

ICOPER Big Picture – modelling the central concepts of Competency-driven Learning

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ABSTRACT

Competency based learning is seen as a means to make the educational system more adapt to cater for , the learners' professional development and the need to increase their future employability. The ICOPER Best Practice Network is exploring the ways competencies can drive authoring use of educational content. The aim of the ICOPER project is to create a reference model for competency-driven learning. Before all the bits and pieces come together iterative rounds of "big picture" conceptual modelling is taking place.

1. Introduction

The European Council adopted 2008 a European Qualification Framework (EQF) to harmonise the different countries' national qualifications systems. The goal is to move from an input-centred approach, e.g., focusing on the length and place of study, to an output-centred approach, focusing on knowledge, skills and competencies [1]. This framework aims to improve transfer and mobility of people between different types of education and training institutions in Europe. To change the educational system towards a more competency-driven approach, we need to develop technology enhanced learning support that bridges the competency definitions and educational content, e.g., linking competencies to Units of Learning (UoL).

The European Union funded in 2008 a 30 month Best Practice Network called ICOPER¹ – Interoperable Content for Performance in a Competency-driven Society. ICOPER is set up to test the existing learning technology specifications and standards and integrate them in a new reference model for competency-driven educational content delivery [2].

2. A pedagogical framework focussing on competencies

The ICOPER project is based on a competency-driven educational framework which explores the interoperability between five "spaces", see Figure 1.



Figure1. ICOPER educational framework spaces

1. Learning Needs and Learning Opportunities: In this phase information on learning outcomes of learning opportunities needs to be identified and modelled so that subsequent activities can use that data. The interoperability of learning outcome definitions constitutes a major challenge for competency-driven learning designs and implementations.

2. Instructional Modelling: In a competency-driven learning environment, learning goals are derived from outcomes of the learning needs analysis. Driven by pedagogical theories, learning design covers aspects such as motivation, information provision, reflection, exercising, application, and control. It organises a UoL in terms of timing and resources required. Especially in the area of higher education where teaching is sometimes considered as a second class activity (as compared to doing research), the re-use of instructional designs manifested in instructional models would have a profound impact on the quality of the learning delivered. (For example, how do we develop a uniform description template and metadata model for teaching methods and UoL?) At the same time a learning design based view on content would also be beneficial for finding and reusing learning material.

3. Content Development: In order to fill a learning design with learning activities, content needs to be developed or reused. Till now, electronic content is hardly reused [3]. Especially when it comes to aggregating and remixing new learning materials, efficient access mechanisms to existing content would be beneficial. (For example, how do we make content searchable across tools and repositories and enable users to create their personal collections of learning resources residing in different repositories?)

4. Learning Delivery: Until now, standards and specifications have neglected the variety of learning formats and instructional models. ICOPER will explore how to support curriculum, collaborative, and resource-

¹ www.icoper.org

based learning in different scenarios, considering both the learner & instructor views.

5. Assessment and Evaluation: Sometimes seamlessly integrated within learning delivery, sometimes isolated and clearly identifiable, assessment of learning results plays an important role within a competency-driven approach. Evaluation of learning, on the other hand, is concerned with monitoring the performance of the learning process and its influence on the learning environment.

3. Towards ICOPER big picture

The aim of the ICOPER project is to come up with a reference model for competency based learning and to deliver training and consultancy on how to implement such a model in European higher education and life long learning institutions. To base this work on more than just wishful thinking the project has a roadmapping activity to ensure that the requirements of future needs are met. Gathering use cases, building future scenarios, and evaluating standards and specifications the project workgroups have to revisit their key concepts and to model the process stages and thematic categories a number of times.

At the moment the ICOPER key processes are modelled as an activity loop of four processes, see Figure 2.

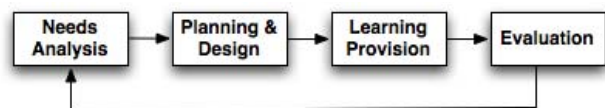


Figure 2. ICOPER Key Processes

These process stages deal with Competency development, Content Aggregation, IT Support for Content Production and Reuse, Instructional Design, Provisioning of Learning, Assessment of Learning and Evaluation of Course Offerings.

Each work package of ICOPER develops use cases to inform the gap analysis of existing specifications and standards. Use cases are often rather technical descriptions capturing a contract between the stakeholders of a system about its behaviour [4]. ICOPER has made use of higher level scenarios to capture the yet undefined aspects of competency based learning. One scenario matrix (Figure 3) is defined by the orthogonal continuum between self vs. institutionally managed competency development, and process vs. curriculum driven competency development.

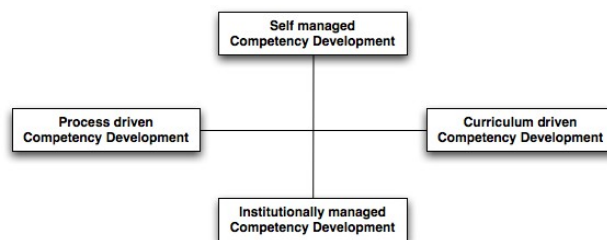


Figure 2. Competency development scenario matrix

Here we would find scenarios for re-skilling (upper left quadrant), professional development (upper right quadrant), new executive MBA's managerial training programmes (lower left quadrant), and new masters degrees (lower right quadrant). These high level scenarios will help validate the upcoming ICOPER Reference Model.

4. Conclusions

A number of studies show that the open exchange of educational content up till now has not been a great success [3,5]. This might be due to the fact that the content is not contextualised in the right way to fit into the business models of the educational institutions or the work practices of the students. Enriching the learning resources with competency metadata might be one way to go to strengthen the market for educational content. However, we have a great deal of work to do before we know how we best could represent competencies, and then how we associate these to learning opportunities and to learning resources.

The ICOPER project uses roadmapping as a methodology to come up with scenarios on which to build application frameworks based on validated learning technology specifications and standards.

5. References

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