity, empathy, ethical judgment, and curiosity, while human intelligence can have those qualities. Thus, AI and human intelligence can be used together to assist with better problem solving and decision making (Srivastava et al., 2026). AI can be a useful assistive tool in academic language learning and in conducting research activities (Braknia et al., 2025).

Artificial intelligence (AI) is a crucial component of the 21st century, and students need to be aware of and prepared for the evolving technologies of the time (Yim et al., 2025). AI has revolutionized the field of education by introducing innovative technologies like Generative AI, chatbots, Intelligent Tutoring Systems, and Large Language Models. These technologies enable personalisation of learning according to students needs and capabilities. They also help with writing, evaluation and content creation. AI also can be used for predicting learning outcomes and in innovative teaching. In general, AI is opening up fresh possibilities for better teaching and learning at higher education level (Choi et al., 2025).

Generative AI tools can enhance research tasks like literature search and advance academic writing, their uncritical use may decrease the critical thinking of researchers and heighten the danger of academic dishonesty (Luo et al., 2025). AI is a game-changing technology that is revolutionizing the education sector and numerous other industries. Artificial intelligence (AI) presents advanced and innovative opportunities and solutions that have the capacity to change traditional teaching and assessment methods in education system (Miller et al., 2025). the fast growth of AI poses the need to take ethical considerations seriously (Chakraborty, 2025).

The concept of moral intelligence is linked to other concepts of intelligence, moral development and ethical action. Based on Gardner's research on the multiple intelligences, the question arose whether moral capacities could be considered as a new category of intelligence. Since the concept of moral intelligence has been questioned, other researchers have explored the link between intelligence, moral reasoning, values and behavior (Sternberg, 2025).

Moral intelligence is crucial in higher learning since it assists students to know good and bad and to do well. It can encourage academic honesty, ethical conduct, and a sense of responsibility towards others in universities (Jafari et al., 2025). In recent times, there is evidence of development of moral intelligence through education. Character education, cooperative learning and social-emotional learning are among the approaches that will help build empathy, moral reasoning and ethical decision making skills (Rahmanda et al., 2026).

Spiritual intelligence can help students in their academic journey by enhancing self-awareness, fostering intrinsic motivation, and ensuring emotional equilibrium. Spiritual intelligence can assist student's academic progress in developing self-awareness, deepening their motivation, and promoting emotional balance in education (Taupik, 2025). The emotional stability shown by students with higher spiritual intelligence indicates that spiritual intelligence can have a significant impact on their mental health (Rastogi et al., 2025). Spiritual intelligence can help improve the opposite effects of nervousness and educational differences on mental health (Ansyori et al., 2025).

For doctoral scholars, spiritual intelligence offers a further element of support by helping them to stay focused, resilient and balanced throughout their research experience (Afzal et al., 2025). Writing is a challenging aspect of doctoral studies, critical feedback from the supervisor and reviewers can stress students, and administrative work can also be challenging, demanding and require high levels of internal motivation and emotional stability (Daniel, 2025). The ability to find meaning in academic work, stay committed to the completion of their doctoral study and manages the stress and

challenges in thesis research can be aided by a higher level of spiritual intelligence among doctoral scholars (Iqbal & Kosar, 2026).

2. Literature Review

In academia AI is becoming more and more common in helping with academic writing, data analysis and technical learning. When used appropriately, generative AI tools aid students and researchers in their academic pursuits by enhancing the ability to work efficiently and cultivate academic skills (Daniel et al., 2025). The rise in AI's use in higher education is also evident in Pakistan; where ChatGPT usage is positively correlated with academic achievement (Ashraf et al., 2025).

Artificial Intelligence (AI), also called computational intelligence, is the phrase used to describe the capability of computers and machines to learn, reason, solve problems and make decisions, which are traditionally regarded as tasks of human intelligence. The concept of intelligent machines is not new--it has been around for many years. In the 1950s Alan Turing proposed the idea of thinking machines and later on John McCarthy developed the term Artificial Intelligence. Now AI can handle information and complete numerous tasks that used to be done by humans (Moosa et al., 2025).

The use of Artificial Intelligence (AI) is becoming a key factor in higher education, influencing teaching, learning, academic writing, information searching, feedback and personalized learning. Research has recently showed that the use of AI-based learning could have a positive impact on students' academic accomplishments (Liu et al., 2025).

There is an increasing trend to use ChatGPT in higher education for tutoring, writing academic work, clarifying concepts and providing feedback. While it can enhance student engagement, accessibility, and collaboration, there are potential issues with academic integrity, independent learning, critical thinking and the excessive use of AI-generated content (Abdallah et al., 2025).

The comparison of moral intelligence with objective and subjective academic performance measures can lead to better insight into the link between ethical values and successful completion of a doctorate (Iqbal & Kosar, 2026). The efficient use of AI can help in learning, research productivity and academic success (Yadav & Shrawankar, 2025). The responsible and effective utilization of AI can be conducive to digital learning and can play a role in the enhancement of academic performance of students (Shahzad et al., 2025).

Artificial Intelligence (AI) has come a long way from the rule-based systems to the data-driven technologies which are capable of learning, adapting and doing increasingly complex jobs. Traditional AI was mainly used for solving specific problems using pre-established rules and human knowledge, thus making it hard to handle new or changing scenarios (Aggarwal et al., 2025). The adoption of AI in education remains fraught with ethical dilemmas, data privacy issues, reliance on automated tools and the importance of human involvement in educational decision-making (Ateş, 2025).

The study of moral intelligence has also been ongoing through the definition and measurement of moral intelligence in various contexts, as evidenced by more recent studies (Górniak et al., 2025). Promoting ethical reflection in a technical, skill-based environment can help students navigate ethical use of AI while maintaining human control and responsibility (Hubbard et al., 2026).

Spiritual intelligence is essentially our ability to discover deep purpose in everyday experiences keep our inner peace during difficult times and let a strong moral compass guide our choices. Research shows that people who nurture this form of intelligence tend to be more emotionally grounded, perform better academically and experience greater overall mental well-being (Afzal et al., 2025). The role of spiritual intelligence in the process of seeking meaning, achieving balance, and adapting to the evolving world of academics and technology becomes more apparent (Judijanto, 2025).

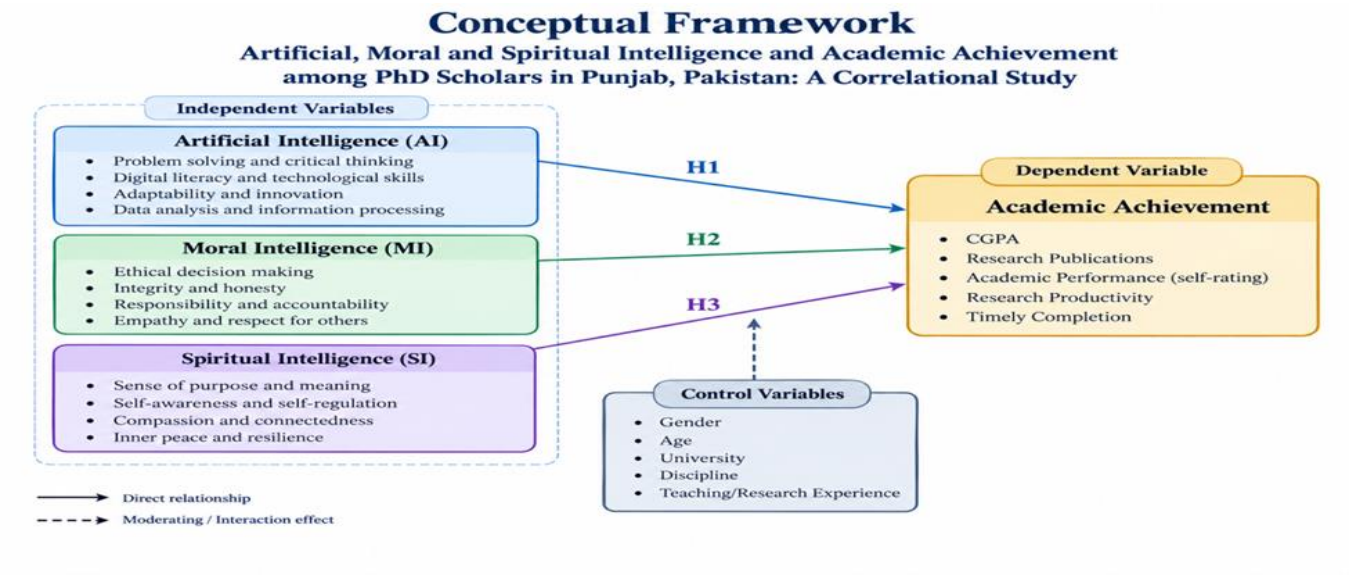
AI, moral intelligence and spiritual intelligence are explored in a unified way because doctoral education is evolving, and the skills required for a researcher to be successful are vast (Ashraf et al., 2025). Educators also help develop moral values by providing positive role modeling and families and communities support moral values in the day-to-day. If moral and character education integrated in formal education then students will be able to develop character education and responsible behavior in relation to others, which are important traits of morally intelligent people (Hasibuan et al., 2026).

Thus the integration of moral and spiritual values in education can be a facilitator in developing individuals who are able to exhibit integrity, responsible decision making, self-discipline and positive social behaviour in educational and digital environments (Anggraini & Bakti, 2026; Marstiyaningtiyas et al., 2026). Students can learn to be more sensitive towards others through caring relationships, empathetic interactions and to use moral values in their behaviour and decision making (Noviyani et al., 2026).

The combination of AI and ethics, as well as spiritual intelligence can offer a more balanced way to reach meaningful academic outcomes (Alkhouri, 2025). Moral intelligence and spiritual care are recommended to be integrated at various levels of education. The diversity and engaging use of teaching strategy can further enhance the learning and moral development of students. Thus if these areas are paid more attention, students might turn themselves into competent, responsible and ethical students (Özveren et al., 2026).

In the field of education, it is crucial to employ AI in ways that promote human flourishing, equity, and purposeful learning, and that do not become sources of injustice or dehumanization. The moral intelligence of individuals in the current era of artificial intelligence in education is marked by their ethical awareness, making informed decisions, social responsibility and human dignity (Ismiyanto et al., 2026).

Conceptual Framework



3. Research Objective

1. To examine the association of artificial, moral and spiritual Intelligence with academic achievement among PhD scholars in Punjab, Pakistan.

4. Research Hypotheses

H1: There is no statistically significant relationship between Artificial Intelligence and Academic Achievement among PhD scholars.

H2: There is no statistically significant relationship between Moral Intelligence and Academic Achievement among PhD scholars.

H3: There is no statistically significant relationship between Spiritual Intelligence and Academic Achievement among PhD scholars.

H4: There is no statistically significant relationship among Artificial Intelligence, Moral Intelligence and Spiritual Intelligence among PhD scholars.

5. Research Methodology

A quantitative correlational research design was used to examine the direction and strength of association between artificial intelligence, moral intelligence spiritual intelligence and academic achievement. A correlational design was selected because the variables were observed in their natural academic setting without experimental manipulation.

The target population comprised PhD scholars actively enrolled in the research phase with in Social Sciences department across public sector universities in Punjab Pakistan. Institutional record identified a total population of 1375 research phase PhD scholars across 10 selected public universities. A sample of 923 PhD Scholars was drawn using stratified random sampling across the universities.

The instrument consisted of one self-developed survey questionnaire. Content and construct validity were verified through expert panel evaluation and pilot testing. Internal consistency was evaluated using Cronbach's alpha in SPSS. Data was collected through Google Form. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS).

6. Results

Table 1: *Descriptive statistics*

Sr. no.	Variable	N	M	SD
1	Artificial Intelligence (AI)	923	3.82	0.66
2	Moral Intelligence (MI)	923	3.82	0.64
3	Spiritual Intelligence (SI)	923	3.86	0.61
4	Academic Achievement (AA)	923	3.82	0.72

The descriptive statistics indicate that 923 doctoral scholars reported relatively high levels across all study variables. Spiritual Intelligence had the highest mean score (M = 3.86, SD = 0.61) followed by Academic Achievement (M = 3.82, SD = 0.72), Moral Intelligence (M = 3.82, SD= 0.64) and Artificial Intelligence (3.82, SD = 0.66). The standard deviations indicate moderate variability in participants' responses with Academic Achievement showing the greatest variation. Overall the findings suggest that the respondents demonstrated generally favorable levels of artificial, moral and spiritual intelligence as well as academic achievement.

Table 2: *Pearson Correlation Table*

	AI	MI	SI	AA
Artificial Intelligence (AI)	1			
Sig.(2-tailed)				
Moral Intelligence (MI)	.597**	1		
Sig.(2-tailed)	.000			
Spiritual Intelligence (SI)	.479**	.565**	1	
Sig.(2-tailed)	.000	.000		
Academic Achievement (AA)	.712**	.699**	.469**	1
Sig.(2-tailed)	.000	.000	.000	

The Pearson correlation analysis revealed significant positive relationships among all study variables. Artificial Intelligence (AI) was positively and significantly correlated with Moral Intelligence (MI), r = 0.597, p< .001, Spiritual Intelligence (SI), r = .479, p < .001 and Academic Achievement (AA), r = .712, p <.001. Similarly, MI showed significant positive correlations with SI (r = .565, p < .001), and AA (r =6.99, p<.001), while SI was also associated with AA (r=.469, p<.001). The strongest relationship was observed between AI and AA, followed by MI and AA, indicating that higher levels of artificial and intelligence were associated with higher academic achievement among doctoral scholars. All correlations were based on 923 respondents and were statistically significant at the 0.01 level.

Table 3: *Multiple Regression Analysis*

Predictor	B	SE	β	t	p
Constant	.061	.107		.569	.569
Artificial Intelligence (AI)	.498	.028	.455	17.629	<.000
Moral Intelligence (MI)	.471	.031	.419	15.273	<.000
Spiritual Intelligence (SI)	.017	.030	.014	.574	.566

Note. R= .790, R2 =.624, Adjusted R2 =.623, F (3,919) = 508.329, p < .001, N = 923. B = unstandardized coefficient; SE = standard error; β = standardized coefficient. Academic achievement was the dependent variable.

7. Discussion

The findings indicate that respondents reported relatively high levels of artificial intelligence, moral intelligence, spiritual intelligence and academic achievement. Pearson correlation analysis further showed significant positive relationship among all four constructs. AI had the strongest association with academic achievement (r = .712), followed by MI (r =.699), whereas SI showed a comparatively moderate relationship (r=.469). These findings suggest that technological competence and moral qualities may be particularly relevant to academic achievement, while spiritual intelligence may also contribute to positive academic experiences. The strong association between AI and academic achievement is consistent with recent meta-

analytic evidence showing that AI-supported learning can produce positive academic outcomes among students (Dong et al., 2025). Overall, the findings support the relevance of considering technological, moral and spiritual dimensions together when understanding academic achievement among doctoral scholars.

8. Conclusion

It is concluded from the study that the relationship of Artificial Intelligence, Moral Intelligence and Spiritual Intelligence with academic achievement of PhD scholars are positive. Academic achievement had the strongest relationship with AI followed closely by MI with a moderate relationship to SI. Overall, the mean scores of the constructs indicated that the respondents generally had high levels of the above characteristics. The overall results indicated that effective use of new technologies is not only a key factor in the successful completion of doctorates, but also the moral qualities and personal growth of students. As such, HEIs could also help to foster ethical and holistic attributes in doctoral scholars, as well as promote responsible use of AI.

9. Limitations & Future Research

This study has several limitations. First, its cross-sectional correlational design identifies relationships among AI, MI, SI and academic achievement but does not establish causal relationships. Second, the participant was PhD scholars from Punjab, so the findings may not be directly generalizable to doctoral scholars in other provinces, countries, disciplines or educational contexts. Finally, academic achievement was assessed through the study's selected indicators rather than through a single standardized external measure; therefore, future studies may benefit from combining self-reported measures with objective academic records.

Future studies should use longitudinal or experimental designs to examine causal relationships among AI, moral intelligence, spiritual intelligence and academic achievement. Research involving scholars from different regions and disciplines would improve generalizability. Future studies may also examine specific types of AI use and factors such as AI literacy, critical thinking and responsible AI use to better understand their role in doctoral academic achievement.

Declaration of Conflicting Interest

The author declared no potential conflicts of interest with respect to research.

Funding Statement

No funding is received for this project.

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