

Ordanovska, O (Ordanovska, Oleksandra) ; Romashchenko, K (Romashchenko, Kateryna) ; Tsyna, V (Tsyna, Valentina) ; Tsyna, A (Tsyna, Andriy) ; Postova, S (Postova, Svitlana) IMPLEMENTATION OF STEM EDUCATION IN GENERAL EDUCATION INSTITUTIONS *Conhecimento & Diversidade, Niterói*, v. 15, n. 40 out./dez. 2023. P. 119-140.

The article investigates the fundamental characteristics of contemporary STEM education, encompassing integrated learning, critical thinking, problem-solving skills, as well as active communication and teamwork abilities. It presents a novel and imaginative strategy for project development, which aims to equip students with the necessary skills to engage in lifelong technological innovation by applying scientific and technological knowledge to real-world scenarios. Furthermore, the article sheds light on the core components of STEM education, drawing from the US government's initiatives aimed at integrating STEM approaches into the national education system. In addition, the article underscores the imperative to reassess the underlying philosophy of STEM education and the need for its actualization. This is accomplished through the introduction of a STEM education model that facilitates the seamless integration of STEM subjects with all other academic disciplines. Moreover, the article addresses crucial aspects of the US national policy on arts education. It delves into the development and implementation of the National Core Arts Standards and the National Visual Arts Standards, which play a pivotal role in supporting arts education initiatives. The article delves into an analysis of the theoretical and methodological principles underpinning the development of a STEM education model. This includes an examination of project-based and practice-oriented learning, as well as the utilization of flipped and blended learning approaches, alongside cloud technologies, to facilitate the transformation of traditional education into an innovative learning environment. Furthermore, the article outlines the anticipated steps involved in the implementation of STEM education, with a focus on fostering career autonomy and empowering students to make informed choices about their professions. These steps encompass the promotion and popularization of STEM specialties, the provision of support for gifted students, and the encouragement of youth engagement in creative and research-oriented activities. Expanding on the understanding of how STEM education can be effectively implemented, the article enriches the information field with innovative methods, tools, and organizational forms for the educational process. These include hackathons, marathons, online experiments, e-virtual laboratories, science museums, and platforms designed to facilitate the organization of research activities and international projects. It is noteworthy that the successful implementation of these innovations will not only enhance the quality of foreign literature courses within the New Ukrainian School but also serve as a significant catalyst for the development of competitive and creative graduates.

Keywords

Author Keywords

STEM education STEM training, STEM education model, STEM competencies, Secondary education institution

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