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Performance grading and motivational functioning and fear in physical education: A self-determination theory perspective☆

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ABSTRACT

Grounded in self-determination theory, the present study examines the explanatory role of students' perceived need satisfaction and need frustration in the relationship between performance grading (versus non-grading) and students' motivation and fear in a real-life educational physical education setting. Grading consisted of teacher judgments of students' performances through observations, based on pre-defined assessment criteria. Thirty-one classes with 409 students (M_{age} = 14.7) from twenty-nine Flemish (Belgian) secondary schools completed questionnaires measuring students' perceived motivation, fear and psychological need satisfaction and frustration, after two lessons: one with and one without performance grading. After lessons including performance grading, students reported less intrinsic motivation and identified regulation, and more external regulation, amotivation and fear. As expected, less need satisfaction accounted for (i.e., mediated) the relationship between performance grading and self-determined motivational outcomes. Need frustration explained the relationship between performance grading and intrinsic motivation, as well as less self-determined motivational outcomes. Theoretical and practical implications are discussed.

1. Introduction

Using grades to assess students' performance is an integral part of educational systems around the globe (Ames, 1992; Lingard, 2010; Strain, 2009). The motivational impact of grading is likely to depend on its functional significance (Vansteenkiste, Ryan, & Deci, 2008). When students predominantly perceive a grading event as a judgment of their performance, rather than as a way of receiving information about their learning process, this may come at a motivational price (Ames, 1992; Amrein & Berliner, 2002; Ryan & Brown, 2005). Students' focus on performing well to obtain good grades may then undermine their interest and 'love of learning' (Butler, 1987; Butler & Nisan, 1986; Jones, 2007; Pulfrey, Darnon, & Butera, 2013). Moreover, students may start to avoid looking bad in front of their teachers or peers, which may lead to fear of failure and feelings of incompetence when grades are inferior (Elliot & McGregor, 1999; McDonald, 2001; Ryan & Weinstein, 2009). Using a within-person design, the present research investigated whether students' motivational functioning, fear and need-based experiences varied as a function of whether they were graded or not during their real-life physical education (PE) classes (i.e., ecologically valid setting). Moreover, extending past work, we addressed the processes (i.e., need-based experiences) underlying the hypothesised motivational and fear differences between a grading and non-grading class. Because the functional significance of the grading was primarily evaluative and judgmental of student's performance, we refer to this type of grading as 'performance grading'.

1.1. Grading in physical education

As in many other countries, in Flanders (Belgium), PE students are regularly assessed throughout the school year. Functions of assessment in PE (as in academic courses) can be positioned on a continuum from 'performance-based assessment' (i.e., quality judgment of students' performance) to 'informational assessment' (i.e., specifying learning progress and constructing the way forward; López-Pastor, Kirk, Lorente-Catalán, MacPhail, & Macdonald, 2012; Tunstall & Gipps,

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1996). In Flanders (Belgium), PE students are often exposed to a performance-based assessment system. Students' performance is commonly rated with the grades 1 to 10. The grades '1' to '4' designate an insufficient performance, the grades '5' to '7' describe a sufficient performance, and the grades '8' to '10' describe good to excellent performances (i.e., a 'multiple grades system'; Barenberg & Dutke, 2013, p.122).

While awarding performance-based grades in PE, teachers typically use criterion referenced grading (i.e., how well do students perform relative to criteria; Pulfrey, Buchs, & Butera, 2011; Redelius & Hay, 2012) and norm referenced grading (how well students perform relative to others; Chan, Hay, & Tinning, 2011; Elliot & Moller, 2003; Johnson, Prusak, & Pennington, 2011). Frequently used methods are teacher judgments based on observations with (Borghouts, Slingerland, & Haerens, 2016; Svennberg, Meckbach, & Redelius, 2014) or without (Annerstedt & Larsson, 2010; Hay & Macdonald, 2008; Svennberg et al., 2014) explicitly communicating criteria. Irrespective of the type of grading that students are submitted to, or which combination of grading systems the teacher employs, assessing performance through the use of a multiple grades system conveys information, which allows (and in fact mostly triggers) students to compare their performance with other students. Moreover, students in Flanders (Belgium) receive a report card at the end of each semester, which contains the average grades for PE along with other subjects (European Commission/EACEA/Eurydice, 2013). This report card again allows students to directly compare performances. It is therefore argued that performance-based grades stimulate normative and social comparison (Ames, 1992; Elliot & Moller, 2003). Such social comparison (Ames, 1992) might be further fostered by the 'visibility' of performance during PE lessons (Annerstedt & Larsson, 2010; Johnson et al., 2011; Redelius & Hay, 2012), and may come with a motivational cost.

1.2. Self-determination theory and performance grading

1.2.1. Motivational differences

According to SDT, depending on whether the performance grading is perceived to be more evaluative and judgmental or informational and helpful, different types of motivation are likely to be engendered. A refined taxonomy of motives is discerned within SDT, with some of them being more autonomous and others more controlled in nature (Deci & Ryan, 2000; Vansteenkiste, Lens, & Deci, 2006). Students are said to display autonomous regulation during a PE class when they find their class to be enjoyable and interesting (i.e., intrinsic motivation) or value its personal benefits (i.e., identified regulation). In contrast, students are controlled motivated when they put effort in their PE class to please their teacher, to obtain good grades, or to avoid criticism (i.e., external regulation). Interestingly, students may not only be externally pressured, but could also pressure themselves to do well (i.e., introjected regulation), for instance by buttressing their activity engagement with feelings of guilt and contingent self-worth. While students are – quantitatively speaking – motivated when they display either autonomous or controlled motivation, amotivation within SDT reflects a lack of motivation. Specifically, amotivated students typically invest a minimum amount of effort in PE classes because they experience incapability to perform activities, or because they do not experience a personal value (Deci & Ryan, 2000).

Dozens of previous studies have indicated that autonomous motivation, relative to controlled motivation and amotivation, relates to a host of desirable outcomes (see Ntoumanis & Standage, 2009 for an overview). To illustrate, autonomous motivation is predictive of students' observed engagement (Aelterman et al., 2012) and rated performance (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004), whereas controlled motivation and amotivation relate to undesirable outcomes, including boredom (Ntoumanis, 2001), low engagement (Aelterman et al., 2012), and fear of exams and test situations (Schaffner & Schiefele, 2007).

Further, a number of studies have indicated that these different types of motivation get differentially activated under grading versus non-grading circumstances. For instance, experimental research showed that grading, particularly when students experience it as a judgment of their performance, results in lower levels of intrinsic motivation (Butler, 1987; Butler & Nisan, 1986; Grolnick & Ryan, 1987; Johnson et al., 2011; Pulfrey et al., 2011) and identified regulation (Johnson et al., 2011; Pulfrey et al., 2011). Furthermore, two studies found external regulation (Grolnick & Ryan, 1987; Johnson et al., 2011) and amotivation (Johnson et al., 2011) to increase in situations where performance-based grading takes place. Yet, to the best of our knowledge, no previous study specifically examined the relationship between performance grading and introjected regulation. Although it seems rather self-evident that students are more externally regulated during an evaluative grading class, the question remains whether they equally apply such pressure to their own functioning. Presumably, because performance grading 'awakens' students' ego, they may display more introjected regulation as well.

1.2.2. Explanatory processes: need-based experiences

While the motivational correlates of performance grading are fairly well documented in the literature, less is known about the processes underlying these effects (but see Pulfrey et al., 2013). To predict the motivational impact of performance grading, from a SDT-account, the critical question is whether the grading impacts on individuals' psychological need-based experiences. Three psychological needs have been discerned, that is, the need for autonomy, relatedness, and competence (Deci & Ryan, 2000). Specifically, need satisfaction refers to students' experience of volition and self-endorsement (i.e., need for autonomy), their feeling of connection and mutual care (i.e., need for relatedness) and their experience of effectiveness (i.e., need for competence). Dozens of studies have indicated that the satisfaction of these needs contributes to individuals' autonomous motivation, and their engagement and growth in the classroom (Niemiec & Ryan, 2009).

While the satisfaction of these needs has received considerable attention, it is only more recently that the notion of need frustration, which may particularly be useful in the context of grading, has been researched more intensively (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011a; Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011b; Haerens, Aelterman, Vansteenkiste, Soenens, & van Petegem, 2015). Need frustration deserves attention by its own right because – theoretically speaking – the absence of need satisfaction does not necessarily denote the presence of need frustration (Vansteenkiste & Ryan, 2013). Indeed, for need frustration to occur, a more active thwarting of individuals' needs is required. Specifically, need frustration refers to feelings of pressure and internal conflict (i.e., autonomy frustration), rejection and disrespect (i.e., relatedness frustration), or feelings of failure and inadequacy (i.e., competence frustration). The distinction between need satisfaction and frustration is critical as unfulfilled needs (i.e., low need satisfaction) may not relate as robustly to malfunctioning as frustrated needs may. A metaphor (Vansteenkiste & Ryan, 2013, p.265) may help to account for this assumption: 'If plants do not get sunshine and water (i.e., resulting in low need satisfaction), they will fail to grow and will die over time; yet, if salted water is thrown on plants (i.e., eliciting need frustration), they will wither more quickly.' Thus, whereas low need satisfaction is likely to yield motivational costs over time, high need frustration will accelerate negative motivational processes. Congruent with this assumption, past research has found need satisfaction to be predictive of autonomous motivation (Haerens et al., 2015), engagement (Jang, Kim, & Reeve, 2016) and well-being (Bartholomew et al., 2011a), while need frustration relates to controlled motivation and amotivation (Haerens et al., 2015), disengagement (Jang et al., 2016) and ill-being (Bartholomew et al., 2011a). Such findings have been documented using cross-sectional, longitudinal and diary designs (van der Kaap-Deeder et al., 2016).