

DOI: <https://doi.org/10.63332/joph.v4i3.1816>

## Beyond Human Teachers: Post-Humanist Perspectives on AI, Cultural Inequities, and Educational Transformation

Sadia Ahmed<sup>1</sup>

### Abstract

*The swift integration of AI (Artificial Intelligence) in education is redefining learning experiences globally, yet it also exposes and potentially deepens cultural and infrastructural divides between developed and developing nations. Adopting a cultural science framework, this paper presents a comparative analysis of AI adoption in education between Australia and Pakistan, examining five key dimensions, including internet accessibility and bandwidth infrastructure, availability and local relevance of AI-driven learning platforms, educator preparedness and professional development, socio-cultural perceptions of AI in the classroom, and policy frameworks and institutional support for digital transformation. In the context of Cultural Studies and Posthumanism, the integration of AI in education further challenges traditional notions of human agency, identity, and power, reshaping how knowledge is produced and consumed across diverse cultural landscapes (Sain & Thelma, 2023). The literature review reveals that while Australia benefits from a robust digital ecosystem and forward-looking education policies, Pakistan faces systemic challenges, including limited rural connectivity, a lack of teacher training, and minimal investment in localized digital content. These inequalities are not exclusively technology-based but intensely cultural, formed by national priorities, belief in digital systems, and historical inequities in education distribution. This transformation offers complicated reflection on moral and socio-economic structures, mainly in terms of digital transformations, media approaches, and human–non-human connections, which further have a great contribution to interdisciplinary dialogues on the role of Artificial Intelligence in redefining educational experiences based on a cultural and post-humanist lens (Jiang & Shao, 2024). Recommendations emphasize the need for culturally responsive AI education policies, international cooperation to reduce the digital divide, and targeted capacity-building initiatives, especially in teacher training and localized content development. Ultimately, the paper advocates for inclusive AI strategies that respect cultural contexts while promoting equitable access to future-ready education.*

### Introduction

AI (Artificial Intelligence) is transforming international education systems by permitting modified learning pathways, mechanizing valuations, providing real-time feedback, and enabling accessibility to varied educational resources. In technically progressive nations like Australia, Artificial Intelligence-based applications, counting intelligent tutoring systems, adaptive learning platforms, and conversational agents such as ChatGPT, are getting progressively rooted in typical educational approaches. These inventions not only optimize learning results but also support teachers in distinguished instruction and student involvement (Benderet al., 2021).

Nevertheless, this digital alteration is far from uniform. In emerging countries like Pakistan, the incorporation of Artificial Intelligence in education encounters leading obstacles. Complexities comprise varying internet access, outdated Information and Communication Technology (ICT) infrastructure, a deficiency of teacher training in digital tools, and minimal investment in

---

<sup>1</sup> University of Southern Queensland, Australia, Email: [Sadiaahmad318@gmail.com](mailto:Sadiaahmad318@gmail.com) , [U1105743@umail.usq.edu.au](mailto:U1105743@umail.usq.edu.au)



Artificial Intelligence-based educational innovation. Rural areas are excessively influenced, where electricity consistency and mobile coverage are insufficient to support even basic digital learning platforms, let alone progressive Artificial Intelligence systems (Qolamani & Mohammed, 2023).

This difference is not completely technical but intensely social and structural. Education systems in emerging backgrounds frequently replicate historical inequalities, resource restrictions, and opposing cultural insights of technology in learning environments (Selwyn, 2016). As Artificial Intelligence is becoming an important aspect of future-ready education, students in deprived areas have more chances of being left behind. It is not based on a limited talent or inspiration, but due to the systemic restrictions and social breaks in digital preparedness (Abdelsalam Mohamed Mostafa, 2025).

The main objective of this paper is to explore this developing educational division based on a comparative cultural lens, concentrating on Australia and Pakistan. It examines how modifications in infrastructure, digital literacy, educator readiness, policy environments, and cultural attitudes form the implementation of Artificial Intelligence in schools. The objective is to illustrate differences along with offering culturally responsive suggestions to link the Artificial Intelligence education gap, nurturing reasonable accessibility to quality-based learning in the period of digital alteration.

## Literature Review

The international digital divide is a leading obstacle to reasonable education, mainly concentrating on the combination of AI (Artificial Intelligence) and digital technologies in classrooms. Since 2024, almost 68% of the whole population of the world which is based on almost 5.5 billion people, are utilizing the internet, leaving almost 2.6 billion people, or 32%, offline. This deficiency of connectivity excessively influences students in emerging countries, restraining their accessibility to digital learning apparatuses.

In Pakistan, internet penetration has been steadily increasing, with 56.51% of the population having internet access as of May 2024. However, this still leaves nearly half of the population without internet access, primarily due to inadequate digital infrastructure and affordability challenges. Moreover, only 16.3% of schools in Pakistan offer computer labs, and a mere 18% have internet facilities, highlighting the limited availability of digital devices in educational institutions. These limitations hinder students' ability to utilize AI tools effectively, exacerbating educational inequalities (Asher, 2021).

Conversely, Australia boasts a high internet penetration rate, with 94.9% of the population using the internet as of January 2024. The government of Australia has employed initiatives such as the School Student Broadband Initiative, offering free broadband to needy students to bridge the digital divide. Moreover, strategies command a 1:1 ratio of device-to-student for secondary students and a ratio of 1:3 for primary students till the end of 2026, guaranteeing extensive accessibility to digital devices (Department for Education, 2024). These struggles ease the combination of AI with education, permitting students to interact with technologies such as ChatGPT from an initial age (Pang et al., 2023).

These complementary national contexts highlight the developing inequality in educational willingness for AI-improved learning. Although students in Australia get advantage from vigorous digital infrastructure and practical approaches, those in Pakistan encounter systemic complexities that restrict their digital involvement, which also strengthens educational disparity

## **Methodology**

This study implements a relative analysis method, inspecting data from reports of the government, global companies, and academic studies to emphasize inequalities in the AI incorporation of Australia with Pakistan. Some main indicators involve penetration rates of the internet, implementation of AI tools in classrooms, as well as educational infrastructure.

## **Comparative Analysis**

AI (Artificial Intelligence) is reforming the international educational landscape by permitting modified learning, enlightening administrative competencies, and optimizing accessibility to resources. In first-world countries, including Australia, AI implementation in education is reinforced by robust digital infrastructure, government approaches, and social readiness. On the other hand, third-world countries like Pakistan encounter multiple obstacles that prevent impartial contribution in this technical alteration (Nguyen et al., 2020). The inequalities in Artificial Intelligence-based integration not only impede to extension current educational disparities but also risk depriving future generations of the advantages of the digital knowledge economy. Based on these perspectives, the research paper evaluates five main areas of alteration, including availability of religious content, environment of the classroom, teacher willingness, infrastructure and funding, and sociocultural attitudes to compare the role and influence of Artificial Intelligence in the education systems of Australia and Pakistan. All sections illustrate the complete structural gaps that delay AI implementation and suggest actionable suggestions to bridge the division and endorse comprehensive development (Dziatkovskii, 2023).

## **AI and Religious Content Accessibility**

An important and underexplored feature of AI implementation in education is its significance to spiritual content, mainly in contexts where spiritual research is essential to the curriculum. In Pakistan, leading religious education is linked with Arabic and Urdu texts, languages that are presently less represented in conventional LLM (large language model) training datasets. Accordingly, AI tools struggle to offer precise, socially delicate, and context-aware care for religious studies in these languages (Bender et al., 2021). This restriction imposes a leading influence on the availability of Artificial Intelligence tools and preserves a digital knowledge gap, as students of Pakistan might feel isolated from AI-based learning platforms that cannot facilitate their verbal and cultural requirements. Conversely, students in Australia get advantages from Artificial Intelligence tools, mainly skilled in English, which further gives them wider accessibility to religious and academic content. To handle this inequity, AI inventors should prioritize linguistic distinction in training datasets and collaborate with scholars of Arabic and Urdu to establish culturally comprehensive Artificial Intelligence systems. In Muslim-majority countries, governmental and educational organizations should invest in the development of localized AI tools to ensure religious education is not left behind in the digital age (Mehak & Rizvi, 2025).

## **Classroom Environment and Digital Access**

The digital divide in classroom environments between developed and developing countries is a major barrier to equitable education. In Australia, most schools provide students with access to high-speed internet, digital learning platforms, laptops, and smart classrooms. The government actively supports digital learning through policies and funding that ensure students have the

technological tools required to engage with AI-driven educational methods. In stark contrast, public schools in Pakistan often lack basic technological infrastructure, including computers, projectors, and internet access (Cowin, 2021). Only a small fraction of rural schools have access to digital tools, and many students have never interacted with a computer or online learning platform. This lack of exposure limits students' digital literacy and reduces their opportunities to engage in future-oriented research or STEM careers. Furthermore, even in urban areas, economic inequality restricts access to personal digital devices, exacerbating the divide. Bridging this gap requires targeted government interventions, international development aid, and the adoption of cost-effective digital tools such as open-source software and refurbished devices. Local industries should be encouraged to partner with educational institutions to expand digital access in underprivileged regions (Miss. Rojalin Panda and Dr. Basanta Kumar Mahakur, 2020).

### **Teaching Staff Skills and AI Literacy**

Teachers are the backbone of any educational reform, and their readiness to engage with AI technology plays a critical role in its successful implementation. In Australia, continuous professional development programs are in place to equip teachers with the skills needed to integrate digital tools into their pedagogy. Teachers are trained not only in the use of hardware and software but also in ethical considerations, data privacy, and the application of AI in personalized learning. Conversely, in Pakistan, many teachers struggle with basic digital literacy and lack opportunities for professional training in modern technology (Barua, 2022). The absence of institutional support, outdated curricula in teacher training colleges, and budgetary constraints further exacerbate this issue. As a result, teachers are often ill-prepared to teach AI-related subjects or to incorporate AI tools into their instruction, leaving students at a disadvantage. To close this gap, education ministries in third-world countries must introduce mandatory digital training modules in teacher certification programs. Additionally, international collaboration in the form of online training courses, digital fellowships, and teacher exchange programs can help uplift teaching standards and foster cross-cultural knowledge sharing (Nyaaba & Zhai, 2025).

### **Access to Infrastructure and Funding**

AI tools and platforms are expensive to develop, deploy, and maintain. Wealthy nations like Australia invest heavily in education technology through national AI strategies and long-term infrastructure planning. These investments enable schools to purchase advanced tools, hire tech specialists, and provide ongoing maintenance. On the other hand, Pakistan and similar third-world countries operate under constrained budgets, with limited financial resources allocated to education and even less to digital transformation. As a result, there is an overreliance on donor support or sporadic pilot projects that often lack long-term sustainability (Wu, 2022). This infrastructural gap restricts students' ability to benefit from AI in education and increases the global learning divide. To mitigate this issue, international development organizations, tech companies, and philanthropic foundations should collaborate to create scalable funding models that prioritize affordable AI education. Governments also have to discover public-private partnerships and local entrepreneurship to establish low-cost Artificial Intelligence-based solutions personalized to regional requirements (Sarkar, 2025).

### **Social and Cultural Impact of AI Integration**

The effective combination of Artificial Intelligence in education is also dependent on the sociocultural willingness of communities to adopt innovative technologies. In Australia, digital literacy is extensive, and there is an overall social acceptance of AI tools in public as well as private areas. Parents, teachers, and representatives equally identify the worth of Artificial Intelligence in optimizing learning results and preparing students for a digital future. On the other hand, societies in Pakistan frequently interpret Artificial Intelligence with skepticism or a lack of awareness to expressively engage with it. Cultural liberalism, religious hesitations, and distress of the unknown contribute to confrontation in contradiction of AI-based tools in education (Barua et al., 2024). Multiple parents are unaware of the digital applications their children may utilize and are consequently unable to support or manage their learning. This disconnection further becomes the reason for the underutilization of technology and delays the involvement of students. Community-based responsiveness programs, grown education initiatives, and localized movements are essential to establish trust and digital self-confidence. Social leaders and influencers must be included in these initiatives to simplify social acceptance and guarantee that AI incorporation complements local standards and opinions (Yu, 2024).

## **Discussion**

The inequality in AI incorporation between Australia and Pakistan highlights an extensive problem of digital disparity. Students in advanced countries get an advantage from initial experience with AI tools, optimizing their learning experiences. Conversely, students in emerging countries risk falling further behind based on the infrastructural and educational restrictions. This rising divide requires crucial strategies to guarantee reasonable accessibility to AI-based education internationally (Marrone et al., 2024).

The comparative analysis of Australia with Pakistan underscores momentous inequalities in the incorporation of AI (Artificial Intelligence) in education. These inequalities are mainly deep-rooted in inadequate accessibility to digital infrastructure, government approaches, teacher readiness, and sociocultural willingness, all of which have a great contribution to a developing international educational divide (Jumani, 2022).

The combination of AI tools in Australia, like ChatGPT, is simplified by a high penetration rate of the internet (94.9%) and national initiatives that endorse digital fairness. Programs such as the School Student Broadband Initiative and ratios of authorized devices to students are tactical stages to ensure AI readiness amongst students. Moreover, teacher training programs provide educators with the necessary competencies to incorporate AI into pedagogy. These efforts reflect a systemic readiness that positions Australia to lead in AI-enhanced education (Bender et al., 2021).

In contrast, Pakistan faces significant challenges. Although internet access has improved, reaching 56.51% in 2024, nearly half the population remains offline. Moreover, the digital infrastructure within schools is severely lacking—only 16.3% of schools have computer labs, and 18% have internet connectivity. Without access to reliable technology or the internet, the integration of AI in educational settings is nearly impossible. This technological divide directly translates into an educational one, where students in Pakistan are deprived of the benefits of personalized learning and instant feedback that AI can provide (Saqlain, 2023).

Teacher readiness is another area of concern. While Australian educators receive continuous professional development to integrate AI ethically and effectively, many Pakistani teachers lack even basic digital literacy. According to the World Bank (2022), outdated training programs and

inadequate resources contribute to the low digital capacity among teaching staff in Pakistan. This deficiency limits students' exposure to AI tools, stifling innovation and limiting the scope of education to traditional, lecture-based formats (Lourdu, 2025).

Sociocultural factors also play a vital role in AI adoption. In Australia, a digitally literate society embraces technological innovation in education. Parents, teachers, and policymakers generally support the use of AI to enhance learning outcomes (Australian Government, 2023). Conversely, in Pakistan, societal resistance to technology, fueled by religious conservatism, limited digital exposure, and concerns over cultural dilution, undermines the trust and uptake of AI tools. Additionally, religious education in Pakistan relies poorly reinforced by AI tools, which are frequently trained mainly on English-language data, restricting their pertinency to Urdu and Arabic religious texts (Bender et al., 2021).

This digital and educational division considers a matter of accessibility as it replicates wider international disparities. As Artificial Intelligence is excessively vital for future education systems, students in emerging countries risk marginalization if these gaps are not handled. AI literacy and access will possibly provide fundamentals for contribution to the international digital economy. Consequently, students in Pakistan and related countries encounter the risk of being left behind not only because of education but also because of economic and social domains (Nyaaba & Zhai, 2025).

Connecting this divide necessitates multifaceted struggles. Initially, international AI developers should be obligated to linguistic as well as cultural inclusivity by integrating marginalized languages, including Urdu and Arabic, into great linguistic models (Bender et al., 2021). Secondly, governments in emerging nations need to prioritize investments in school infrastructure and teacher training. Thirdly, global and technological organizations should cooperate to provide reasonable AI education platforms, involving societies to establish social faith and awareness. Lastly, public-private corporations can provide scalable, locally-relevant AI solutions that facilitate the exclusive requirements of various populations (Saqlain, 2023).

To sum up, as AI promises to transform education, its irregular execution is extending current injustices. Instead of targeted strategies that reflect infrastructural, cultural, and educational inequalities, the international education system is at risk of strengthening digital colonization, where only the privileged advantage from technical development.

## **Recommendations**

To handle the rising educational divide instigated by irregular implementation of AI (Artificial Intelligence) between established and emerging countries, mainly exemplified by Australia and Pakistan, a multi-dimensional and socially receptive approach is vital. The following suggestions emphasize endorsing comprehensive AI expansion, refining infrastructure, optimizing teacher training, nurturing cultural acceptance, and inspiring worldwide association to guarantee reasonable access to AI-based education internationally (Dziatkovskii, 2023).

## **Promoting Inclusive AI Development**

The leading pressing concerns in AI-based education are the linguistic and social restrictions entrenched in existing AI models. Widespread tools, including ChatGPT, mainly function in English and validate partial efficiency while handling local languages such as Urdu and Arabic. This linguistic disparity excessively influences students in nations such as Pakistan, particularly in culturally delicate subjects like religious and civic education (Bender et al., 2021). To correct

this, AI inventors should incorporate more varied linguistic datasets into their training procedures and cooperate carefully with local teachers, linguists, and community leaders to contextualize AI content precisely. Furthermore, making open-source tools and translation models personalized to educational usage in non-English languages can play a leading role in connecting the language breach (Saqlain, 2025).

### **Expanding Digital Infrastructure in Developing Countries**

Limited infrastructure remains a significant barrier to AI implementation in many developing countries. In Pakistan, for example, only 18% of schools have internet access, and fewer than 20% are equipped with computer labs. This digital void hinders the deployment of AI-powered educational tools. To address this, governments and NGOs should form public-private partnerships to fund internet and technology access for public schools, particularly in underserved rural areas. Leveraging renewable energy solutions and affordable satellite technologies can further enhance connectivity where traditional infrastructure is lacking. Moreover, using refurbished digital devices and open-source learning platforms can help reduce implementation costs. These initiatives should be underpinned by sustainable funding mechanisms supported by entities such as the World Bank, UNDP, or national innovation and education funds (Lourdu, 2025).

### **Institutionalizing AI Literacy and Teacher Training**

Teachers are vital agents in AI integration, yet their digital preparedness varies greatly between countries. Australia has introduced AI-focused training into its national teacher development programs, whereas in Pakistan, many teachers lack even basic digital literacy. To close this gap, governments in developing countries must embed AI and digital competency modules into teacher certification and ongoing professional development. International collaboration through fellowships, MOOCs, and virtual workshops can provide scalable training opportunities. National education policies should also include incentives for teachers who pursue AI-related upskilling to ensure continuous growth and alignment with evolving pedagogical needs (Jumani et al., 2022).

### **Creating Policy Frameworks and National AI Strategies**

Effective AI adoption in education depends on supportive policy ecosystems. While Australia benefits from a well-defined national digital education strategy that includes AI integration, Pakistan currently lacks a cohesive policy framework. Developing countries should prioritize the formulation of national AI-in-education strategies aligned with Sustainable Development Goal 4, which promotes inclusive and equitable quality education. Establishing national task forces comprising educators, policymakers, and technologists can facilitate policy design, implementation, and oversight. These policies must also ensure ethical AI usage, including data privacy protections, algorithmic transparency, and safeguards against bias (Jumani et al., 2022).

### **Fostering Sociocultural Acceptance of AI**

Sociocultural visions of Artificial Intelligence can either streamline or postpone its execution. In Pakistan, widespread skepticism and outdated attitudes frequently have a great contribute to resisting Artificial Intelligence in classrooms. Establishing public faith and consideration is therefore complex. Community-based awareness initiatives must be initiated to authenticate the advantages of Artificial Intelligence in education, utilizing real-world examples and success stories. Involving valued spiritual and cultural facts as champions of AI literacy can prove

helpful in encountering misrepresentation and comfort social concerns. In parallel, providing elementary digital education initiatives for parents can authorize families to support the usage of AI tools for their children, strengthening a culture of digital presence.

### **Encouraging International Collaboration and Global Solidarity**

It is difficult for individuals to solve the problems related to AI education in isolation, as it demands corresponding international action. Established nations and multinational companies should have the responsibility of supporting AI education programs in lower-income areas. Donor countries must prioritize educational AI in growth aid portfolios, though international technological organizations should assume comprehensive business models that permit discount or donated accessibility to AI-based tools in deprived schools. Multilateral institutions such as UNESCO, UNICEF, and the ITU (International Telecommunication Union) are well-positioned to lead international alliances attentive on AI education, with a distinct focus on reaching digitally excluded populations.

Collectively, these suggestions specify a roadmap for narrowing the AI-based educational divide between countries, including Australia and Pakistan. Attaining impartiality in AI education entails more than technology—it requires comprehensive governance, conversant teacher contribution, infrastructural willingness, and cultural involvement. Guaranteeing that all learners, despite geographic or socioeconomic background, have access to the advantage of AI-optimized education, which is a matter of community fairness and a critical step to a more comprehensive and supportable international future (Asher, 2021).

### **Conclusion**

To sum up, the combination of digital technologies and current teaching approaches is vital to emerging future-ready learners. As discovered through this research, operative teaching in the 21st century entails more than content knowledge as it requires adaptive educations that establish critical thinking, digital literacy, and EI (Emotional Intelligence). Technologies like AR (Augmented Reality), AI-based learning platforms, and collaborating tools such as robotics can optimize student involvement and boost conceptual understanding when considered to be implemented (Beetham & Sharpe, 2019).

In this context, the capability of the teacher is considered highly significant to establish comprehensive, student-oriented environments that value variety, inspire originality, and endorse inquiry-based learning. Teachers should endeavour to upskill and improve their preparation to guarantee they fulfil the developing requirements of students and align with the curriculum objectives. The alignment of personal teaching values, such as understanding, supportiveness, and ethical usage of technology, with professional standards can enable students to learn and thrive in a quickly altering world.

Eventually, by embracing invention, nurturing association, and preserving a robust ethical basis, educators can have a transformative role in determining the learners of today into the responsible citizens of the future. This reflective journey has reaffirmed the significance of being a lifelong learner and a flexible educator who is prepared to accomplish existing and future educational complexities.

### **References**

Jiang, J. and Shao, A. (2024). Generative AI divide: How college students' backgrounds affect their gen ai literacy [Preprint]. doi:10.1101/2024.12.01.626259.

- Abdelsalam Mohamed Mostafa, M. (2025). Bridging the digital divide: AI, VR, and AR for Equitable K-12 Education [Preprint]. doi:10.2139/ssrn.5124551.
- Asher, S. (2021). Covid-19, Distance Learning and the digital divide: A case of higher education in the United States and Pakistan. *International Journal of Multicultural Education*, 23(3), pp. 112–133. doi:10.18251/ijme.v23i3.2921.
- Balan, A. (2025). Digital Divide Mitigation, AI and Legal Education. pp. 50–63. doi:10.4324/9781003607397-4.
- Dziatkovskii, A. (2023). The ergonomic effect of AI & ML in Education. *THE ERGONOMIC EFFECT OF AI & ML IN EDUCATION* [Preprint]. doi:10.46916/26042023-1-978-5-00174-960-8.
- Mehak, F. and Rizvi Jafree, S. (2025). Bridging the digital divide: Predictors of positive attitudes and functional use of AI among university students in Pakistan, *Social Sciences Spectrum*, 4(1), pp. 617–632. doi:10.71085/sss.04.01.237.
- Miss. Rojalin Panda and Dr. Basanta Kumar Mahakur. (2020). Digital Divide in education: A challenge for tribal students. *REIMAGINING EDUCATION IN THE DIGITAL ERA: LEVERAGING AI AND SUSTAINABLE INNOVATIONS* [Preprint]. doi:10.25215/9358798181.13.
- Nyaaba, M. and Zhai, X. (2025). Developing custom GPTS for education: Bridging Cultural and Contextual Divide in Generative Ai [Preprint]. doi:10.2139/ssrn.5074403.
- Sarkar, A. (2025). Bridging the divide: A systems thinking approach to inclusivity in AI development and Education [Preprint]. doi:10.2139/ssrn.5097669.
- Wu, Y. (2022). An overview analysis of AI divide: Applications and prospects of Ai Divide in China's society. *Advances in Social Science, Education and Humanities Research*. [Preprint]. doi:10.2991/assehr.k.220704.002.
- Yu, C. (2024). Beyond the AI divide: Towards an inclusive future free from ai caste systems and Ai Dalits. [Preprint]. doi:10.31237/osf.io/g5yq2.
- Jumani, N.B. et al. (2022). Online education as a key to bridge gender digital divide in Pakistan. *Tenth Pan-Commonwealth Forum on Open Learning* [Preprint]. doi:10.56059/pcf10.9275.
- Lourdu Vesna. (2025). Digital Divide in AI-powered education: Challenges and solutions for Equitable Learning. *Journal of Information Systems Engineering and Management*, 10(21s), pp. 300–308. doi:10.52783/jisem.v10i21s.3327.
- Saqlain, M. (2023). Revolutionizing Political Education in Pakistan: An AI-Integrated Approach. *Education Science and Management*, 1(3), pp. 122–131. doi:10.56578/esm010301.
- Bender, E.M. et al. (2021) 'On the dangers of stochastic parrots', *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, pp. 610–623. doi:10.1145/3442188.3445922.
- Sain, Z.H. and Serban, R. (2024) 'Pakistan's 2024 Educational Crossroads: Unraveling Challenges, charting new paths for Transformation', *Global Research Review in Business and Economics*, 10(1), pp. 186–192. doi:10.56805/grrbe.24.10.1.17.
- Marrone, R. et al. (2024) 'Perceptions and perspectives of Australian school leaders on the integration of artificial intelligence in Schools', *School Leadership & Management*, 45(1), pp. 30–52. doi:10.1080/13632434.2024.2425019.
- Barua, P.D. et al. (2022) 'Artificial intelligence enabled personalised assistive tools to enhance education of children with neurodevelopmental disorders—a review', *International Journal of Environmental Research and Public Health*, 19(3), p. 1192. doi:10.3390/ijerph19031192.
- Cowin, J. (2021) 'The Fourth Industrial Revolution: Technology and Education', *Journal of Systemics, Cybernetics and Informatics*, 19(8), pp. 53–63. doi:10.54808/jsci.19.08.53.
- Nguyen, H.D., Mai, L.T. and Anh Do, D. (2020) 'Innovations in creative education for tertiary sector in

- Australia: Present and future challenges', *Educational Philosophy and Theory*, 52(11), pp. 1149–1161. doi:10.1080/00131857.2020.1752190.
- Pang, T.Y., Lee, T.-K. and Murshed, M. (2023) 'Towards a new paradigm for Digital Health Training and education in Australia: Exploring the implication of the Fifth Industrial Revolution', *Applied Sciences*, 13(11), p. 6854. doi:10.3390/app13116854.
- Qolamani, K.I. and Mohammed, M.M. (2023) 'The Digital Revolution in Higher Education: Transforming Teaching and Learning', *QALAMUNA: Jurnal Pendidikan, Sosial, dan Agama*, 15(2), pp. 837–846. doi:10.37680/qalamuna.v15i2.3905.
- Sain, Z.H. and Thelma, C.C. (2023) 'The future of CHATGPT in the Pakistani education system: Transforming Learning and Teaching Dynamics', *International Journal of Instructional Technology*, 2(2), pp. 1–10. doi:10.33650/ijit.v2i2.9355.