

Optimizing Human Resource Management in Education through Artificial Intelligence: A Quantitative Study

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Abstract: This article examines the role of artificial intelligence (AI) in enhancing human resource management (HRM) within the education industry. Building upon recent growth, it examines how AI-enabled tools automate repetitive HR tasks, support data-driven decision-making, and augment strategic functions such as recruitment, workforce planning, and staff development. A quantitative research design was adopted, with a purposive sample of 50 HR professionals from educational institutions. Data was collected through a structured questionnaire using a five-point Likert scale and analyzed with descriptive statistics. Findings indicate high levels of awareness of AI among HR professionals and strong agreement that AI improves recruitment accuracy, workforce planning and personalized training. Respondents also acknowledged AI's value in enhancing employee engagement and supporting data-driven HR decision-making, although concerns about data privacy and reduced human interaction remain. The study contributes to ongoing debates on digital transformation in HRM by providing empirical evidence from the education sector and suggests directions for both practice and future research.

Keywords: Artificial Intelligence, Human Resource Management, Machine learning algorithm, Education industry, Employee development, data privacy

1. Introduction

Educational institutions operate in a dynamic environment where technological advancements, changing learner expectations and global competition require energetic and efficient human resource practices. Human resource management in education involves attracting, developing and retaining competent staff while aligning HR policies with institutional strategies. Artificial intelligence has emerged as a trans-formative force in this domain; machine learning algorithms and natural language processing can streamline recruitment, personalize training and support routine performance evaluation. Recent studies note that AI improves accessibility, learning outcomes and administrative processes in higher education. AI automates repetitive tasks without replacing the human-centred aspects of HRM; it accelerates applicant screening, enables chat-bots to respond to queries and frees HR personnel to focus on employee development. However, the integration of AI also raises ethical issues, including data privacy, algorithmic bias and the risk of diminishing human interaction. This article explores these issues through an empirical study of HR professionals in the education sector.

Academics emphasize that integrating AI with HRM offers strategic advantages for educational institutions. AI-enabled systems can automate administrative tasks, support talent acquisition, and deliver personalized learning experiences. Studies also highlight AI's role in identifying student needs, enhancing faculty development and facilitating resource allocation. Prikshat et al. (2023) argue that AI transforms recruitment by enabling more



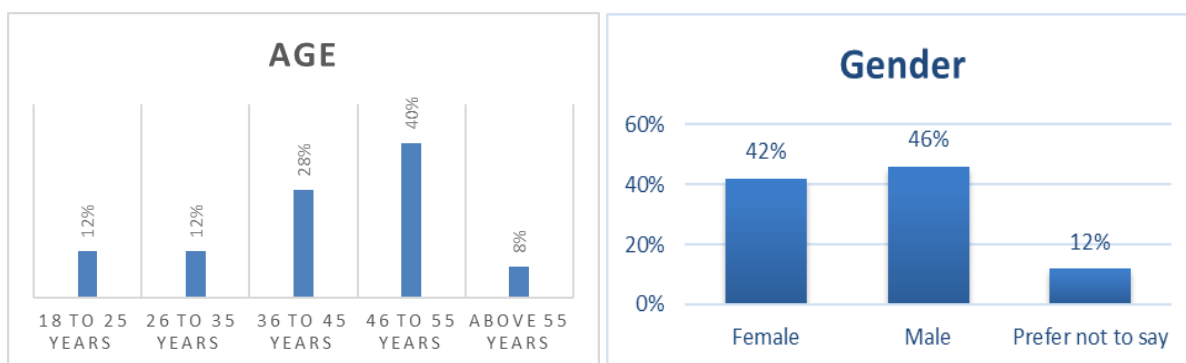
sophisticated applicant screening and interaction via chatbots, resulting in improved candidate quality and reduced time to hire. AI-driven analytics have been used to evaluate faculty performance and design professional development programmes. Nevertheless, researchers caution that AI systems may reinforce existing biases if training data are unrepresentative, and they warn of security and privacy risks associated with handling sensitive personal and academic data. There is also concern that automation may erode the human elements of HRM, such as relationship building and empathetic communication. Despite these debates, empirical studies focusing specifically on AI's impact on HR functions in education remain limited.

Existing research primarily addresses AI adoption in HRM at a general organizational level, with few studies examining education-specific contexts. Recent work explores generative AI's potential in higher education and the sustainability of AI-enabled HRM capabilities, but there is little empirical evidence on how AI optimizes HR functions such as recruitment, performance management and employee engagement in educational institutions. This study addresses that gap by investigating HR professionals' perceptions of AI's effectiveness in the education industry. The objectives are to explore the potential of AI powered tools in optimizing HR operations in education; to evaluate the significance of AI in enhancing HR tasks; and, to assess the influence of AI on specific HR activities, including recruitment, workforce planning and training.

2. METHODOLOGY

A quantitative research methodology was adopted, consistent with a positivist philosophy that emphasizes objectivity and the empirical testing of hypotheses. An exploratory research design guided the initial literature review and informed the development of a structured survey. The study employed a deductive approach to assess theoretical propositions about AI's impact on HRM. The target population comprised HR professionals working in educational institutions in India and the UAE, such as KLE College of Bangalore University, Divekar College of Karnataka University, Microvision, Success Point College UAE, Royal Roads University UAE, and so on. A purposive sampling strategy was used to select 50 respondents who had direct experience with AI-enabled HR tools. Data were collected via a self-administered questionnaire using a five-point Likert scale ranging from "strongly disagree" to "strongly agree." Respondents received an information sheet outlining the study's purpose and provided informed consent. Data were analysed to generate descriptive statistics and graphical representations of the results.

3. EVALUATION



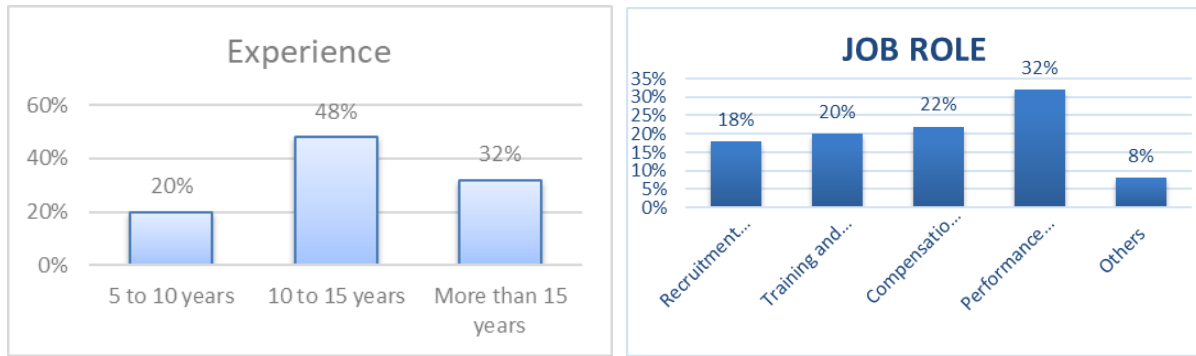


Figure 1: Representation of demographic data of respondents with (a) age, (b) gender, (c) Work experience and (d) Job roles

Demographic data indicated that 40 % of respondents were aged 46–55 and 28 % were aged 36–45; respondents under 25 or over 55 were a small minority. The gender distribution was relatively balanced, with 46 % male and 42 % female participants, while 12 % preferred not to disclose their gender. Nearly half of the participants had 10–15 years of experience in the education sector, demonstrating a highly experienced sample.

Participants reported a wide range of HR roles: 32 % specialised in performance management, 22 % in compensation and payroll, 20 % in training and development, 18 % in recruitment and talent acquisition and 8 % in other HR activities. These varied backgrounds provided diverse perspectives on AI adoption. The survey asked respondents to evaluate several statements about AI in HRM.

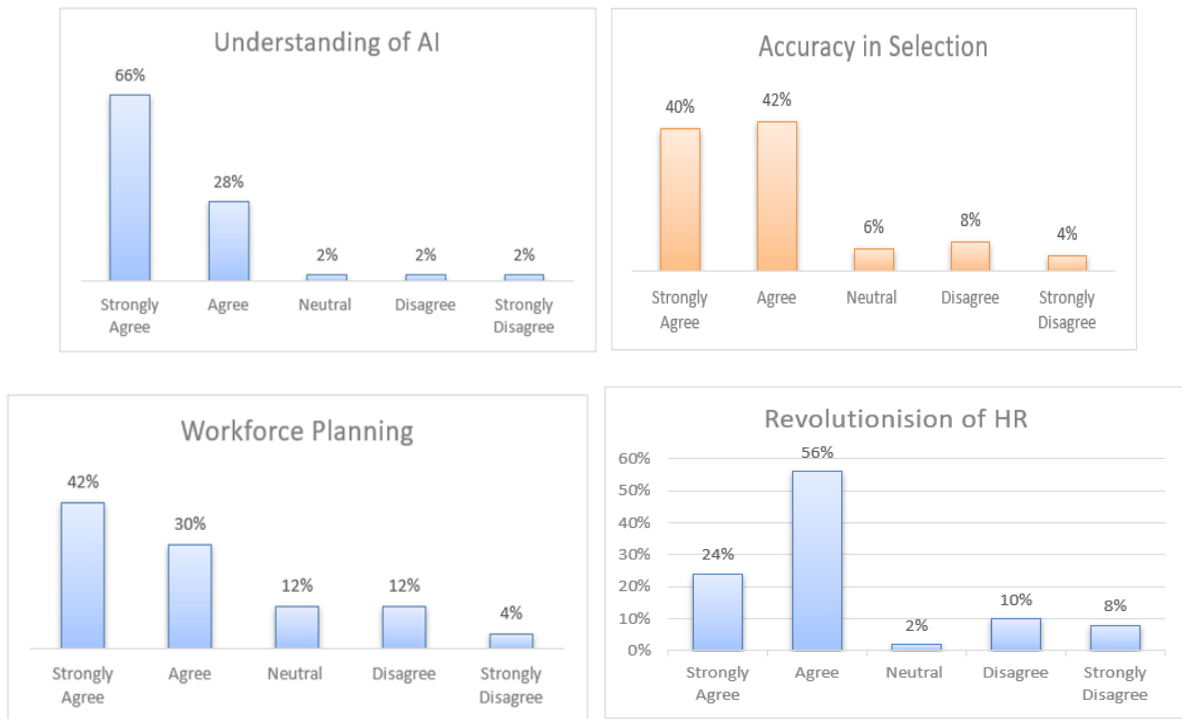


Figure 2: Survey responses on (a) Understanding of AI, (b) accuracy of AI in selection, (c) effectiveness of AI in workforce planning and (d) Revolutionisation of HR



Figure 3: Survey responses on (a) Employee and student engagement, (b) AI-aided decision making, (c) role of AI in the future and (d) Role of AI in improving efficiency

4. DISCUSSION

The above illustration (Figure 1) shows that most of the respondents fall under the 46 to 55 years age group (40 %), next highest respondents were from 36 to 45 age group (28%). There were a smaller number of people from above 55 years age group (8%). On the other hand, there was similar respondents from both 26 to 35 and 18 to 25 age group (12% and 12%). There was similar percentage of female and male respondents from the education sector. There were 46% male participants and 42% female participants in the survey. However, a portion of respondents (12%) did not disclose their gender while participating in the survey. 48 % of the respondents had experience of 10 to 15 years; 3 % had more than 15 years of experience; and 20 % of the respondents had 5 to 10 years of experience (Figure 3). Therefore, participants were highly experienced in HRM in education industry. In the said selection, 32% of the respondents dealt with performance management; 22% respondents were experienced on compensation and payroll; 20% respondents were experienced on training and development; 18% respondents were experienced in recruitment and talent acquisition, and remaining 8% had experience in other HR activities in the education industry.

The findings reveal a generally positive perception of AI among HR professionals in the education sector. High levels of AI literacy of over 94% (Figure 2 (a)) suggest that educational institutions have begun adopting AI tools and that HR staff recognize their benefits. The strong agreement regarding recruitment (Figure 2(b)) accuracy aligns with previous research that emphasizes AI's capability to screen candidates efficiently and reduce biases inherent in manual processes. Similarly, positive responses on workforce planning (Figure 2(c)) corroborate the literature highlighting AI's ability to analyze workforce data and predict staffing needs. The emphasis on personalized (Figure 2(d)) training reflects AI's potential to tailor professional development based on individual performance data. 88% used AI for communication and engagement whereas 78% utilized AI for decision-making. 76% believed AI would play a significant role in education's future whereas 78% believed it would improve everyone's efficiency (Figure 3).

Nevertheless, the study also confirms concerns about AI. Respondents expressed reservations about data security and the loss of human interaction, echoing scholarly warnings about privacy, algorithmic bias and over-

automation. These concerns underscore the need for robust governance frameworks, continuous monitoring of AI algorithms for fairness, and a balanced approach that preserves human judgement in HR decisions. Educational institutions should invest in cybersecurity measures and develop clear policies on data use to protect sensitive information.

5. CONCLUSION AND RECOMMENDATIONS

This paper demonstrates that artificial intelligence can improve human resource management in the education industry by transforming the HR role towards non-administrative, data-driven decision-making. AI enhances recruitment, workforce planning and employee development as well as supplementing human judgement. Its success is based on organisational preparedness, such as ethical governance, transparency, cybersecurity and ongoing skill building. The implementation of AI in institutions should be within a human-centred system that upholds fairness and trust. Despite its small sample size, which is in India and the UAE, the study is insightful. Future studies ought to include the long-term effects, intercountry comparison, and the changing role of human-AI collaboration in HR practices.

Limitations of this study include the small sample size and its focus on Indian educational institutions, which may limit generalizability. Future research should consider larger, more diverse samples and examine longitudinal outcomes of AI adoption in HRM. Qualitative studies could explore employees' experiences with AI-enabled HR systems and investigate ways to integrate human and machine collaboration effectively.

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REFERENCES

1. Aithal, P. S., and Aithal, S. 2024. Redefining Experimental, Empirical, and Exploratory Research in AI Era. *Poornaprajna International Journal of Emerging Technologies (PIJET)*, 1(1), 90-136.
2. Hall, J. R., Savas-Hall, S., and Shaw, E. H. 2023. A deductive approach to a systematic review of entrepreneurship literature. *Management Review Quarterly*, 73(3), 987-1016.
3. Hmoud, B. 2021. 'The adoption of Artificial Intelligence in human resource management and the role of human resources.' In *Forum Scientiae Oeconomia* Vol. 9, No. 1, pp. 105-118. Wydawnictwo Naukowe Akademii WSB.
4. Kaya, O. 2019. Artificial Intelligence in Banking: A level for profitability with limited implementation to date. *EU Monitor Global Financial Markets*. Viewed 15 Sep 2023. Artificial Intelligence in hospitality: A lever for profitability with limited implementation to date (dbresearch.com)
5. Kshetri, N. 2021. 'Evolving Uses of Artificial Intelligence in Human Resource Management in Emerging Economies in the Global South: Some Preliminary Evidence'. *Management Research Review*, <https://doi.org/10.1108/MRR-03-2020-0168>.
6. Maretha, C. 2023. Positivism in philosophical studies. *Journal of Innovation in Teaching and Instructional Media*, 3(3), 124-138.
7. Murugesan, U., Subramanian, P., Srivastava, S. and Dwivedi, A. 2023. 'A study of Artificial Intelligence impacts on human resource digitalization in Industry 4.0.' *Decision Analytics Journal*, vol. 7, 100249. <https://doi.org/10.1016/j.dajour.2023.100249>
8. Noreen, U., Shafique, A., Ahmed, Z. and Ashfaq, M. 2023. Hospitality 4.0: Artificial Intelligence (AI) in Banking industry & Consumer's perspective. *Sustainability*, 15 (4), 3682. MDPI AG. <http://dx.doi.org/10.3390/su15043682>
9. Ore, O. and Sposato, M. 2022. 'Opportunities and risks of Artificial Intelligence in recruitment and selection.' *International Journal of Organizational Analysis*, vol. 30 no. 6, pp. 1771 – 1782.
10. Qahtani, E. H. and Alsmairat, M. A. K. 2023. 'Assisting Artificial Intelligence adoption drivers in human resource management: a mediation model'. *Acta Logistic – International Scientific Journal about Logistics*, vol. 10, no. 1, pp. 141-150, <https://orcid.org/0000-001-8543-2811>
11. Robinson, R. S. 2024. Purposive sampling. In *Encyclopedia of quality of life and well-being research* (pp. 5645-5647). Cham: Springer International Publishing.
12. Schoonenboom, J. 2022. Developing the meta-inference in mixed methods research through successive integration of claims. In *Routledge handbook for advancing integration in mixed methods research*. Taylor & Francis.

13. Soni, J. 2022. 'A Study on the Impact of Artificial Intelligence on Human Resource Management.' *International Journal of Research and Analytical Reviews*, vol. 9 no. 2, pp. 149-168.
14. Statista.com 2022. Artificial Intelligence (AI) worldwide - Statistics & Facts. Retrieve 10 April 2022 from https://www.statista.com/topics/3104/artificial-intelligence-ai-worldwide/#dossierContents__outerWrapper
15. Tarafdar, M., C.M. Beath, and Ross. J. W. 2019. Using AI to enhance business, operations. *MIT Sloan Management Review* 60 (4): 37–44. <https://sloanreview.mit.edu/article/using-ai-to-enhance-business-operations/>
16. Verhoef, P., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2019.09.022>.
17. Votto, A.M., Valecha, R., Najafirad, P. and Rao, H.R. 2021. 'Artificial Intelligence in Tactical Human Resource Management: A Systematic Literature Review.' *International Journal of Information Management Data Insights*, vol. 1 no. 2, pp.100047.
18. Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171–180. <https://doi.org/10.1002/smj.4250050207>
19. Xuanbei, S. 2021. 'Big data and Artificial Intelligence drive human resource management innovation research.' *Journal of Physics: Conference Series*, vol. 1955, pp. 1-6, <https://doi.org/10.1088/1742-6596/1955/1/012011>
20. Yang, Y. 2022. Artificial Intelligence-based organizational human resource management and operation system. *Front. Psychol.*, 13. <https://doi.org/10.3389/fpsyg.2022.962291>