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The What PreK-12 Teachers Should Know About Educational Technology in 2023: A Research–to–Practice Anthology (2023)
Ferdig, R. E., Hartshorne, R., Baumgartner, E., Kaplan-Rakowski, R., & Mouza, C. (Eds.)
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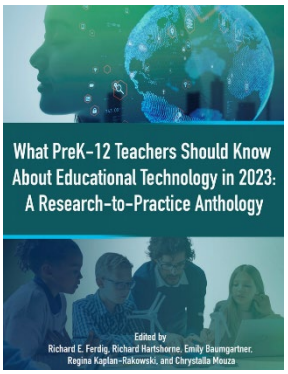

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What PreK-12 Teachers Should Know About Educational Technology in 2023: A Research–to–Practice Anthology is an open-access eBook published by the Association for the Advancement of Computing in Education. The editors—Richard E. Ferdig, Richard Hartshorne, Emily Baumgartner, Regina Kaplan-Rakowski, and Chrystalla Mouza—assert that despite the publication of special issues, practitioner journals, and technological initiatives, the research-practice gap persists. This challenge underscores the need for educational technology scholars to provide actionable, evidence-based strategies across diverse learning contexts, with this need further amplified in the post-COVID-19 era.

In response, the editors sought concise educational technology chapters (~2000 words, excluding abstract, references, tables, figures, and appendices) co-authored by faculty, preservice teachers, and/or preK–12 school faculty and administrators. The focus was on helping practitioners translate research into observable actions, with no specific agenda for topics beyond the general requirement that submissions address educational technology relevant to preK–12 educators. The call invited practice-focused contributions on emerging technologies and pedagogical innovations, requiring authors to translate research findings into actionable implications for educators. Topics included Artificial Intelligence (AI), extended reality (XR), data analytics, and other tools shaping contemporary education. Authors were instructed to follow a structured format: an abstract with practical recommendations, an introduction providing context, a research review in accessible terms, and an implications section outlining actionable strategies. References and appendices were included to support the practical application of research for teachers.

The eBook is organized into six sections: Accessibility and Inclusion; Artificial Intelligence; Content Area Foci; Gaming, Extended Realities, and Robotics; Social Emotional Development and Interactive Learning; and K-12 Online and Blended Learning. Across 452 pages, more than 90 authors contribute 45 articles addressing the persistent gap between educational research and classroom practice, particularly regarding technology use in PreK–12 settings. Together, they offer empirical findings and actionable recommendations designed to positively impact preK–12 education in the long term. This focus on practical application ensures the book remains highly relevant to educators navigating emerging tools and pedagogies.

Section 1—Accessibility and Inclusion: This section examines key issues surrounding accessibility and inclusion in educational technology. The contributors consider how Universal Design for Learning principles and assistive technologies can address the needs of students with disabilities. Several articles propose adjustments to teaching practices that improve the accessibility of digital tools and environments for all learners. Others focus on broadening participation in STEM, with an emphasis on engaging girls from an early age and incorporating hands-on, project-based learning experiences. The section also addresses the challenges immigrant students face and proposes digital tools, such as escape room games, to promote cultural understanding and inclusive classroom communities. Together, these contributions offer practical approaches for designing more equitable, technology-enhanced learning environments.

Section 2—Artificial Intelligence: This section explores the rapid integration of AI into PreK–12 education, especially following the release of ChatGPT. The collection examines practical applications and emerging challenges, covering topics such as AI-assisted lesson planning, image generation, chatbot development, and writing support. Several articles investigate how AI tools can improve writing outcomes for struggling writers and language learners, while also considering risks related to over-reliance and data privacy. The discussion extends to AI-detection technologies and their implications for student assessment. Collectively, these studies provide a broad view of how generative AI is reshaping educational practice and influencing classroom decision-making.

Section 3—Content Area Foci: This section presents strategies for integrating technology into content-specific instruction in areas such as mathematics, literacy, and the visual arts. Early contributions examine how tools like Desmos, GeoGebra, podcasting platforms, and digital writing applications can support active learning, literacy growth, and creative expression. Subsequent articles discuss the potential of technology to move instruction beyond conventional approaches while addressing concerns related to equity, student agency, and culturally responsive teaching. One contribution considers how digital tools can support instruction in idiomatic and figurative language, expanding the boundaries of literacy education. The section closes with an argument for combining traditional, tactile materials like clay and ceramics with digital design processes in art education.

Section 4—Gaming, Extended Realities, and Robotics: This section investigates how emerging technologies such as digital games, virtual and augmented reality, and robotics are influencing contemporary education. The articles offer both pedagogical possibilities and limitations of these tools. Several studies demonstrate how students engage with mathematical concepts, including linear functions, through motion simulators and digital games, which also help develop soft skills such as collaboration and problem-solving. Other contributions examine how educational games like Minecraft promote creative, learner-centered environments. Additional studies focus on the role of augmented reality in teacher preparation and describe low-cost, interactive tools designed for early childhood education. The section emphasizes the value of hands-on, collaborative activities in technology-enhanced classrooms.

Section 5—Social Emotional Development and Interactive Learning: This section addresses the growing importance of social, emotional, and mental health support for K–12 learners, particularly in the wake of the COVID-19 pandemic. The contributors identify a need for resources that attend to student well-being while acknowledging gaps in research regarding technology's effectiveness in this area. Several articles examine different forms of student anxiety and explore ways educators can use digital tools to respond to these challenges. Others focus on fostering positive relationships between students and teachers, providing support for children

affected by serious illness, and capturing teachers' perceptions of technology's influence on emotional well-being. The section also considers teacher professional development and decision-making, emphasizing the importance of equipping educators to thoughtfully implement interactive, technology-enhanced strategies.

Section 6—K–12 Online and Blended Learning: This section examines online and blended learning environments within K–12 education, with a focus on research that emerged after COVID-19. The articles investigate how advanced technologies such as 3D printing and circuit-based projects can create effective math manipulatives for both in-person and remote learners. Some contributions offer lesson plan templates to help teachers and parents adopt similar tools. Others address the growing demand for educator preparedness in delivering online and blended instruction, providing practical strategies, resources, and guidance for integrating advanced technologies into diverse instructional settings. The section concludes by drawing on cognitive science and online learning research to outline evidence-based practices for effective technology integration across face-to-face and virtual classrooms.

All in all, *What PreK-12 Teachers Should Know About Educational Technology in 2023* explores how technology transforms K–12 education. It covers topics such as accessibility, AI, content-area instruction, and online learning, while examining the impact of gaming, robotics, and technology on social-emotional development, and offering practical strategies for educators. The open-access eBook serves as a valuable resource that helps educators integrate technology effectively in classrooms, especially as schools adapt to its use post-COVID-19. Its ~2000-word chapters ensure that content is clear and actionable, while the inclusion of multiple authors brings diverse perspectives, bridging the gap between educational research and practice. However, the book's broad scope occasionally leads to some redundancy, which may feel repetitive to some readers, and educators with specific expertise or limited experience with advanced technologies may find certain sections less relevant. In their next call for papers, the editors could encourage more focused themes to reduce redundancy, narrow chapter scopes, and include case studies tied to specific subject areas or technologies, while incorporating both theoretical and practical perspectives to engage both researchers and educators.

In closing, the book's practical strategies, diverse perspectives, and timely attention to post-COVID-19 challenges position it as an invaluable resource for modern teaching and research in educational technology. We strongly recommend this open-access eBook to general and language educators, pre- and in-service teachers, graduate students, and both emerging and seasoned researchers invested in the evolving digital landscape of education. Future editions would benefit from refining thematic focus and enhancing cohesion across chapters to further strengthen its contribution to scholarship and classroom practice alike. As digital technologies and AI in particular are certain to continue to reshape education, resources like this eBook will most assuredly remain essential in guiding thoughtful, effective practice in the classroom and beyond.

References

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