

PREFACE

Competence-based education: from school to responsible citizenship, wellbeing, and democracy.

This special issue aims to promote reflections on visions, frameworks and key enabling factors able to make competence-based education effective and inclusive. The following questions are therefore addressed, around the main theme of how to support the implementation of a competence-based education: How can targeted research and knowledge exchange contribute to advance competence-based education? How to intercept the requests for a real transformation of educational practices in a cultural and constructivist perspective? How is it possible to fully exploit the potential of digital technologies to support the development of Life skills? What are the appropriate contents and methods to train teachers to fully implement competence-based learning? How should competencies be recognized and certified?

Depending on the educational context, different models can be used to define and develop key competencies, such as those presented in this special issue: long-life learning, K-12, teachers' training, and higher education.

In Giovannella's contribution [1], after an initial definition of competence which also orients the reader to the fruition of the contents of this special issue, a holistic model is proposed in which scientific thinking and design thinking are considered together to foster a comprehensive vision of the learners' skills, meant as situated and contextual. Cacciamani and Fujita [2] provide the readers with a fascinating insight into how, within the LifeComp framework, a Knowledge-Building model can be effectively implemented for training and skill-building in an educational context capable of embracing the changes of our century.

Reinforcing the educational model to enhance competencies seems to be a most pressing challenge, especially when assessing the status and evolution of these same competencies. Maina and colleagues [3] propose a competency assessment model tested with digital competence in a K-12 context by showing its research results and highlighting possible applications to assess other key competencies. In their study, Tärning and colleagues [4] combine learning science and drama to explore whether this approach can make 6th-grade students more aware of certain fallacies of information literacy, such as false balance, the burden of proof, and filter bubbles. Results show how students watching a play can reach a more sophisticated knowledge, by grasping more tangible questions and writing more accurate answers. Ritella and Loperfido [5] examined a learning task based on the collaborative construction of a digital community map by 4th- to 7th-grade students. The authors then discuss how such activity might offer opportunities for significant learning processes, by highlighting the relationship between the discursive practices embedded in the construction of the map and the development of social and civic competences.

Moving into the context of higher education, Bower and Petre [6] propose and discuss a degree accreditation scheme based on real-world computing competencies,

trying to overcome the gap between the competencies addressed in higher education and the ones valued and improved in companies. To reach their goal and map those competencies, the authors used a real-world setting portfolio. Their design approach and subsequent validations could also be applied to competency-based standards for other subjects.

Fostering the right educational context to support skills development and assessment clearly needs appropriate teachers' training. Palacios-Rodríguez and his colleagues [7] claim the need for personalized training programmes, taking into account both the various predictors as well as the individual differences that come into play when learning, having proved in their study how self-perception of digital competence among teachers is a function of gender, age, years of teaching experience and hours of permanent education. Vargas and colleagues [8] focus on a specific and very up-to-date skill, the one related to Open Data (OD): accessing, using, and making sense of available open datasets, in fact, are not well-managed competencies as it may seem. The authors therefore conducted a two-sided systematic mapping review to uncover how and if OD skills are promoted to end with providing an OD literacy framework posing OD skills at the center of a competence-based education fostering the responsible citizenship needed for addressing today's societal challenges. Pata and Kori [9] explored the effect of the different open cross-university and public knowledge-building activities on participants' active citizenship competencies, finding how these competencies could be better developed in cross-academia and public citizen engagement activities targeting collaborative knowledge-building and data management rather than in more individual crowdsourcing activities.

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*Ilaria Bortolotti¹, Stefano Cacciamani², Romina Cachia³, Arianna Sala³
Nadia Sansone¹*

¹ *Unitelma, Sapienza Università di Roma, Italy*

² *Università della Valle d'Aosta, Italy*

³ *JRC - EU, Spain*