Building digital literacy: Preparing Teachers for AI Integration

Dr. Amina Parveen
Department of Education, University of Kashmir, India
draaminaparveen@gmail.com
Aamir Nazir Ganie
Department of Education,University of Kashmir, India
Aamirnaziraamir5@gmail.com
Fazila Bashir
Department of Education,University of Kashmir, India
fazilabashir19@gmail.com
Shazia Jan
Department of Education,University of Kashmir, India
janshazia438@gmail.com
Phayaola Zimik
Department of Education,University of Kashmir, India
zimikphayaola@gmail.com

Abstract

In the era of rapid technological advancement, integrating artificial intelligence (AI) into education has become imperative. However, in order to fully utilize the potential of AI tools and technologies in the classroom, educators must be proficient in digital literacy. This Chapter explores the significance of digital literacy in preparingteachers for AI integration in education.This chapter emphasizes the importance of developing digital literacy among educators in order to seamlessly integrate artificial intelligence (AI) into education. Targeted workshops provide teachers with essential AI knowledge, familiarity with relevant tools, and opportunities to engage in ethical discussions. The goal is to provide educators with practical experience and resources to help them effectively incorporate AI technologies into their teaching methods. The approach emphasizes hands-on learning and the formation of a collaborative community, ensuring ongoing support and creating an environment conducive to the successful integration of AI in education. This initiative aims to bridge the gap between traditional teaching methods and emerging technological advancements, establishing educators as skilled facilitators in the rapidly changing landscape of AI-augmented learning.

Keywords: *Digital literacy, Teacher, AI integration, Augmented Learning, Technology*

INTRODUCTION

The term "Digital literacy" describes the range of cognitive-thinking techniques Employed by users of Digital information. The ability of users to accomplish tasks in Digital environments is commonly measured by digital literacy. The Term "Digital literacy" was coined by a number of writers in the 1990s to describe the capacity to read and understand information in the multimedia or hypertext formats that were then becoming commonplace; Gilster was not the first to use it (Bawden, 2001).For example, according to Lanham (1995), it is a form of "Multimedia literacy," which is different from traditional literacy. Because of the attraction of personalized data and the promise of greater efficiency, emerging technologies have been widely and quickly adopted."Smart writers" assist with academic writing in higher Education; AI chat bots tutor students; analytics predict student performance; and augmented and virtual reality devices extend intelligence and improve performance. Enormous volumes of data are gathered, examined, and applied to shape people's actions. Technology-related knowledge is usually proprietary and kept secret from the public or higher education sectors, or it is too complicated for the general public to comprehend. The demand that comes from ethicists is that AI systems follow to rigorous rules for "Transparency and explain ability(Winfield & Michael et al, 2019). Society is coping with "the need to understand and hold accountable the decision-making processes of AI (Floridi, et al. 2019).At the same time, a lot of the attention related to technologies in higher education makes it hard to criticize them or their advantages (Gourlay, et al. 2018 ;). The difficulty of equipping teacher education students with the necessary technology skills. There has long been concern over the efficient and fruitful use of technology in classrooms (Otero et al. 2005; Sutton 2011). In the past, teacher education providers have selected stand-alone ICT courses or units, which are frequently offered early in the program for qualified students. These are given with the understanding that providing students with what are thought to be prerequisite knowledge and skills will help them fulfill course Assessment Requirements, like creating "Technology Integrated" learning units for practicum work in schools, and, consequently, will enable them to effectively use digital technology in their future careers as teachers. (Kleiner, 2007; Polly, 2010). In addition to teaching students the requisite hardware and software skills, these courses typically concentrate on building their confidence and attitudes toward using digital resources in teaching and learning (Foulger, 2012). The impact of the Digitalization of daily life on Education has been substantial. Schools and Educators are still figuring out how to integrate technology

into the curriculum and prepare students for their (digital) futures, given the recent proliferation of digital devices and educational software. Amidst these worries, the idea of "Digital literacy" has become essential in helping researchers, educators, and bureaucrats in charge of Education make sense of the conflicting demands placed on schools and students in a Digital Society.

Objectives

1. To explore the connection between Artificial Intelligence and digital literacy.
2. To identify the ways by which AI and digital literacy are interconnected.
3. To explore the impact of digital literacy on education.

Significance of the Chapter

Preparing teachers for AI integration through digital literacy lies in the transformative potential it holds for education. We can make sure that artificial intelligence (AI) technologies are effectively used to improve teaching and learning experiences by providing educators with the required training. This preparation enables teachers to adapt to the evolving educational landscape, promote digital citizenship, fosters critical thinking, and empower students to thrive in an AI- driven world. Furthermore, it helps address the digital divide by ensuring equitable access to AI –enhanced educational opportunities for all students, ultimately contributing to the advancement of society as a whole.

The connection between Artificial Intelligence and Digital Literacy

Unquestionably, the necessity of comprehending digital literacies and their practical applications has expanded due to the global, dynamic digital change. Digital literacy has been classified as a life skill, but its exact definition has not yet been agreed upon by academics and library professionals. The phrase has earned a rightful place in the list of skills that schools should teach their children, right up there with civil literacy, environmental literacy, and reading and writing. Its scope is fluid and ever-expanding, and several professional and academic groups have focused on it. Digital competence as the "set of user skills that enable active participation in a society where services and cultural offerings are computer-supported and distributed on the internet," "user and technical computing skills," and "ability to locate, identify, retrieve, process and use digital information optimally." Digital skills are, in essence, the culmination of

technological (previously computer) literacy, information literacy, and ICT literacies (UNESCO, 2011).UNESCO (2018) created a Global Framework to Measure Digital Literacy, which is based on the following pillars: information and data literacy, communication and cooperation, digital content production, safety, problem-solving, and career-related competence. Furthermore, the European Commission (2016) released the European Digital Competence Framework 2.0, which included this framework as part of the European Digital Agenda. Governmental organizations also develop frameworks for digital literacy, which they use to guide policy decisions.The JISC (2018), UK-designed Digital Capability Framework is centered on ICT proficiency and includes four satellite components: digital learning and development; digital communication, collaboration and participation; digital creation, problem solving and innovation; and an all-encompassing category consisting of digital identity and well-being. The National Council for Special Education (2022) created the Digital Literacy Framework in Ireland, emphasizing six core competencies: access, manage, integrate, collaborate, create, and communicate. Digital literacy, including rights and responsibilities, social awareness and identity, pooling knowledge, judgment, problem-solving, reflection, synthesizing, safety and security, navigation skills, accessing skills, and opportunities, is examined through the lens of ICT innovation by Canada's Centre for Digital and Media Literacy (2022).It also places a strong emphasis on the following: input/output skills, tools, text skills and competence, research/information fluency, distributed cognition, appropriation, creativity, networking, simulation, decision-making, multitasking, and constructive social action, which includes creation, understanding, use, access, distribution, and distribution. The developing components of these frameworks go beyond ICT usage or technical proficiency and, in part, transform digital literacy into a tool for self-actualization (identification, awareness, critical thinking, involvement, and empowerment) and civic engagement (rights, duties, citizenship, safety).

AI and digital literacy are closely interconnected in several ways:

1. **Understanding AI Tools:** Understanding how to use technology, especially AI tools, efficiently is a requirement for digital literacy. Being digitally literate requires being able to use AI-driven platforms and understand AI-generated apps.

2. **Critical Thinking about AI:** The capacity to assess online content critically is a component of digital literacy. This entails knowing how AI algorithms operate,

identifying biases in AI systems, and differentiating between trustworthy and untrustworthy AI-generated material.

3. **Creating with AI**: The ability to produce and contribute to digital material is a component of digital literacy. This involves being able to use AI-Tools for creative tasks like making music, creating art, or creating AI-driven application.

4. **Adapting to AI –driven Environment:** Being able to adapt to AI-driven environments is a necessary component of digital literacy as AI continues to change numerous industries and workplaces. This could involve learning new skills to work alongside AI technology, getting to know how to communicate with AI systems, and using AI tools for professional growth.

In summary, possessing technical proficiency is not the only requirement for being digitally literate in the AI era; critical thinking skills, ethical consciousness, and flexibility in AI-driven settings are also necessary.

Impact of Digital literacy education

Digital immigrants and natives make up the two main categories into which we might divide global citizens. Digital natives are people who were born after 1980 and have grown up with technology all around them as a normal part of daily life, (Prensky,2001). Digital natives have a different connection culture than previous generations because they were raised in an era of digital technology and created and shared content online.It is imperative that digital literacy acquisition processes are not left to chance or unmonitored because digital literacy knowledge, skills, and abilities are critical for the future of the people (as well as their countries and the globe). Additionally, as their usage of technology increases, digital natives use it with a higher level of sophistication. Thus, it's critical to start teaching kids about multifaceted digital literacy as early as possible in their digital lives. If learners wait until higher education to prepare them for their professional careers after graduation, it will be too late (Duggan,2013). Parents should model good digital literacy behavior for their children by being aware of the issues and acting. This means that digital literacy education should begin in the home. Public libraries play a critical role in providing older persons with digital skills that are necessary to access current, reliable information.Digital literacy learning will never stop because it is multifaceted and immediately impacted by quickly developing technologies. Parents are not the only people who can fill the role of educator; peers, teachers, professors, classmates, librarians, and coworkers are

just a few examples. Primary school and language teachers ought to encourage their pupils to approach and comprehend digital literacy from a critical and investigative standpoint (Duran &Ozen2018). One of the formal and explicit goals of education at all levels should be digital literacy(Knobel&Lankshear, 2006). In summary, everyone should consider digital literacy as a foundational aspect of their lifetime learning. Additionally, through direct technology connection, digital natives raise their degrees of digital literacy. For example, social media use among students was positively correlated with their degree of digital literacy (Seckin-Kapucu et al., 2021). Students are more aware of and make greater use of the educational features of websites and social media, particularly YouTube, in today's evolving environment. In a similar vein, adults' work styles have changed as they've moved into remote or online work environments. In these settings, they must quickly pick up digital literacy skills like using Zoom or Microsoft Teams to organize meetings and handle numerous other digital tasks that take place in the background. Employees and students alike are now in a position where, rather than increasing gradually as in the past, their digital literacy needs to grow exponentially in order to meet the new difficulties of their personal and professional life. At that point, a lot of individuals believed that the internet—especially YouTube and social media—was their magic bullet. As a result, new tools for enhancing digital literacy have emerged from the internet. As such, the useful functions of the internet should be taken into account when creating initiatives for digital literacy.

Conclusion

Preparing teachers for AI integration through digital literacy lies in the transformative potential it holds for education. We can guarantee that AI technologies are efficiently applied to improve teaching and learning experiences by providing educators with the required training and expertise. This preparation enables teachers to adapt to the evolving educational landscape, promote digital citizenship, fosters critical thinking, and empower students to thrive in an AI-driven world. Furthermore, it helps address the digital divide by ensuring equitable access to AI –enhanced educational opportunities for all students, ultimately contributing to the advancement of society as a whole.

References

Bawden, D. (2001). Information and digital literacies: a review of concepts. *Journal of documentation*, *57*(2), 218-259.

Bawden, D. (2008). Origins and concepts of digital literacy. *Digital literacies: Concepts, policies and practices*, *30*(2008), 17-32.

Bawden, D. (2008), "*Origins and concepts of digital literacy*", Digital Literacies: Concepts, Policies and Practices, Vol. 30 No. 2008, pp. 17-32.

Buchholz, B.A., DeHart, J. and Moorman, G. (2020), "*Digital citizenship during a global pandemic: moving beyond digital literacy*", Journal of Adolescent & Adult Literacy, Vol. 64 No. 1, pp. 11-17.

Canada's Centre for Digital and Media Literacy (2022), "*Digital literacy fundamentals*", available at: https://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacy-fundamentals/digital-literacy-fundamentals

Delacruz, S. (2019), "*Building digital literacy bridges: connecting cultures and promoting global citizenship in elementary classrooms through school-based virtual field trips*", TechTrends, Vol. 63 No. 4, pp. 428-439.

DQ Institute (2021), "*World's first global standard for digital literacy, skills and readiness launched by the coalition for digital intelligence*", Global Standards for Digital Intelligence, available at: www.dqinstitute.org/2021/12/10/worlds-first-global-standard-for-digital-literacy-skills-and-readiness-launched-by-the-coalition-for-digital-intelligence/

Duggan, F. (2013), "*Why universities should acquire – and teach – digital literacy*", The Guardian, available at: www.theguardian.com/education/2013/apr/23/universities-should-teach-digital-literacy

Duran, E. and Ozen, N.E. (2018), "*Digital literacy in Turkish lessons*", Journal of Education Turkey, Vol. 3 No. 2, pp. 31-46, Retrieved from: https://dergipark.org.tr/en/download/article-file/604621

Edith Cowan University (2022), "*Digital literacy framework*", available at: http://www.ecu.edu.au/centres/library-services/teaching-support/digital-literacy-framework

Eshet-Alkalai, Y. and Chajut, E. (2009), "*Changes over time in digital literacy*", CyberPsychology & Behavior, Vol. 12 No. 6, pp. 713-715.

European Commission (2016), "*DigComp 2.0.: The digital competence framework for citizens: The conceptual reference model*", available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC101254

Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. *Educational Technology Research and Development*, *68*, 2449-2472.

Francesc, P. Miguel, S. Axel, R. and Paula, V. (2019), "*Artificial intelligence in education: challenges and opportunities for sustainable development*", UNESCO Education Sector, available at: http://repositorio.minedu.gob.pe/handle/20.500.12799/6533

Freire, P. and Macedo, D. (2005), Literacy: Reading the Word and the World, Routledge.

Howard, P.N., Agarwal, S.D. and Hussain, M.M. (2011), "*When do states disconnect their digital networks? Regime responses to the political uses of social media*", The Communication Review, Vol. 14 No. 3, pp. 216-232, doi: 10.26803/ijlter.19.7.4.

JISC (2018), "*Building digital capabilities: The six elements defined*", available at: https://repository.jisc.ac.uk/6611/1/JFL0066F_DIGIGAP_MOD_IND_FRAME.PDF

Karaboga, M.T. (2019), "*Parent education in digital media literacy*", International Journal of Society Researches, Vol. 14 No. 20, pp. 2040-2073, doi: 10.26466/opus.601942.

Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in teaching and learning in information and computer sciences*, *5*(4), 249-267.

Pangrazio, L., Godhe, A. L., & Ledesma, A. G. L. (2020). What is digital literacy? A comparative review of publications across three language contexts. *E-learning and Digital Media*, *17*(6), 442-459.

Prihatin, Y. (2022). STUDENTS'PERSPECTIVE ON FOREIGN TEACHER'S ONLINE TEACHING SKILLS IN INTERCULTURAL COMMUNICATION CLASS. *Indonesian EFL Journal*, *8*(1), 83-90.

Winfield, A. F., Michael, K., Pitt, J., & Evers, V. (2019). Machine ethics: The design and governance of ethical AI and autonomous systems [scanning the issue]. *Proceedings of the IEEE*, *107*(3), 509-517.