

STEAM education approaches and technological innovations to foster creativities in schools in a digital era

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Abstract:

Besides tackling challenges and disruptions caused by digital technologies in schools, there is also a growing emphasis for encouraging creative thinking in education, innovating pedagogies and develop connections among subjects. Activities focusing on creative processes, rather than concentrating on achieving only results for posed problems, are being designed and trialled by innovative groups around the world. In my talk, I will introduce ideas and examples for technological, pedagogical and policy innovations involving STEM to STE-A-M (by the inclusion of Arts in a broader sense of creation and creativities) transitions. These examples will include STEAM research with the Experience Workshop Movement; studies related to GeoGebra and its new developments such as Augmented Reality, 3D Printing, Machine Learning and Mobile experiments; developing students' skills through robotics and connecting digital and physical worlds; and possibilities to detect and nurture creative thinking processes from Big Data. An overview of such studies could offer new insights into developments of creativities, innovations for teaching and learning, and opportunities for nurturing further collaboration in these areas.