



Students' emotions and academic engagement: Introduction to the special issue

Lisa Linnenbrink-Garcia^{a,*}, Reinhard Pekrun^b

^a Duke University, USA

^b University of Munich, Germany

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ABSTRACT

In recent years, there has been a growing interest in the role of emotions in academic settings, especially in how emotions shape student engagement and learning. This special issue highlights new research in this area and aims to inspire others to join us in conducting empirical research on emotions in education. Using a variety of theoretical and methodological perspectives, all contributions share a unique focus on the linkages between students' emotions and their academic engagement. What is particularly important about this set of papers is their consideration of how and why student emotions emerge, how these emotions in turn shape students' engagement and achievement, and the ways in which students can harness emotional resources for facilitating their engagement and achievement. In this introduction to the special issue, we briefly highlight each of the manuscripts and suggest several directions for future research.

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For more than a decade, there has been growing interest in the role of emotions in academic settings. Starting with scarcely attended conference sessions on emotions at the annual meetings of the American Educational Research Association in the mid to late 1990s to recent conferences with multiple, large sessions, it is clear that interest in research on emotions in education has grown substantially. This growing interest in emotions in education parallels the dramatic increase in attention to emotion in many scientific disciplines including economics, neuroscience, anthropology, and the humanities. Yet, in educational psychology, research on emotions is still rather limited, despite theoretical advances and calls for more empirical studies (cf., Efkides & Volet, 2005; Linnenbrink, 2006; Schutz & Lanehart, 2002; Schutz & Pekrun, 2007). Accordingly, this special issue brings together a series of papers to illustrate the myriad of methods and approaches that can be used to study emotions in educational settings. We hope this inspires more educational psychologists to expand their programs of research to consider the important and pervasive role of emotions in students' academic engagement.

The issue includes empirical research produced by a group of international scholars. Using a variety of theoretical and methodological perspectives, all six contributions share a unique focus on the linkages between students' emotions and their academic engagement and thus demonstrate the critical role of emotions in academic settings (for a related conceptual discussion of emotion and student engagement, see Pekrun & Linnenbrink-Garcia, *in press*). As a set, this group of articles represents cutting edge re-

search focused on how and why students' emotions emerge, the role of emotions in shaping students' engagement and achievement, and the use and regulation of emotional resources for supporting academic engagement and achievement.

Also noteworthy among these manuscripts is their conceptual clarity in defining and assessing emotions. Given the broad debate among emotion researchers generally about what emotion is and how it should be measured (cf., Gendron & Feldman Barrett, 2009; Lewis, Haviland-Jones, & Feldman Barrett, 2008), conceptual clarity is critical if we are to avoid the pitfalls of much emotion research. That is, in order to form a cohesive body of research that informs educational practice, it is essential that research in this area defines and assesses emotions in a clear and consistent manner. An additional challenge in studying emotions is determining the level at which to assess them. For example, some researchers assess emotions at the level of a specific emotion or even a specific facial expression or physiological/neurological response, while others focus on broader affective states, differentiating pleasant from unpleasant emotions. Assessments also vary in their focus on emotional states, which fluctuate and change from moment to moment, versus long-lasting emotional traits, reflecting individuals' tendencies to respond in a certain manner. The decision one makes about the level of specificity and the focus on states versus traits has important implications for understanding the function of emotions in educational settings.

To illustrate various strategies to studying emotion, the papers included in this special issue were selected to represent a range of approaches. These papers also differ in their focus on emotions versus the regulation of emotions. Using data from the PISA 2006 study, Ainley and Ainley investigated the single emotion of enjoyment when learning science. Their analysis helps to clarify how the

* Corresponding author.

E-mail address: llinnen@duke.edu (L. Linnenbrink-Garcia).

emotion of enjoyment is distinct from, but intertwined with, the construct of interest. Specifically, these authors examined students' knowledge about science and value for science as predictors of enjoyment when learning science; they also considered how enjoyment shapes students' interest in science and intentions to engage in science in the future.

Examining a broader range of emotions, Linnenbrink-Garcia, Rogat, and Koskey used a circumplex model of affect to examine how four affective states (activated positive, activated negative, deactivated positive, deactivated negative) related to upper-elementary school students' social-behavioral engagement during small group learning in mathematics. This work highlights the dynamic, reciprocal relation between emotions and social-behavioral engagement and the importance for considering how emotions shape students' engagement during small group instruction. Also in the domain of mathematics, Dettmers, Trautwein, Lüdtke, Goetz, Frenzel, and Pekrun used a composite measure of unpleasant emotions to examine how homework quality predicted adolescents' homework emotions in mathematics, how this process was mediated by students' expectancies and value related to homework, and how homework emotions in turn shaped subsequent engagement and achievement. By considering both the antecedents and consequences of homework emotions, this research helps to highlight how students' emotions emerge when doing homework and in turn shape engagement and achievement.

Pekrun, Goetz, Frenzel, Barchfeld, and Perry examined emotions at the broader level of the academic domain and focused on more stable emotional responses in academic settings. These authors report on the development of the Achievement Emotions Questionnaire (AEQ), which assesses multiple achievement emotions during class, when studying, and during exams. The instrument was validated in a study of college undergraduates, focusing on the role of control and value appraisals in shaping achievement emotions and the close links between achievement emotions and students' engagement and performance. Pekrun et al. also examined the underlying structure of achievement emotions, providing greater clarity regarding the conceptualization of these emotions in academic settings.

Finally, two studies investigated the regulation of emotions. Nett, Goetz, and Hall focused on the single emotion of boredom. They examined how adolescents cope with boredom during mathematics using both trait and state coping styles. What is particularly unique about their approach is the consideration of the interplay between the regulation of boredom and the experience of boredom in the classroom. Based on their findings, Nett et al. make a number of suggestions about how students can effectively regulate boredom to enhance academic engagement. At the domain-general level, MacCann, Fogarty, Zeidner, and Roberts investigated how adolescents' and adults' emotional intelligence, conceptualized as a stable ability, related to academic achievement via school-related coping strategies. This study is unique in that it examined the underlying mechanisms that help to explain why emotional intelligence relates to academic achievement, suggesting that problem-focused coping with stress and negative emotions is critical in linking emotional intelligence to enhanced achievement.

These studies also represent a range of contexts for studying emotions, including homework in family environments (Dettmers et al.), small group work in school (Linnenbrink-Garcia et al.), and general classroom or school environments (Ainley & Ainley; MacCann et al.; Nett et al.; Pekrun et al.). Thus, they elucidate the numerous ways in which emotions permeate students' educational experiences. Finally, it is noteworthy that the authors employed a variety of methodologies ranging from quantitative to qualitative approaches, and used a range of sophisticated methodological (e.g., experience sampling methods) and

statistical (e.g., structural equation and multi-level modeling) techniques.

For example, Nett et al.'s use of experience sampling methodology helped to capture the dynamic fluctuation of emotions in academic settings. Linnenbrink-Garcia et al. also focused on capturing the dynamic role of emotions during small group learning using both a qualitative analysis of students' interactions in small groups as well as cross-lagged analyses based on structural equation modeling. Ainley and Ainley as well as MacCann et al. employed structural equation modeling and path analysis to examine relations between emotion or emotional intelligence, respectively, and students' engagement and performance, as well as processes mediating these relations. Dettmers et al.'s use of multi-level modeling helped to tease apart perceptions of homework at the class versus individual level, which differentially predicted students' experience of unpleasant emotions. To examine the underlying structure of achievement emotions across contexts and forms of emotion, Pekrun et al. employed confirmatory factor analysis, which allowed the consideration of a two-facet model of academic achievement emotions that accounts both for different settings and for different discrete emotions within settings.

Given the range of ways in which emotions and emotion regulation are examined, this collection of studies helps to raise awareness about the current state of the field and the variety of options available for conceptualizing and analyzing emotions. However, it is also important to consider how future studies can build upon and expand current research (for a more comprehensive treatment, see Pekrun & Schutz, 2007). Below we highlight several future directions and issues to reflect upon when conducting research on emotions in academic settings.

First, as noted previously, it is critical that researchers studying emotions clearly define emotions and carefully align their assessment of emotions with their theoretical conceptualizations. Failure to do this will inevitably result in a muddled, fragmented set of findings that will hamper progress in this field and will not be useful for informing classroom practice. Second, researchers should carefully consider the level at which they assess emotions. The decision to focus on a specific emotion versus a broader range of emotions or broad affective states has important implications in terms of developing fine-grained analyses of how particular emotions shape cognitive processing and engagement versus more fully capturing the complexity of students' emotional life in the classroom. Both types of research are needed, but researchers should take into account the underlying purpose of their work so that their methodology is aligned with their goals. Moreover, for those researchers studying specific emotions, an expanded focus is needed. There is certainly a plethora of research on anxiety in the classroom, but relatively little research on other emotions. Thus, there is a need for more research on a broad variety of emotions such as anger, frustration, confusion, boredom, shame, hopelessness, enjoyment, hope, relief, contentment, and pride.

Third, there has been an explosion of research investigating the neurological bases for emotions and their link to other forms of neurological functioning (cf., Davidson, Pizzagalli, Nitschke, & Kalin, 2003; Immordino-Yang, McColl, Damasio, & Damasio, 2009). Educational researchers should draw upon this research, especially when examining implicit affective processes and their effects on motivation and cognitive functioning. Fourth, in a related manner, the assessment of emotions needs to move beyond self-reports to consider physiological markers and facial as well as postural expressions. Indeed, there is an exciting new line of experimental work using facial expressions to adjust instruction based on students' emotions in technology-enhanced learning environments (Calvo & D'Mello, *in press*). Additional creative methodological approaches are necessary to tackle the challenges of studying emotions in real-world classroom settings. Fifth, research must move

beyond linear, unidirectional processes to consider the dynamic role of emotions in classrooms. This will require advances in methodology, but also changes in the way in which we assess emotions so that we can better understand how emotions unfold and reciprocally relate to motivation, cognitive processes, and academic performance across time (for models of reciprocal causation, see Linnenbrink & Pintrich, 2002; Pekrun, 2006).

Furthermore, it will be important to focus on the various ways in which emotions are contextualized in academic settings and socio-cultural contexts. Several of the studies included in this special issue consider unique aspects of the educational setting (e.g., homework, small group instruction), but more research is needed to understand how different contexts and cultures shape emotions. Finally, we need additional research on the creation of adaptive emotional learning environments. There is very little research examining the role of emotions in classroom interaction (for exceptions see Frenzel, Goetz, Lüdtke, Pekrun, & Sutton, 2009; Meyer & Turner, 2007; Turner, Meyer, Midgley, & Patrick, 2003). And, the few attempts to support positive academic emotions by altering academic environments have only been partially successful (e.g., Glaeser-Zikuda, Fuss, Laukenmann, Metz, & Randler, 2005).

In summary, educational psychologists are making great strides in understanding the central role of emotions for students' academic lives. The articles included in this special issue help to highlight the importance of emotions in shaping a variety of forms of engagement. However, research on students' emotions is in its early infancy, and we still have much more work to do in this area. Emotions are infused in classroom life, playing central roles in social interactions (both peer-to-peer and teacher–student), cognitive processing, and student engagement. Yet, the complexity and dynamic nature of emotions make them difficult to study. Thus, the field would benefit greatly from an increase in systematic, theoretically grounded, and empirically sound research investigating emotions in academic settings. We hope that the articles in this special issue will inspire others to incorporate emotions into their on-going programs of educational and psychological research.

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