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Co-creating rubrics: The effects on self-regulated learning, self-efficacy and performance of establishing assessment criteria with students

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ABSTRACT

The aim of this study was to compare the effects of co-creating rubrics against just using rubrics. By co-creating rubrics, the students might have the opportunity to better internalize them and have a voice in the assessment criteria. Two groups undertaking a degree in Sport Sciences (N = 65) participated. Results showed that the students who co-created the rubrics had higher levels of learning self-regulation measured through thinking aloud protocols, whereas the results from the self-reported self-regulation and self-efficacy questionnaires did not show significant differences. The treatment group outperformed the control group in only one out of the three tasks assessed. Regarding the perceptions about rubrics use, there were no significant differences except for the process of co-creation, to which the co-created rubric group gave higher importance. Therefore, this study has opened an interesting venue on rubrics research: co-creating rubrics may influence students' activation of learning strategies.

1. Introduction

A rubric is usually defined as a document with a list of assessment criteria, a scoring strategy and quality definitions normally stated on a scale (Reddy & Andrade, 2010; Stiggins, 2001). Those standards definitions describe what students need to take into account to demonstrate a particular level of performance (Reddy & Andrade, 2010). Traditionally, rubrics have been used in a summative way as a tool for grading students' work (Andrade & Valtcheva, 2009; Jonsson & Svingby, 2007). However, recently rubrics have gained popularity because teachers provide them to students as a tool for formative assessment (FA), with the purpose of improving learning and performance. Panadero and Jonsson's (2013) review on formative rubric use finds that when rubrics are used with FA purposes the emphasis is on the communication of clear learning goals, success criteria, and provision of detailed feedback. A primary goal of formative rubric use is students' active use and internalization of the assessment criteria. It has been discussed that student involvement in rubric design/creation will facilitate their formative use of rubrics, rather than single-minded focus on the final score (Reddy & Andrade, 2010). Nonetheless, there is still a need for further empirical evidence to strengthen this claim. Therefore, this will be the aim of this study, exploring the effects of co-creating rubrics on students' performance, self-regulated learning, self-efficacy and perceptions about rubrics' use.

1.1. Formative use of rubrics

The use of rubrics can increase learning and performance under assessment for learning (AfL) and formative assessment conditions (e.g. enhancing self-regulated learning) (Panadero & Jonsson, 2013). These learning gains also come from aspects related to instructional purposes, such as teachers communicating their expectations for an assignment through the rubric, providing more detailed feedback and grading the final product with higher reliability (Andrade, 2000; Moskal, 2003). On the other hand, if rubrics are used by teachers for summative purposes only (e.g. scoring the activity) the aim is no longer the students' learning, but there can still be an additional positive effect by enhancing the inter-rater and the rater (when only one teacher is scoring) reliability which results in more solid educational evaluation (Jonsson & Svingby, 2007).

Formative use of rubrics generally goes hand in hand with student self-assessment (Panadero & Jonsson, 2013), which denotes "the involvement of learners in making judgments about their own learning, particularly about their achievements and the outcomes of their learning" (Boud & Falchikov, 1989, p. 529). It is through self-assessment that students can reach a deeper understanding of their perfor-

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mance strengths and weaknesses, which allow them to improve over time (Kostons, van Gog, & Paas, 2012).

1.2. Rubric use for self-assessment and its effects on self-regulated learning and self-efficacy

Research has shown that there is a relationship between promoting self-assessment and students' self-regulated learning (SRL) (Kostons et al., 2012; Panadero & Jonsson, 2013), which is defined as "the sense of personal agency to enact this skill in relevant contexts. Self-regulation refers to self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000, p. 14). Based on SRL models, there seems to be two SRL subprocesses linked directly to self-assessment: monitoring and self-evaluation (Zimmerman, 2000). Through the use of these two strategies students verify their progress and evaluate the outcome of the task. Scholars have further discussed that assessment criteria should be introduced during the SRL planning phase – before the execution of the task starts – so that students can monitor and evaluate accordingly (Andrade & Brookhart, 2016; Panadero & Alonso-Tapia, 2013). Sharing such criteria can be achieved by introducing a rubric to students before their task execution. However, it must be noted that while providing criteria (or a rubric for that matter) does not guarantee their strategic use per se, self-regulation is more likely to occur when they are provided (Lan, 1998).

It has been proposed that, for enhancing the strategic use of assessment criteria, teachers should design activities that promote students' reflection about the learning process (i.e. SRL). In other words, teachers should use self-assessment activities (Nicol & Macfarlane-Dick, 2006). How can rubrics benefit such an aim? By using rubrics to promote self-assessment, students will have access to the assessment criteria while they are planning the task, which will lead to more realistic and adjusted learning goals (Panadero & Alonso-Tapia, 2013). Then during their performance, they can monitor the extent to which they are progressing in the desired direction using the rubric. Finally, they will be able to self-evaluate their final product by using the rubric to reflect on how they got there and what went right and wrong. All these processes should be modeled by the teacher providing feedback on the self-assessment process itself (Andrade & Valtcheva, 2009; Panadero, Jonsson, & Strijbos, 2016).

Another crucial learning variable is students' self-efficacy, which is the confidence that students have in achieving a particular goal (Bandura, 2003). This variable has been shown to be a strong predictor of academic performance (Richardson, Abraham, & Bond, 2012), as students with higher levels of self-efficacy have higher performance (Pajares, 2008). Furthermore, these students show more confidence, intrinsic interest and perseverance in difficult tasks, leading to more efficient strategies that improve learning while seeking the help of teachers and/or peers with a sharper focus (Andrade, Wang, Du, & Akawi, 2009). The use of rubrics has been shown to increase students' self-efficacy (Andrade et al., 2009; Panadero et al., 2012; Panadero & Jonsson, 2013). This effect is probably based on handing out the rubrics to students beforehand, as when learning goals become clearer students have a better understanding of the learning target and how to achieve it. However, it has not yet been studied if co-creating rubrics would have an effect on self-efficacy over just using a rubric.

In summary, the process of students' formative rubric use, which involves goal-setting, planning, monitoring, and evaluating the final result, may improve SRL, self-efficacy and performance (Panadero & Jonsson, 2013). Then how can it be ensured that students actively use rubrics? A possible way may be involving then in rubric design and/or creation.

1.3. But, why co-create rubrics?

As previously stated, one of the keys to improving students' performance is that they must be aware of what is expected from them (Good, 1987), which can be achieved by formative uses of rubrics as pointed out above. However, as shown by Andrade and Du (2005) and replicated by Reynolds-Keefer (2010), students may perceive rubrics as instruments to reach the teachers' demands and standards. Therefore, rubrics can be perceived as external constraints to their learning with the only purpose of being giving the teachers what they want. Furthermore, one of the main criticisms of rubrics is that they can promote instrumentalism which leads to shallow approaches to learning (Torrance, 2007). This effect could be counteracted by involving students in the creation and negotiation of criteria which could improve their autonomy and empowerment. In fact, it has been argued that a better understanding of criteria and greater autonomy when applying such criteria can be reached by co-creating rubrics (Andrade & Valtcheva, 2009; Panadero & Romero, 2014). In this regard, as long as students set their own goals and monitor their performance according to their criteria, they can self-regulate better in every context, therefore enhancing the possibilities to improve their academic achievement (Panadero, Brown, & Strijbos, 2016).

If students participate in the creation of rubrics, they are more likely to use this tool as if it belonged to their learning process. Otherwise, students could use rubrics just to know how scoring works (Reddy & Andrade, 2010), or because they represent what teachers want (Andrade & Du, 2005). This is supported by Kocakülah (2010) who noted that students could achieve a better grade as long as they were taught, and familiar with, rubrics. Thus, higher understanding and involvement can lead to increased motivation and confidence and therefore self-efficacy (Arter & McTighe, 2001).

Currently, only one study has explored the effect of co-creating rubrics on performance. In Kocakülah (2010), students assigned to the treatment condition created rubrics in groups of four, with each group creating a rubric. Students, under the supervision of the main researcher and rubrics experts, voted to select the best rubric. This rubric was then slightly modified and handed to the treatment students while the students in the control condition did not use a rubric. Results showed that the treatment condition outperformed the control. However, in this study it is impossible to disentangle the effects of the creating of rubrics and its use, as only the treatment groups used the rubric.

In a different line of work connected to the co-creation of rubrics, Andrade et al. (Andrade, Du, & Mycek, 2010; Andrade, Du, & Wang, 2008; Andrade et al., 2009) explored how discussing an exemplar affected performance. In these studies, the treatment conditions read a model essay (i.e. exemplar), discussed its strengths and weaknesses and listed quality aspects for effective writing. After that, a rubric previously designed by the researchers was provided to students who self-assessed the first drafts with the rubric. The comparison group only listed qualities for an effective essay and reviewed their first drafts. These three studies reported greater performance in the treatment groups. Additionally, Andrade et al. (2009) also measured self-efficacy, through the Writing Self-Efficacy Scale, finding an increase for girls in the treatment group. Even though these three studies did not explore the co-creation of a rubric per se, they show evidence of the importance of discussing assessment criteria at the outset when performing a task.

In sum, the above-mentioned studies partially explored the effects of co-creation, finding a potential effect for learning and related variables (e.g. SRL, self-efficacy). However, these studies used a treatment group, which used rubrics, and a control group, which did not. This study aims to focus on the implications of a complete process of co-creation as the only difference between both groups because, here, the control group will also use the co-created rubric.

1.4. Aim, research questions and hypothesis

The aim of this study is to explore how co-creating rubrics (treatment group) compared to just handing out the same co-created rubrics (control group) might affect self-regulation, self-efficacy, per-