



# More enjoyment, less anxiety and boredom: How achievement emotions relate to academic self-concept and teachers' diagnostic skills

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## ABSTRACT

Students' achievement emotions are critical in their academic development. Therefore, teachers need to create an emotionally positive learning environment. In the light of this, the present study investigated the connection between students' enjoyment, anxiety, boredom and, in the first case, students' academic self-concept and, in the second, teachers' diagnostic skills. The third part of our study examined whether this link would be moderated by students' academic self-concept. Our sample comprised  $N = 1803$  eighth-grade students who reported their achievement emotions and evaluated the diagnostic skills of both their German and mathematics teachers. Hierarchical models indicated that students experience more enjoyment and less anxiety and boredom if teachers exhibit better diagnostic skills. The role of teachers' diagnostic skills in relation to students' emotions was in part moderated by the students' self-concept. These results are discussed in terms of their implications for effective teaching.

## 1. Introduction

Emotions felt during classroom learning are critical to students' learning outcomes (Schutz & Pekrun, 2007). When studying or dealing with test results, students may experience a wide range of emotions. Enjoyment, hope, pride, but also anxiety, disappointment, and boredom are cases in point. These emotions are “not just mere epiphenomena” of students' learning (Pekrun & Perry, 2014, p. 120), but can be seen as important student outcomes. Drawing on motivational theories, such as Pekrun's control-value theory of emotion (Pekrun, 2006; Pekrun & Perry, 2014), several studies have identified precursors to students' emotional experiences, first and foremost the extent to which students value learning activities and perceive having control over them (often operationalized by students' academic self-concept) (Götz, Cronjäger, Frenzel, Lüdtke, & Hall, 2010; Pekrun, Cusack, Murayama, Elliot, & Thomas, 2014). In addition to individual student characteristics, teacher's instructional quality has more recently drawn the attention of emotion research (for a review, see Meyer, 2014). Different dimensions of instructional quality, such as classroom management and cognitive challenge and activation, have been linked to students' emotions in class (Götz, Lüdtke, Nett, Keller, & Lipnevich, 2013; Kunter et al., 2013). Yet, there is one aspect that has not been examined in terms of its role for student emotions, namely teachers' diagnostic skills, despite

the fact that it might arguably be a major prerequisite for establishing a learning environment that students perceive as controllable and valuable.

The present study aimed, firstly, to replicate previous findings on the link between achievement emotions and academic self-concept and, secondly, to examine the relation between students' achievement emotions and teachers' diagnostic skills. Thirdly, we investigated the interplay between teachers' diagnostic skills and students' academic self-concepts in students' achievement emotions. We used a sample of  $N = 1803$  German academic-track eighth-grade students, who reported their enjoyment, anxiety, and boredom in German and mathematics, their academic self-concept in both subjects, and evaluated the diagnostic skills of their teachers in these subjects. As students' achievement emotions are thought to be arranged in a domain-specific manner (Pekrun, 2006), we conducted our analyses separately for the two subjects.

### 1.1. The control-value theory of achievement emotions

Emotions that result from achievement activities (like studying) or achievement outcomes (like a grade in a test) are considered *achievement emotions* (Pekrun, Götz, Frenzel, Barchfeld, & Perry, 2011). The central proposition of the *control-value theory* (Pekrun, 2006; Pekrun &

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Perry, 2014) concerns the way in which one's appraisal of a given situation affects one's achievement emotions. The theory posits that students experience a specific emotion when a learning activity or outcome is subjectively relevant for them and they feel either high or low levels of control over this activity or outcome. For instance, students are likely to experience enjoyment when they feel that they can master the learning material in a lesson and believe that achievement in, say, mathematics is important. In contrast, students may feel anxious when they believe that their learning actions may not result in the desired positive achievement outcomes. Boredom is different from other emotions as it occurs when students do not value a given learning activity (Pekrun, Götz, Daniels, Stupnisky, & Perry, 2010). In relation to perceived control, Csikszentmihalyi (2014) suggests that boredom may be induced by high ability and low task demands resulting in high levels of subjective control. In contrast, Pekrun et al. (2010) proposed that, according to control-value theory, the relation between perceived control and boredom should be curvilinear, meaning that students experience higher levels of boredom when they perceive high or low control and lower levels of boredom when they perceive moderate control. The authors contended, however, that in most learning environments students do not have so much control that this would be a factor in their boredom. Instead, the authors argued that perceived control would be negatively associated with boredom, and this was confirmed by their findings (Pekrun et al., 2010).

### 1.2. Achievement emotions and individual student characteristics

From the perspective of control-value theory, students' academic self-concept is seen as a proximal antecedent of achievement emotions (Pekrun & Perry, 2014). More specifically, students' academic self-concept is thought to reflect their perceptions of personal control (Pekrun, 2006). Consequently, students with higher academic self-concepts are expected to experience more positive and less negative achievement emotions, because they perceive higher levels of control (Götz, Cronjäger, et al., 2010). Similar assumptions can be derived from appraisal-based emotion theories (Scherer, Schorr, & Johnstone, 2001) and Bandura's (1989) theory of perceived self-efficacy. Empirical studies have indeed shown that students' academic self-concept moderately to strongly impacts academic emotions (Götz et al., 2012; Götz, Cronjäger, et al., 2010; Götz, Frenzel, Stöger, & Hall, 2010). For instance, eighth-grade and eleventh-grade students with higher academic self-concept experienced more enjoyment and pride and less anxiety, anger, and boredom with stronger relations visible in quantitative domains (mathematics, physics) compared to language domains (German, English; Götz, Cronjäger, et al., 2010).

In addition, students' achievement and gender may relate to students' achievement emotions (Pekrun & Perry, 2014). Achievement is thought to affect students' emotions both directly and indirectly via control appraisals (Pekrun, 2006; Pekrun & Perry, 2014). Accordingly, empirical studies showed that students who do better in standardized achievement tests experience more positive and less negative emotions (Dettmers et al., 2011; Götz et al., 2004). Students with similar standardized achievement in a given subject, say mathematics, may differ in their mathematical self-concept, because the external references (e.g., achievement of peers) and internal references (e.g., achievement in language domains) that students use as a basis for their self-concept vary (Marsh, Byrne, & Shavelson, 1988). Therefore, students' achievement and self-concept may, to some extent, independently relate to students' emotions. Finally, students' gender may additionally be linked to achievement emotions, a finding that has been vividly illustrated in a study by Dettmers et al. (2011). The authors showed that boys experienced more unpleasant emotions when doing their math homework than girls did, even when they had similar standardized math achievement results and held similar expectancy beliefs as girls. Luo, Ng, Lee, and Aye (2016) suggested that such gender differences in achievement emotions could be due to additional personal or

contextual factors beyond those postulated by control-value theory.

### 1.3. Achievement emotions and teachers' instructional practices

Meyer (2014) summarized prior research on the role of classroom practices in students' emotions, laying the foundation for an ecological model. Her model suggests that, out of various classroom practices, it is teachers' instructional activities that may be the most proximal determinants of students' emotions. When reviewing empirical studies on the relation between students' emotions and teachers' instructional activities, Meyer (2014) highlights the relevance of two instructional characteristics: cognitively challenging instructional practices and teachers' emotions during instruction.<sup>2</sup>

Different theories on achievement emotions propose slightly contrasting views on the role that cognitively challenging instructional practices may play in students' emotions. According to Flow Theory, low challenge may result in apathy and boredom, while high challenge may lead to positive emotions, at least in high-achieving students (Csikszentmihalyi, 2014). Although this assumption has been partially confirmed by a number of studies (for an overview see Csikszentmihalyi, 2014), Eccles and Wigfield (1995) showed that adolescents devalue activities when they appear to be difficult. Similarly, appraisal-based emotion theories contend that if students believe they have lost control they may experience negative emotions (Pekrun, 2006; Scherer et al., 2001). Accordingly, there is evidence that excessive lesson demands may be closely tied to negative emotions. Thus, students tend to experience anxiety when they feel that the pace of instruction or the difficulty of the learning material exceed their own skills (Schweinle, Meyer, & Turner, 2006; Schweinle, Turner, & Meyer, 2008).

Alongside cognitively challenging instructional practices, it has been suggested that classroom management and learning support play a role in students' emotions. A recent study by Kunter et al. (2013) examined the impact that classroom management, learning support, and cognitive challenge and activation had on students' enjoyment in mathematics while controlling for prior enjoyment and achievement in grade 9. Contradicting a number of previous results (e.g., Götz, Lüdtke, et al., 2013; Schweinle et al., 2008), the level of cognitive challenge in class did not affect student enjoyment. However, their findings showed that both the quality of classroom management and teachers' learning support—i.e. teachers' adaptive explanations, constructive responses to mistakes, respectful interactions with students, and adequate pacing—played a role in students' enjoyment. In addition, Götz, Lüdtke, et al. (2013) showed that a “supportive presentation style” and “excessive lesson demands” were associated with students' achievement emotions. Thus, students experienced less enjoyment and less pride, but more anxiety, anger, helplessness, and boredom when lesson demand was higher. Moreover, students experienced more enjoyment and pride and less boredom when their teachers tended to support students, i.e. when teachers were enthusiastic, fostered students' attention, and illustrated ideas clearly in lessons, and when lessons were understandable. The authors suggested that these aspects of teachers' support foster students' emotions by increasing students' control appraisals (via understandability, illustration, and fostering attention) and value appraisals (via understandability, illustration, and enthusiasm) and additionally by directly impacting students' emotions (through enthusiasm) (Götz, Lüdtke, et al., 2013). While there was a clear difference in the operationalization of teacher support in the study of Götz, Lüdtke, et al. (2013) compared to Kunter et al. (2013), both shared one aspect, termed “understandability” by Götz, Lüdtke, et al. (2013, p.389) and adequate “pacing” and “adaptive explanations” by

<sup>2</sup> Findings on the relation between teachers' emotions and students' emotions will not be discussed here as they are out of the scope of this paper (for an overview, see Babad, 2007).

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