

**CONTEMPORARY ISSUES AND INNOVATIONS IN  
EDUCATIONAL SCIENCES**

**Editor**

Prof. Dr. Adem BAYAR



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## FOREWORD

The rapid evolution of artificial intelligence (AI) and advanced technologies is no longer a distant projection of the future; it is the defining catalyst of contemporary educational transformation. As digital tools transition from mere calculative aids to active participants in the learning ecosystem, educators, policymakers, and researchers face a profound paradigm shift. This book brings together a curated collection of scholarly works that critically examine how AI and assistive technologies are reshaping the educational landscape—from policy rooms to early childhood classrooms.

A core strength of this book lies in its chronological and structural breadth. To understand where education is heading, we must first examine the roots of our current technological reality. The chapters herein meticulously trace the historical development of artificial intelligence and the transformation of human–computer interaction (HCI) in education, offering readers a foundational lens through which to view modern advancements. This historical perspective is beautifully mirrored in specific domains, such as language acquisition, by exploring how artificial intelligence and second language learning have evolved from early computer-assisted methodologies into deeply interactive, future-oriented digital dialogues.

However, technology does not operate in a vacuum; its implementation is strictly governed by systemic frameworks. This volume addresses the critical macro-level structures through a comparative document analysis of UNESCO’s guidance and Türkiye’s national policy documents, shedding light on how international benchmarks align with local strategies to shape AI integration in education policy. Moving from macro-policy to institutional governance, the text introduces a symbiotic paradigm for school leadership, illustrating how principals and administrators can harmoniously leverage AI to enhance decision-making and operational efficacy without losing the human touch.

The transformative potential of technology is perhaps most vital where foundational development occurs. To that end, this book highlights innovative pedagogies by investigating how AI can be harnessed for transformative early childhood education. Extending this inclusivity, it establishes a robust conceptual framework for the pedagogical integration of assistive technology in early childhood special education, ensuring that the digital revolution serves

as a tool for equity, accessibility, and personalized support for our most vulnerable learners.

Ultimately, the sustainability of these innovations rests upon the shoulders of the next generation of educators. The volume concludes by looking forward through the eyes of tomorrow's teachers, analyzing the predictions of pre-service teachers on future socioscientific issues. By examining their outlook on artificial intelligence, robotics, and global warming, we gain invaluable insights into the anxieties, hopes, and readiness of those who will guide future generations through an increasingly complex world.

We extend our deepest gratitude to the contributors who have lent their expertise, empirical research, and conceptual insights to this volume. It is our sincere hope that this book serves as a vital resource, an inspiration for innovative pedagogy, and a guide for thoughtful policy development as we collectively navigate the symbiotic future of humanity, technology, and education.

**Prof. Dr. Adam BAYAR**

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