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Assessing innovation-related competences in the MaRIHE program: Teacher and student perceptions

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Abstract

The paper aims at expanding the body of research on innovation pedagogy and competence assessment by exploring the teaching and learning of innovation-related competences in an Erasmus Mundus Master program in Research and Innovation in Higher Education (MaRIHE). It does so by comparing the results of two quantitative case studies on MaRIHE teachers' and students' self-assessment of innovation-related competences. Results reveal that teachers' perceptions of facilitating innovation-related competences and learners' perceptions of acquiring them are generally favorable and complement each other. Nevertheless, there is considerable incongruity between the two stakeholder groups with respect to specific innovation-related competences. Furthermore, overall student satisfaction with their competence level is lower than teacher satisfaction with their contribution to its development. The study offers a practical approach to the assessment of innovation-related competences that brings together the perspectives of different stakeholders, highlights possible gaps in teaching and learning, and advances innovation pedagogy in higher education.

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1. Introduction

In the process of global transition to a knowledge-based economy, increased attention has been paid to the role of innovation in higher education institutions and degree programs. Recognizing the need to ensure that graduates are equipped with competences required for their entry into the labor market, the EU has committed to endorse programs fostering student entrepreneurship and innovation skills (Bologna Process, 2015). Along with that, professionalization of academics as teachers, regarded by the EU as “the essential challenge for the higher education sector” (High Level Group Report, 2013, p. 12), has gained significance in policy discussions. In the given context, recent pedagogical approaches have been geared towards enhancing students’ innovation-related competences (IRCs) and contributing to their personal and professional growth.

At the same time, innovation and entrepreneurship competences in higher education and their assessment, in particular, remain massively underresearched. While studies on competence measurement concentrate mostly on the assessment of students’ competences (Bjornali & Støren, 2012; Cuenca *et al.*, 2015; Zlatkin-Troitschanskaia, Shavelson, & Kuhn, 2015), or on the assessment of teachers’ technological pedagogical content knowledge (Schmidt *et al.*, 2009), studies on innovation pedagogy and faculty abilities in cultivating IRCs in students are remarkably scarce. Likewise, while a number of studies deal with measuring IRCs in higher education (Cuenca *et al.*, 2015; Watts, Marín-García, García-Carbonell, & Aznar-Mas, 2012), studies that investigate students’ perceptions of innovation and entrepreneurship competences are, as it were, anecdotal (Edwards, Sánchez-Ruiz, Tovar-Caro, & Ballester-Sarrias, 2009; Edwards-Schachter, García-Granero, Sánchez-Barrioluengo, Quesada-Pineda, & Amara, 2015).

Accordingly, this study aims to compare and contrast the perceptions of students and graduates on the acquisition of innovation-related competences in the Master course in Research and Innovation in Higher Education (MaRIHE) with the teachers’ self-assessment of their effectiveness in developing these competences in the students. MaRIHE is a European-funded joint master degree program, started in 2012 by a consortium of four institutions: Danube University Krems, University of Tampere, Beijing Normal University, and University of Applied Sciences Osnabrück. The analysis is guided by the theoretical framework of innovation pedagogy which aims to improve the relevance of university training and foster the link between education, research, and labor market (Lehto & Penttilä, 2013). Specifically, the study employs the *INCODE Barometer* - a framework of 25 innovation-related competences that were elaborated in the course of the *Innovation Competencies Development Project* funded by the EU in 2013 (Watts, García-Carbonell, & Andreu-Andrés, 2013).

The *INCODE Barometer* was designed to assist in the training and assessment of innovation-related competences in higher education by measuring three dimensions of capacities and skills: individual, interpersonal, and networking. The first dimension accounts for the abilities to use available resources ingeniously and present task-oriented and creative ideas, as well as new ways to implement them; to identify relationships among different components of a given task and orient it towards a given target; to face a task from different points of view, evaluate the advantages and disadvantages of potential actions, and foresee how events will develop; and, finally, to show enthusiasm, persistently pursue goals, and take daring yet reasonable risks. The second dimension comprises the abilities to listen to teammates, establish constructive group relationships through dialog, and transmit ideas effectively; to collaborate actively and contribute to group functioning; to take initiatives, drive others to act, and face conflicts with flexibility to reach agreement. The last dimension pertains to the abilities to apply ethical values in decisions and actions, take into account the implications of a given task for society, work in multidisciplinary and multicultural environments, and use networking contacts to reach goals.

Piloted and tested extensively with university students (Marín-García, Pérez-Peñalver, & Watts, 2013; Watts, Aznar-Mas, Penttilä *et al.*, 2013), the *INCODE Barometer* acts as a validated instrument to measure innovation competences in a university setting, and can also be utilized for self-assessment purposes. Aligned with the aims of the European Union Erasmus Programs, it is well fit for a study of an Erasmus Mundus Joint Master Degree program. In the context of the MaRIHE program that specializes in research, innovation, and management in higher education, IRCs are conceptualized as generic competences.

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