
CHAPTER 17

Emerging Technologies and the Future of Health Education: Reflections Inspired by Academic Legacies

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Abstract

The swift advancement of new technologies has greatly altered the domain of health education, Human Kinetics, and teaching methods in the 21st century. This document offers an in-depth academic analysis of the convergence of technology, teaching methods, and health results, focusing on the roles of educational trailblazers and the consequences for future pathways in health education. It examines how digital innovations including learning management systems, mobile health (mHealth) apps, artificial intelligence (AI), wearable devices, and immersive virtual/augmented reality (VR/AR) are changing instructional delivery, student engagement, and behaviour change results. Rooted in well-known theoretical frameworks like technology acceptance models, constructivism, connectivism, and behavioural change theories, the paper positions technology integration on a solid intellectual basis. It also explores the historical development of instructional technology, emphasizing the shift from conventional teaching tools to sophisticated digital environments that facilitate personalized, interactive, and data-informed learning experiences. The research also thoroughly examines important topics like equity, access, the digital divide, ethical factors, and institutional preparedness, especially in the context of developing educational environments. Focus is given to the importance of universities, regulatory agencies, and national policies in promoting the sustainable inclusion of technology into health education programs, citing examples like the National Open University of Nigeria. The results emphasize that although new technologies present considerable chances for boosting health literacy, encouraging healthy behaviours, and advancing educational results, their success depends on sufficient infrastructure, the development of professional skills, and ethical governance. The study asserts that connecting academic heritage with technological advancement is crucial for promoting sustainable health education systems that are inclusive, fair, and adaptable to modern global health issues.

Keywords: Health Education, Human Kinetics, Emerging Technologies, Digital Pedagogy, Artificial Intelligence, Health Literacy, Sustainable

Introduction

The rapid evolution of digital technologies has profoundly transformed educational systems worldwide, particularly in teaching, learning, communication, and professional practices. Innovations such as artificial intelligence (AI), virtual and augmented reality (VR/AR), mobile health solutions, cloud computing, educational analytics, and digital learning systems have become critical to modern education, especially in health fields (Bali, Garba, Ahmadu, Takwate, & Malgwi, 2024). These advancements improve access to information, remote learning opportunities, learner engagement, and inventive teaching methodologies, fostering interactive, student-centered instruction.

In health education, advanced technologies continually influence curriculum development, health messaging, behavior change initiatives, clinical practice simulations, professional training, and public health advocacy. Educational bodies, healthcare organizations, and policymakers increasingly recognize the importance of technology-driven learning in enhancing instructional quality, student engagement, evidence-based practices, and health literacy outcomes (David-Olawade, Wada, Adeniji, Ekpenyong, Musa, & Ibrahim, 2025; Waziri, Deborah, & Musa, 2023). The COVID-19 pandemic accelerated the adoption of digital education and telehealth, highlighting both the transformative potential and vulnerabilities of technology-driven education and healthcare systems (WHO, 2023; Waziri, Deborah, & Musa, 2024).

Recent studies indicate that AI is becoming more prominent in educational and healthcare environments. AI systems facilitate adaptive learning, predictive analytics, intelligent tutoring, automated assessment, and personalized instructional delivery (Nomhwange, Okafor, Ibrahim, & Adeyemi, 2026). VR and AR technologies are revolutionizing practical learning experiences in medical education through immersive simulations that enhance engagement and skill acquisition (Otuyemi, Ijarotimi, Komolafe, Adekunle, & Salisu, 2025). Mobile health technologies have expanded opportunities for community health education, disease monitoring, patient engagement, and remote health services, particularly in underserved areas (Frontiers Media, 2025; Waziri, et al., 2024).

Despite the growing body of research on digital learning and educational technology, significant gaps remain. A large portion of current studies focuses on technological advancements, overlooking the philosophical, pedagogical, and historical foundations that influence technology usage in health education. Additionally, most research centers on technologically advanced nations, leaving the contexts of developing countries, especially within African educational systems, underexplored. Challenges, including digital divide, insufficient infrastructure,

unreliable electricity, limited internet access, inadequate institutional support, and fluctuating policies, continue to obstruct the effective use of educational technologies in low-resource environments (Fan, Ezeudoka, & Qalati, 2024; Waziri, et al., 2024).

In Nigeria, despite the growing implementation of online learning systems and AI technologies, there are noticeable gaps in technological readiness and digital competence. Research highlights ongoing challenges such as insufficient funding, inadequate teacher training, poor technological systems, and ineffective policy implementation (Aina, Akpor, Ekundina, & Kadir, 2025). Consequently, there is rising concern regarding the capacity of educational systems to integrate new technologies ethically, inclusively, and sustainably.

Furthermore, the notion of “academic legacies” the enduring intellectual contributions and teaching philosophies of past educators has not been sufficiently explored in discussions on technological change in health education. These legacies are crucial as they provide historical continuity, professional ethics, and teaching values that guide responsible and human-centered technological progress.

This paper investigates the increasing tension between rapid technological advancement and the preparedness of health education systems to integrate these innovations effectively, ethically, and equitably. Although new technologies present significant opportunities to enhance teaching, student interaction, experiential learning, and health communication, various barriers, such as lack of digital literacy, infrastructure deficiencies, ethical concerns regarding data privacy and algorithmic bias, inadequate teacher competencies, unequal access to digital resources, and institutional inertia, hinder their full adoption (Nomhwange et al., 2026).

Thus, the primary objective of this research is to analyze the impact of emerging technologies on the future of health education while acknowledging the enduring significance of academic traditions in facilitating responsible educational transformation. Specifically, the study aims to...

1. examine major emerging technologies influencing health education;
2. analyze the pedagogical and theoretical foundations underpinning technology integration;
3. explore opportunities and challenges associated with digital transformation in health education;
4. evaluate ethical, institutional, and policy implications of emerging technologies; and
5. discuss the relevance of academic legacies in sustaining inclusive and value-driven health education systems.

This research contributes to the discourse on digital transformation, educational innovation, and technology-enhanced health education globally, particularly in developing contexts. It provides guidance for educators, policymakers, and researchers to integrate technologies sustainably into health education. The document reviews relevant literature and theoretical frameworks, details a conceptual narrative review methodology, and examines technological advancements, opportunities, challenges, ethical considerations, and the legacy of academia in health education. It concludes with recommendations for policy, practice, and future research directions to enhance health education frameworks.

Rationale of the Study

This paper enhances research on new technologies and health education by examining digital transformation's effects on educational and health systems. It blends technological innovations with scholarly traditions, underscoring the importance of teaching legacies and ethical values in influencing educational change. A key contribution is establishing a connection between new technologies and enduring intellectual traditions, promoting a balance among innovation, ethics, inclusiveness, and sustainability in health education. The study addresses gaps by exploring digital transformation in developing countries, particularly in Africa and Nigeria, and discussing infrastructural challenges and digital inequities. Theoretical contributions include integrating constructivist theory, connectivism, and the Technology Acceptance Model. It highlights ethical issues related to AI, algorithm biases, and access inequalities, encouraging dialogue on equitable digital transformation.

Methodology

This research employed a conceptual narrative review to analyze how emerging technologies impact health education. The narrative approach was selected to merge existing theoretical perspectives, empirical evidence, policy discussions, and academic studies rather than generate new empirical data. Focused on materials published between 2020 and 2026, the review examined advancements in educational technology, digital pedagogy, artificial intelligence, virtual learning, and mobile health innovations. Historical context was provided by incorporating key theoretical works from before 2020.

Relevant literature was sourced from reputable electronic academic databases such as Google Scholar, Scopus, and PubMed, ensuring a selection of high-quality peer-reviewed resources. The search strategy utilized specific keywords related to emerging technologies and health education. Inclusion criteria included peer-reviewed articles, academic publications, and policy documents pertinent to

technology's role in health education, while excluding irrelevant studies and non-academic sources.

Data from the literature were synthesized using thematic analysis, identifying key themes such as technological change, innovative teaching methods, digital disparities, and institutional preparedness. Moreover, the research incorporated African and Nigerian perspectives, emphasizing the unique opportunities and challenges of technology in resource-limited educational contexts, including infrastructural and policy deficiencies.

While the study does not claim to follow a systematic review process, efforts were made to ensure transparency, consistency, and rigor in literature selection and synthesis. This approach bolstered the reliability of findings and provided comprehensive insights into the influence of new technologies on health education, revealing the complexities and implications of integrating technology in diverse educational settings.

Theoretical Foundation

Constructivist Theory

This paper is rooted in part in constructivist theory, highlighting the importance of active learner engagement, experiential learning, and cooperative knowledge creation. Constructivist researchers suggest that learners gain knowledge more successfully when they actively interact with educational resources, engage with digital settings, and take part in hands-on problem-solving tasks. In health education, constructivist frameworks promote the inclusion of simulation technologies, virtual learning settings, cooperative digital platforms, and interactive multimedia systems that foster learner involvement and analytical thinking.

The growing use of VR/AR technologies, simulation-driven teaching, and AI-enhanced learning settings demonstrates constructivist principles related to experiential and student-focused education. Using immersive technologies, students engage in authentic clinical simulations, hands-on demonstrations, and interactive health communication exercises that improve competency growth and professional readiness.

Connectivism Theory

The research also relies on connectivism theory, which describes learning in digitally interconnected settings. Connectivism posits that knowledge is distributed among interrelated technological systems, social networks, digital archives, and

virtual learning communities. Learning thus entails the capacity to recognize, retrieve, assess, and utilize information acquired from various digital sources.

This theoretical viewpoint is especially pertinent to modern health education, where online learning platforms, cloud-based systems, telemedicine technologies, and digital communication tools significantly impact educational delivery and professional collaboration. Connectivism reinforces the significance of continuous learning and digital skills in technology-focused educational environments.

Technology Acceptance Model (TAM)

The Technology Acceptance Model offers further theoretical insights into the factors affecting the acceptance and use of new technologies in educational environments. TAM suggests that users' willingness to adopt technological innovations is significantly influenced by perceived usefulness and perceived ease of use. In health education settings, elements like institutional backing, educator skills, digital proficiency, accessibility, available infrastructure, and perceived advantages of education affect technology adoption by both students and teachers.

Recent studies in Nigeria exploring AI readiness and e-health adoption provide strong evidence for TAM, showing that technological familiarity, institutional backing, and perceived usefulness greatly influence attitudes toward adopting digital innovations

Literature Review

Emerging Technologies and the Transformation of Health Education

The rapid evolution of digital technologies has significantly impacted global educational systems, notably in health education, with technology-driven methods changing teaching, learning, evaluation, and professional development. Innovations such as artificial intelligence (AI), virtual and augmented reality (VR/AR), mobile health solutions (mHealth), learning analytics, cloud systems, wearable devices, and digital simulations are reshaping the dissemination of health information and skill development (WHO, 2023; UNESCO, 2023).

Recent studies indicate AI's dominance in modern health education, enhancing adaptive learning, automated evaluation, and smart tutoring, thus improving engagement and teaching effectiveness (Davis, 1989; Siemens, 2005). Post-COVID-19, AI integration has rapidly increased, especially in higher education (World Bank, 2024). Research in Nigeria highlights the growing use of AI in

education despite infrastructure limitations, with significant potential to enhance learner-centered teaching and improve educational accessibility.

Meanwhile, VR and AR technologies are transforming experiential learning in health education, offering immersive experiences that foster practical skills and clinical proficiency (Otuyemi et al., 2025). A study among clinical students in Nigeria showed positive perceptions of VR in teaching anatomy and clinical skills, although challenges such as poor infrastructure and funding were identified (Otuyemi et al., 2025; Ogunleye & Adebisi, 2024).

Mobile health technologies are crucial for health education and public health messaging, enabling remote education and community health participation. Increasing use of mHealth applications in Nigeria for maternal health and disease tracking demonstrates the growing relevance of digital platforms (Fan et al., 2024; Frontiers Media, 2025). The digital transformation in healthcare fosters the use of telemedicine, electronic health records, and AI-assisted decision-making, enhancing accessibility and efficiency, although challenges like weak digital infrastructure and limited institutional support remain prevalent (Aina et al., 2025).

Artificial Intelligence Readiness and Ethical Concerns

Although AI technologies are becoming more integrated into healthcare and education, recent empirical findings show that significant knowledge gaps and readiness issues still exist among healthcare students and educators. A cross-sectional study investigating AI readiness among healthcare students in Nigeria revealed that while a majority of students showed favorable attitudes towards AI adoption, only a limited number exhibited sufficient understanding of machine learning concepts and AI applications (David-Olawade et al., 2025). The research additionally confirmed a notable connection between AI understanding and the readiness to embrace AI technologies in professional settings.

Academics have expressed worries about the ethical consequences of new technologies in health education and healthcare provision. Ethical concerns surrounding algorithmic bias, data protection, surveillance, misinformation, cybersecurity threats, and unequal access to digital resources are becoming more prominent in current academic debates (Eze & Chukwu, 2024; WHO, 2021). A swift assessment of AI use in Nigerian healthcare highlighted the pressing necessity for enhanced cooperation among policymakers, researchers, educators, and healthcare professionals to create ethical and regulatory structures that can direct responsible AI implementation (Nomhwange et al., 2026).

Likewise, research on e-health adoption in Nigeria shows that reluctance towards digital health systems frequently stems from issues related to trust, privacy, technological intricacy, and perceived dangers linked to digital platforms. Fan et al. (2024) discovered that technological anxiety, low trust levels, and social factors profoundly impact the public's acceptance of digital health innovations. These results indicate that effectively incorporating emerging technologies into health education necessitates not just technological infrastructure but also ethical oversight, institutional readiness, and public trust.

Emerging Technologies in African Educational Contexts

The integration of educational technologies in African educational systems is garnering scholarly attention, emphasizing context-aware advancements that address local challenges such as infrastructure, cultural diversity, and social inequalities (Okeke & Yusuf, 2025). AI education forums advocate for developing tailored AI systems instead of relying on foreign models (UNESCO, 2023). In healthcare, mixed views on AI adoption exist, with professionals acknowledging its potential but raising concerns about fairness and access (World Bank, 2024). Experts express greater worries about ethical governance and systemic barriers compared to the public (WHO, 2023). Low-resource educational settings face persistent infrastructure issues, limiting effective technology use (Ogunleye & Adebisi, 2024; Adeoye & Bello, 2025). Consequently, researchers argue for inclusive policies, sustainable investments, localized tech adaptations, and enhanced digital literacy programs (Afolabi & Olatunji, 2024; Ibrahim & Lawal, 2025).

Discussion and Analysis

The integration of new technologies in health education has created significant opportunities for improving teaching, learning, communication, professional training, and healthcare services worldwide. Technologies such as artificial intelligence (AI), virtual and augmented reality (VR/AR), mobile health solutions (mHealth), cloud learning platforms, digital simulations, and learning analytics are transforming how health information is delivered and utilized in educational and healthcare settings. However, their application also raises complex ethical, institutional, infrastructural, and socio-economic challenges that require thorough examination.

AI's role in modern health education is pivotal, advancing adaptive learning, predictive analytics, and intelligent tutoring systems. Research from Nigeria indicates that AI can boost student engagement and personalized instruction, especially in higher education and professional health training (Bali et al., 2024). Findings by David-Olawade et al. (2025) suggest that healthcare students show

positive attitudes toward AI's integration in education, and those with advanced technological skills are more open to these systems.

Nevertheless, an increasing reliance on AI presents considerable ethical concerns, particularly regarding algorithmic bias. There is a risk that AI systems could perpetuate existing inequalities if built on biased datasets or lacking cultural contexts. Many AI systems are developed in technologically advanced nations, potentially misrepresenting the socio-cultural realities and educational needs of African contexts (Nomhwange et al., 2026). This dependence on foreign technologies may ignore local knowledge systems, thereby deepening educational inequalities.

Data privacy and digital monitoring are significant ethical dilemmas in technology-led education. AI educational platforms and telehealth tools often collect extensive personal data, raising risks of unauthorized access, cyber threats, and misuse of information. Fan et al. (2024) highlighted that trust issues often hinder the acceptance of e-health technologies in Nigeria. Hence, effective ethical governance and robust data protection strategies are essential to build trust in digital education and healthcare systems.

VR/AR technologies offer distinct advantages in health education by allowing immersive simulations that enhance practical skills. Research by Otuyemi et al. (2025) found that medical students and educators in Nigeria valued VR technologies for anatomy teaching and skills demonstration. However, implementation faces challenges such as inadequate infrastructure, inconsistent electricity supply, high equipment costs, and limited institutional funding.

Infrastructural barriers significantly obstruct digital transformation in educational systems, particularly in developing nations. Many institutions struggle with poor internet access, lack of technological resources, limited maintenance, and unreliable electricity. These issues hinder the sustainability and effectiveness of technology-enhanced learning, exacerbating the digital divide between urban and rural areas.

Institutional readiness and teacher preparedness also influence technology implementation success. The integration of technologies requires skilled, confident educators, yet many teachers have limited digital literacy and pedagogical training to effectively use advanced technologies (Bali et al., 2024). Consequently, traditional teaching methods persist in some institutions due to a lack of exposure and institutional support for digital strategies.

Integrating new technologies necessitates significant curriculum reforms and enhancing professional skills. Health education programs should incorporate digital

competencies, AI understanding, simulation teaching methods, and online communication skills. Without such reforms, technology tools may be employed without evolving teaching methods or preparing students for digital healthcare environments.

Digital literacy is essential for effective technology integration and should encompass critical assessment of information, ethical data analysis, and active engagement in online learning. The disparity in digital literacy among educators and learners affects the effectiveness of technology in education, highlighting the need for investments in skill development for inclusive educational progress.

Sustainability of technology-driven education systems requires ongoing funding, infrastructure maintenance, institutional commitment, and local contextual adaptation. Many African educational institutions operate under externally financed projects that may become unsustainable after donor support ceases. Therefore, contextual policy frameworks and long-term institutional investments are essential for sustainable digital transformation.

Moreover, while technology enhances accessibility and adaptability, over-reliance on digital platforms can diminish the essential human interactions necessary in health education. Face-to-face communication, mentorship, emotional intelligence, and social interaction are crucial to effective healthcare training, and excessive reliance on automated systems can limit these interactions.

Ultimately, emerging technologies should be regarded as integral components of broader educational transformation efforts that necessitate ethical responsibility, pedagogical shifts, institutional readiness, and social inclusion. Technology integration must align with human-centered educational principles and ethical standards, ensuring that advancements benefit all students equitably and sustainably. To fully harness the potential of these technologies in health education, it is crucial to address key challenges related to ethical governance, infrastructural disparities, institutional preparedness, teacher training, digital literacy, and sustainability, avoiding potential educational inequalities and ethical vulnerabilities.

Conclusion

1. The rapid evolution of digital technologies is transforming health education through the use of artificial intelligence, virtual and augmented reality, mobile health tools, learning analytics, and cloud-based solutions.
2. These technologies enhance learner engagement, teaching flexibility, and health literacy. However, challenges related to infrastructure, power, internet access, and digital literacy persist in developing countries like Nigeria.

- Ethical issues such as data privacy and unequal access further complicate technology integration.
3. While technological progress is crucial, it must align with educational principles and human-centered values. Academic legacies offer guidance for fostering equity and inclusivity.
 4. Ultimately, successful integration requires a context-aware approach, emphasizing institutional readiness, ethical oversight, and collaboration among educators, policymakers, and healthcare professionals.

Recommendations

Recommendations include prioritizing reliable digital infrastructure by governments and educational bodies to enhance health education through consistent electricity and internet access.

1. Investment in digital labs and resources is crucial, particularly in resource-limited areas, alongside ongoing training for educators and students to improve digital literacy.
2. Updating curricula is necessary to include digital health skills and ethical use of technology, focusing on marginalized communities.
3. Policies should aim to address the digital divide and promote research on technology's effects in African contexts, encouraging collaboration among stakeholders.
4. Educational systems must merge technological advancements with core teaching values while ensuring oversight for evaluating challenges.
5. Future research should utilize empirical methods to examine socio-economic and cultural factors impacting technology integration in education.

References

- Adeoye, I. A., & Bello, R. T. (2025). Teacher preparedness and digital competence in technology-enhanced learning environments in Nigeria. *Journal of Contemporary African Education*, 7(4), 201–219.
- Afolabi, A. A., & Olatunji, M. A. (2024). Digital literacy and technology adoption among educators in Nigerian higher institutions. *African Journal of Educational Technology*, 15(2), 44–59.
- Aina, V. O., Akpor, O. A., Ekundina, V. O., & Kadir, A. T. (2025). Use of technology in patient care in Nigeria: A systematic review of original studies from 2020 to 2025. *NIPES Journal of Science and Technology Research (Special Issue)*. <https://doi.org/10.37933/nipes/7.4.2025.SI410>

- Bali, B., Garba, E. J., Ahmadu, A. S., Takwate, K. T., & Malgwi, Y. M. (2024). Analysis of emerging trends in artificial intelligence for education in Nigeria. *Discover Artificial Intelligence*, 4(110). <https://doi.org/10.1007/s44163-024-00163-y>
- David-Olawade, A. C., Wada, O. Z., Adeniji, Y. J., Ekpenyong, J., Musa, A., & Ibrahim, M. (2025). Artificial intelligence readiness among healthcare students in Nigeria: A cross-sectional study assessing knowledge gaps, exposure, and adoption willingness. *International Journal of Medical Informatics*, 204, 106085. <https://doi.org/10.1016/j.ijmedinf.2025.106085>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Eze, P. N., & Chukwu, B. I. (2024). Ethical implications of artificial intelligence in healthcare delivery in sub-Saharan Africa. *African Journal of Health Informatics*, 9(3), 120–134.
- Fan, M., Ezeudoka, B. C., & Qalati, S. A. (2024). Exploring resistance to e-health services in Nigeria: An integrative model based on the theory of planned behavior and stimulus-organism-response. *Humanities and Social Sciences Communications*, 11, 571. <https://doi.org/10.1057/s41599-024-03090-6>
- Frontiers Media. (2025). Development of an educational and monitoring mobile application for pregnant women in Nigeria. *Frontiers in Public Health*, 12, 1368631. <https://doi.org/10.3389/fpubh.2024.1368631>
- Ibrahim, M. S., & Lawal, F. U. (2025). Curriculum redesign and digital competencies in health education programs in Nigeria. *Journal of Health Education and Development*, 13(1), 55–72.
- Nomhwange, T., Okafor, C., Ibrahim, Y., & Adeyemi, R. (2026). The utilization of artificial intelligence and machine learning for health in Nigeria: A rapid review. *Journal of Medical Artificial Intelligence*. <https://doi.org/10.21037/jmai-2025-1-227>
- Ogunleye, S. O., & Adebisi, K. A. (2024). Infrastructure deficits and e-learning sustainability in Nigerian tertiary institutions. *Nigerian Journal of Educational Development*, 18(2), 67–82.

- Okeke, C. E., & Yusuf, H. A. (2025). Challenges of digital transformation in African higher education systems. *International Journal of African Educational Studies*, 11(1), 88–104.
- Otuyemi, O. D., Ijarotimi, O. A., Komolafe, A., Adekunle, T. M., & Salisu, H. Y. (2025). Adopting virtual reality in medical education: Insights from clinical students and lecturers in a Nigerian university. *Nigerian Journal of Clinical Practice*, 28(5), 582–589. https://doi.org/10.4103/njcp.njcp_739_24
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.
- United Nations Educational, Scientific and Cultural Organization. (2023). *Guidance for generative AI in education and research*. UNESCO Publishing. <https://unesdoc.unesco.org>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Waziri, B. K., Deborah, M. K., & Musa, P. H. (2024). Empowering health: Leveraging technology for emerging disease prevention and control in Nigeria. *FUDMA Journal of Human Kinetics and Health Education*, 1(1), 203–214.
- Waziri, B. K., Deborah, K. M., & Musa, P. H. (2023). The use of technology in emerging disease prevention and control in Nigeria. *Journal of Health Education and Human Movement (JOHMOS)*, 1, 61–69.
- World Bank. (2024). *Digital development overview: Expanding equitable access to digital technologies in developing countries*. World Bank Publications. <https://www.worldbank.org/en/topic/digitaldevelopment>
- World Health Organization. (2021). *Ethics and governance of artificial intelligence for health*. <https://www.who.int/publications/i/item/9789240029200>
- World Health Organization. (2023). *Global strategy on digital health 2020–2025: Progress report*. <https://www.who.int/publications/i/item/9789240020924>

CHAPTER 18

Knowledge of AI Chatbots in Enhancing Public Health Education and Promoting Healthy Behaviors among Health Education Students of Aminu Saleh College of Education, Azare, Bauchi State

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Abstract

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Artificial Intelligence (AI) chatbots are increasingly being used in education to improve learning outcomes and encourage positive behavioral change. This study investigated Health Education students' knowledge of AI chatbots in enhancing public health education and promoting healthy behaviors at Aminu Saleh College of Education, Azare, Bauchi State, Nigeria. A descriptive research design was adopted. The study population comprised 1,416 students, from which a sample of 312 respondents was selected using Slovin's formula at a 5% margin of error. Stratified random sampling ensured proportional representation across academic levels. Data were collected through a structured questionnaire and analyzed using descriptive statistics and one-sample t-tests at the 0.05 level of significance. Findings revealed that students possessed a level of knowledge regarding the role of AI chatbots in enhancing public health education ($t = 80.182$, $df = 311$, $p < .05$) and promoting healthy behaviors ($t = 78.256$, $df = 311$, $p < .05$). Consequently, both null hypotheses were rejected. The study concluded that students have substantial knowledge of AI chatbots and recognize their value in supporting public health education and healthy lifestyle practices. It has recommended that integrating AI chatbots into health education, supported by training and resources for students.
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Keywords: Artificial Intelligence, AI Chatbots, Public Health Education, Healthy Behaviors.