

A Constructivist-Based Approach to Teaching Database Analysis and Design

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ABSTRACT

The study of database systems is typically core in undergraduate and postgraduate courses related to computer science and information systems. However, there are parts of this curriculum that learners find difficult, in particular, the abstract and complex domain of database analysis and design, an area that is critical to the development of modern information systems that meet the demands of users in an efficient and effective way. In addition, there is some evidence that companies believe the database analysis and design skills of both new graduate recruits and some of their existing IT staff are insufficient to cope with the complexities encountered in developing such systems. This paper reflects on these difficulties and describes a teaching approach motivated by principles found in the constructivist epistemology to help overcome these difficulties and help provide the learner with the knowledge and higher-order skills necessary to understand and perform database analysis and design effectively as a professional practitioner. The paper presents some preliminary results of this work that seems to suggest that students can learn how to design effective modern information systems when the learning is embedded in problem-solving contexts that are relevant in the real-world.

Keywords: Database analysis and design, constructivism, reflective practitioner, constructivist learning environments, project-based learning