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Smartphones at schools? Yes, why not?

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Abstract

Throughout the history of learning, new and innovative technologies often go through a process of initial rejection, introducing delays on their adoption and full utilization. The evolution of Smart Learning Environments is delayed today by this phenomenon, as critics disagree about the use of technology in the classroom. Our study aims to investigate the factors that can render modern communication devices such as mobile phones and tablets suitable for learning in schools, concerning their advantages and disadvantages. When students need to use mobile devices for learning there is a lack of content and integration of educational and edutainment systems employing gamification techniques within the school framework, factors that can greatly improve the learning experience.

Keywords:, Advantages of mobile devices, Disadvantages of mobile devices, Educational-edutainment systems, Smartphones at schools, Smart learning environments,

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Teaching the basic commands of NoSQL databases, using Neo4j inVocational Education and Training (VET)

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Abstract

This paper presents a pedagogical reconstruction of the teaching of the Databases course in a Vocational Education and Training (VET) environment. We suggest an exemplary teaching scenario for basic database commands using Neo4j. This approach is necessitated by the fact that many online/network environments are taught in VET without any special preparation in the corresponding laboratories. Furthermore, our article describes various technical aspects of the NoSQL software family in general and of Neo4j in particular.

Keywords*:* VET, Laboratory Practices, NoSQL, DBMS, Education, Curriculum.

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Edubot: a new chatbot system for student service in distant education

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Abstract

Computer Science is ever becoming a matter of grave concern in various aspects of everyday life. One of the most important fields of Computer Science is Artificial Intelligence, widely known as "AI". AI refers to the intelligence added to machines mainly via smart programming and engineering.
In the area of Education, we can clearly notice the increasing penetration of Computer Science and especially AI which provides students with the framework to interact with the learning environment and knowledge on its whole. Also, the huge data size needed to be processed led to the use of NoSQL databases that have a lot more to offer than just presenting solutions to scale problems. Moreover, AI tools are capable of improving educational procedures in the form of chatbots that interact with the users via text or vocal interfaces.
In this proposed work we create a novel chatbot system for student service in distant education using modern machine learning techniques. The training data was acquired via a web scraping method out of student forums. A NoSQL database, the column-oriented Apache Cassandra, was used for the storage and manipulation of our data.
The developed system is now in pilot mode and is expected to be tested in a sample of students to evaluate its functionality.

Keywords: Computer Science, Distant Education, Artificial Intelligence, Machine Learning, NoSQL Databases, Chatbots.

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Multivariable analysis methods on identifying factors and groups of students in the environment of the discovery learning/constructivistic approach using cognitive tools

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Abstract

This paper studies the environment of the discovery learning/constructivistic approach using cognitive tools regarding students' performance in tests involving different kinds of learning and in the final formal examinations and students' attitudes towards the approach in Mathematics' higher education. In particular the paper aims in identifying factors regarding students' scores and attitudes affected by the approach and groups of students with similar characteristics based on these factors. Data was obtained by a study realized at the Department of Statistics and Insurance Sciences of the University of Piraeus, concerning the application of the discovery learning/constructivistic approach using Mathematica on the course Calculus (Functions of multiple variables). Multivariable analysis methods are used in the data analysis, in particular factor analysis in identifying factors and cluster analysis in identifying groups of students with similar characteristics, in combination with inferential statistics' methods. The statistical package SPSS was used for the data analysis.

Keywords: Discovery learning/constructivistic approach, Cognitive tools, Factor analysis, Cluster analysis

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Greek Computer Science Teachers' Training Needs Assessment

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Abstract

The present study, following the results of a qualitative study that investigated the explicitly expressed, the felt (but not explicitly expressed) and the latent training needs of the computer science teachers of the Heraklion region of Greece, has questioned all computer science teachers in Greece (5865) to confirm or not the qualitative study results. This has resulted in the largest survey that has taken place for Greek computer science teachers training needs and the only one that is competency-based as far as teaching and pedagogical training needs are concerned. The aforementioned properties of the study enable the design of a three modules (Subject knowledge - Teaching methodology - Pedagogy) training program with explicit training goals; a training program that leaves little mismatch between training needed and training provided.

Keywords: computer science teachers, training needs assessment

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Educational Scenario of a Technological – Vocational course, using ICTs, in the context of Constructivism, Pragmatic model and Cross-thematic integration.

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Abstract

In this paper an Educational Scenario of a Technological – Vocational course is documented and presented. In this the potentials of ICTs are exploited, as management tools of the information and as back up tools of the teaching method such that Constructivist learning environments can be established inside the classroom and achieve a smooth and successful integration of the ICT in the main cognitive subject of the Technological – Vocational course, which is examined at the Higher Education entrance exams. The Scenario has characteristics of a model useful for other Technological – Vocational courses as it suggests Practical Educational Techniques and Cross-thematic integration approaches and promotes the Metacognitive skills of the Vocational Upper Secondary School (EPAL) students with a specialization.

Key Words: Educational Scenario, Technological – Vocational course, ICT, Constructivism, Pragmatic model, Cross-thematic integration, Metacognition.

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