Chapter III

Peer and Self Assessment in Portuguese Engineering Education

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Abstract

This chapter describes the implementation of peer and self assessment in two first-year engineering courses at the University of Minho in the north of Portugal. The results of a case study that was aimed at improving student learning by changing the assessment of learning, aim to illustrate the use of assessment as a powerful instrument to influence learning. The first section pays attention to learning and the influences of peer and self assessment, with special attention to assessment within engineering courses. The second section focuses on the case study previously mentioned and illustrates how students assumed responsibility in their own assessment process. Advantages and disadvantages of peer and self assessment are discussed. The opportunities for e-learning in this case study are discussed in the penultimate section, whereas the last section highlights some of the lessons learned from the case study.
The learning process is one of the core processes of a university. Traditionally, learning was regarded as a teacher-centered activity. The teacher takes the initiative, determining what to learn, when to learn and how to learn. The teacher is responsible for the whole process and aims to transfer knowledge to his students. The learner is the passive recipient of knowledge and relies on the teacher.

In recent theories about learning, however, learners are no longer regarded as passive consumers of information (Biggs, 1999; Dochy & Moerkerke, 1997). They are seen as constructors of knowledge. Because students construct knowledge by themselves, they are in charge of their own learning process. Responsibility for the learning no longer resides entirely with the teacher, but also in large part with the learner. Enabling students to be responsible for their own learning process implies a change in the roles of teachers and students in many factors that influence the learning process, such as how teachers teach, curriculum design, materials used, and assessment of students. The way students are assessed has an enormous influence on the way they learn. It is a powerful factor in determining the hidden curriculum (Sambell & McDowell, 1998). In the literature, assessment is often mentioned as a way to influence student learning (Baillie & Toohey, 1997; Barnett-Foster & Nagy, 1996; Biggs, 1996, 1999; Hager & Butler, 1996). Assessment of learning is a key to changing learning. Dochy and Moerkerke (1997) pointed out that as assessment changes, learning and teaching will change as well. Although there are many internal and external motivating factors that influence students, a good test result is normally a strong incentive for a student not only to learn, but to learn in a certain way. If the assessment demands memorizing facts in order to pass exams, that activity is adopted by many students (Thomson & Falchikov, 1998). Students adapt their learning strategies to what is required by the assessment.

Scouller (1998) found that not only were students more likely to adopt a surface approach when preparing for a multiple-choice test, students with deep-learning strategies performed poorly on a multiple-choice test. A deep approach, aimed at understanding, was discouraged by this method of assessment. Students perceived a multiple-choice test as solely assessing knowledge and not intellectual skills such as application and comprehension. This finding showed that assessment guides students’ learning strategies to a great extent. Apart from the influence of assessment format on learning strategies, Birenbaum and Feldman (1998) identified a personal preference that may strengthen the relationship between assessment format and learning strategies. They stated that students who favor multiple-choice questions have an unfavorable attitude towards open-ended questions and are characterized by a low academic self-concept and poor