

# Knowledge-Based Model for Curricular Design in Ecuadorian Universities

Vanessa Vergara<sup>1(✉)</sup>, Katty Lagos-Ortiz<sup>1</sup>, Maritza Aguirre-Munizaga<sup>1</sup>, Maria Aviles<sup>1</sup>,  
José Medina-Moreira<sup>1</sup>, Jorge Hidalgo<sup>1</sup>, and Ana Muñoz-García<sup>2</sup>

<sup>1</sup> Faculty of Agricultural Sciences, Computer Science Department, Agrarian of Ecuador  
University, Av. 25 de Julio y Pio Jaramillo, P.O. BOX 09-04-100 Guayaquil, Ecuador  
{vvergara, klagos, maguirre, maviles, jmedina,  
jhidalgo}@uagraria.edu.ec

<sup>2</sup> Universidad de Los Andes, Mérida, Venezuela  
anamunoz@ula.ve

**Abstract.** The contemporary generation of students needs to acquire competences that help them to exercise judgment and solve problems aiming to face current economic and technological challenges. On the basis of this understanding, competence-based education with its teaching and learning approaches has received a good deal of attention and support in recent years. In this sense, the correct design of curriculums represents one of the main means for the gradual and systematic formation of these competences. Despite this fact, in Ecuador there is not a knowledge management model for competence-based curricular design at university education level. Hence, in this work, we propose a knowledge-based model for the design of competence-based curriculums that allow professionals to use teaching and learning strategies that facilitate the development and demonstration of competence, thus contributing to the academic formation of high-level professionals in Ecuadorian universities. All aforementioned will be possible thanks to the implementation of a Cloud-based platform that combines current technologies such as social networks, data mining, and ontologies in order to provide Ecuadorian professionals with the means for the design of competence-based curriculums.

**Keywords:** Knowledge management · Ontologies · Curricular design · Education · Competences

## 1 Introduction

The contemporary generation of students needs to acquire competences that help them to exercise judgment and solve problems aiming to face current economic and technological challenges. A competence refers to those characteristics – knowledge, skills, mindsets, thought patterns, and the like – that when used whether singularly or in various combinations, result in successful performance [1]. Competence-based education with its teaching and learning approaches has received a good deal of attention and support in recent years [2]. In this sense, higher education institutions have focused on the