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When a Master of Sciences on EdTech becomes an International Community

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Nelson Mandela said, "Education is the most powerful weapon which you can use to change the world." How do we best achieve this? Part of the answer may lie in Smart EdTech, a Master of Science (MSc) program specialising in digital education.

The MSc SmartEdTech program [L1] at Université Côte d'Azur aims to develop a quality approach to digital education with a co-creative and participative education. The program is embedded within a socioeconomic sensibility, specifically related to the [Global Goals of the United Nations in relation to education](#) [L2]. The challenge is to both improve today's education and create tomorrow's education, by means of breakthrough digital pedagogies.

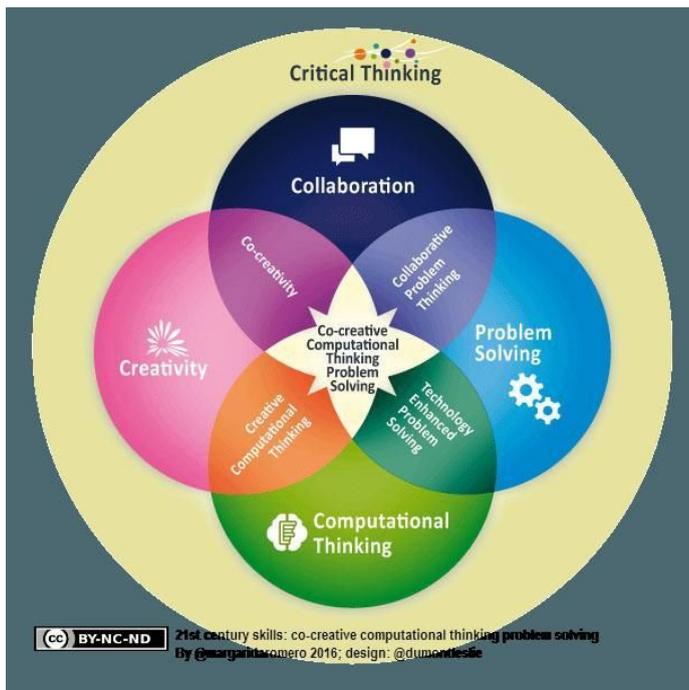


Figure 1: The 21st century educational skills go beyond knowledge and know-how to include important personal and collective competences, and societal values.

As illustrated in Figure 1, the end goal is to allow everyone to develop the “21st century

skills”, focusing in critical thinking, creativity, problem solving, collaboration and computational thinking as key skills for citizens [1]. We also illustrate how this could apply to computational thinking as a key competency to solve problems through the knowledge of formal systems (how to code) and physical systems (what is a sensor, how a network works, etc). Through computational thinking development, the students should be able to not only use technology for education but engage in the critical approach of analysing problem situations, identify technologies to solve these problems.

The MSc SmartEdTech has been designed with an objective of inclusivity to ensure that the students are selected based on their projects and potential [2]. In order to develop an international community, 90% of the program is online, based on open reusable resources in English and some in French. This blended training also includes two intensive weeks, to really meet each other, and to learn and share and intern periods, inside either an EdTech company, or an educational research lab, while some students develop their own spin-off company. Msc SmartEdTech students are expected to become the future e-learning or digital innovation project managers, instructional designers, teacher or e-learning instructors, edTech consultants or researchers in the learning sciences. Students within the MSc SmartEdTech program are professionals from a diverse range of backgrounds including quality assurance professionnals in Higher Education, teachers and university professors, app developers and freelancers in the field of EdTech. MSc SmartEdTech are also engaged in teaching activities within the MSc, embodying the “communities of practices” (CoP) paradigm, in which everyone has the potential to act as a resource for the community.

As students, they will address the challenges of designing and integrating EdTech in their different educational contexts. Our conviction is that they have to learn how to learn, concretely, via effective competence development. The activities developed in the program support active learning approaches through co-creation approaches, Digital game based learning (DGBL), maker education and maker culture. With these different activities, students are engaged to develop a critical understanding of digital sciences and embrace a paradigm of (co)creators of technologies and, therefore, are more than just EdTech consumers. The core of our paradigm is project-based learning (PBL), meaning that our approach puts everyone's professional project at the heart of learning, right from the start. As

such, all courses become an opportunity to realise a given project, while each student has the opportunity to engage in small group teamwork or receive specific coaching.

This MSc benefits from a threefold scientific approach, led by the Learning, INnovation and Education (LINE) research lab [L3], in computer science and education science.

This EdTech MSc not only teaches high-tech tools, but also low-tech approaches. For instance, in order to teach children how a computer works, “unplugged activities”, coupled with creative programming initiation and education robotics, are the pillars of computational thinking learning [3]. In a nutshell, the main point is to use an everyday situation as a metaphor for a theoretical computer science concept.

Our approach is agnostic with respect to the available tools. This positioning is crucial given the huge social and environmental challenges facing our planet. Whilst the use of digital tools, in education or elsewhere, is neither a panacea, nor the inverse, there are a few things of which we are certain: (i) The core challenge is pedagogy: can digital tools help us improve the pedagogy we want to develop?

The MSc has been running for 18 months and to date our team of nine teachers from six countries have helped about 40 colleagues to contribute to “changing the world through education”. Out of the 12 pioneer students two have created a company or other structure, three are working in research positions, two have been hired by EdTech companies, and the remainder are working on personal projects.

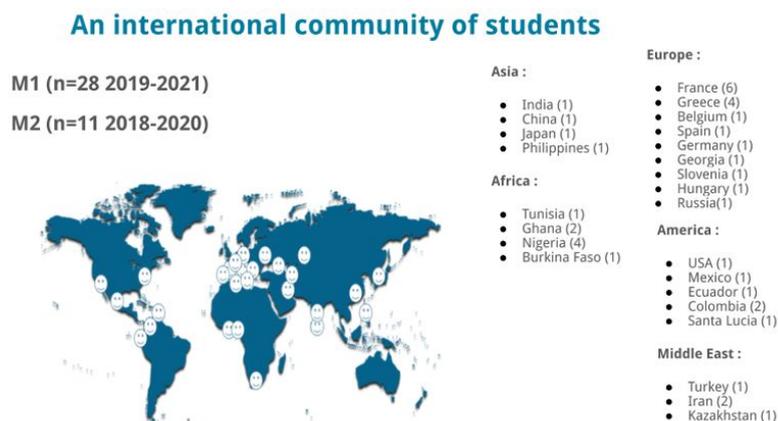


Figure 2: The #CreaSmartEdtech Msc international map, featuring 40 students from 25 countries gathered to learn together, and start a true international community.

Perhaps the most interesting and motivating aspect of this experience is the way in which this tiny, lively, global group has started to form a multicultural, interdisciplinary and international community, with a common objective, sharing ideas and practices, being. This is exactly what this initiative is striving for: to go beyond structured teaching and learning and to build an international community of practice (CoP) in 21st century education.

Links:

[L1] <http://app.univ-cotedazur.fr/smarterdtech>

[L2] <https://www.un.org/sustainabledevelopment/education/>

[L3] <http://unice.fr/laboratoires/line>

References:

[1] M. Romero, A. Lepage, B. Lille: “Computational thinking development through creative programming in higher education”, *International Journal of Educational Technology in Higher Education*, 14(1), 42, 2017.

[2] M. Ciussi, et al.: “Numérique et éducation ... vous avez dit #CreaSmartEdtech ?”, 2018. binaire.lemonde.fr, <https://tinyurl.com/y6n5pwvr>

[3] D.Menon, et al.: “Going beyond digital literacy to develop computational thinking in K-12 education”, L. Daniela, *Smart Pedagogy of Digital Learning*, Taylor & Francis (Routledge), In press, 9780367333799, 2019. <https://hal.inria.fr/hal-0228103>

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