

Measuring Educational Objectives: Some Explanations and Intuitive Approaches in Industrial Engineering Education

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Abstract

Two principal approaches can be employed to assess educational objectives. The first approach is indirect in nature and is primarily based on course learning outcomes stated in the course syllabus; however, this method is not well-received by accreditation bodies. The second approach is more closely aligned with the expectations of accreditation agencies, although it presents some challenges in terms of measurement. Within the first approach, an integrated assessment framework is established by mapping examination questions to course learning outcomes, course learning outcomes to program learning outcomes, and program learning outcomes to educational objectives. In this study, a mathematical model corresponding to this assessment framework is proposed and discussed. The second approach evaluates the extent to which a department achieves its educational objectives through indicators associated with graduates' employment outcomes. In this context, the evaluation is based on factors such as the duration required for graduates to secure employment, the degree of alignment between the obtained position and the field of industrial engineering, and the comparison of graduates' salaries with sectoral averages. Finally, the study presents a comparative assessment of these two approaches and provides interpretations regarding their applicability, strengths, and limitations in the context of industrial engineering education.

Keywords

Engineering Education, Higher Education, Curriculum Relevance.

Biography

Ayhan GÖLCÜKCÜ is an Assist. Prof. of Industrial Engineering at Beykent University, Istanbul. He completed his BS, MS education at Gazi University, Ankara and got his PhD also in Gazi University. His research interests include the applications of Data Envelopment Analysis in various fields including sports, education, and Malmquist Index. He also proposed a matrix model for Malmquist Index in The OR Society OR58 Annual Conference in 2016 hosted by the University of Portsmouth in the United Kingdom. Furthermore, he demonstrated the VZA triangular norm relationship in his PhD.