THE BUTTERFLY EFFECT IN LEARNING: SOCIOCULTURAL PERSPECTIVE OF PRACTICING ARTIFICIAL INTELLIGENCE

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ABSTRACT

The essence of the learning environment is rooted in human-centered design and methodologies. Such an environment encourages participatory decision-making processes to support learners and their development. Given that the objective of education is to cultivate human potential and translate acquired skills into real-life experiences, assessment emerges as a crucial component of the learning process. This study sheds a light on social cultural perspective while practicing Artificial Intelligence in learning teaching process. Self- reflection tasks and literature review were conducted to put emphasis on key terms and future direction for the quality of education.

Key words: artificial intelligence, butterfly effect, learning, social cultural perspective, teaching.

INTRODUCTION

People are the most important element in the digital transition. Academic staff, administrative and technical staff and learners alike must be empowered to co-create institutional policies and structures. Investing in professional development and training programmes will equip people with a broader understanding of the social impact of digitalization, allowing them to apply their skills and competences to drive positive change at institutional level and play a role in the wider transformation. Universities become an engines of societal change. Universities will provide an open, transformative space for common knowledge production through research, education, innovation and culture. Universities are characterized by being cooperative and networked institutions locally, nationally and internationally. Building bridges between countries, cultures and sectors (Thomas, et al, 2023; Deroncele-Acosta, et al, 2023).

The Digital Education Action Plan;

- offers a long-term strategic vision for high-quality, inclusive and accessible European digital education
- addresses the challenges and opportunities of the COVID-19 pandemic, which has led to the unprecedented use of technology for education and training purposes
- seeks stronger cooperation at the EU level on digital education and underscores the importance of working together across sectors to bring education into the digital age

- presents opportunities, including improved quality and quantity of teaching concerning digital technologies, support for the digitalization of teaching methods and pedagogies and the provision of infrastructure required for inclusive and resilient remote learning

In order to achieve for fostering the development of a high-performing digital education ecosystem. Following actions need to be considered

- Action 1: Strategic Dialogue with Member States on the enabling factors for successful digital education
- Action 2: Council Recommendation on blended learning approaches for high-quality and inclusive primary and secondary education
- Action 3: European Digital Education Content Framework
- Action 4: Connectivity and digital equipment for education
- Action 5: Digital transformation plans for education and training institutions
- Action 6: Artificial intelligence and data usage in education and training. Enhancing digital skills and competences for the digital transformation
- Action 7: Common guidelines for teachers and educators to foster digital literacy and tackle disinformation through education and training
- Action 8: Update the European Digital Competence Framework to include AI and data-related skills
- Action 9: European Digital Skills Certificate (EDSC)
- Action 10: Council recommendation on improving the provision of digital skills in education and training
- Action 11: Cross-national collection of data on student digital skills and introduce an EU target for student digital competence
- Action 12: Digital Opportunity Traineeships
- Action 13: Women's participation in STEM
- Digital Education Hub -strengthening cooperation and exchange in digital education

To develop innovative platforms utilizing Artificial Intelligence (AI) in educational processes, it is imperative that these processes introduce new paradigms and learning cultures aligned with the diverse expectations and needs of learners. The digital transformation necessitates the incorporation of AI (Ayoko, 2021) into higher education practices to foster differentiation in teaching and learning methodologies (Tapalova & Zhiyenbayeva, 2022), thereby serving as a strategic approach to securing a competitive edge. Learner-centered education, which addresses learners' expectations and enhances the acquisition of transferable skills, constitutes a quality metric that gauges the success of higher education institutions. In this context, the integration of AI policies into intelligent learning environments is essential. This endeavor requires the involvement of creative leaders and motivated intellectuals and must be undertaken in consideration of existing institutional policies and strategic planning. Effective implementation of AI policies mandates a focus on human-centered approaches, accessibility, and the utilization of learning analytics (Alfredo et al., 2024).

The primary objective of adopting new approaches in teaching and learning is to generate novel theories and frameworks that conceptualize instruction, learning design processes, and educational reform. AI plays a pivotal role in actualizing this reform in practice. An emergent method in education emphasizes learning through assessment (Dann, 2014). Transitioning from theoretical descriptions to practical applications is crucial for fostering generic and life skills, thereby enhancing learners' life and work experiences. Consequently, AI interventions must be implemented in naturalistic settings, emphasizing human-computer interaction and skill development.

Generative AI facilitates deep learning (Baidoo-Anu & Ansah, 2023) within a social learning environment, which should capture dialogues and disclosures. Well-designed learning platforms provide self-learning spaces with initial orientation and ongoing assessment measures, integrating evaluation as a fundamental component of the learning process. As learners engage and become motivated, socialization with peers bridges cultural, social, and learning environments, facilitating information exchange and knowledge construction. Feedback from tutors and peers supports the iterative reconstruction of knowledge. Thus, active engagement, micro-learning support, evidence-based reasoning, intellectual capacity building, and AI literacy training for both tutors and learners are essential for achieving optimal learning outcomes.

METHODS

The socio-cultural perspective of learning underscores the importance of considering learners' expectations and needs, where learning is situated and the diversity of participation and interaction is measured throughout the active learning process (Yuan, 2024). Creating interactive learning environments that incorporate measures of interaction, group dynamics, and peer projects is critical for the successful assessment of AI practices. Collaborative activities involving heterogeneous groups- characterized by coordination, cooperation, and collaboration—foster self-learning responsibility, ethics, and peer support during process evaluation and assessment.

This research has qualitative nature which also covers action research study through self reflection analysis and literature review analysis of key terms for examining importance of AI in learning, teaching by putting emphasis of socio-cultural perspective of learning. Interpretations, experiences and reflection in on action provide emic understanding within the scope of qualitative research. Furthermore, sense of practical change in learning and teaching process, digitalization on gaining experiences about life skills justify how this study is related to action research process..

Butterfly effects reflects the nature of Artificial Intelligence that shapes the future of societies and education. One attempt of the artificial intelligence pushes different factors such as human power, technological improvements and ethical values. In this respect, transformational learning is occurred and it gives continuous development for the quality in education.

CONCLUSION AND DISCUSSION

Tutors play vital roles in fostering learners’ generic skills by delegating, mentoring, sharing, creating peer learning synergy, promoting self-evaluation opportunities, providing feedback, and facilitating development through portfolios, collaborative projects, and digital storytelling. This new approach encourages learners to become critical peers, enhancing their abilities in teamwork, ethical decision-making, data analysis, and learning motivation, which in turn strengthens the learning community's critical thinking capacity. Continuous evaluation and measurement within learning communities, based on ethical considerations and digital skills, can significantly enhance learner skill development, with each peer and AI functioning as integral components of the learning context.

Teaching perspective; there is a need for an AI literacy plan to train teachers in technical skills and ethical–philosophical debates. This implies that AI will change the role of the teacher, with the expectation that it will take over most of the knowledge-based teaching and assessment, enabling teachers to focus on the social aspects of education. Finally, we should assume that AI could support teaching in various ways: open educational resources, content recommendation (Manrique-Losada et al., 2020), student emotion detection, intelligent tutoring systems, AI-driven teaching assistants, automatic grading of exams, and automatic monitoring of forums

Research Perspective; it is essential to deepen research in AI and education, developing AI systems that help teachers and improve teaching with responsible, ethical, and equitable AI.

Student perspective; project-based learning, flexible learning, collaborative learning, and self-regulated learning, thus improving overall educational quality. Students will have to develop a new range of digital competences around issues such as information processing, computational thinking, and digital learning.

In summary, the continuous evaluation process for learning must encompass needs analysis, active learning environments, consideration of the learning community's voices and experiences, and the promotion of sustainable and participative decision-making through collaborative projects grounded in socio-cultural perspectives (Menter, 2024). Utilizing AI tools to support learners with disabilities enriches their educational experiences, promotes social inclusion, and enhances their learning outcomes. Recent studies emphasize the role of AI in advancing the art of living and learning for individuals with disabilities, highlighting its human-centric approach (Cuesta-Claros, et al, 2023). Observing and measuring social life skills and adapting them to life experiences serve as indicators of how AI, through a well-planned and sustainable process, can provide inclusive learning opportunities for all.

REFERENCES

Ayoko, O. B. (2021). Digital transformation, robotics, artificial intelligence, and innovation. *Journal of Management & Organization, 27*(5), 831-835.

Alfredo, R., Echeverria, V., Jin, Y., Yan, L., Swiecki, Z., Gašević, D., & Martinez-Maldonado, R. (2024). Human-centred learning analytics and AI in education: A systematic literature review. *Computers and Education: Artificial Intelligence*, 100215.

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI, 7*(1), 52-62.

Cuesta-Claros, A., Malekpour, S., Raven, R., & Kestin, T. (2023). Are the sustainable development goals transforming universities?–An analysis of steering effects and depth of change. *Earth System Governance, 17*, 100186.

Dann, R. (2014). Assessment as learning: Blurring the boundaries of assessment and learning for theory, policy and practice. Assessment in Education: *Principles, Policy & Practice, 21*(2), 149-166.

Deroncele-Acosta, A., Palacios-Núñez, M. L., & Toribio-López, A. (2023). Digital transformation and technological innovation on higher education post-COVID-19. *Sustainability, 15*(3), 2466.

Flores-Vivar, J. M., & García-Peñalvo, F. J. (2023). Reflections on the ethics, potential, and challenges of artificial intelligence in the framework of quality education (SDG4). *Comunicar, 31*(74), 37-47.

Menter, M. (2024). From technological to social innovation: Toward a mission-reorientation of entrepreneurial universities. *The Journal of Technology Transfer, 49*(1), 104-118.

Tapalova, O., & Zhiyenbayeva, N. (2022). Artificial intelligence in education: AIEd for personalised learning pathways*. Electronic Journal of e-Learning, 20*(5), 639-653.

Thomas, E., Pugh, R., Soetanto, D., & Jack, S. L. (2023). Beyond ambidexterity: universities and their changing roles in driving regional development in challenging times. *The Journal of Technology Transfer, 48*(6), 2054-2073.

Yuan, R. (2023). The other side of the coin: A socio-cultural analysis of pre-service language teachers' learning to teach critical thinking. *Thinking Skills and Creativity, 48*, 101265.

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