Word of guest editors

The need to acquire knowledge has never been more evident and important than it is now, at the beginning of the twenty-first century. The vast number of scientific findings, job complexity, increased life expectancy, highly developed information and communication technologies, and the use of artificial intelligence in a broader range of situations prompt a more intensive acquisition of information and knowledge, together with their thorough selection and rigorous analysis. The necessity of lifelong education and learning has been driven by the challenges in work, health, legislation, politics, family, economy, ecology, and leisure contexts, which are deeply woven into the complex web of contemporary life. Therefore, it is not surprising that the boundaries of contemporary social sciences, especially those that study lifelong education and learning, as well as adult education and learning, are dissolving and becoming porous and changeable, creating space for very complex and sophisticated interpretations.

Lifelong education and learning, as well as adult education and learning, are activities that are deeply and intensely interconnected, according to findings from a range of scientific approaches. These activities have three important aspects/dimensions: temporal (vertical), spatial (horizontal), and integrative (depth). Key issues related to lifelong education and learning and adult education and learning that have received important research attention during the last two decades are:

- Understanding, conceptualization, methodological and theoretical foundations used by researchers in lifelong education and learning and adult education and learning provide an insight into some of the distinctive aspects of these fields.

- Explanation and terminological differentiation of the terms *lifelong education and learning*, and *adult education and learning*, as well as their relationship to ontological and epistemological positions of researchers.

- Relying on traditional scientific disciplines and practices, particularly regarding different approaches, inclusivity, and the relevance of learning and education in different contexts,

- Policies and development of policies for adult education and learning and lifelong education and learning.

- Development of innovative programs and approaches for lifelong education and learning and adult education and learning activities.

- The COVID-19 pandemic, changes in the domain of ecology and sustainable development, the application of information and communication technology, and artificial intelligence, among other factors, have conditioned a variety of research challenges in the field of adult and lifelong learning and education.

This thematic issue of the journal *Teaching Innovations* reflects current trends and emphasizes a holistic approach to the examination of lifelong learning and education. By situating lifelong learning and education in a variety of contexts (theoretical, disciplinary, empirical, geographical, cultural, etc.), the authors offer a fresh, contemporary perspective while creating opportunities for further reflection and research.

Mikulec's "Theoretical Models and Concepts of Lifelong Learning" paper is a critical analysis of the existing models from historical, political, economic, and humanistic points of view, pointing to multidimensional aspects of lifelong learning, especially economic, personal, and democratic ones. Using these dimensions and other models as a basis for determining the holistic model, Mikulec identifies three key characteristics of lifelong learning: a focus on learning, its lifelong nature, and encompassing various aspects of life. In a conceptual paper "Expertise in the Workplace: A Lifelong Pursuit of Eminence in Professional Practice," Martinez and colleagues present principles for achieving professional eminence in work environments by merging literature from psychology, adult education, and neuroscience. They emphasize that the path to eminence in a particular field is lifelong and marked by a combination of an ability to overcome adversity (resilience and perseverance), extensive and deliberate practice, development of psycho-social skills, and a certain amount of innate talent. Martinez and colleagues particularly highlight that, with unwavering persistence and belief in their ability to learn and progress, along with mentorship support and constant direction and practice, individuals can become eminent agents of change who transform their fields and set new standards of excellence.

In a research paper on instructional design, especially andragogical interventions related to workplace lifelong learning, Rojas-Alfaro used informal interviews as a qualitative data collection approach. The study uses auto-ethnographic reflection to show how informal interviews reveal true complexities of language use and communication in a workplace which formal interviews could miss, since they rely on participants' retrospective reflection. Informal interviews offer in-depth, authentic insights about learning possibilities, communication difficulties, and innovative work practices. They provide deeper data for developing more successful andragogical interventions linked to lifelong learning in the workplace and supplement formal interviews. In a scoping review paper about the nature of generative artificial intelligence effects on lifelong learning, and to an extent about AI automation and augmentation, Pokimica and Sinkovich shed light on some of the most important ideas about lifelong learning and AI/GAI as of recently. They point out the directions of current debates and contestations about these ideas, with a focus on higher education and workplace settings. Pokimica and Sinkovich organized their findings by three distinct themes: 1) digitalization and technological transformation of lifelong learning; 2) self-directed learning, generative artificial intelligence ChatGPT, and global contexts; and 3) human development and digital access to lifelong learning. Apart from a wide range of positive effects of artificial intelligence, Pokimica and Sinkovic signal the importance of including social and humanistic theoretical frameworks in addition to techno-structural and economic ones that are more present in the literature, as well as testing them in future empirical studies.

The study by Ovesni and associates examines lifelong learning as a research topic in European journals through three research questions related to its prevalence, research subjects in articles related to lifelong learning and education, and types of research. The authors performed a systematic literature review to address these questions. 326 texts, spread throughout 125 European journals, were included in the analysis. European journals published the articles between 2019 and 2024. According to the findings, a considerable amount of research focuses on subjects related to lifelong learning policies; the majority of the articles are theoretical, and authors from Europe and the US most frequently address the topic of lifelong learning in European journals. Milošević and Živojinović sought to examine fatherhood as a catalyst for the need for lifelong learning and

how fatherhood induces personal development plans of fathers. Their research relies on the recognition that, within the social sciences, fatherhood has been a neglected phenomenon until recently. Nonetheless, the concept of lifelong learning and education has created opportunities for different interpretations. Milošević and Živojinović conducted qualitative research to investigate the transformations fatherhood induces in the personal development of fathers, specifically on the potential sources of lifelong learning needs.

Nikolić and colleagues' research addresses diverse viewpoints and opportunities presented by the digital environment for lifelong education. They argue that digital platforms, resources, and tools enable flexibility, accessibility, and personalized learning, thus enhancing individual growth and professional adaptability. Conversely, obstacles remain, including digital (il)literacy, utilization of digital tools, and issues with creating environments conducive to lifelong digital learning. The authors argue that, notwithstanding these obstacles, the digital environment serves as an important platform for empowering both individuals and communities in the context of global changes and social progress. Jovanović and Krasulja's research emphasizes integration of lifelong learning ideas into talent acquisition teams within Human Resource departments, ensuring that staff stay informed of ongoing technology advancements. The research employs a case study methodological design to examine challenges including absence of standardization, increased expenses, and inefficiencies in hiring processes. The study proposes innovative educational strategies, such as self-regulated learning and incorporation of new technologies, to foster workforce development that is both sustainable and adaptable.

Gojak and Mišović start with an understanding that lifelong education for individuals with disabilities can represent a strategy for improving their quality of life and social status, as well as support their autonomous living. With the aim of involving students with disabilities in the process of creating knowledge related to their university education and identifying important aspects of their experiences with the university, the authors conducted a qualitative research study. They formulated recommendations for enhancing the quality of university education for students with disabilities as an important aspect of their lifelong education. In a paper on ecological awareness through project-based learning based on Natural and Social Sciences curricula in primary schools in Dhaka (Bangladesh), Hamid applied qualitative analysis to explore how project-based learning promoted lifelong learning among teachers and ecological awareness among students. Project-based learning was examined in relation to students' awareness of air, water, soil pollution, and noise. Through teacher development and student engagement, this study demonstrated that project-based learning could create a more engaged and adaptable environment for educational growth and lifelong learning.

The ten articles that are included in this thematic issue of *Teaching Innovations* are just the tip of the iceberg of a substantial number of topics covered under the umbrella of lifelong learning and education. The concept, which aims to create a better society where people are empowered to influence their own future, is strengthened in these articles and discussed with additional clarity through critical and conceptual approaches and engagement with various problems related to lifelong learning and education, which we have the opportunity to read about in this thematic issue.

Guest editors
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