


Chapter 12

Digital Technologies for Project-Based Learning in Distance Education: Developing Students' Critical Thinking and Collaboration Skills

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ABSTRACT

The advent of new technologies and their integration into educational settings have carried a great promise to transform teaching and learning, to foster creativity, to advance critical thinking, and to democratize knowledge . However, education faces the deadlock of the conventional and inflexible model of traditional education. Project-Based Learning (PBL) is an extended task which usually integrates language skills through a number of activities in working towards an agreed goal. This model engages students through the act of inquiry and promotes the development of critical thinking skills. Online educational platforms and programs allow students to communicate, enhance their autonomy, self-management, critical thinking, and their ability to shape their own education. This requires the educator's role to become that of a coordinator and advisor and not that of the transmitter of knowledge, moving toward “an era of future education in which teachers and AI technologies work together.

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1. INTRODUCTION

The intensification of migration flows, the spread and diffusion of information and communication technologies, the environmental degradation with its extreme impacts that threaten the health, safety, and prosperity of citizens on a global level, combined with the political and economic crisis, compose a global context full of challenges. In this environment, there is a broad consensus that education has a crucial role to play, not only in the transfer of knowledge and the preparation of future citizens, but mainly in functioning as a counterbalance, bringing about changes that will start in the present and extend into the future (Nikolidakis & Tromara, 2025). Furthermore, the digital transformation of education, together with the evolution of Artificial Intelligence (AI), is bringing significant changes and challenges to the educational sector at an unimaginable speed, transforming the way of learning and teaching. Developing students' skills that can adapt to the future development of society and cope with the complex digital world is now a priority for education at an international level (Zhang & Ma, 2023).

This educational transformation occurs within a new landscape, as the advent of new technologies and their integration into educational settings has carried a great promise to transform teaching and learning, to foster creativity, to advance critical thinking, and to democratize knowledge (Mamlok, 2021; Kosmas et al., 2025; Kosmas & Zaphiris, 2023; Kosmas, Ioannou & Zaphiris, 2019). Technology has become an increasingly pervasive force in the modern world. Most aspects of our lives have undergone a technologising in recent years and the speed of change has been remarkable (Howell & McMaster, 2022). The rapid technological evolution and changes in didactic practices compose the school's new image today. The school curriculum, the teaching, and the school manuals are constantly evolving, shaping a new image in the school reality that includes new technologies. It is essential to clarify that by the term New Technologies, we do not only mean the electronic computer, but also what is related to it. More specifically, we refer to the digital platforms developing ever more rapidly, the social networks, and the specialised software with the simultaneous use of the interactive whiteboard. However, this potential is often constrained by legacy systems. Through this productive struggle, students work to uncover understandings of content as opposed to serving as bystanders while the teacher covers curriculum through lectures, worksheets, and disconnected tasks (Cooper & Murphy, 2016; Tzortzoglou, Kosmas & Avraamidou, 2023). Historically, as a microcosm of society, the school followed the same pattern, marginalising and separating every student who differed from the standards of typical development and was considered abnormal. More specifically, the educational system separated students with special educational needs by placing them in special schools or in special classes of the general school, a practice that appears to create stigmatisation

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