ORIGINAL ARTICLE

Emotion Research in Education: Theoretical and Methodological Perspectives on the Integration of Affect, Motivation, and Cognition

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Abstract This special issue was organized with the intent to highlight critical research being conducted on affect in education as well as to highlight potential areas for future research. Each of the manuscripts included in this special issue focuses on the contributing authors' program of research, with an emphasis on the theoretical basis for their work and the methodologies they employ. The authors also consider how to integrate affect, motivation, and cognition and discuss methodological challenges to investigating affect in educational settings. Finally, the authors consider the role of affect in education, making specific suggestions for practice as well as more general suggestions for theory development.

Keywords Affect · Emotion · Motivation · Mood

Introduction

In the last decade, a number of scholars have focused on understanding the role of affect,[1] or moods and emotions, in education (see Efklides & Volet, 2005; Schutz & Pekrun, in press for an overview of recent work). Yet, we still have much to learn about the affective experiences of students and teachers in academic contexts and how to integrate affect into existing models of motivation and learning. As is often the case in newly emerging areas of research, many of the scholars working in this field use different definitions of affect, moods, and emotions and vary in the theoretical and methodological lenses through which they examine these issues. As such, the contributors to this special issue agreed that it is important to pause to consider the theoretical similarities and disconnects among the various perspectives and to consider whether our current methodologies are in line with our understanding of affect in educational settings. This reflection began as part of a theoretical

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[1] Throughout the introduction, I use the term 'affect' to refer to affective states generally, which include both moods and emotions.

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symposium that was presented at the annual meeting of the American Educational Research Association in April of 2005, entitled *Reflections on Emotion Research: The Theoretical Integration of Affect, Motivation, and Cognition*. In this special issue, the contributors to the symposium were given the opportunity to expand these thoughts, with the goal of enhancing communication across theoretical perspectives.

The five articles that appear as part of the special issue are authored by researchers representing a diversity of perspectives. For example, Pekrun, who advocates a control-value theory of emotion, elaborates on the theoretical underpinnings of this influential theory, discusses implications for future research, and considers how to integrate motivation, affect, and cognition. Many of the other articles in this special issue use control-value theory as a theoretical basis for some of their work. Schutz, Hong, Cross, and Osbon take a different perspective by focusing on emotions that emerge in education for both teachers and students using an eclectic approach with a socio-historical focus. They also expand the notion of affect in education to include the consideration of emotion regulation. Op 't Eynde and J. E. Turner use a dynamic systems approach to understanding students' emotions in educational settings; they highlight the importance of looking at multiple levels of emotional experiences and of integrating emotion, motivation, and cognition. The last two articles take a slightly different perspective in that both articles begin with motivation as the focus of their work rather than affect, but quickly turn to affect as critical in understanding student motivation. As such, both of these articles underscore the somewhat arbitrary way in which motivation, affect, and cognition have been investigated in isolation, and emphasize the benefits that can be gained by considering these three dimensions as integrated. More specifically, Meyer and J. C. Turner discuss their work on understanding student and teacher emotions in classrooms, drawing from motivational theories such as risk-taking, flow theory, and achievement goal theory. Ainley focuses on one specific type of affect, the affective state of interest. In this work, she argues that interest itself involves the integration of affect (positive activation), directed attention/impulse to act (motivation), and information-seeking (cognition).

Although there are differences among the theoretical perspectives and programs of research represented in these five articles, there is also considerable overlap in the way in which the authors define affect, moods, and emotions, their use of social psychological theories of affect, and their call for innovative methodologies to study the complex, dynamic, shifting, and sometimes elusive emotions that ebb and flow in educational settings. As way to draw attention to the similarities and differences in the theoretical and methodological perspectives, each of the authors was asked to address the following five central questions:

1. How do you define affect? What theories inform your work on affect?
2. At what level do you study affect? That is, do you focus on structure (e.g., structures of academic emotions), process (e.g., the process of test anxiety during a particular test), and/or social historical context (e.g., the nature and development of anger as a social construction)?
3. What links do you see between affect, motivation, and cognitive processing? What are the educational benefits of integrating these areas of research?
4. What do you see as the most pressing methodological concerns regarding current research on affect in education and what suggestions do you have for resolving these concerns?
5. How can affect research inform education? Do you see affect as an important outcome or is it more important as a predictor or process variable in educational settings?

In the following sections, I briefly outline the authors' responses to these five central questions.

How do You Define Affect? What Theories Inform Your Work on Affect?

The first question focused on the critical issue of how to define affect. While this question may seem obvious or trivial, the terminology used by theorists in this field is often inconsistent, which creates problems as researchers try to resolve discrepant findings and creates confusion for newcomers to the field as they attempt to grasp the ongoing dialogue (see Murphy & Alexander, 2000 for a similar concern regarding the field of motivation). Throughout the literature, terms such as *affect*, *mood*, and *emotion*[2] are used interchange-ably to refer to the same psychological phenomenon. This problem is further perpetuated because terms like mood and emotion are part of our everyday language and thus do not always carry clear psychological definitions.

One critical issue in defining affect is the distinction between traits and states. Following Rosenberg (1998), trait-like affect reflects a general way of responding to the world, which varies by person but is relatively stable over time. In contrast, state-like affect reflects a response to the changing environment that is based on the situation and is less stable over time. This distinction between states and traits is used in all five papers; the majority of the papers focus on states, and only briefly, if at all, consider trait-like affect. One exception is Ainley's work on the affective state of interest. Her work primarily focuses on affective states as well, but she acknowledges the role of trait-like, stable motivational factors such as personal interest as a precursor to the affective state of interest.

A somewhat more controversial issue is the definition of moods versus emotions. A number of the authors in the special issue distinguish between moods and emotions based on intensity and duration. According to this view, moods are longer lasting and more diffuse, without a particular referent, while emotions consist of short, intense episodes in response to a particular referent (Rosenberg, 1998; Schwarz, 1990; Schwarz & Clore, 1996). The articles by Schutz *et al.* and Meyer and J. C. Turner use this distinction as their working definition of moods and emotions. Meyer and J. C. Turner also talk more generally about affective states, which they define as consisting of both moods and emotions. Pekrun takes a slightly different view; he argues that moods and emotions are not distinct constructs but rather differ along a continuum of emotion in which moods are really low-intensity emotions. As such, he uses the term emotional moods to refer to mood states.

With respect to the theoretical basis for understanding affect, Pekrun, Schutz *et al.*, Op 't Eynde and J. E. Turner, and Meyer and J. C. Turner primarily rely on social psychological theories of emotions. In doing so, they draw on appraisal theories of emotions, such as those by Lazarus (1999) and Scherer (1999), and also take into account Frijda's (1988) assertion that emotions are subjective experiences where context plays a critical role. Op 't Eynde and J. E. Turner also draw from Lewis' (2000) dynamic systems approach for emotions. Rather than focusing on solely on discrete emotions, Ainley investigates affective states and draws upon circumplex models of affect (e.g., Feldman Barrett & Russell, 1999; Tellegen, Watson, & Clark, 1999), which highlight the important distinction between valence and activation.

Readers especially interested in an in-depth discussion of the theoretical underpinnings of emotion should refer to the Pekrun, Op 't Eynde and J. E. Turner, and Schutz *et al.* articles, which include elaborated discussions of how emotions can be defined in

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[2] Terms such as 'temperament' and 'feeling' are also used, but to a lesser extent.

educational settings. In particular, Pekrun presents his theory of academic emotions and discusses the varying academic emotions that emerge based on two key dimensions: object focus and valence. Op 't Eynde and J. E. Turner provide an in-depth analysis of the application of a dynamic systems approach to emotions in educational settings. Finally, Schutz *et al.* provide a detailed examination of their working definition of emotion, and thus offer insight into the complexity of the construct of emotion.

Level of Focus

A second question posed to the contributing authors is the level at which they study affect. Following Schutz and DeCuir (2002), one can think about the level of focus in terms of structure (e.g., the underlying structure of a construct), process (e.g., the process of test anxiety during a particular test), and/or social historical context (e.g., the nature and development of anger as a social construction). The articles for this special issue address all three of these levels.

At the structure level, a number of the authors discuss the development of affective constructs specific to educational settings. For example, Pekrun focuses on academic emotions, Ainley describes her work on the affective state of interest, and Schutz and his colleagues discuss emotion regulation during test taking. All three of the aforementioned manuscripts also deal with process, as these authors seek to understand how the proposed constructs (e.g., academic emotions, affective state of interest, emotion regulation) develop in classrooms and how they relate to subsequent engagement and learning. Additionally, Meyer and J. C. Turner and Op 't Eynde and J. E. Turner consider the process level, as they investigate students' and teachers' emotions that emerge in classroom settings.

The social–historical level is not represented in all of the contributing manuscripts, but is addressed by several of the authors. In particular, Op 't Eynde and J. E. Turner's consideration of a dynamical systems approach assumes that one must take into account both personal and contextual histories. They assert that it is not possible to understand emotional experiences without considering the social–historical level. For instance, individuals may experience the same emotion differently across contexts or situations and two individuals in the same setting may experience different emotions based on their personal histories. Schutz and his colleagues highlight the importance of this third level of analysis with respect to the personal histories of teachers entering education and teachers' emotions related to their profession. A few of the other papers also acknowledge this third level, but it is less central to their work. For instance, Pekrun recognizes the importance of the social–historical level in understanding gender and cultural differences in the types of emotions that students experience. Meyer and J. C. Turner also take this approach to some extent, especially in their qualitative analyses of teachers' use of emotions over time in a classroom setting.

Links Between Affect, Motivation, and Cognitive Processing

In addition to the theoretical basis for affect, the contributing authors were asked to consider how to incorporate affect into existing models of motivation and cognitive processing or to propose alternative theoretical perspectives that integrate these three areas. This call for integrating affect is similar to earlier calls by motivational researchers to infuse motivation into existing theories of cognitive processing (e.g., Pintrich, Marx, & Boyle, 1993 argued for the need for "hot" conceptual change that considered motivation as a critical variable in the conceptual change process). Of course, the notion that affect is related to

both motivation and cognition is not new. Affect has at times played a role in motivational models; for instance, anxiety is an important indicator of fear of failure in Atkinson's (1964) work, emotions are critical outcomes of attributional processes in Weiner's (1985) attribution theory, and Ford (1992) highlights emotions as central to motivational processes. Psychologists have also considered how affect relates to cognition (for reviews see Dalgleish & Power, 1999; Forgas, 2000b). With respect to the affect–cognition link, researchers discuss how cognition leads to affect and affect leads to cognition. For example, appraisal theories suggest that cognitive appraisals of one's situation influence the emotions that are experienced (e.g., Scherer, 1999; Smith & Lazarus, 1990). In addition, affect may alter the way information is stored into and retrieved from long-term memory, the way in which information is processed, and the way in which one approaches a particular situation (e.g., Bless, 2000; Bower, 1981; Ellis & Ashbrook, 1988; Forgas, 2000a; Fredrickson, 1998; Schwarz, 1990).

Despite this rich history of investigating affect, very few researchers have considered how to truly integrate affect, motivation, and cognition into our understanding of students' and teachers' experiences in educational settings (see Boekaerts, 1993; Pekrun, 1992; Pekrun, Goetz, Titz, & Perry, 2002 for earlier approaches to this issue). The contributing authors address this issue in a variety of ways. For example, Schutz *et al.*, Pekrun, Meyer and J. C. Turner, and Op 't Eynde and J. E. Turner all draw upon appraisal theories in their work, suggesting that cognitive appraisals can alter affective experiences. A number of the papers also consider how motivation can alter affective experiences. For example, Pekrun, Ainley, and Meyer and J. C. Turner propose that achievement goal orientations may be important predictors of students' affective experiences. Affect can also influence motivation and cognition. For instance, Pekrun suggests that academic emotions are related students' learning strategies, self-regulation, and achievement. Meyer and J. C. Turner argue that affect might change the way that one perceives the educational experience and thus alter one's ensuing motivation. Ainley further considers that the affective state of interest might mediate the relation of achievement goal orientations and efficacy to cognitive processing and engagement.

Across all of the contributing papers, the authors take the view that there are bi-directional, reciprocal relations among motivation, affect, and cognition. This perspective calls for a dynamic, integrated model in which neither motivation, affect, nor cognition is given precedence—but rather all three are critical variables for understanding students' educational experiences. As such, the contributing authors' have fairly consistent views regarding the integration of motivation, affect, and cognition, but some important distinctions can be made. For example, Pekrun argues that the relations among these constructs is complex, dynamic, and interrelated, but suggests that they can be separated into specific underlying components. A more integrated perspective is taken by Schutz and his colleagues, who suggest that it is difficult to think of these three constructs as distinct, given their strong influences on each other and resultant behavior. Schutz *et al.* consider goals as the intersection among affect, motivation, and cognition. Meyer and J. C. Turner, Op 't Eynde and J. E. Turner, and Ainley go further in integrating these constructs by suggesting that these three constructs are inseparable and that we need to develop new theoretical perspectives to represent this integrated view.

Methodological Concerns

Given the complexity of affect and the difficulty in assessing it, the contributing authors were also asked to discuss how they assess affect, to consider pressing methodological

concerns, and to suggest potential ways that these concerns might be addressed. All of the authors have used self-report indicators, such as questionnaires, and many have developed their own scales to assess affect (see Pekrun's Achievement Emotions Questionnaire and Schutz *et al.*'s scales to assess emotion regulation during test taking). Many of the authors have also employed other quantitative indicators, such as experience sampling methodology (ESM) and diaries, which allow them to tap into the dynamic, shifting aspects of affect in classrooms (see Meyer and J. C. Turner; Pekrun). Similarly, Ainley has developed an on-line assessment of affective states that is embedded in an innovative computer program. This program provides students with a task (typically a passage to read or a topical issue to write about) and then prompts them at specified times throughout the program to report on their current affective states. This methodology allows her to capture the fleeting nature of affect and also allows her to better understand the direction or causality of the links among affect, motivation, and cognition through multiple assessments.

In addition to the aforementioned quantitative approaches, a number of the contributing authors also employ qualitative methodologies. For example, Pekrun, Schutz *et al.*, Meyer and J. C. Turner, and Op 't Eynde and J. E. Turner all discuss their use of qualitative assessments such as interviews, classroom protocol analyses, think-aloud protocols, and stimulated video recall. These qualitative indicators help to provide a nuanced, in-depth view of students' and teachers' affect that emerges in academic settings.

It is clear that the contributing authors are making great strides in assessing affect, but there are also many challenges to accurately assessing affect, especially in educational settings. For example, Schutz *et al.* point to the challenges associated with the transient nature of emotion and urge researchers to consider that the mere act of assessing affect may alter it. They also suggest that researchers take into account the possibility that display rules may interfere with the assessment of affect in that students and teachers may not display or report their true emotional states. Finally, they argue that one must consider the history of the emotional response, taking into account the culture and the learning environment in which the emotions develop. Op 't Eynde and J. E. Turner have similar concerns regarding both the transient and constructed nature of emotional experiences. They argue that, since emotions are situated in a context, it is critical to focus on the "actor" perspective using interviews, observations, and discourse analysis to understand how students perceive and give meaning to the situation, but that one must also focus on assessing the dynamics of emotions with respect to motivation and cognition.

Meyer and J. C. Turner are especially concerned with the complexity of studying affect from multiple levels, and thus suggest that we may need to take a "thin-slice" of the educational experience including multiple viewpoints (teacher, student, observer) to fully capture the complexity. Finally, Pekrun raises the issue that researchers need to better differentiate between inter-individual and intra-individual patterns and argues that using both perspectives is informative in understanding emotions in educational settings. To address some of these issues, the contributing authors note that the repertoire of assessment tools should be expanded to include things such as behavioral, physiological, and neurophysiological indicators.

Informing Education

Finally, the authors were asked to specifically consider the role of affect in educational settings. Since all of the contributing authors are currently conducting research in educational settings, they are already extending basic research on affect to help educators think about what affect means in educational settings. Not surprisingly, all of the authors provide evidence that it is critical to consider affect in education. Given the predominant

view that affect is connected to learning and engagement, this perspective is not surprising. For example, Meyer and J. C. Turner and Op 't Eynde and J. E. Turner take the stance that since emotion, motivation, and cognition are inseparable, it is critical that one develop theories that take all three elements into account.

A number of the papers also make specific suggestions for how an understanding of affect in education can be beneficial for schooling. For example, Ainley suggests that if educators can determine how to activate an affective state of interest, they can increase students' engagement and learning. Using control-value theory as a guide, Pekrun makes a number of interesting suggestions about how educational settings can be altered to change the patterns of emotions that students experience. He argues that it is not only important to understand the emotions that emerge in educational settings, but that educators can also alter the educational context to influence students' emotions. Schutz and his colleagues also make specific suggestions for educational settings, arguing that we need to consider emotions for teachers in pre-service and in-service teacher training and realize that there is a distinction between the emotions educators might experience and pedagogically desirable emotions. They also propose that it is critical to understand the emotional context for students, and put forth several areas for future research such as investigating the relation of student emotion to stereotypes and gaining a fuller understanding of students' emotional experiences during test-taking.

Conclusion

The five manuscripts presented in this special issue offer a critical overview of the current state of the field on emotions in education. The papers provide both an update on current work being done in this area as well as insight into future directions for the field. As such, readers should find the articles to be informative regarding several existing programs of research as well as forwarding-looking in terms of the challenges of studying affect in educational settings. What is clear from these manuscripts is that affect is critical to understanding students' and teachers' educational experiences, and that it is has been ignored for far too long. Thus, it is my hope that readers of this special issue will consider how affect might be infused into our understanding of both students' and teachers' experiences in educational settings, much in the same way that motivation has become infused into our understanding of education during the past two decades.

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