

Threshold Concepts and Academic Performance in Economics

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In economics education, students might amass sufficient knowledge to perform technical analysis in examinations in the academic context, but fail to employ it in real life, and often lapse into lay misconceptions to interpret and explain phenomena that they observe (Voss, Blais et al. 1986; Marton 1988; Dahlgren 1997; Pong 1999; Walstad 2000). If we teach students to think like an economist and we also assess this ability in examinations, then their academic performance should correlate with their ability of economic thinking. We decided to design an interview study to test this hypothesis.

In this semi-structured interview study, introductory and intermediate level economics students ($n = 20$) were asked to analyse two everyday life economic scenarios, and to respond to the questions posed in each case. The problems focused on two threshold concepts in economics – cost and market mechanism, and were set in such a way that they were capable of being addressed with varying degrees of complexity. Phenomenographic method was used to analyse the interview data, followed by correlation analysis. The main objectives of the study were to investigate economics students' conceptualisations of these two threshold concepts and their propensity to apply them in the real life context, and whether this propensity related to their academic performance. If we accept that mastery of threshold concepts is a necessary condition for higher order thinking in a discipline, and if we also assess students' high order cognitive ability (viz. ability of critical thinking, evaluation and application of economic concepts) in examinations, then we would expect a strong association between students' demonstrated understanding of the threshold concepts and their academic performance. Contrary to expectation, however, no such association was observed – the study found that in this sample a student's academic performance failed to predict the level of understanding they exhibited in relation to the two threshold concepts.

There are two possible interpretations of this observation. One may argue that current methods of assessment in economics education emphasises technical skills at the expense of learning about the intricacies of economic operations in the real world; there is a mis-alignment of course objectives and assessments (Biggs 1996). The other view is that cost and market mechanism are *not* threshold concepts. Based on the result of a survey of academic economists and PhD students, conducted by Ferraro and Taylor (2005), O'Donnell (2008; O'Donnell 2009) argued that opportunity cost is a sub-ordinate, but not a fundamental or threshold, concept. It follows that if cost and market mechanism are not fundamental or threshold concepts, students' understanding of them should not be used to predict their academic performance in economics. Focusing on the concept of cost, this paper examines the several layers of its meanings, and argues that cost *is* a threshold concept. The lack of its full understanding by our high achievers is due to the insufficient in-depth treatment of the concept in the undergraduate program and the domination of technical skills and mathematics in economics education at university.

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