Overview of international research in generic competence assessment

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Abstract: The competency assessment is a key issue for improving the quality of teaching and learning within the current European Higher Education Area (EHEA). The aim of this paper is to review the current research on assessment of generic competences, especially through online tools. It has conducted a search of the Web of Knowledge (Thomson Reuters) from keywords. It have been reviewed the abstracts and the results have been classified by time periods, countries and research area. It has selected a set of articles of the period 2010-2012, in which we have analyzed future trends. It is concluded that the research of assessment generic competences is been developing nowadays in educational area, although is still more important in the professional one. Additionally, it is surprising that appears most often used in preuniversity education levels. The academic context has increased research activities over the past five years, with different developments in the Anglo-Saxon countries over that those countries attached to the Bologna Process. The latest reports indicate that the learning competences must meet the individual reality of each person, so that the use of ICTs in their development and evaluation are essential given its immediacy and motivational ability. There is a clear trend towards an evaluation model that includes a 360º specific and generic competences analysis.

Keywords: Competence assessment; online tools; evaluation; Bologna Process; European Higher Education Area; ICT.

1 Introduction

2010 was the deadline for transposition of the Spanish university system to the European Higher Education Area (EHEA). In this new system, assessment of competences is one of the most important teaching-learning processes because it becomes the main engine of change in educational paradigm (Saenzcastro, 2011).

According to García García et al. (2010), Spain and other countries engaged in the so-called Bologna Process, has made an effort in research assessment of generic competences in universities in recent years, unlike other countries in which research in this area took place since several years.

This study aims to identify how, when and what countries have done research on competency assessment. Also review in depth the literature of the period 2010-2012, and to try to find out what is known of the competence assessment, what tools have been investigated and which of these apply online today.

2   Methodology

We conducted a literature search, choosing the Web of Knowledge (Thomson Reuters), as a database of scientific content widely recognized and used internationally. We selected a set of descriptors by brainstorming between teachers with vast experience about investigation in assessing competence. Systematic searches were performed with these topics, keeping the results indicating the date of the search.

Then a selection was made based on whether the documents were in the education field or professional world, whether it is education or other university cycle, the date of publication and country of origin of the document. In documents got in the last two years there was a reading of the abstract and proceeded to select the most relevant for assessing competence. The selected documents were read and made a card reading each one doing a content analysis.

3   Analysis, results and discussion

1) Results of literature searches

The total number of reported results that the competence and in particular its assessment, it is a topic of interest to researchers. This gives a total of 173,835 posts of which 77% contain the descriptor "competenc*", against 23% who use other descriptors (skills, abilities, capabilities).

The results also indicate a predominance of research in areas facing the professional aspects instead of the educational area, as only 29.5% of the work belong to this last area. There was an increase in research competence assessment from the year 2000, especially in documents that include the term "competenc*", while in previous years the work with other topics were quite numerous (Table 1).

During the period from 2000 to 2008, we observe a linear growth in both sets of documents, tending to stabilize in the fourth quarter in both cases. For the topic "competenc*" results in all periods exceed 20% to those obtained with other descriptors.

TABLE I. *Pooled results of searches with and without "competenc*" and related terms*

Searches with "Competenc*"			
Prior-2000	2000-2004	2005-2008	2009-2012
73	194	313	324
Searches without "Competenc*"			
P rior-2000	2000-2004	2005-2008	2009-2012
5	150	242	262

The results indicate that in years prior to 2000 research assessment of competence was virtually unknown in Spain and the Mediterranean countries, while actively investigating the Anglo-Saxon countries and rest of world (Figure 1). From that year Spain had initiated research publications and is in the second and third period that is more active, producing most of the documents from the Mediterranean area of Europe.
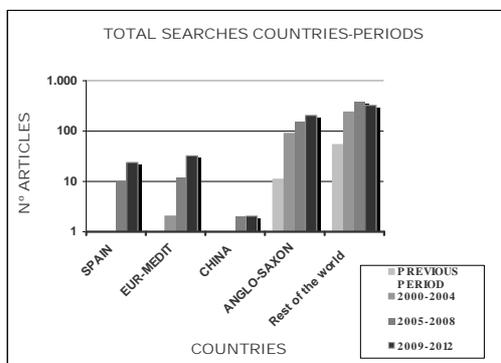

FIGURE 1. *Temporal evolution of countries research about competence assessment*

2) Results of content analysis of selected articles from the period 2010-2012
Of all the literature reviewed was decided to perform a selection of articles to analyze its contents. This task has been performed only on the articles obtained in the period 2010-2012.
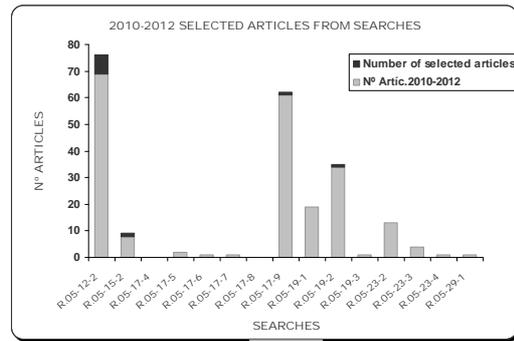
FIGURE 2. *Comparison of results for the year 2010-2012 and selected items of interest*

Of the articles selected, 52% have a comprehensive approach to the evaluation of generic versus 44%, which is a specific generic competence and 4% addresses both approaches (Figure 2).

Within the generic competence, the most concern to researchers is by far the team work with 36% and critical thinking with 27%. It is noteworthy that other generic competences are present like creativity, ethical behaviour, research and oral communication.

The reviewed articles are applied to different disciplines, highlighting the area of health sciences with a third of the publications.

Some lines of work in the articles highlight the importance of research topics, and according to Hiroaki et al. (2010) write about the concern for the prediction of success in college students, researchers focusing lack of motivation as the cause of abandonment or desertion of students in the first degree courses. Closely related, the researchers analyze the motivating effect and improvement of the results arising from the feedback of the evaluation of competencies. The tool provides an effective feedback and that is the subject of more studies about the portfolio. Its salient features for its implementation are its longitudinal development, according to Palomares (2011) continuous feedback to both learners and instructors and the possibility of being a 360 º assessment tool (Donato & George, 2010).

Continuing education after completion of college degrees is a topic from the perspective of collaborative knowledge using the Internet and Web tools such as wikis or blogs (Douglas, 2011).

There are also concerns about the interaction of expectations in the educational field with the same in politics or business and analyzes and research in relation to the need for evaluation of generic competences (Aceituno, 2010; Kimber & Wyatt-Smith, 2010).

According to Kimber & Wyatt-Smith (2010), the traditional evaluation systems are not valid for the online learning environment, critical thinking skills, problem solving and teamwork are part of the training through the network, but is necessary for both teachers and learners unlearn to accept the challenge of innovation and skills training.

The use of ICT represents a substantial change in teaching. Ethics in management competences and creativity are of interest to researchers (García-Valcarcel & Tejedor, 2011). The research proposes concrete tools for the development and assessment of competences such as e-tivities (Armellini & Aiyegbayo, 2010). Or integrated assessment programs in the context of ICTs as the program HIMATT, Highly Integrated Assessment Model Technology and Tools (Pirnay-Dummer et al., 2010).

Audiovisual media are a higher-order teaching and online teaching improves their results with the use of videos and virtual communication (Santibañez, 2010). Similarly, other authors suggest that tools such as "games" can also be incorporated for the development and competence building (The Economist, 2012).

The implementation of the Bologna agreement for the creation of a European Higher Education Area requires changes and offers some resistance from teachers and students (Palomares, 2011). The research tools include easy and rapid deployment and show favourable results for the competency assessment (Zunder et al., 2010). The development of methods of assessment and management of data based on artificial intelligence algorithms to ensure progress of individual students shows the race for competitiveness and the successful integration of students into the labour market (Vernet et al., 2010)..

4 Conclusions

The area of greatest number of publications on competency assessment is for the professional field, far exceeding the field of education. Within this, in the academic environment the results are greatly reduced, indicating increased interest of researchers in contexts prior to university level.

Nowadays, the focus on self-evaluation is very relevant; however, still takes place mainly in the professional framework. Although it has been incorporated into the educational environment, it is surprising that appears most often used in preuniversity education levels.

There is specialization of keywords that refer to the concept of competence based on research environments. Thus, the term "competence" appears in more documents than other terms such as "skills", "abilities" on the other hand, its use

has intensified since the signing of the Bologna agreement in 2000. Among the publications there is bias towards the word "skills" in the Anglo-Saxon countries, while the bias is directed to word "competence" in the area of the Mediterranean countries. As for the professional environment is more often the use of the term "skill" instead of "competence".

Some previous reviews suggest that Latin America has high research activity, although for descriptive results would need to consult other sources and use Spanish key words.

The latest reports indicate that the learning competences must meet the individual reality of each person, so that the use of ICTs in their development and evaluation are essential given its immediacy and motivational ability.

There is a clear trend towards an evaluation model that includes 360 º specific and generic competences.

The competency assessment is related to professional training, so participation in collaborative platforms through the Internet fosters creativity, original and innovative work in all areas and is a source of skills development during and after college.

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