20th November 2024, INTED2025

TEACHING MODULES UTILIZING EMERGING TECHNOLOGIES ACROSS EDUCATIONAL LEVELS AND SECTORS

R. Lamscheck-Nielsen[1], G. Majgaard[2]

[1] Moeve aps (DENMARK)
[2] University of Southern Denmark (DENMARK)

Young learners' educational pathways and career perspectives seem more complex than ever. Even traditional vocational programs or academic studies struggle to align with specific job profiles (Schlögl et al., proceedings 8th BBFK). This is compounded by the emergence of yet unknown professions driven by rapidly emerging technologies such as Generative Artificial Intelligence (AI), the Metaverse, advanced robotics, and quantum computing. While these technologies increasingly dominate various fields of life with an increasingly global impact, educational institutions often face local challenges. They grapple with preventing technological misuse while simultaneously striving to leverage these advancements for the benefit of students and teachers. Here, some notable experiments have focused on using AI applications to enhance students' learning in areas such as foreign languages, graphic design, and calculations.

However, a broader and more effective readiness is necessary to equip schools and teachers locally to meet these technological trends. At the same time, greater coherence across educational levels and sectors is essential to facilitate students' transitions between phases of education and to align educational programs with the needs of new students.

McGrath (CERI, 2023) suggests the concept of “ambition loops” for future teacher professionalism. These loops emphasize collaborative connections within a “broader community of expertise” surrounding teachers and students. In Denmark, the connective principle is referred to as the 'education chain' and is promoted in governmental strategies. Although it has been successfully implemented in some local initiatives and projects, consistent application is rare. When it does occur, it is often vulnerable to disruption from new legislation, changes in management, or financial challenges.

However, joint teaching practices across the education chain have demonstrated value in creating sustainable links and transforming this organizational framework into a genuine 'learning chain.' This approach fosters coherent learning objectives and mutual understanding among educators of each other's didactical and pedagogical approaches.
This paper draws on a selection of well-functioning, well-documented teaching modules involving emerging technologies to propose a method for designing scalable modules that can be applied across the 'education chain.' The impact on students has been assessed through quantitative and qualitative data derived from formative and summative evaluations.

The teaching modules were selected from a total of more than 100 courses implemented during a portfolio of Southern Danish projects since 2017. These projects involved educators from various levels, sectors, and regions collaborating to address the challenges and potentials of emerging technologies. In 2024, the portfolio was expanded to include 'critical friends' from Northern German schools, who contributed additional valuable perspectives. Thus, the collaboration intensified the focus on digital literacy and sustainability, while border-crossing modules were included in the sector-crossing collaboration.

Keywords: Emerging technologies, teaching module, education chain, ecosystem, digital production, digital literacy