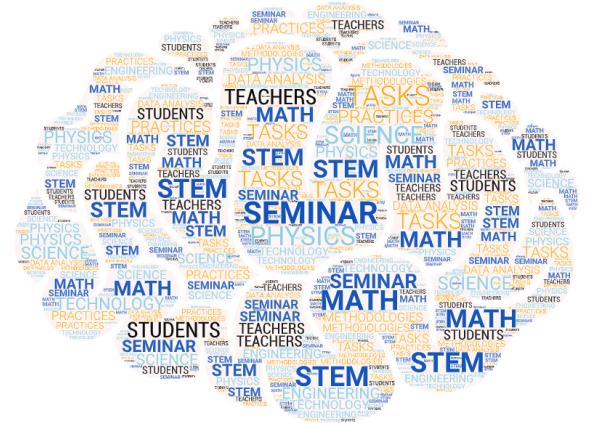


PROMOTING AN INTEGRATED APPROACH OF STEM EDUCATION THROUGH TEACHERS' PROFESSIONAL DEVELOPMENT



Maria Cristina Costa

Instituto Politécnico de Tomar & CICS.NOVA Research Center,
Universidade NOVA de Lisboa - ccosta@ipt.pt

António Manuel Domingos

Universidade NOVA de Lisboa & CICS.NOVA Research
Center, Universidade NOVA de Lisboa - amdd@fct.unl.pt

Abstract:

There is an increasing call for the promotion of interdisciplinarity among different subject matters in order to correspond to the increasing challenges of the real world. In this regard, STEM integration is recommended to provide students with 21st century skills, which are required for economic, scientific and technological development of countries. These recommendations present new challenges for teachers who need to acquire knowledge and skills to innovate their practices in class. The literature presents several characterizations of teachers' knowledge related to mathematics, science or technology, but to our knowledge there is no characterization of teachers' knowledge related to STEM. Therefore, this communication aims to discuss what professional knowledge is necessary for teachers to introduce an integrated approach of STEM education in class, in the context of a professional development programme. The programme, targeted to primary school, is focused on STEM hands-on practices implemented with the inquiry approach. It is argued that there exists specialized knowledge that is crucial for teachers to be able to develop and implement hands-on interdisciplinary practices in class, which must be taken into account, with a view to the effectiveness of an integrated approach of STEM education.

Keywords: Professional development; teachers' knowledge, STEM; hands-on; primary school.