



Review

The use of scoring rubrics for formative assessment purposes revisited: A review

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ABSTRACT

The mainstream research on scoring rubrics has emphasized the summative aspect of assessment. In recent years, the use of rubrics for formative purposes has gained more attention. This research has, however, not been conclusive. The aim of this study is therefore to review the research on formative use of rubrics, in order to investigate if, and how, rubrics have an impact on student learning. In total, 21 studies about rubrics were analyzed through content analysis. Sample, subject/task, design, procedure, and findings, were compared among the different studies in relation to effects on student performance and self-regulation. Findings indicate that rubrics may have the potential to influence students learning positively, but also that there are several different ways for the use of rubrics to mediate improved performance and self-regulation. There are a number of factors identified that may moderate the effects of using rubrics formatively, as well as factors that need further investigation.

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1. Introduction

Rubrics are documents that articulate the expectations for an assignment, or a set of assignments, by listing the assessment criteria and by describing levels of quality in relation to each of these criteria (Reddy & Andrade, 2010) (see Appendix for a rubric sample). Since rubrics – by definition – are quite detailed scoring guides, they can be used in order to validly assess multi-dimensional performances (Andrade & Valcheva, 2009; Halonen et al., 2003) and rubrics have been the primary choice for many test developers as they allow for, at least moderately, reliable assessment of complex performances (Jonsson & Svingby, 2007; Moskal & Leydens, 2000). The use of rubrics as a classroom assessment instrument has also increased in higher education (Simon & Forgette-Giroux, 2001) and they are widely used at the school level (Reddy, 2007).

However, the unique features of rubrics do not only make them suitable instruments for enhancing the psychometric properties of performance assessments, but also for supporting in the process of formative assessment, where assessment information is used to inform students about their progress and aid them in their development (Black & Wiliam, 2009; Wiliam, 2011). A major problem for the research on the formative uses of rubrics is that this research has not been conclusive regarding whether or not the use of rubrics actually enhances student performance. In one review of research on the use of rubrics, Jonsson and Svingby (2007) noted that it was not possible to draw any conclusions about student improvement since the results were mixed. While some studies suggest that student performance can be improved by involving the students in the use and development of rubrics (e.g. Andrade & Du, 2005; Hafner & Hafner, 2003; McCormick, Dooley, Lindner, & Cummins, 2007), other studies showed no differences in the quality of the work done by students with and without rubrics (Reitmeier & Vrchota, 2009). A similar situation is reported by Reddy and Andrade (2010) in a review on the use of rubrics in higher education. As a consequence, we do not know how the use of rubrics may facilitate in improving student performance or which factors are important in moderating the potential effect. This article therefore aims to (re)-review current research on the use of rubrics, but with a primary attention on using rubrics for formative purposes.

2. Research on the formative use of rubrics

Advocates for the use of rubrics for formative assessment assume that rubrics can promote student learning, as well as lead to positive changes in instruction. This could be done in several different ways, for example in either a teacher- or a student-centered way. Regarding the former, by making assessment criteria explicit, rubrics can be used by the teacher to enhance the alignment of learning, instruction, and assessment, something that is often referred to as “constructive alignment” (Biggs, 1996).

In a student-centered approach, the rubric could be shared with the students in order to support student learning (Jonsson, 2008; Jonsson & Svingby, 2007). As seen in some studies, there can be quite dramatic effects on student performance when a rubric is used as an assessment tool for learning. For example, a marked positive effect on student performance is demonstrated in a study by Andrade (1999), where students in a science class self-assessed their work with the assistance of a rubric. Results show that the treatment group considerably outperformed the control group (effect size = 0.99). Similarly, the students in a study by Brown, Glasswell, and Harland (2004) showed quite large improvements (effect size = 1.6). Here the rubric was used in a training program for writing, involving guidance in “meta-cognitive monitoring”. In yet another study reporting on student improvement, the context was student laboratory write-ups. The writing was supported by a rubric as well as peer-editing sessions and self-assessment. On an average, the scores of the write-ups improved by 17 percent in this study (Mullen, 2003). In a study about mathematical problem solving in upper-secondary school (Balan, 2012), the performance of students who had been working with peer assessment and rubrics was significantly higher as compared to the performance for students in a control group (effect size = 1.43). The last example is a study by Schamber and Mahoney (2006), where the combination of writing assignments and the use of a rubric improved the scores in an assessment of critical-thinking skills by 41 percent. Although few, these studies indicate that rubrics might be valuable in supporting student learning, at least in combination with different meta-cognitive activities (such as self-regulation, self- or peer assessment). Some studies also show that students actually internalize the criteria in the rubric, making them their own, and use them while self-assessing (Andrade, 1999; Piscitello, 2001).

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