Abstracts άρθρων

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Development of a Methodology for the Design and Management of Academic Strategy – A Holist Approach Using Multi-Criteria Analysis Techniques

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Abstract

Aim of the current research paper is to propose an innovative solution for the problematic of the holistic management of an academic strategy. The systematic bibliographic surveys conducted showed that the combination of BSC method together with a multitude of MCDA techniques constitute the most important tools for this issue. Thus, we propose a holistic process-based methodology for the management of an academic strategy which spans from its design and oversight, to interpretation issues of the academic classification of departments of Universities or between Universities where assembly bodies (Quality Assurance Unit, HAHE) are active. We claim that our methodology is of particular importance and that its use will highlight the operational quality of well organised Universities.

Keywords: Academic strategy, BSc, MCDA, Process based approach

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A Visual Depiction of an Educational Robotics Framework Aimed to Foster the Development of Collaboration Skills

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Abstract

There is a constantly growing research interest for Educational Robotics and its effects to the development of student skills. Many researchers conclude and state that E.R develops and increases the collaboration skills of students, without presenting a specific strategy or a methodology that supports the whole process. In addition, the reports are not supported by measurable results or observations of elements that comprise the collaboration skills. This research focuses at the creation of the appropriate conditions, strategy and methodology in order for collaboration skills to find solid foundations for development. It is important to be stated that collaboration is not seen as the means to produce learning outcomes, but collaboration and collaboration skills are perceived to be the outcome of this approach. The aim of this article is to provide a visual depiction of our proposed approach.

Keywords: Collaboration Skills, Educational Robotics, Formal Education, Primary Schools, Visualization

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Modeling, Designing and Implementing an Open Personalized Learning Environment for the Electrical Engineering Training Course in Vocational Education

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Abstract

In this paper, we present the modeling, design, and a segment of the implementation of an Open Personalized Learning Environment (OPLE) for the Electrical Engineering course that is taught at Vocational Schools. We describe in detail how the chapters of the course are used in the online environment. As methodological principles of this construction we emphasize on the students' learning behavior, and on the individualized promotion of knowledge, considering the simplicity and the dynamics of the open personalized environment.

Keywords: Electrical Engineers, Internet, Technical Education

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"Clavis Aurea": An Augmented Reality Game for the Teaching of Local History

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Abstract

The aim of this study was the design, development, and evaluation of an Augmented Reality game to teach students about the local history of a Greek island. Design-based research served as the foundation of this study's methodology. Experts in ICT in education, teachers with knowledge of the local history and primary education students participated in the evaluation of this study. The results of the evaluation showed that the game presents satisfactory levels of usability and that its content is compatible with the island's local history. Among the factors influencing its use by students were internet connectivity, the large number of visitors at the archaeological site where the game was played, and the problem of coordinating the student groups.

Keywords: Augmented Reality Games, Evaluation, History, Primary Education

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Reflections on Online Delivered Lessons, During COVID-19 Induced Restrictions, for Students of Informatics in a Vocational Lyceum of Greece

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Abstract

During the pandemic outbreak of COVID-19, coinciding with school year 2019-2020, house confinement measures were taken throughout Greece. Conventional face-to-face schooling presented a threat to public health. As a result the Greek Ministry of Education proceeded to suspend school operations for a while and sponsor online lessons of various shapes and forms as a temporary measure soon after. The lessons, hastily designed to address extraordinary conditions and delivered in an ad hoc manner utilizing teachers' personal experiences and preferences to fill a gap created by house confinement, created pressures on existing infrastructures on one hand, and a corpus of diverse experiences, contradicting evidence and on occasion reports on the other. A discussion on that corpus was inevitable and took part originally among teachers of the same school either unofficially or during sessions of the teachers associations of each school. The discussion should and will expand beyond that especially in reference to cases that constitute good practices or where data were collected. To this purpose, this paper presents the case of two theoretical lessons taught at senior high-school students of the Information Applications' Technician specialty in a Vocational Lyceum. The lessons operated surprisingly well, in comparison to similar lessons, concerning student attendance, student engagement level and continuance. Some data were collected with a questionnaire and their processing later informed discussions during reflection plenary sessions of the online class. An attempt is made to explain the divergence from the general case and reflection on results is used to draw conclusions that may benefit further attempts.

Keywords: online education, synchronous lessons, COVID-19, emergency online education, online schooling, student engagement.

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Post-Pandemic Pedagogy: Distance Education in Greece During COVID-19 Pandemic Through the Eyes of the Teachers

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Abstract

Distance education had already appeared since 1970. During the first implementation period it mainly concerned adults and education at university level. In the recent years, through the internet development, distance education has acquired a new hypostasis, as innovative applications have facilitated its implementation in multiple contexts. Despite this, education remained mainly on a physical level (face to face interaction), while distance education was rather complementary (hybrid or blended learning). However, during the COVID-19 pandemic, the first pandemic in the digital era, an urgent need that led to a universal and "violent" transition to distance education arose, often without assuring the necessary preconditions. This research aims to capture the experience of teachers in Greece during this transition.

Keywords: Distance education, COVID-19, pandemic, lockdown, teachers' experience

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Visualizing the educational data mining literature

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Abstract

This article provides a visualization of a literature review in students' performance prediction using educational data mining (EDM) techniques for the period 2015-2019. The results of the review are presented concisely and simply with the use of diagrams. Various aspects of the literature are examined, such as the algorithms adopted, the type of results drawn, the educational setting of the application and the actual exploitation of the outcomes. Findings indicate that tertiary education dominates the EDM field; in contrast, the focus given to secondary and primary education is minimal.

Keywords: Visualization, Educational Data Mining, Student Performance, Literature review

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Design, Development and Implementation of Mobile Applications to Support the Educational Process in the Greek Secondary Education System

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Abstract

The purpose of this paper is the design, development and presentation of two applications that are created in order to be used for supporting the students' learning in the Greek secondary education environment. More specifically, we present the structure and the functions of two applications under the names "Aepp_App" and "CS_App". The applications are intended to be used by teachers and students during a lesson as well as outside the classroom settings, with the use of android mobile devices. We present the tools that have been used to develop the mobile applications and the applications' use in the educational process. Additionally, we present the feedback received by teachers, to whom the applications were presented, who seem to like the idea of using game applications for mobile devices in order to enhance their students' interest.

Keywords: Secondary Education, Mobile Devices, Educational Applications

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Examining the Use of STEAM Education in Preschool Education

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Abstract

STEAM (Science, Technology, Engineering, Arts and Mathematics) initiatives are of current interest for both in-school and out-of-school contexts in North America. This is a new concept which is shifting educational paradigms towards art integration in STEM subjects. This article focuses on the need for STEAM education at the early childhood level and investigates the teaching and educational models of STEAM education in the kindergarten and in the first grades of primary school and how pre-school and primary school teachers see these models in the Greek context but also what students eventually learn from these models. The purpose of this chapter is to better understand the educational programs of STEAM education, which are offered by non-profit organizations and both public and private schools. Preschool children have a natural disposition toward science with their sense of curiosity and creativity. More research needs to be done in the area of STEAM implementation in the K-8 classrooms to incorporate engineering education.

Keywords: Early science education, Greek STEAM implementation, K-8 STEAM, STEM/STEAM education, STEAM educational models

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Using Learning Theories for the Creation of a Distance Digital Course in Mathematics for Higher Education

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Abstract

This article presents the results of research on the effectiveness of distance education in Mathematics for higher education students. A digital course in Differential Calculus was created, which was evaluated by the students who participated in it. The aim of the quantitative research carried out was to identify the conditions needed for the implementation of a digital distance education model. The design includes the integration of activities based on learning theories at targeted points of the distance learning. From the results, it appears that the students achieved the learning outcomes that were identified. Moreover, the integration of the relevant activities had a positive impact on the students, who a) positively evaluated the program they attended and b) stated that their knowledge was enhanced at the issues negotiated on the course.

Keywords: E-learning, Distance Education, Mathematics, Learning Theories

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Emotional Intelligence and Educational Robotics: The Development of the EI-EDUROBOT

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Abstract

In recent years, ICT has become a fundamental element of almost all aspects of formal and non-formal education. Educational Robotics (ER) as an ICT subfield has triggered many studies of ER educational utilization. Furthermore, there is also a growing interest in studies in Special Education with ER and ICT in general, usually focusing on emotional intelligence, especially in social skills' development and empathy training. This paper presents the development of a Robotic Platform, the EI-EDUROBOT, which aims to cultivate empathy and social skills of typically developed children, aged 4 to 9 years, but also children with Autism Spectrum Disorders (ASD), among these two social groups.

Keywords: Autism, Early Childhood Education, Educational Robotics, Empathy, Preschool ages

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