

## The effects of performance-based assessment criteria on student performance and self-assessment skills

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**Abstract** This study investigated the effect of performance-based versus competence-based assessment criteria on task performance and self-assessment skills among 39 novice secondary vocational education students in the domain of nursing and care. In a performance-based assessment group students are provided with a preset list of performance-based assessment criteria, describing what students should do, for the task at hand. The performance-based group is compared to a competence-based assessment group in which students receive a preset list of competence-based assessment criteria, describing what students should be able to do. The test phase revealed that the performance-based group outperformed the competence-based group on test task performance. In addition, higher performance of the performance-based group was reached with lower reported mental effort during training, indicating a higher instructional efficiency for novice students.

**Keywords** Competence-based assessment criteria · Mental effort ·  
Performance-based assessment criteria · Self-assessment skills · Task performance

### Introduction

In competence-based education, authentic learning tasks based on real-life problems are the driving force behind training, simultaneously encouraging the development of professional skills and more general competences like being self-directed. Competence-based education is a dominant trend in vocational education in many European countries (Wesselink et al. 2007). The aim is to prepare students for the workplace where people are expected to be broadly educated while stimulating lifelong learning (van Merriënboer et al. 2002, 2009). Because competences are context-bound and the aim of vocational education is preparing students for the workplace, students should always develop competences in the

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context of a profession (Biemans et al. 2004). When teachers want to judge the competence development of their students, student assessments performed in a real-life context can support their findings.

Assessment criteria and standards are key clues for students to know what is essential in their study program. Fastré et al. (2009) show that drawing students' attention to the assessment criteria that are relevant for a particular learning task improves their understanding of the criteria and subsequently leads to better test task performance and better self-assessment skills. The following citation of Otter (1995) emphasizes the importance of being familiar with the relevant assessment criteria:

Describing and making clear and public what the learner is intended to achieve changes the nature of assessment from a tutor-led system with fuzzy objectives and undisclosed criteria, to a student-led system with greater emphasis on formative development and personal responsibility. (p. 45).

In the behavioural tradition of instruction and instructional design, assessment criteria were performance-based, meaning that they described the desired performance in terms of what the student has to do (e.g. Mager 1984). With the introduction of competence-based education, assessment criteria are often formulated as competences, in terms of what the student is able to do. However, no research so far has investigated the effects of this introduction of competence-based assessment criteria. The main goal of this study is to investigate the effects of competence-based versus performance-based assessment criteria on learning, test task performance and students' self-assessment skills.

The difference between performance-based and competence-based assessment criteria should be seen as a continuum, where on the one end assessment criteria are formulated as competences, which are an integration of knowledge, skills and attitudes; and on the other end assessment criteria are formulated as performance indicators. Performance-based criteria can be linked directly to competence-based criteria and vice versa as they complement each other. When discussing the continuum, the two extremes and their underlying connection will be tackled. The discussion will be coupled to the level of experience students have as it can be assumed that students with different levels of experience will have different needs concerning assessment criteria (Kalyuga 2007). In this article the focus is on the needs of novice students.

Figure 1 presents a summary of the continuum between competence-based and performance-based assessment criteria: (1) What is assessed, (2) the nature of the criteria, (3) holistic versus analytic, and (4) the level of mental effort.

First, with regard to what is assessed, when assessing with competence-based criteria, the competences underlying the performance are the focus of the assessment. What is assessed is the student's ability to perform a certain task. However, competences as a whole are not directly observable (Grégoire 1997). Certain aspects of competences are observable, like particular skills the students demonstrate, but certain aspects are hidden, like their self-concept and personal characteristics that influence their performance (Spencer and Spencer 1993).

When assessing with performance-based criteria, the observable behaviours produced by the students are the heart of the assessment. The question is not if the student is able to perform the task, but if the student shows good performance (Grégoire 1997). In order to show this good performance, students probably also know how to perform and consequently master the underlying competences necessary for performing the task (Miller 1990). For example, in the case of stoma care, the student shows he can remove the stoma in a correct way. An underlying competence is supporting the patient according to