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Evaluation Process and Quality Management in a Blended-Learning Bachelor's Programme

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Abstract

In this contribution an evaluation process for a blended-learning Bachelor's programme in electrical engineering and information technology is reported. The rather diverse group of students with limited contact time, due to the fact that they work alongside studying, made us design a dedicated and effective quality circle for continuous improvement. Various layers are used to open channels for information exchange: Self assessment is element of a bridging course in mathematics. Biographical data are retrieved in the beginning of the course programme for a better understanding of the cohort. For each module, summative evaluation by means of an electronic questionnaire is used in addition to a quick feedback channel during the semester. In order to enable improvement, the loop is closed. Additionally, the whole study programme undergoes external evaluation by an accreditation agency on a regular basis. The described quality management process has been developed and tested over the last three years. We suggest that this process can be easily used as a versatile blueprint for blended and distance-learning programmes.

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Keywords: Evaluation process; blended-learning; Bachelor's programme; quality management.

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1. Introduction

A blended-learning study programme in electrical engineering and information technology has been developed in a joint effort of two German Universities of Applied Sciences (Petendra, Kälberer, Kurz & Hoppe, 2014; Roznawski & Kurz, 2013). The part-time programme aims at non-traditional students as a target group, and was realized in the context of a research project supported by the German Federal Ministry of Education and Research within the initiative "Upward Mobility through Academic Training: Open Universities" (Wissenschaftliche Begleitung, 2015). This funding made it possible to study various aspects of programme development in more detail. Although care was taken to design an attractive programme for the target group on the basis of surveys (Böhmer, Roznawski, Meuth & Beck-Meuth, 2013) and according to the state of the art, e.g. regarding e-learning material, continuous improvement is necessary to match current students' expectations and needs with the existing programme. Evaluation is an established core element of quality management (HRK, 2007; European Commission, 2014). Smythe (2012) discusses the difficulties of evaluating blended-learning courses. In the considered programme, the challenge arises from several aspects: there is a lot less contact time between students and lecturers, so that informal communication is hindered. It is more difficult for students to express maybe "delicate" comments via forum, e-mail or chat in an appropriate way. The target group is rather diverse, and changes over time: For example, we have observed a significant shift towards younger people without family obligations within the last two years. The concept of a module including syllabus, study material, learning support, lectures, and exam should be evaluated in the sense of constructive alignment (Biggs, 1996), not just one element out of these. However, this is only possible after completion of the module. Moreover, contact time is very precious; thus it should not be used to fill out questionnaires which can be done at home. In section 2. we propose an evaluation process that takes these aspects into account. In section 3. we discuss our results with respect to quality management. Section 4 addresses open questions and limitations.

2. Evaluation Process

The evaluation process serves the purpose of improving the learning situation for the students and the study programme as a whole. People involved in the programme should be triggered to reflect on good teaching and appropriate learning material. In this programme, lecturers' awareness should be raised for the situation and special needs of employed and often non-traditional students. The elements to achieve these goals are shown in the left-hand part of Figure 1. Students begin with self-assessment at the end of a bridging course in mathematics, which helps them to analyze their readiness for further studies. Biographical data of the students is gathered in the beginning of the first semester, which helps staff to understand their students' situation. Module evaluation provides lecturers and programme responsibles with direct feedback, and makes students reflect on their learning habits and learning outcomes. Polling graduates will give additional information on the relevance of the syllabus at the working place. On the right-hand side of Figure 1, a cycle in the spirit of Deming's PDCA "plan – do – check – act" (Deming, 1986) is used for quality assurance.

In the following subsections, the elements of evaluation are explained in more detail.

2.1. Bridging Course in Mathematics

The bridging course is intended to give students a chance to catch up with basic mathematics before they begin their engineering studies. At the same time it allows them to try out the concept of blended learning (Kälberer, Tschirpke, Böhmer & Beck-Meuth, 2014). Evaluation yields information regarding the subjects chosen for the course and makes it possible to adjust the course continuously. From students' point of view, self-assessment fosters reflection on their learning.