Improving Quality Assurance with CDIO Self-Evaluation: Experiences From a Nordic Project

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ABSTRACT

The main goal of the Nordic project Quality Assurance in Higher Education was to develop and implement a self-evaluation model in the participating Higher Education Institutes (HEIs) to support their quality assurance work and continuous curriculum development. Furthermore, the project aimed at strengthening the cooperation of HEIs in quality assurance (QA) and disseminating good practices of QA. The framework of development is based on the CDIO approach and the CDIO self-evaluation process. The main results are a detailed definition of the self-evaluation process, well-documented self-evaluations of the participating degree programmes, and the identification of the main development areas and actions in each participating degree programme. Furthermore, the project has increased the partners’ understanding of other partners and their challenges. Finally, quality assurance has been enhanced in each participating programme and new ideas and support for quality assurance work in other higher education institutes have been produced.

Keywords: CDIO, Continuous Development, Engineering Education, Higher Education, Nordplus, Programme Development, Quality Assurance, Self-Evaluation

INTRODUCTION

Quality is a constant concern in higher education. According to the Finnish Higher Education Evaluation Council (2007) improving the quality of higher education institutions increases their national and international competitiveness. Thus, a high quality education system has become a crucial success factor in the world of international competition (ARENE, 2007). As a consequence, the call is now for higher education to be transparent and credible interna-
tionally (Kettunen, 2008), that is, accountable. The Nordic project Quality Assurance in Higher Education (QA in HEI Project) is intended to provide a model for transparent and credible international accountability.

**Accountability in Higher Education**

The demand for accountability has intensified for two reasons. First, Higher Education Institutes (HEIs) have been asked to provide evidence of the optimal use of public funds. Second, accountability provides a counterbalance to an increase in institutional autonomy (Kristensen, 2010; Singh, 2010). In the early 1990s the thinking behind quality management in engineering education within Europe began to change, resulting in the development of systematic, award-based total quality management processes. That development was based on pressure from society that demanded proof of programmatic quality as well as added value, despite the fact that the financing of universities was decreasing (Schrey-Niemenmaa, 2011).

At the end of 1990’s quality related pressures lead to the development of the Bologna process and Bologna declaration. Since that time the Bologna declaration has influenced European higher education significantly. One of the action points in the declaration is the promotion of European co-operation in quality assurance (European Commission, 1999). The Bologna declaration and related Lisbon strategy provide the main guidelines for increasing the competitiveness of European higher education. They call for improvements in the quality of education. In particular, the Lisbon strategy calls on Higher Education Institutes (HEIs) to provide education that conforms to the competence requirements of working life (European Union, 2004). HEI must not compromise on quality, and they must make sure that education really matches the needs of the economy (Department for Education and Skills, 2003).

The Finnish Ministry of Education also stresses the quality of education, stating that the quality of teaching and graduates is a prerequisite for the efficiency and productivity of education (Ministry of Education Finland, 2007). Furthermore, it is evident that the structures, contents and implementation methods of higher education degrees have to be renewed in order to meet the challenges set by the changing operational environment (ARENE, 2007). An example of this kind of renewed thinking is that of a Finnish Collaboration Group. This group developed a set of criteria for a good engineering education campus and provided specific proposals for action to meet the criteria (Korhonen-Yrjänheikki, 2011).

The European Association for Quality Assurance in Higher Education (ENQA) is one example of how the Bologna declaration has been implemented. Another example is the European Accredited Engineering (EUR-ACE, http://www.enaee.eu) project that establishes a European system for the accreditation of engineering educational programmes (Augusti, 2007).

Competition and globalisation means that mere trust in the quality of HEIs at the national level is not enough. They require that a HEI’s quality be made visible through the use of evaluation systems that are internationally respected (Finnish Higher Education Evaluation Council, 2007). That is, when focusing on quality, national and international comparability should be sought (Ministry of Education Finland, 2005). In addition, the need for the trans-national accreditation of education is becoming increasingly important due to increased physical and virtual mobility, the growth of new degrees programmes, and the increase in new educational institutes (Augusti, 2007). The Nordic project Quality Assurance in Higher Education is an attempt to develop closer co-operation in international quality assurance.

**Quality Assurance**

The Finnish Higher Evaluation Council defines quality assurance as all the procedures, processes and systems used by a HEI to manage and improve the quality of its education and related activities (Finnish Higher Education Evaluation Council, 2008). On a European level,
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