ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION - THE POSITIVE ASSOCIATION WITH THE ACADEMICS' INTRINSIC MOTIVATION

PhD. Dao Thi Hao* - PhD. Hoang Thi Phuong Lan*

Abstract: ***Together with advanced technologies like Automation, Robotics and Algorithms, Artificial Intelligence (AI) is revolutionising the world. Artificial intelligence, which refers to the ability of machines or software to perform tasks that usually require human intelligence, such as tasks like recognizing images, making decisions, and translating languages, has had a profound influence on the global community across various sectors, including education. In education, the emergence of Artificial Intelligence has brought both benefits and challenges. One of the benefits of AI is its significant improvement of educational outcomes, such as student engagement and motivation. Although AI is playing an increasingly significant role in education, its impacts on academic performance are under-investigated. To fill in this gap, this research aims to gain an insight of educators' perceptions concerning AI tools in the context of higher education and to explore mechanism under which AI influence the performance of academics, specifically: AI awareness influence academics's performance at higher education, the mechanisms under which AI influence academics's performance at higher education, in which forcus on intrinsic motivation.***

• Keywords: *artificial intelligence, higher education, intrinsic motivation.*

Date of receipt: 20th Feb., 2026
Date of delivery revision: 15th Mar., 2026
Date of receipt revision: 27th Mar., 2026
Date of approval: 21th Apr., 2026
DOI: https://doi.org/10.71374/jfar.v26.i3.40

Introduction of artificial intelligence in higher education

Artificial Intelligence's awareness

We are on the Fourth Industrial Revolution (I4.0), which is based on wide digitalisation and the use of technological applications to enhance industrial/ sectoral capabilities. These advances have been broadly categorized as STARA, including Smart Technology, Artificial Intelligence, Robotics, and Algorithms. Among them, AI is said to sit at the top.

The term AI has a variety of meanings. In 1955, the Dartmouth Research Project defined AI as the problem of "making a machine behave in ways that would be called intelligent if a human were so behaving" (McCarthy, Minsky, Rochester, & Shannon, 1955). Similarly, cognitive scientist Marvin Minsky considered AI as "the science of making machines do things that would require intelligence if done by men" (Kaplan & Haenlein, 2019, p.17).

One popular meaning in academia is that AI refers to "a field of computer science dedicated to the creation of systems performing tasks that usually require human intelligence". This explains why AI is sometimes also referred to as intelligent machines (von Richthofen et al., 2022). Table 1 below is a summary of some AI definitions.

Table 1 - Definitions of Artificial Intelligence

AI as machines that mimic human intelligence in tasks such as learning, planning, and problem-solving through higher-level, autonomous knowledge creation.	De Bruyn et al. (2020)
AI could be viewed as computing technologies that simulate or imitate intelligent behaviors relevant to the ones of humans despite that they act different from them	Bhave et al. (2020)
AI is defined as a system's ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation.	Kaplan and Haenlein (2019)
AI refers to a set of technologies that have the ability to interpret data and learn from it to achieve specific objectives through adaptation, based on imitating natural intelligence through sensing and perceiving the environment.	Russell and Norvig (2022)
AI refers to intelligent machines or computerized systems that possess the capacity to learn, respond, and carry out a range of humanlike tasks.	Malik et al. (2022)
AI is an umbrella term that refers to systems that emulate natural intelligence characteristics such as sensing and learning to augment and automate human tasks.	Strohmeier (2022)
AI as systems capable of detecting and gathering information from their environment, which they then analyse and process to perform calculations or solve complex problems.	Tubella et al. (2024)
AI as a computer with the capability to perform a variety of human cognitive tasks, such as communicating, reasoning, learning, and/or problem-solving.	Nilsson (1998)

Source: authors

To **synthesize** the findings, AI refers to a set of technologies that have the ability to interpret data and

* *Academy of Finance; email: hoangphuonglan@hvtc.edu.vn*

learn from it to achieve specific objectives through adaptation, based on imitating natural intelligence through sensing and perceiving the environment.

Classification of AI

IBM (2023) proposed that the types of AI can be understood by examining its capabilities and functionalities. In terms of AI capabilities, only Narrow (or Weak) AI exists today (among General and Super AI, which are still mostly theoretical. Thus, it is the focus of this paper. Narrow AI comprises Reactive Machine AI (RMAI), developed to perform specific tasks (e.g., IBM Deep Blue or the Netflix Recommendation Engine), and Limited Memory AI (LMAI), which can retain data in its library for long periods (e.g., Generative AI, Virtual Assistants, and chatbots).

In this paper, we draw on IBM's AI classifications, as they allow us to bring together both generic studies on AI in academia, as well as more specific publications on academia and Generative AI. In our paper, we specify, whenever possible, when the focus is on LMAI or RMAI.

Artificial Intelligence in Higher Education

Historically, computerisation has promoted a shift away from routine manual and cognitive tasks towards non-routine analytic and interactive tasks. Many researchers suggest that technologies such as AI could have a real impact on labour markets and thus higher education (HE). Therefore, as Bearman et al. (2023) argue, AI is not merely a technological innovation but a fundamental shift in the relationship between higher education and socioeconomic interests, which ultimately reshapes the landscape of employment. AI applications are already impacting teaching and academic research, and thereby potentially influencing academic careers.

With their increasing competence, AI technologies are poised to fundamentally transform higher education, reshaping not only how knowledge is created and delivered but also the roles of those involved in these processes. Compared to previous waves of technological innovation, AI appears to have a deeper and more disruptive impact on knowledge-based work environments.

While AI offers clear productivity benefits, it also introduces significant uncertainty into academic careers. As AI tools become increasingly capable of performing tasks traditionally handled by educators and researchers, concerns about job displacement and diminished roles have intensified. The growing presence of AI has emerged as a key source of occupational tension - particularly in the form of job insecurity.

On the one hand, AI can facilitate work and improve the efficiency of employees. On the other hand, AI might cause psychological damage to workers with a range of negative consequences, such as the fear of potential machine substitution for human labor. When adopting AI in the HE, like other organizations, academics might develop different reactions or perceptions toward AI. This new phenomenon is called AI awareness, which refers to employees' perceptions of the likelihood of AI influencing their future job prospects. AI awareness functions as a double-edged sword, exerting a dual influence on employee behavior by either fostering proactive adaptation or triggering resistance and anxiety. A thorough grasp of AI's impact on academics in HEIs to implement practices that minimize negative behavioral shifts and maximize operational productivity.

Benefits and challenges of ai in higher education

To identify the benefits and challenges of AI in HE, we applied the Job Demands-Resources (JD-R) theory. The JD-R theory developed by Bakker and Demerouti (2001) is an occupational health psychology framework that explains how workplace characteristics influence employee well-being, burnout, and engagement. According to JD-R theory, all work conditions can be classified as job demands and job resources.

Job demands are defined as the material, psychological, social, or organizational demands in work, and employees need to pay material and psychological costs for these demands. In other words, job demands refer to things that must be done with effort, such as difficult tasks, high-intensity workloads, and performance pressures proposed by organizations.

Job resources are defined as resources provided by all aspects of work. Job resources not only help employees achieve their personal and work goals, but also promote/enhance their personal and career development in organizations. Moreover, job resources can reduce the material and psychological depletion caused by job demands and improve employees' happiness at work. Job resources refer to the resources, such as organizational support.

According to the JD-R model, job demands can instigate two different processes: motivation and strain. When being a hindrance, job demands can strain employees and put them into a state of resource

exhaustion. In contrast, when being a challenge, they might motivate employees to put effort into their work. The JD-R theory also proposes that job resources and job demands can jointly affect the motivation-strain process, which in turn determines employees' performance (Bakker and Demerouti, 2017).

Based on the JD-R model, AI awareness is considered a job demand with the dual pathway - both hindrance and challenge appraisals. When employees consider AI as a hindrance, they feel strain and are prone to negative emotions and mental states, which inhibit their performance. When AI is considered a challenge, employees are motivated to improve their work, which results in a higher level of performance. As mentioned above, the influence of employees' AI awareness on academic performance is the strain-motivation dual pathway. (He et al., 2023, p.4)

Therefore, the integration of AI technologies in higher education has been steadily increasing, bringing both benefits/opportunities and challenges.

In terms of benefits, AI has the potential to promote equity and offer personalised learning experiences in higher education. The advancement of AI technologies, evolving from simple information retrieval systems to entities capable of critical thinking, has profound implications for the educational sector. AI tools, such as chatbots, have been shown to enhance student interaction and improve learning outcomes. AI tools can help instructors differentiate instructions and make personalized learning and student experiences. For example, learning-model AI (LMAI) technologies enable the development of intelligent tutoring systems, chatbots for handling student inquiries, and "intelligent tutees" that students can teach and interact with. Teachers and students may co-use these AI systems to foster new pedagogical approaches and streamline the learning process.

AI epitomizes efficiency and serves as an intelligent assistant that helps employees manage procedural, routine, repetitive, and boring tasks, thus reducing their workload and facilitating productivity. RMAI-based applications can be used to help with administrative tasks and provide relevant learning insights. RMAI applications can also support the work of academic teachers and the decisions they make, through aiding the assessment of student essays and (open-ended) exam questions.

In teaching and academic administration, AI tools can significantly reduce workload by automating routine and time-consuming tasks. Research shows that RMAI applications can help with administrative duties, content creation (e.g., developing exams), grading, plagiarism detection, and feedback generation. These tools provide valuable insights into student performance, support academics' decision-making, and free up time for them to focus on more strategic and creative aspects of their roles. This leaves professors, in principle, more time for their core competence of coaching, moderating, and facilitating discussions (Kaplan, 2018). Until, of course, thenext generation of human-centric AI applications will also handle these tasks with high efficiency.

But the AI revolution does not stop at teaching or repetitive tasks alone; AI is also changing academic research. In research, AI is particularly useful for projects that aim to combine ideas across scientific boundaries and that, by consequence, require knowledge of many different literature streams that may be difficult to process by humans.

AI-based tools, such as programming libraries (e.g., supporting thematic analyses) and matching platforms, have the potential to assist researchers in identifying relevant research questions and cases. They can also lead to the development of new research methods (e.g., image recognition or data mining), blurring the lines between quantitative (e.g., statistical analysis) and qualitative (e.g., algorithmic text mining) approaches. In natural and life sciences, AI can assist in discovering new materials, powering nuclear physics, medical drug discovery, making modern agriculture smart, and making such research methods safer for humans.

Obviously, AI applications seem to impact knowledge work (places) more than previous technologies have. We claim that more attention should be devoted to how the use of AI is likely to alter the space, time, and tasks of academics. This is important because AI applications are already impacting teaching, but also changing academic research, and thereby potentially influencing academic careers and raising important ethical concerns.

HEIs are by nature complex organisations, with many specific features that differentiate them from other organisations, such as teaching, pedagogy, curriculum, and research. HEIs, like other organisations, operate today in an environment subject to unpredictable changes that they need to cope with. To date, in higher education, technology has been mainly seen as a medium for gradual change to improve current learning approaches and has been largely ignored as a means for disruptive and evolutionary changes.

The impact of ai on intrinsic motivation and academics' performance in higher education

Intrinsic motivation is an internal driving factor that originates from love and passion, which has nothing to do with remuneration and profit. Intrinsic motivation is inherent in employees' desire to be competent and autonomous in their jobs.

Work motivation is a set of energetic forces that originates both within and beyond an individual's being to initiate work-related behavior and to determine its form, direction, intensity, and duration. When employees realize that the company is using AI, their worries about future jobs may prompt them to actively develop coping strategies to solve this problem. In this case, employees regard the pressure brought by AI adoption as an opportunity to adapt to the ever-changing work environment in the digital age. In other words, AI awareness, as a challenging job demand, also has a motivating effect.

Motivation theory

According to McClelland (1967), Motivation Theory is an enduring and influential theory of human motivation. McClelland suggests that people are motivated to act by three "acquired" needs: the need for achievement, the need for power, and the need for affiliation. Despite being acquired, McClelland argues that all three needs exist within all people, regardless of age or culture, and that the dominant need in each person determines the direction taken in life and their subsequent performance. (Baumann et al., 2016, p.2199)

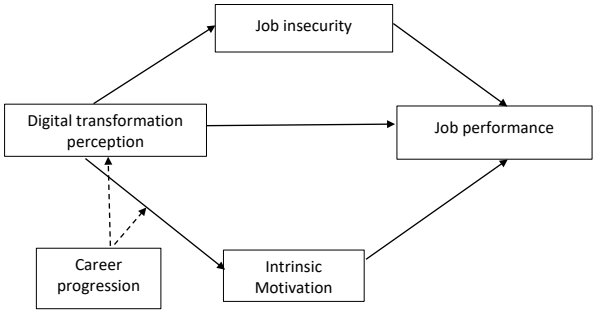
AI awareness at work can be considered to produce the three needs. That is, when employees feel the threat that their job will be replaced, they may actively develop proactive strategies to solve this problem. They may have increased motivation to learn more and equip themselves with new skills, making them more adaptive with workplace dynamics and more competent in AI, and cannot be replaced by AI.

Employees might also be motivated to learn skills that AI cannot replace, such as social skills (Yu et al., 2022). Since social skills are developed on tacit knowledge, making it difficult to be automated, they play essential roles in gaining competitive advantages in the labor market. It is doubtful that service robots will have similar social and communications intelligence as humans to deal with complex emotional issues or cognitively and emotionally complicated tasks.

The academics' intrinsic motivation depends on their satisfaction with the needs of autonomy, competence, and relatedness provided by the enabling control designs. In the meantime, these psychological needs are indistinguishable from the characteristics of job resources that include skills, empowerment, and flexibility. Contrarily, job demands manifested in task difficulties caused by high work targets impact academics' emotional and physical health, leading to counterproductive acts. During complex tasks, intrinsically motivated academics will employ their skills to embrace and relish their tasks to fulfil performance targets and help prevent counterproductive acts. Meanwhile, a low level of counterproductive acts improves academics' performance.

In addition to being positively related to in-role performance in school, work, and physical domains, intrinsic motivation has also been shown to have positive associations with contextual work performance and creativity. Accordingly, we hypothesize the following:

Figure 1 - The conceptual framework



Source: authors

Concurrently, motivation is classified as intrinsic, originating from an internal locus of causality, and extrinsic, emanating from external ones. Employees with high intrinsic motivation will be more committed to their work because of their inner awareness. Employees' satisfaction with psychological needs for autonomy, competence, and relatedness ignites intrinsic motivation. This motivation is critical for developing employees' skills, making them more adaptive in dealing with workplace dynamics and encouraging precise task completion.

Drawing on the JD-R model, we further propose that AI awareness may promote employees' innovative service behavior by stimulating their intrinsic motivation. The latest research on the JD-R model suggests that when job demands are seen as a challenging stressor, it will inspire employees to respond positively, further achieving the goal of improving job performance (Zhang et al., 2020).

Based on the positive attribute of challenging job demands, AI awareness may make employees realize that their abilities do not match the current dynamic technology-driven work environment (Vrontis et al., 2021). Job demands will further stimulate an individual's desire to become an irreplaceable employee. AI in the service industry works through established programming, which leads AI to lack flexibility and proactive service behavior that results in service failure. Therefore, self-motivated employees may emphasize their own competitive value by implementing innovative behaviors.

In knowledge-intensive organisations such as HEIs, intrinsic motivation is crucial for encouraging employees' positive work behaviours and performance, as intrinsically motivated employees will set higher goal targets than others.

Internals believe that everyone is the architect of their fortune; they tend to be more concerned about potential gains and growth, and are confident that they can exert control over these aspects. They may generate the following two ideas: first, that AI can facilitate human tasks and, thus, enhance their productivity; and second, they may have increased motivation to learn more and equip themselves with new skills to avoid being replaced by AI. As such, they may achieve greater career growth and success. Thus, this study argues that internals are more inclined to view organizational AI adoption as a challenge than a hindrance (Cheng et al., 2023, p.3). Their challenge appraisals motivate them to actively cope with this emerging stressor through learning and professional development.

Conclusion

The integration of AI into higher education represents a transformative paradox. While AI serves as a powerful job resource that can streamline administrative and pedagogical workflows, it also functions as a job demand that may jeopardize academic integrity and intellectual autonomy. This study underscores that AI is not a self-implementing solution for success; rather, its ability to bolster intrinsic motivation and performance is strictly contingent upon the existing expertise and professional passion of the academic staff. To maximize the benefits of this technological evolution, HEIs must ensure that AI supplements, rather than replaces, the essential human elements of critical inquiry and pedagogical dedication.

AI integration has significantly augmented academic efficiency, particularly in administrative and instructional domains. However, its application in research presents a dualistic nature: while it offers support, excessive dependency may erode intellectual autonomy. Furthermore, the capacity for AI to bolster intrinsic motivation is not an inherent feature but a conditional outcome. It requires a robust foundation of domain-specific knowledge and internal drive from the academic to transform AI from a mere tool into a catalyst for professional growth. In other words, AI can only bolster intrinsic motivation provided that lecturers have cultivated a robust foundation of knowledge, skills, and experience, underpinned by a profound professional passion.

Since this study is currently limited to a theoretical synthesis, it has yet to examine the practical implications within any specific regional or national context. An empirical evaluation of AI integration among university lecturers in Vietnam will be addressed in our forthcoming publication./.

References:

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: taking stock and looking forward. Journal ofOccupational Health Psychology, 22(3), 273-285.

Baumann, C., Hamin, H., Tung, R. L., & Hoadley, S. (2016). Competitiveness and workforce performance: Asia vis-à-vis the "West". International Journal of Contemporary Hospitality Management, 28(10), 2197-2217.Bearman, M., Ryan, J., & Ajjawi, R. (2023). Discourses of artificial intelligence in higher education: A critical literature review. Higher Education, 86(2), 369-385.

Bhave, D. P., Teo, L. H., & Dalal, R. S. (2020). Privacy at work: A review and a research agenda for a contested terrain. Journal of Management, Spirituality & Religion, 46(1), 127-164.

Cheng, B., Lin, H., & Kong, Y. (2023). Challenge or hindrance? How and when organizational artificial intelligence adoption influences employee job crafting. Journal of Business Research, 164, 113987.

De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K. U., & Von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. Journal of Interactive Marketing, 51(1), 91-105

He, C., Teng, R., & Song, J. (2023). Linking employees' challenge-hindrance appraisals toward AI to service performance: the influences of job crafting, job insecurity and AI knowledge. International Journal of Contemporary Hospitality Management, 36(3), 975-994.

Liang, X., Guo, G., Shu, L., Gong, Q., & Luo, P. (2022). Investigating the double-edged sword effect of AI awareness on employee's service innovative behavior. Tourism Management, 92, 104564.

Nilsson, N. J. (1998). Artificial Intelligence: A New Synthesis. Morgan Kaufmann Publishers, Inc.

Kaplan, A., & Haenlein, M. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. Business horizons, 62(1), 15-25.

Malik, A., Budhwar, P., Patel, C., & Srikanth, N. R. (2022). May the bots be with you! Delivering HR cost-effectiveness and individualised employee experiences in an MNE. The International Journal of Human Resource Management, 33(6), 1148-1178.

Rosalina, K., & Jusoh, R. (2025). The enabling control systems and work performance in higher education: the role of intrinsic motivation in overcoming task difficulty. Cogent Education, 12(1), 2487597.

Russell, S., & Norvig, P. (2022). Artificial Intelligence: A Modern Approach (4th, Global ed. ed.). Pearson Education Limited.

Strohmeier, S. (2022). Artificial intelligence in human resources-an introduction. In In Handbook of Research on Artificial Intelligence in Human Resource Management (pp. 1-22). Edward Elgar Publishing.

Tubella, A. A., Mora- Cantallops, M., & Nieves, J. C. (2024). How to Teach Responsible AI in Higher Education: Challenges and Opportunities. Ethics and Information Technology 26(1), 4-14.

Yu, X., Xu, S., & Ashton, M. (2023). Antecedents and outcomes of artificial intelligence adoption and application in the workplace: the socio-technical system theory perspective. Information Technology & People, 36(1), 454-474

Zhang, M., Geng, R., Hong, Z., Song, W., & Wang, W. (2020). The double-edged sword effect of service recovery awareness of frontline employees: from a job demands-resources perspective. International Journal of Hospitality Management, 88, 102536.

Zhang, X., & Jin, H. (2023). How does smart technology, artificial intelligence, automation, robotics, and algorithms (STAARA) awareness affect hotel employees' career perceptions? A disruptive innovation theory perspective. Journal of Hospitality Marketing & Management, 32(2), 264-283. https://doi.org/10.1080/19368623.2023.2166186

von Richthofen, G., Ogolla, S., & Send, H. (2022). Adopting AI in the context of knowledge work: Empirical insights from German organizations. Information,, 13(4), 199.

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2023). Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review. Artificial intelligence and international HRM, 172-201.