STEM ≡ MULTIMEDIA

Multimedia Enriched Practices

Editorial: Multimedia enriched practices in STEM Education

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Abstract: *The understanding of science, technology, engineering and mathematics (STEM) education is seen as a necessity today, and the number of content produced in this area is increasing significantly with each passing day. Journal of Multimedia Enriched STEM Education (STEM-Multimedia) aims to improve the quality of STEM education by presenting short videos of STEM practices with theoretical, methodological, and pedagogical underpinnings.*

Keywords: *STEM education; multimedia enriched practices; STEM professional development, open schooling*

Introduction

The necessity of STEM education is an undeniable fact today. Many countries, communities or unions provide significant support to projects to improve the quality of education offered within the framework of STEM education. In this sense, contents for STEM education are produced, the effects of these contents are investigated, and the widespread effects of the contents created and the results obtained are tried to be increased. It can be said that improvements are tried to be made in the field of STEM education by considering the important results by policymakers. Similarly, it can be said that the contents produced and the findings obtained are tried to be used in new applications or that they attract great interest. The number of views and downloads of the activity content published for STEM education may indicate this situation. This

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situation indicates the high potential of using the content produced in STEM education. However, can the produced contents, especially the activities, be used efficiently by different researchers or teachers? What can be done for it to be used? Is explaining the activity process step by step sufficient for this? As you can predict, an instructional activity explained step by step does not reflect today's understanding of education. Therefore, it does not have the potential to meet our needs. However, we consider that making the phenomenon and content aspects of the activity or implementation observable can contribute to shaping the pedagogical goals of the practitioners. To elaborate on this aspect, we expect that the concrete demonstration of the phenomenon, the product or the prototype handled during the educational activity can be used more effectively by people who want to use the same educational content. Therefore, it is possible to say that there will be a greater widespread effect. In the process of searching for answers to the questions mentioned above and within the understanding mentioned above, the aims and format of our journal have been shaped.

Journal of Multimedia Enriched STEM Education (STEM-Multimedia) is a multidisciplinary journal aiming to enhance the quality of STEM education by providing short videos of STEM practices with theoretical, methodological, and pedagogical underpinnings. The articles to be published in the journal also include questions that practitioners can use for evaluation purposes and the people who contributed to the discovery of the phenomenon or invention of the product addressed in practice.

To be understandable and instructive, the articles in the first issue of this journal may be examined in detail. In the first paper of this issue, Sardag, Sogut and Curaoglu present a school community project and integrated STEM education practice within the scope of open schooling. In the study, the researchers enabled students to work together with stakeholders to design a safe and energy-efficient classroom. The researchers prepared a short [video](https://youtu.be/omyZgVkQ9zM) (https://youtu.be/omyZgVkQ9zM) of how the developed product works. They also shared the codes used in the product's development process so that different researchers or teachers could use them. In addition, they shared alternative codes and systems (mBlok, Texas Instruments) so that the same practice can be used by people who may have different opportunities. The researchers created evaluation questions and introduced people from the history of science and engineering related to their product. In this way, a working prototype of the product was demonstrated, evaluation opportunities were provided, and chances were created to recognise people from the history of science and engineering.

In the second article, the researchers developed audio, tactile and electronic material for teaching the concepts of "Phases of the Moon" and tactile matching cards for assessment, considering the needs of visually impaired students. In the study, the researchers provide opportunities for different researchers or teachers to produce similar materials or to use them

efficiently in their classrooms by revealing the creation processes of these materials (https://youtu.be/7koD3Zkurp4).

In the third article, a three-dimensional audible model was developed using chatbot technology to let students chat about Isaac Newton's life and works. The researchers introduced the design steps and programmes used in the creation process of the model. In addition, the prototype version of the model was presented with a video (https://youtu.be/M363EsRgwq0) and an example of the algorithms used in the model was shared. In this way, they provided opportunities to use chatbot technology with models in different fields or subjects.

The last paper (Teach yourself coding with the Microbit) aims to provide a general skills background for coding that can be used for further learning (see the video (https://youtu.be/tR0kpqKXdxw)). It is designed to guide students and educators through the first steps of programme planning and programme coding based on the Micro:bit environment.