The TenC Competence Observatory: An Enabling Technology for Common Description of Competences

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Abstract

Over the years competence-based approaches in the field of formal and non-formal education are becoming more common and appear to offer the opportunity to develop flexible e-training programs that bare the potential to meet lifelong learning needs. For corporate training a competence-based approach may help in identifying competence gaps towards designing competence development programmes for improving employees' performance. In order to provide competence based training, a clear description of competences is needed. However, different organizations may define the same competences in different ways due to different organizational processes. Thus, enabling technologies and infrastructures for facilitating the synchronization for the creation of commonly identifiable competence descriptions are required. In this paper, we argue that the use of web-based observatories as enabling technology for common description of competences can serve this purpose, and we present the TenC Competence Observatory demonstrating the potential of this approach.

1. Introduction

Over the years competence-based approaches in the field of formal or non-formal education are becoming more common and appear to offer the opportunity to develop flexible e-training programs that bare the potential to meet lifelong learning needs [1]. Competence is defined as the integrated application of knowledge, skills, values, experience, contacts, external knowledge resources and tools to solve a problem, to perform an activity, or to handle a situation [2]. In lifelong competence development the learner is self-directed and can perform different formal and informal learning activities in different contexts at the same time. Competence based approaches have the potential to provide important benefits for both individuals and organizations [3].

At the individual’s level, a competence-based approach may help in identifying competences that need to be developed in order to improve performance, in understanding how to achieve expected performance standards or in aligning individuals’ behaviour with organizational strategies. Additionally, it might assist in increasing consciousness and focus on personal competence development eliminating the gap between available and needed competences, as well as, in exposing previously hidden/unknown competences, giving possibilities for new assignments [3].

At the organizations’ level, a competence-based approach may help in identifying competence gaps for each business unit to ensure global competence development in targeted business segments, in designing competence development programmes for improving employees’ performance, in supporting talent management, as well as, in improving effective utilization of the overall human resource potential [3].

In this context and in order to support competence based training, a clear description of competences is needed. However, different organizations typically define the same competences with different ways due to different organizational processes [4]. Thus, enabling technologies and infrastructures for facilitating the synchronization for the creation of...
commonly identifiable competence descriptions are required.

In this paper, we argue that the use of web-based observatories as enabling technology for common description of competences can serve this purpose, and we present the TenC Competence Observatory demonstrating the potential of this approach.

The paper is structured as follows: First, we discuss the use of web-based observatories as infrastructures for facilitating the creation of common competence descriptions. Then, we present and demonstrate the TenC Competence Observatory which is a web based environment for monitoring and capturing the competences that must be acquired for different professional and academic fields.

2. Web-based Observatories

Web-based observatories can be defined as virtual places that collect, store and monitor observations. Web-based observatories have been successfully applied in several domains and there are many existing web-based observatories such as The CEN/ISSS Learning Technology Standards Observatory [5], The European Quality Observatory [6] and The Helios Observatory [7].

The Web-based observatories provide services and tools that support and facilitate users towards the creation and sharing of observations for a specific domain.

The main functionalities of the Web-based functionalities are depicted in the Figure 2 and are summarised as follows:

- **Information Services**: consisting of services, which provide the capability to search the contents of the observatory for any new items added in the observatory or browse the library of items stored in the observatory.
- **Communication Tools**: consisting of specific tools, which enable users of the observatory to communicate and exchange opinions/ideas
- **Resource Management**: consisting of functionalities, which enable the users of the observatory to upload, store and manage resources relevant to the domain of the observatory

In competence based training key component is the competences description. To this end, we have adopted the technology of the Web-based observatories for capturing, storing and monitoring observations about competences description. This decision, although fully justified by the above mentioned reasons, it calls for the need to develop a Competence Observatory. Next, we present the TenC Competence Observatory.

3. The TenC Competence Observatory

The TenC Competence Observatory is a web-based environment, which is being developed under the context of the TENCompetence project.

The TENCompetence project aims to support individuals, groups and organizations in Europe in Lifelong Competence Development by establishing appropriate technical and organizational infrastructure, using open source, standards-based, sustainable and innovative technology [8].

The main objectives of TenC Competence Observatory are the following:
- To store and monitor the competences that have to be acquired in different professional and academic fields
- To provide interoperable mechanisms for expressing and exchanging the competences that must be met in order to obtain different jobs/functions

The TenC Competence Observatory attempts to target the following user groups
- **Enterprises or Organizations**, who are interested in defining the desired competences for their employees’ job roles
- **Individuals**, who have a specific profession and they want to compare their own competences with reference ones (defined by an organization or enterprise) for their profession.

The main functionalities of TenC Competence Observatory are depicted in the Figure 2 and can be summarised as follows:
- **Create Jobs/Functions**: the user of the TenC Competence Observatory can define different Job/Functions and the job/function levels that these job/functions can be performed (Figure 3).

- **Search Jobs/Functions**: the user has the capability to search for already defined Jobs/Functions from other users (Figure 4).

- **Create Competences**: the user of the TenC Competence Observatory can create competences descriptions and store them into the web based repository of the TenC Competence Observatory.

- **Search for the Competences of a specific job**: the user can search the web based repository of the TenC Competence Observatory for the Competences that need to be acquired, in order to become competent for a specific Job/Function (Figure 5).

- **Assign Competences to Jobs/Functions**: the user can define the set of competences that define the minimum requirements for a specific Job/Function.

- **Import and export competences based on IMS RDCEO and HR-XML format**: the user has the capability to import/export competences to/from the TenC Competence Observatory to/from other systems based on current state of the art competency description models, namely IMS RDCEO and HR-XML (Figure 6).

A critical aspect for importing and exporting competences based on IMS RDCEO and HR-XML
format of/from the TenC Competence Observatory is the internal representation of the competencies descriptions in the repository of the TenC Competence Observatory. For this purpose we have used a joint competence description model (Figure 7) that builds upon the mapping of the current state of the art specifications namely, IMS RDCEO [10] and HR-XML [11].

![Figure 7 Joint Competence Description Model [9]](image)

The TenC Competence Observatory provides also to the users a set of supportive Services/Tools, which can be summarised as follows:

- **Information Services**: for informing the members of TenC Competence Observatory for newly created jobs/functions (Figure 8)

![Figure 8 Information Services](image)

- **Search Engines**: for searching the contents of the TenC Competence Observatory (Figure 9).

![Figure 9 Search Engines of the TenC Competence Observatory](image)

- **Communication Tools**: includes forums, chats and wikis for discussing about jobs/functions and the competences of these jobs/functions (Figure 10).

![Figure 10 Collaboration Tools of TenC Competence Observatory (Chat, Forum, Wiki)](image)

4. Conclusion – Future work

In this paper we demonstrate the use of the TenC Competence Observatory a web based environment for facilitating the synchronization for the creation of common competence descriptions. Despite the widespread use of the competence-based approaches, it appears that there are not enabling technologies for common description of competences. Nevertheless, such technological efforts are much needed, in order to align competence descriptions between different organizations.

Future work includes the population of the TenC Competence Observatory with competences descriptions from different organizations and for different professional and academic fields, so as to validate the potential of this technology.
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6. References


