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THE RELATIONSHIP BETWEEN AI COMPETENCY AND ACADEMIC MOTIVATION AMONG UNIVERSITY STUDENTS

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Abstract

The increasing integration of Artificial Intelligence (AI) in higher education has influenced students' learning experiences and academic practices. The present study aimed to examine the relationship between AI competency and Academic Motivation among university students. It further investigated the association of AI competency with intrinsic and extrinsic motivation and explored whether AI competency predicts Academic Motivation. A quantitative descriptive research design was employed. Data were collected from 200 male and female university students enrolled in selected public and private universities in Multan and Dera Ghazi Khan, South Punjab, Pakistan. Standardized questionnaires were used to measure AI competency and Academic Motivation. The collected data were analyzed using descriptive statistics, Pearson's correlation, and simple linear regression through SPSS. The findings revealed a significant positive relationship between AI competency and Academic Motivation. AI competency was also positively associated with both intrinsic and extrinsic motivation, indicating that students with higher AI competency tend to demonstrate higher levels of Academic Motivation. Furthermore, regression analysis showed that AI competency significantly predicted Academic Motivation and explained a meaningful proportion of variance in students' motivation levels. The study concludes that AI competency is an important factor associated with students' Academic Motivation. Developing AI-related skills among university students may support their engagement, confidence, and motivation in academic learning.

Keywords: Artificial Intelligence Competency, Academic Motivation, Intrinsic Motivation, Extrinsic Motivation, University Students, Higher Education.

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INTRODUCTION

Currently the world is witnessing the era of Artificial Intelligence (AI). Technologies are being created and updating the future of mankind. AI is a very powerful tool which is about to modify the lifestyle of human being. In many fields, including health, business and education AI is making a huge revolutionary change. The usage of AI in education turns out to be very common in these days. This progress of machine learning and data analytics has turn this world upside down. There are many decisions that are being influenced by the intelligent learning system. Technology has become so much advanced it can help individual to do their work rapidly and repetitively. AI also helps individual to simplify the difficult data, make effective decision making and save their time and energy (Albaik et al., 2025; Chui et al., 2018). A general definition of AI competency is the ability of a student to comprehend AI technologies, utilize AI tools effectively, critically evaluate information produced by AI, and apply AI in their academic work ethically and responsibly. Digital literacy, understanding how to solve problems, knowing right from wrong, and feeling confident to interact with AI systems is not just about technical skills.

In higher education, the student with better AI competency is likely to be better equipped to reap the rewards of AI-learning and personalization in education, while also enhancing their academic engagement. AI competency recognizes broader knowledge, skills, and mindsets (Chiu et al., 2024; Okada et al., 2025). Academic Motivation (AM) pays all the attention on students' drive for learning and development, classified into intrinsic motivation, extrinsic motivation. For example, great AM has been found to be related to higher levels of learning effort, perceived academic support, self-regulation, self-efficacy, confidence in academic success (Alfaro & Umaña-Taylor, 2015; Kotera et al., 2023; Naranjo-Gil, 2009; Struthers et al., 2000). Over recent years, AI has moved from the realm of science fiction into our classroom, reshaping how we learn, teach, process and engage with the knowledge. As AI tool became more accessible, and enhancing the inclusive education (Alneyadi et al., 2023). This means using smart process to organize data, identify pattern and make predictions to help individual (Khan et al., 2022). The AI apps are very helpful in term of personalized learning experience for students. Also ensure that students learn in their own speed and learning style, which helps in students' batter performance

LITERATURE REVIEW

Around the world, rapid technological advancement is reshaping societies and influencing the way people learn, work, and communicate. These changes have created both valuable opportunities and serious challenges for educational systems that are expected to prepare students for a technology-driven future. As intelligent technologies become more common in fields such as healthcare, finance, and education, it is very important for individuals to understand how these systems work and how they influence everyday life (Holmes et al., 2021). Because of this growing influence, students now require new forms of knowledge and practical skills that can help them participate confidently and responsibly in an increasingly digital society. AI is everywhere, touching and blending with everything in our life, including all fields of science , arts, business and transportation etc (Abbass, 2021). (Chiu, Ahmad, et al., 2024). Competency term refers to being prepared to do something or being well capable of performing a task. It also means using the knowledge and skill in the right manner. Competency is necessary for individuals to stay motivated, confident and to understand different phase of learning. This opinion also connect with the UNESCO's frame work which says that being AI competent makes individual more confident, skillful and responsible to use AI in the right and ethical way, whether it's a daily life or educational setting.

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AI Competency Frameworks for Students

The purpose of the AI competency framework for students is for educational decision makers and curriculum developers to make sure that students are ready to connect with AI by acquiring the appropriate skills, knowledge and values. It is based on 4 key competencies:

- **A human-centered mindset**: Letting students understand that how AI is influencing their life and encouraging them to use it responsibly while keeping their own decision-making independence.
- **Ethics of AI**: Educating students about the responsible use, ethics and the principles, safety and responsible design.
- **AI techniques and applications**: Enlightening the basic AI knowledge and application skills.
- **AI system design**: Promoting problem solving, creativity and design thinking skills.

The framework promotes interdisciplinary teaching with topics on AI across the subjects and in both STEM and social studies fields.

The existing goal of increasing academic success has led to the emergence of the concept of AM. The link between academic success and motivation explains AM (Şendil & YANMAZ, 2017). Individuals' realization that the existence of motivation is necessary for them to be academically successful constitutes the starting point of the concept of AM. Achieving an academic goal, attending classes, and increasing academic performance and success constitute the content of AM (Yurt & Bozer, 2015).

Types of Academic Motivation

One of the most recognized theories of AM is the Self-Determination Theory (SDT) proposed by Edward Deci and Richard Ryan. This theory explains that individuals naturally strive for growth, self-development, and meaningful participation within their social environment (Kotera & Ting), According to SDT, motivation can be divided into three major types. The first is intrinsic motivation, in which students engage in learning because they genuinely enjoy the process and find it personally satisfying. (Deci & Ryan, 1985). The second is extrinsic motivation, where students study to achieve external outcomes such as good grades, rewards, or future career opportunities. The third type is amotivation, which refers to a lack of interest or intention to participate in academic activities, often leading students to feel disconnected or passive toward learning (Deci & Ryan, 2012). The impact of the AI tools on the AM of students and their academic self-concept is greatly influenced by the design and implementation of the AI learning tools. Tools those are tough to use and understand may cause frustration and not motivate the students. The students losing interest and confidence in studying could be the result of their frustration over what they cannot do. AI tools can motivate student only if they know how to use them. Motivation is just a desire to learn or involve more, to create motivated environment, AI should be taught.

With engaged teachers who support students to use AI and point out its value, students may be more inclined to use AI tools. It shows that the possibilities for learning with AI tools to stimulate motivation and self-concept are great, but that these will depend on careful planning, use and support in the classroom of the special tool (Kong et al., 2025). With engaged teachers who support students to use AI and point out its value, students may be more inclined to use AI tools. It shows that the possibilities for learning with AI tools to stimulate motivation and self-concept are

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great, but that these will depend on careful planning, use and support in the classroom of the special tool. They help to improve academic self-concept and student's motives as they give feedback immediately, adjust to the student learning's pace, and stimulate their active engagement in learning process. The students are more confident and interested to learn as they see their progress and can avail supports where they require. Schools and teachers should have an in-depth understanding of the impact of AI on motivation and self-belief to effectively leverage these tools in the best ways possible.

Statement of the Problem

Most previous studies have focused on digital competency and general technology use, while AI competency remains an emerging and underexplored construct. Furthermore, little is known about whether students with higher levels of AI competency demonstrate greater AM and whether AI competency can predict AM. Therefore, this study aimed to investigate the relationship between AI competency and AM among university students and to examine the predictive role of AI competency in enhancing students' AM.

Objectives

1. To examines the relationship between AI competency and AM among university students.
2. To determines the relationship between different levels of AI competency and intrinsic and extrinsic motivation.
3. To examine weather AI competency significantly predicts AM among university students.

Hypothesis

1. There is no significant relationship between AI competency and AM among university students.
2. There is no significant relationship between different levels of AI competency and intrinsic and extrinsic motivation among university students.
3. AI competency does not significantly predict AM among university students.

METHODOLOGY

This quantitative study was conducted under the positivist paradigm to examine the relationship between AI competency and AM among university students. A convenience sampling technique was used to select 200 male and female students enrolled in public and private universities in Multan and Dera Ghazi Khan, South Punjab, Pakistan. To measuring AI competency and AM standardized questionnaires were used. The collected data were analyzed through Pearson's correlation, and simple linear regression using SPSS.

Description of Variables

Independent Variable	Dependent Variable
AI Competency	AM

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Research Design

A quantitative descriptive research design was employed to determine whether a relationship between the variables exists.

Population

The population contained students who are registered in public and private universities of Multan and Dera Ghazi Khan, South Punjab, Pakistan, who had been using AI tools for academic activities. This study completely focuses on the students from these two cities to examine the association between the variables.

Sample

The sample size of the study contained 200 female and male students, carefully chosen from the public and private universities of Multan and Dera Ghazi Khan, South Punjab, Pakistan. Participants were taken from different semesters and disciplines, giving diverse sample to find the AI competency relationship with AM.

Sampling Technique

A convenience sampling technique was used to select the participants for this study. This technique involves selecting participants according to their accessibility, convenience, and willingness to take part in the research. Data were collected by using an online questionnaire developed using Google Forms. The questionnaire link was shared with university students through personal contacts, social media platforms, and academic networks. Participation was voluntary, and respondents completed the questionnaire based on their consent. The collected responses were used to inspect the relationship between AI competency and AM among university students.

Development of Research Instruments

Following two standardized assessment scales were used in this research:

AI Competency Scale

AI competency was measured using the AI Competency Scale developed by Park and Kwon (2024). The scale was used to understand students' competency related to the use and understanding of AI in educational settings. The original scale was used in the present study. Responses were chronicled on a 5-point Likert scale (Park & Kwon, 2024).

AM Scale

AM was measured using the short version of the AM Scale developed by Kotera, Conway, and Green (2021). The items of the scale were rephrased and adapted according to the needs of the present study with permission from the author. Although the original version of the scale used a 7-point Likert scale, the present study used a 5-point Likert scale ranging from strongly disagree to strongly agree to maintain consistency in the questionnaire (Kotera et al., 2023).

Limitations

This study is limited to the students from Dera Ghazi Khan and Multan, South Punjab Pakistan, used convenience sampling, and relied on self-reported online questionnaire data; therefore the findings may have the limited generalizability.

Delimitations

The present study was delimited to university students enrolled in selected public and private universities in Multan and Dera Ghazi Khan, South Punjab, Pakistan. Only those students

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who had experience using AI tools for academic purposes were included in the study. The research was further delimited to the variables of AI competency and AM and did not examine other factors that may influence students' motivation, such as academic achievement, socioeconomic status, or technological access. In addition, the findings of the study are limited to the selected sample and geographical area; therefore, caution should be exercised when generalizing the results to all university students in Punjab or Pakistan.

Data collection

Data were collected using online questionnaire which is developed via Google Forms. The questionnaire link was shared with university students, personal contacts, social media platforms, and academic networks. Participation was voluntary taking part based on their consent.

Data analysis techniques

The collected data were analyzed by using the SPSS software, correlation and regression analysis were programed to check the relationship between the variables and test hypothesis.

Scoring procedure

Rating the replies based on the following procedure

Items of the questionnaire were rated

Strongly disagree 1, Disagree 2, Natural 3, Agree 4 and Strongly agree 5

DATA ANALYSIS

Table 1

Correlation Coefficients for Major Study Variables (N=200)

Variables	*M*	*SD*	AI Competency	AM
1. AI Competency	42.3	7.1	--	
2. AM	49.3	5.7	.564**	--

Note. ***p*<.001.

Table 1 revealed that AI competency is significantly positively correlated with AM (r = .564**) among university students. The result demonstrates that if the AI competency increases, the AM among the students also increases.

Table 2

Correlation Analysis of AI Competency, Intrinsic Motivation, and Extrinsic Motivation

Variables	**1**	**2**	**3**
AI Competency	1	.367**	.483**
Intrinsic Motivation		1	.568**
Extrinsic Motivation			1

***Note. N = 200.* ***p* < .01.**

Table 2 declares AI competency has a significant positive correlations with intrinsic motivation (r = .367, p < .01) and extrinsic motivation (r = .483, p < .01). Intrinsic motivation and

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extrinsic motivation also have a significant positive relationship (r = .568, p < .01). This indicates that students with higher AI competency tend to show higher levels of motivation.

Table 3

Table: Simple Linear Regression Analysis Predicting AM from AI Competency

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.564a	.318	.314	5.93

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3247.42	1	3247.42	92.16	.000
Residual	6976.36	198	35.23		
Total	10223.79	199			

Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			LL	UL
(Constant)	25.30	2.54		9.95	.000	20.29	30.31
AI Competency	.568	.059	.564	9.60	.000	.452	.685

Table 3 explains that AI competency significantly predicted AM among university students. The regression model explained 31.8% of the variance in AM (R^2 = .318). The whole regression model was statistically significant and results says that students with high AI competency shows high AM

DISCUSSION

The major reason of this study was to find the connection between AM and AI competency among university students. The findings say that there is highly significant positive relationship between AI competency and AM. If there is rise in the competencies the AM will also be raised. The second outcome of the study says that there is a significant positive relationship between AI competency, intrinsic and extrinsic motivation. This leads to the conclusion that students with better expertise with AI tools show much more involvement in their studies. Students with a higher level of AI competency have greater intrinsic and extrinsic motivation than students with lower levels of AI competency. The results also shows, there is a significant positive predictive relationship between students' effectiveness in using AI tools and their AM, with greater AI competence

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associated with increased motivation for learning and academic tasks. In summary, the results shows that the competency level of AI has a significant impact on students' AM, especially in improving intrinsic motivation and academic engagement as a whole. With the growing adoption of artificial intelligence tools in education, students that are more adept at utilizing these tools are likely more motivated in studying.

CONCLUSION

The current study was about to see the relationship between AI competency and AM among university students. The findings percent's there is a positive significant relationship between AM and AI competency. This means students who are more skilled in using AI, are motivated in academic tasks rather than the unskilled student. The results also point to the students with high AI competency, and how they show their intrinsic and extrinsic motivation. These students are more enthusiastic and involved in their studies. Knowing how to use AI or being skillful about AI can build confidence in students and they can enjoy there learning.It is also discovered that AI competency significantly predict AM. AI tools help students to be motivated throughout their academic journey. So now we can conclude that AI competency pays a vital part in today's educational setting, AI tools are becoming more public and everybody has access to the tools. This has no harm to the teacher and students as long as they are fully aware of the ethics of using tools and skill of how to use AI tools.

RECOMMENDATIONS

Depending on the findings it is suggested that universities should focus of teaching the responsible use of AI to the students. Teach students how to be AI competent with complete training, workshops and awareness sessions. This will help students to be more confident and self-sufficient. It is also recommend that teachers should also imply AI tools in their teaching practice, but in a balanced and ethical way. This will help students to learn how to use AI without being dependent on it. Students should be motivated for building AI skills and using it positively for solving problem, learning difficult things and doing the given task within time. For further, researchers it is suggested to conduct the study on the larger level to understand the relationship of AI competency and AM.

REFERENCES

Abbass, H. (2021). What is artificial intelligence? *IEEE Transactions on Artificial Intelligence*, *2*(2), 94-95.

Albaik, M., Al-Qahtani, S. A., Mantargi, M. J. S., Alghamdi, A., Sindi, I. A., Sheikh, R. A.,...Kurdi, L. A. (2025). Exploring perspectives on artificial intelligence: awareness, attitudes, and knowledge among health majors students at Saudi universities. *PeerJ Computer Science*, *11*, e3255.

Alfaro, E. C., & Umaña-Taylor, A. J. (2015). The longitudinal relation between academic support and Latino adolescents' AM. *Hispanic Journal of Behavioral Sciences*, *37*(3), 319-341.

Alneyadi, S., Wardat, Y., Alshannag, Q., & Abu-Al-Aish, A. (2023). The effect of using smart e-learning app on the academic achievement of eighth-grade students. *Eurasia Journal of Mathematics, Science and Technology Education*, *19*(4), em2248.

Chiu, T. K., Ahmad, Z., Ismailov, M., & Sanusi, I. T. (2024). What are artificial intelligence literacy and competency? A comprehensive framework to support them. *Computers and Education Open*, *6*, 100171.

Chui, M., Manyika, J., & Miremadi, M. (2018). What AI can and can't do (yet) for your business. *McKinsey Quarterly*, *1*(97-108), 1.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of research in personality*, *19*(2), 109-134.

Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. *The Oxford handbook of human motivation*, *18*(6), 85-107.

Holmes, W., Bidarra, J., & Køhler Simonsen, H. (2021). Artificial Intelligence in Higher Education: A Roadmap and Future Perspectives. In. SmartLearning.

Khan, M. F., Ahmed, H., Almashhadani, H. A., Al-Bahrani, M., Khan, A. U., Ali, S.,...Zahid, M. (2022). Sustainable adsorptive removal of high concentration organic contaminants from water using biodegradable Gum-Acacia integrated magnetite nanoparticles hydrogel adsorbent. *Inorganic Chemistry Communications*, *145*, 110057.

Kong, J., Liu, J., Chen, G., & Shang, W. (2025). Assessing AI literacy in college students: the mediating role of self-efficacy in motivational commitment pathways. *Education and Information Technologies*, *30*(16), 23957-23979.

Kotera, Y., Conway, E., & Green, P. (2023). Construction And factorial validation of a short version of the AM Scale. *British Journal of Guidance & Counselling*, *51*(2), 274-283.

Kotera, Y., & Ting, S.-H. Positive Psychology of Malaysian Students: Impacts of Engagement, Motivation, Self-Compassion and Wellbeing on Mental Health. *International Journal of Mental Health and Addiction*.

Naranjo-Gil, D. (2009). The influence of environmental and organizational factors on innovation adoptions: Consequences for performance in public sector organizations. *Technovation*, *29*(12), 810-818.

Okada, A., Sherborne, T., Panselinas, G., & Kolionis, G. (2025). Fostering transversal skills through open schooling supported by the CARE-KNOW-DO pedagogical model and the UNESCO AI competencies framework. *International Journal of Artificial Intelligence in Education*, 1-46.

Şendil, C., & YANMAZ, D. (2017). Issues in Soci. *Innovation and Global Issues 2: Extended Abstracts Book*, 205.

Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in higher education*, *41*(5), 581-592.

Yurt, E., & Bozer, E. N. (2015). The adaptation of the AM scale for Turkish context. *Gaziantep University Journal of Social Sciences*, *14*(3), 669-685.