



Enhancing Digital Teaching: Active Learning and Generative Artificial Intelligence

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Strategic Partnership acting within the Erasmus Plus Programme.

First Published: 2025 in eBook format, 182pp.

ISBN: 978-989-566-539-6

The EmpowerDigiTeach project has been funded with support from the European Commission. The content of this publication reflects the views only of the authors and editors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



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Preface

We are living in an era marked by unprecedented technological transformation, which permeates all areas of life in society, from work to communication, from health to culture, and, inevitably, to education. The omnipresence of digital technologies is reshaping not only what we teach, but also how we teach and how students learn, think, and interact with knowledge. It is no longer just a matter of using computers or digital platforms to support teaching activities, but of reimagining the entire educational ecosystem in light of new possibilities offered by tools such as generative artificial intelligence, augmented reality, 3D modelling, or immersive environments.

In this context of a paradigmatic shift, the book *Enhancing Digital Teaching: Active Learning and Generative Artificial Intelligence* brings together a diverse set of pedagogical practices, innovative projects, and research studies that concretely and substantively demonstrate how it is possible to transform traditional teaching into a more active, meaningful, and student-centered experience. The focus is on strategies that promote student engagement, creativity, and critical thinking, while also equipping educators with new skills to face the challenges of the digital age.

Through the intentional and critical integration of emerging technologies — with a special emphasis on generative artificial intelligence — the book outlines paths toward a more inclusive, personalized, and adaptive education. AI is no longer seen as a mere technical tool but as a partner in the construction of knowledge, facilitating the design of differentiated learning experiences, equitable access to information, and the appreciation of the multiple expressions of human intelligence.

Organized into three interconnected parts, the book traces an arc of pedagogical transformation.

Part I – Empowering Educators: Rethinking Pedagogies in the Digital Age invites us to reflect on the role of the teacher as a designer of meaningful learning experiences, using practices such as digital storytelling with AI, 3D modelling in STEAM education, immersive virtual exhibitions, and gamified approaches to literature. It also addresses the importance of creating accessible and inclusive digital content, pointing out trends and good practices.

Part II – Empowering Educators: Innovating Teaching with Artificial Intelligence focuses on the potential of AI in lesson planning and teaching support. Tools and models that strengthen teachers' skills are presented, such as the application of AI within the SAMR model, the use of chatbots in the classroom, and future teachers' perceptions of AI as a writing assistant. This section seeks to show that artificial intelligence, when well understood

and ethically integrated, can be a powerful ally in personalizing teaching and managing educational complexity.

Part III – Empowering Educators: Inclusive Intelligence for Equity, Creativity and Assessment concludes the volume with proposals that show how AI can contribute to a more inclusive education, centered on the development of critical thinking and formative assessment of creativity. Highlights include the use of chatbots in teaching mathematics, the promotion of creative skills in deaf students through generative AI, and the use of adaptive comparative judgments as a fair and effective assessment strategy.

This book is the result of collaborative work among researchers, teachers, and experts in digital education. Throughout its chapters, the work offers a comprehensive and practical view of the transformative potential of digital technologies, from the design of accessible content to the development of innovative pedagogical models using AI.

Thus, this book serves as a resource for all education professionals who not only wish to keep up with change but also aim to be protagonists of an educational transformation that prepares students to live, learn, and create in an increasingly digital and interconnected world.



This book brings together a collection of innovative practices developed as part of the European project Empower Digi Teach, which aims to strengthen teachers' digital competences through the design of active learning resources and the pedagogical integration of generative artificial intelligence. The chapters explore diverse topics such as 3D modelling, gamification, digital storytelling, accessibility, inclusion, and creativity assessment—offering practical examples of how to transform teaching in the digital age.

A must-read for teachers seeking to integrate technology and innovation with purpose and impact.