

Educating the Educators: Interdisciplinary Approaches to Enhance Science Teaching

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Abstract : In a rapid-changing world, science teachers face considerable challenges. In addition to the basic curriculum, there must be included several transversal themes, which demand creative and innovative strategies to be arranged and integrated to traditional disciplines. In Brazil, nuclear science is still a controversial theme, and teachers themselves seem to be unaware of the issue, most often perpetuating prejudice, errors and misconceptions. This article presents the authors' experience in the development of an interdisciplinary pedagogical proposal to include nuclear science in the basic curriculum, in a transversal and integrating way. The methodology applied was based on the analysis of several normative documents that define the requirements of essential learning, competences and skills of basic education for all schools in Brazil. The didactic materials and resources were developed according to the best practices to improve learning processes privileging constructivist educational techniques, with emphasis on active learning process, collaborative learning and learning through research. The material consists of an illustrated book for students, a book for teachers and a manual with activities that can articulate nuclear science to different disciplines: Portuguese, mathematics, science, art, English, history and geography. The content counts on high scientific rigor and articulate nuclear technology with topics of interest to society in the most diverse spheres, such as food supply, public health, food safety and foreign trade. Moreover, this pedagogical proposal takes advantage of the potential value of digital technologies, implementing QR codes that excite and challenge students of all ages, improving interaction and engagement. The expected results include the education of the educators for nuclear science communication in a transversal and integrating way, demystifying nuclear technology in a contextualized and significant approach. It is expected that the interdisciplinary pedagogical proposal contributes to improving attitudes towards knowledge construction, privileging reconstructive questioning, fostering a culture of systematic curiosity and encouraging critical thinking skills.

Keywords : science education, interdisciplinary learning, nuclear science, scientific literacy

Conference Title : ICCE 2019 : International Conference on Contemporary Education

Conference Location : Paris, France

Conference Dates : September 19-20, 2019