

## Environmental Professional Competence Education: A Need of University Students and Present and Future Society

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### Abstract

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This paper is aimed at analyzing professional competencies, particularly university students' environmental professional competencies (EPC). Understanding the meaning and sense of professional competencies lead the authors to recognize the need of integrating conceptual, procedural and attitudinal knowledge, to distinguish between general professional competencies and environmental professional ones, and to design activities for educating and fostering their development on the basis of recognizing a distinctive character, determined by the social object of each career and its actual corresponding formative process. The study examines not only world-wide published materials on the topic but the university educational practices of several Latin-American countries. The findings also include a definition for EPC that takes their function and the specific environmental content into account. The importance of EPC in satisfying university education requirement is also appraised. From authors' perspective an important reference is contributed for similar studies in other areas of education. These findings prove the necessity of a finest conceptual precision of environmental professional competence education in current conditions.

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**Keywords:** professional competence, university student, environmental education, university education.

### 1. Introduction

The need of improving university education increases daily, this essential reality led to the springing up of the project *Tuning for Educational Structures in Europe* and its corresponding version for Latin-America *Tuning for Latin-America* (CONESUP, 2004). These projects defines *competence* as a dynamic combination of attributes related to knowledge, abilities, attitudes and responsibilities that show what the students are able to do by the time of graduation. It gives particular emphasis to the evaluation of competencies, and consequently identifies specific indicators that make possible a clear measurement of learning results.

Naturally, there is a diversity of criteria, and even some controversy, in relation to competencies conception, education and evaluation. That spectrum of interpretations might eventually lead to a harmful narrow behavioral approach. A fine performance is usually an index of competence, but not necessarily the outcome of a well-organized competence based university education.

The objective of this paper is to advance a proposal of environmental professional competencies (EPC) as a complement to already identified and described professional competencies of university graduates. The attainment of EPC will increase graduates potentials and rate of recruitment at the labor pool.

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After studying prior contributions to university competence based approach, the authors agree with Tobon's conceptual basis (2006). He defines competence as a complex process in which individuals act, perform and create by accomplishing systematic activities and solving job and ordinary real life problems with the aim of making progress, satisfying personal motives, live their life authentically and contributing to human welfare by integrating knowing to do (procedural and strategic knowledge), knowing to learn (understanding context) and knowing to be (having initiative and motivation), and at the same time, taking into account contextual specific requirements that are constantly changing, with intellectual autonomy, critical awareness, creativity and challenging spirit (Tobón, 2006). The definition afore mentioned is a synthesis of a wide range of attempts to define competence. Thus, it is taken as clue for understanding the anchoring of EPC. It is widely known that competencies cannot be reduced to abilities, or even to capacities, but that they are regarded as "complex processes". A competence integrates not only students' developmental processes as human beings, but the necessary resources for transforming themselves and the surrounding environment.

## 2. Competence conceptual framework

There have been numerous attempts to define competence. The notion has been explained from the perspective of psychology, linguistics, sociology, pedagogy, management and the like. The reader may find definitions of competence in plenty of documents of important institutions all around the globe (OIT, 2000; OEI, 1996). For its integrative nature, the concept, original restricted to enterprises and managerial domains, covers today all discipline having human beings as their respective object of study. Authors like Perrenoud, (2005, 2008), Bezanilla (2003), Tobón, (2006), Tejada, (2008), González, (2009), Tobón, Pimienta, y García, (2010) consider competence as an integration of attitudes, qualities, morals and abilities related to a specific field. These same authors have eventually taken competences for capacities and abilities. This lack of precision has frequently characterized the efforts for constructing a related theory and has even led to a misunderstanding of their nature and significance.

However, by studying these wide variety of references and approaches to the notion of competence — Boyatzis (1982), LeBoterf (1997), Chávez (1998), Perrenoud (2005), Bezanilla (2003), Tejada, (2008), V. González, (2009), Tobón, Pimienta and García, (2010)— one may discover the presence of common characteristics. Their approaches share in common the consideration of context, the comprehensive character of the process of educating values, qualities and abilities, its connection to performance approaches and education of responsibility as well as their implication in the development of an integral education. Moreover, considering the features just listed is an expression of the need of taking into account several human dimensions (to know, to know how to do, to know how to be and to be). But, at the same time they fail to consider another essential knowledge that would supplement them, "the knowledge to transform the social and labor environment and to transform himself." (Torres, Ruiz, Álvarez, 2007, p. 9)

## 3. Environmental professional competencies (EPC)

Several classifications of competencies may be found in the literature. Such diversity is the result of the social transformations that pedagogy has introduced in the field of university education in relation to competence based approaches. Authors like Rojas (2000) and Huerta, (2007) classify competence into *basic, generic and specific*. This classification is also known as *comprehensive professional competence model*. On the other hand, the Tuning Project classifies them into *generic and specific*. Still, Perrenoud (2008) introduced an additional classification based on the competence nature and form; accordingly, he recognized *academic, labor and professional* competencies. In essence, the classifying criteria might be different but the meaning is the same. This classification is useful for this study because it is specially focused on professional or specific competencies. Authors like Fuentes (2000), Ortiz, (2001), Íñigo, Sosa and Vega, (2006) have approached their respective definitions from an integrated vision of different constituent elements. In their dynamics they expressed the individual acting depended on contextual demands of the professional environment. Subsequently, assuming an environmental professional competence approach implies understanding that professional competence education is a complex process characterized by a professional performance that reflects the dialectical synthesis resulting for the theoretical and functional integration of general knowledge, procedural knowledge (skills, abilities and capacities), the knowledge of being (morals and attitudes) together with a transformational knowledge that implies the individual potentials to interact with the surrounding environment for transforming it and himself (Álvarez, Alonso, & Castillo, 2014).

Environmental professional competencies are naturally linked to the significance of sustainability models of economic and social interaction and the corresponding demands for a university education tailored to meet such ecological models of development. The author shared such a view with Sierra (2012), Basto (2012), Chamorro (2012), González-Anleo (2012); Núñez, Torres y Álvarez (2012).

The agreements of the Education World Conference (UNESCO, 1999) are still highlighting the main tasks of education and their connection with a competence training approach tailored to meet the need of contemporary society development. The role of the university in environmental discussion gains importance steadily and claims for the need of moving from a passive attitude to implementing explicit actions aimed at leaving a print during university students' education.

#### 4. Conclusions

Much has been published on the question of university students environmental education; however, the predominant perspective is too general, it involves all sectors of society—including the university—, but the sources of information aimed at considering environmental education as a professional oriented formative process are still scarce.

Both, the construction of a conceptual framework and the exploration of university teaching practice certainly show there is a lack of knowledge on the question of university general environmental education, particularly as far as the formative process of environmental professional competences is concerned. It was quite evident that there is not a clear intention of understanding and striving for the integration of conceptual, procedural and attitudinal knowledge during student's formative process at the university.

The authors recognize there are common features characterizing the environmental education of all careers, however there also peculiar features that make them distinctive from one to another, depending on the particular logic of each major and corresponding to a definite set of professional problems the graduates will meet in their labor. This suggests that the formative process of every major dialectically conjugates and harmonizes general issues of university education, particular questions related to competence development, and specific competencies connected to the actual object of the profession.

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