Chapter 13

Competence E-Assessment Based on Semantic Web: From Modeling to Validation

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ABSTRACT

In light of trends toward increased requirements for skilled workers, e-assessment presents many challenges. It should address learners’ real performance in life. Recognizing the inadequacy of current traditional knowledge-based assessment systems in higher education to achieve performance visibility, we need to rethink how we design new assessment systems that can respond to the corporate requirements of the twenty-first century and mirror the learners’ competences. This concern has not been sufficiently investigated. This chapter considers the competence-based assessment. The authors explore the importance of competency and competence modeling conceptual understanding. The research reviews the benchmark literature on the concepts, models, and approaches of competence and competency and explores the confusion surrounding the pair of concepts. They propose a service-oriented framework for competence-based e-assessment to validate the above proposals. The experimentation results support the research goals and learners received a competence-based assessment, which they appreciated.

INTRODUCTION

In recognition of changes to the typical patterns of working life, Higher Education in overall the world is currently laying great stress on Competence-based learning. This is receiving attention particularly on competence-based development to improve the learner’s potential value within lifelong learning and

DOI: 10.4018/978-1-5225-5297-0.ch013
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universities are currently looking for the best way to competently manage learning. Nevertheless, while lifelong learning is increasingly influencing university and workplace in overall the world, some critical issues still have to be worked out so as to reach its full potential (Ilahi, Cheniti-Belcadhi, & Braham, 2013). Since, it appears to address the assessment expectations of these competences.

The continued growth and importance of this issue is shaping the new learning environments, posing new challenges, fostering the need for new models and approaches both at the learning and assessment levels. Hence, we are now confronted with the challenge to accomplish the initiated shift to a competitive and competence-based educational system in order to guarantee productivity and high quality. To attain such ambitious goal, learning has to fundamentally move from input-based to outcome-based approach. Nowadays, technological, economic, and organizational changes entail new needs for an educational system more responsive and open to the labor market’s requirements. To meet the challenges of worldwide increasing competition and to improve the employability of graduate students, education should provide learners with not only knowledge, skills, and competences but also with the proof that these learners could reveal the competences they are supposed to perform in the labor market. Thus, promoting a more dynamic and future-oriented interaction between labor demand and education supply which is evidently the great challenge for the educational system. To establish this interaction, there is a need for mechanisms such as competence models and related assessment tools, which can be used for enhancing the fluency of the key competences of learning and assisting the development of a range of valuable services, e.g. personal and professional development, competence-based learning and employment opportunity exploration.

Although implemented in different ways, current learning management systems share a core common weakness: the assessment process is mainly knowledge-based. This paper presents a comprehensive analysis of competence/y based approaches in the existing literature. The results show that these approaches are far from being able to afford the learner with his valid acquired competence profile. Competence-based assessment is still insufficiently implemented or even not addressed. The findings of the analysis are meant as a starting point for our work aiming at modeling and implementing a new assessment system providing learners with their acquired competences profiles.

Accordingly, we discuss in this paper academic Competence based assessment approach; a formal approach of assessment characterized by the convergence of lifelong, formal, non formal and informal competence-based learning.

Following the introduction, the remainder of the paper is structured as the following: In section 2 we describe the theoretical background on the concepts, models and approaches of competence and competency and explores their relationship to one another. Section 3 reviews relevant related works on and presents the essential findings that could be retained through the comparative study in section 4. We argue that a proper competence modeling solution would increase the efficiency of competence-based learning and competence-based assessment. In section 5, we provide our approach towards competence Web-based assessment modeling using semantic Web. Section 6 presents the related service oriented architecture. The experimental results and the system evaluation are described in sections 7 and 8. Finally, section 9 summarizes the main conclusions of this research and outlines the future research.