EJ-ENG Papers

Conceptual Representations of Participation in Synchronous and Asynchronous Digital Education Environments for Vocational Education and Training Students

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Abstract

New critical educational issues arose during the implementation of distance education in the covid-19 period. One of the most serious was the lack of non-verbal communication between students and teachers during distance education, as the physical contact of teaching was "mediated" by the digital environments of modern and asynchronous education. In this article, we first describe and then take the first steps to fill this gap by designing non-mandatory descriptive methods for distance communication. To achieve this, we use conceptual representations and examine material by the real participation of Vocational Education and Training students in modern and asynchronous online environments. We present examples of verbal and non-verbal communication from student participation, using specific online applications, namely Mentimeter.com Hot Potatoes, and Wonder.me. Moreover, in this paper, through the overall analysis of the issue, we illuminate the dynamic changes in the field of education, both due to the digital transformation of the institutional structures and to the change in attitudes and characteristics of students that result from these transformations.

Emergency Remote Teaching Application due to COVID-19 - A Case Study of the Department of Mathematics (School of Science) at the National and Kapodistrian University of Athens

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Abstract

The aim of this study was to analyze students' experience of the implementation of emergency distance learning by their department due to the COVID-19 pandemic. The subjects of the study were University students of the department of Mathematics of the National and Kapodistrian University of Athens selected with a convenience sampling technique. A semi-structured questionnaire was used which was distributed online. A total of 391 student responses were collected for analysis. The study's results indicate that students identify some positive characteristics in emergency remote teaching such as: access to recorded video lectures, efficient time management, and comfortable environment. On the other hand, they complain about network instability, lack of technical means and lack of communication in e-learning lessons. It seems that the majority of students preferred courses combining face to face and e-learning methods and evaluated as excellent the synchronous form of distance learning that uses teleconference platforms and digital boards.

Exploring Parents' Views concerning Emergency Remote Teaching

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Abstract

During the Covid-19 pandemic, educational institutions worldwide continued to operate through online education. The present study investigates the way in which parents coming from a prefecture of western Greece that includes urban, semi-urban and rural population, faced the new form of educational process. With the help of a questionnaire and group interviews, parents shared their views concerning online education and emergency remote teaching. The participants have children who attend the school educational levels of primary and lower secondary education. The parents stated that their children had difficulties with distance education. Moreover, they had to intervene to help their children with this new way of education. More specifically, the parents of the present study point out that 1) in order for emergency remote teaching to be able to offer learning, a comprehensive training of teachers and the proper organization of schools is necessary, 2) it is necessary to limit the offered courses in the online program and 3) education in physical environments is of great value and is irreplaceable.

Incorporating a digital serious game into real-life distance learning practices via educational scenarios

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Abstract

In recent years and after continuous training of educators, the design of flexible educational scenarios is gradually evolving and being integrated into the teaching practice, which is related to the proposed ways of implementing pre-selected modules from the curriculum of a subject and may be applied to distance learning procedures. In this context and during the development of the "BYRON" game project, educational scenarios were designed and implemented in practice. These are based on the serious games' design principles and follow existing and modern pedagogical theories. In particular, the aim of designing such educational scenarios is to reflect the latest research on the integration and utilization of serious games in the teaching of History and through the utilization of distance learning. Furthermore, the activities incorporated within the educational scenarios aim at highlighting the role of ICT in teaching strategies, which support the playful way of approaching knowledge with particular emphasis on supporting and promoting transitions from frontal teaching, group teaching and in collaborative learning, thus transforming the actual form of teaching from a teacher-centered approach to a student-centered one, and by deploying specific educational scenarios. In this framework, the structure of the proposed scenarios, their supported activities and the evaluation process followed, are closely intertwined with the plot of the "BYRON" digital educational serious game.

Investigating the transition from block-based to text-based programming techniques in secondary education in Greece

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Abstract

Nowadays computer programming is an essential skill that has grown in popularity in secondary education. In its block-based form, it is used to familiarize students with the basic concepts of programming before the students move on to text-based programming languages. The purpose of this paper is to investigate the transition from blocked-based to text-based programming techniques in secondary education. More specifically, four educational programming activities, which exploit the use of a block-based programming environment, were implemented in two classes of third grade Gymnasium students in Greece during the course of Informatics. The same educational activities were implemented again in the same classes with the use of a transitional block-to-text based programming environment aiming at normalizing the transition from block-based to text-based programming techniques. The implementation findings indicate a very positive feedback from the students' side in understanding the association between block and text commands.

Learning programming using Python: the case of the DigiWorld educational game

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Abstract

Constructivist approaches have been demonstrated to contribute effectively in learning programming concepts. Game-based learning offers a novel and productive constructivist approach in this direction. Unfortunately, there is a lack of available educational games in the Greek language for teaching and learning programming using a programming language, especially Python. This paper describes the design and implementation of an educational game designed to teach programming through Python at an introductory level in the context of Greek upper secondary education. The game uses the Ren'Py visual novel creation toolbox, digital storytelling techniques and focuses on the narrative and the basic tenets of game-based learning to create a state of flow instead of simple gamification techniques. The outcome is a fully developed educational game, titled "DigiWorld", which can be used in the classroom as an educational tool, as well as in non-formal and informal education. The results of the preliminary evaluation are encouraging regarding the motivation and user's engagement as well as the educational approach followed through the challenges and feats designed.

Microcontroller Systems in Education for Sustainable Development Service. A Qualitative Thematic meta-Analysis

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Abstract
Goal of the present paper is to answer the research question: Can the proper use of Microcontroller Board |Systems as educational tools help achieve the goals of Education for Sustainable Development? In order to answer the aforementioned question, a meta-analysis of the qualitative strategy of four recently published relevant papers was utilized. The technique of Thematic Analysis was used. The results show that the proper adaptation of Microcontroller Board Systems in the educational process can adequately help achieve the goals of the Education for Sustainable Development. In order to achieve these goals in the pedagogical framework, the Microcontroller System can be adapted in such a way as to serve the approaches of holistic & systemic thinking, HASS&STEM interdisciplinarity and multidisciplinarity, constructivist approach to knowledge, cooperative learning, critical thinking, cultivation of values, and learning satisfaction of the Education for Sustainable Development.

Online Teaching in the Age of Covid-19: A Case Study at the Merchant Marine Academy's Engineering School of Macedonia, seated in Nea Michaniona

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Abstract

The coronavirus pandemic has affected educational systems around the world, leading most universities to implement distance education. The aim of this research is to investigate the application of online education at the School of Engineering in Nea Michaniona, Thessaloniki during the covid-19 pandemic, according to the views of its educators. The survey was conducted at the end of the spring semester of 2020. A combination of quantitative and qualitative methods was used with the tool of a questionnaire with closed and open-ended questions to 32 educators. The findings of the study revealed the problems faced by educators, the modifications they had to make, their view on the quality of the teaching they provided, the limitations of a technical school and their future intentions regarding distance learning.

Student - teachers' abilities and attitudes towards Scratch as a multimedia construction tool to represent Physical Geography phenomena

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Abstract

The aim of this paper is to describe a didactic intervention that aimed to introduce pre-service teachers to visual programming with the ultimate goal of enabling them to support their students on constructing multimedia in the context of Geography in the future. Students created multimedia software about Physical Geography topics using MIT Scratch. The way the students used scientific knowledge and did the didactic transformation in order to build their artefacts has been presented elsewhere. In this article students' ability and attitudes on programming are examined. More specifically, we study the techniques and programming structures students use, as an indicator of what students learned. Furthermore, we study difficulties on programming and other technical difficulties they confront, as well as their attitudes towards Scratch which developed through the didactic intervention. The results are encouraging since students create software that work properly and develop a positive attitude toward Scratch.