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Innovation in Teachers' Education by Research and Practice: The Word to the Teachers

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Abstract

Education plays a key role in human development by being a tool to improve the quality of life and meet basic needs. Among UNESCO's goals for sustainable development, quality education for all plays a central role. There is a wide debate about what skills can empower 21st-century students to achieve these goals. We start with a review of the main frameworks, focused on content, technology and skills (TPCK) and on the development of skills both specific and with a broad spectrum (T-SHAPE). We move on to recall efforts to compare the skills and abilities required by teachers and students as dictated both by the institutional frameworks (intended) with the ones emerging from the opinion of the teachers (enacted) through valid and reliable instruments. We report on teacher workshops inside the Google Computer Science for High School initiative that brings together general and specific skills, and we propose a synthesis that, through an interdisciplinary collaboration, brings together these general and specific skills and promotes the development of Computation Thinking, understood as a set of cognitive tools.

Keywords: technological pedagogical content knowledge, t-shape model, competencies framework, computational thinking, community of practice