

Peer assessment as a collaborative learning activity: The role of interpersonal variables and conceptions

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Abstract

The present study examined the role of interpersonal variables (psychological safety, value diversity, interdependence, and trust) and conceptions of peer assessment in vocational education. An intervention was conducted ($N = 45$) with a control group ($N = 17$), which indicated change in psychological safety, value diversity, and trust in the peer as an assessor. Furthermore, when comparing the intervention and control group, peer assessment contributed to psychological safety and lower value diversity. Perceived learning was predicted by value diversity and conceptions. Conceptions were predicted by psychological safety, value diversity, and trust in the self and in the peer as an assessor. © 2009 Elsevier Ltd. All rights reserved.

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1. Introduction

Many studies indicate that student learning is positively influenced by assessment (Black & Wiliam, 1998; Kennedy, Chan, Fok, & Yu, 2008; Pellegrino, Chudowsky, & Glaser, 2001). Assessment informs students about their strengths and weaknesses and indicates the next steps to take in the learning process. One important condition for assessment to support student learning is the active involvement in the assessment process on the part of students themselves (Black & Wiliam, 1998). As a result, students can make an active contribution to their own knowledge construction, which is beneficial to learning outcomes (Sluijsmans, 2002). This view has become known as the ‘assessment for learning’ position (Black & Wiliam, 1998).

A frequently adopted assessment method in which students are actively involved in the appreciation and appraisal of learning is peer assessment, as this is closely embedded in and aligned with students’ efforts during the instructional process

(Shepard, 2000). In peer assessment students learn from each other by means of receiving and giving feedback. Topping (1998) defines peer assessment as “Peer assessment is an arrangement in which individuals consider the amount, level, value, worth, quality or success of the products or outcomes of learning of peers of similar status” (p. 250). However, several studies have shown that the effects of peer assessment are diverse: for example, peer assessment is said to be beneficial to the learning process (Davies, 2002). More specifically, it has been found that peer assessment (together with self- and co-assessment) does help students to develop certain skills in the areas of, for example, communication, self-evaluation, observation, and self-criticism (Dochy & McDowell, 1997).

1.1. Peer assessment is a social process

Confirming the diverse picture regarding the effects of peer assessment the literature reviews by Dochy, Segers, and Sluijsmans (1999) and Topping (2003) showed that although studies on peer assessment seem to have found positive effects in general, the results remain inconclusive. More recently, Van

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Gennip, Segers, and Tillema (2009) conducted a literature review on empirical studies in higher and professional education that measured learning gains in peer assessment settings. For the period 1990–2007 they were able to identify only fifteen studies. This result indicates that there is still very little evidence on the effects of peer assessment on student learning. Moreover, regarding the effects found, the diverse picture that emerged from earlier review studies was confirmed by Van Gennip et al. (2009). One of the reasons for the inconclusive results might be that in some studies the variety in assessment interventions may have been more beneficial to learning in some settings than in others. For example, differences arose in face-to-face versus distance assessment, and confidential versus public peer assessment formats. Because of a lack of research relating features of the peer assessment setting to learning gains, it is hardly possible to draw conclusions at this point (Van Zundert, Sluijsmans, & Van Merriënboer, 2010).

In this respect, it is surprising that hardly any study has addressed the interpersonal context in which the peer assessment intervention took place. Reviewing the nature of peer assessment we find that it is an inherently social process in which students, by assessing each other, learn with and from each other as peers. It is especially in the collaborative definition and/or discussion of the criteria and standards for achievements to be appraised (see Van Steendam, Rijlaarsdam, Sercu, & Van den Bergh, 2010), and the nature of the feedback (see Cho & MacArthur, 2010; Gielen, Peeters, Dochy, Onghena, & Struyven, 2010; Strijbos, Narciss, & Dünnebier, 2010), that learning takes place. As a consequence the question what constitutes beneficial peer assessment is raised and, in particular, how interpersonal variables are interrelated, since one might contend that it is in the social nature of the appraisal process that students come to accept each other's assessments and learn from it.

1.2. Peer assessment as a learning intervention

It is clear that it takes more than bringing students together to make learning a collaborative activity. During the past decades research on team learning has highlighted the importance of the interpersonal context in which team learning takes place. There is evidence that the development of and the interplay between interpersonal variables affect the outcomes of a collaborative learning activity (Edmondson, 1999; Van den Bossche, Gijsselaers, Segers, & Kirschner, 2006). Several interpersonal variables have been identified as important for team work. Unanimity of opinion about the team's task and mission (low value diversity), a belief that the environment is safe for interpersonal risks, that is, group members feel safe enough to say, do, and ask what they think is good (psychological safety), and a feeling of mutual dependence according to the task (interdependence) all proved important for learning, information sharing, good communication, and a good team performance (Edmondson, 1999; Jehn, Northcraft, & Neale, 1999; Van der Vegt, Emans, & Van de Vliert, 1998).

Within the peer assessment literature several authors have referred to the relevance of interpersonal variables as well. Topping (2003), for example, theorises: “peer assessments might be partly determined by: friendship bonds, enmity or other power processes, group popularity levels of individuals, perception of criticism as socially uncomfortable or even socially rejecting and inviting reciprocation, or collusion leading to lack of differentiation” (p. 67). The studies by Dochy et al. (1999), Falchikov (1995), and Sluijsmans, Brand-Gruwel, and Van Merriënboer (2002) refer to various problems that might arise given the social context of peer assessment. They mention students' hostility towards peer assessment when they first experience it, a lack of trust in the self and the other as assessors, and friendship marking, where peers give their friends higher marks than others regardless of performance. Despite the various indications that interpersonal variables might play a significant role within peer assessment, these have to date hardly been studied in a systematic way (as shown by Van Gennip et al., 2009). One study (Stanier, 1997) was found that referred to the relevance of interpersonal variables, that is, how students conceive peer assessment as a learning experience. In Stanier's (1997) study, students reported that they enjoyed working in groups, there were not many personality clashes, they were working together on a task, and that they thought their performance improved by working with others. These findings refer to how students perceive the interpersonal context, or more precisely, psychological safety and interdependence. Additionally, 40% indicated that peer assessment was an uncomfortable experience. However, with respect to perceived learning gains the majority of students (74%) stated that peer assessment was an awareness-raising experience which stimulated them to think about the quality of their peers' work (98%).

Although the studies reviewed offer some interesting findings with regard to peer assessment effects, they hardly provide empirical evidence on the nature of the peer assessment setting, that is, its interpersonal aspects of the setting contributing to learning. Therefore, it might be relevant to gauge the *change* in student perceptions with regard to both interpersonal variables and students' conceptions of peer assessment as a tool to measure learning, as this results from experiencing this mode of assessment. Moreover, we need to establish more clearly how students' perceptions of the interpersonal variables, their conceptions of peer assessment, and learning gains relate to each other. This study will focus on the question how peer assessment as an intervention influences students' perceptions of the interpersonal variables, and their conceptions of peer assessment. In addition, it addresses the relation between interpersonal variables and conceptions of peer assessment with regard to learning gains.

1.3. Interpersonal variables and peer assessment

Several interpersonal variables come into play when arranging a collaborative or peer-based intervention, such as psychological safety, trust, value diversity, and interdependence.

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