Citation:

Goetz, T., Frenzel, A. C., Pekrun, R. & Hall, N. (2005). Emotional intelligence in the context of learning and achievement. In R. Schulze & R. D. Roberts (Eds.), *Emotional intelligence: An international handbook* (pp. 233-253). Hogrefe & Huber.

11

Emotional Intelligence in the Context of Learning and Achievement

Thomas Goetz
Anne C. Frenzel
Reinhard Pekrun
Institute of Educational Psychology
University of Munich, Germany

Nathan Hall
Department of Psychology
University of Manitoba, Canada

Summary

This chapter is concerned primarily with emotional intelligence (EI) as it relates to learning and achievement in an academic setting. It aims to assist researchers, educators, and politicians alike to decide what aspects of EI are worthwhile to promote and are possible to teach in school. We first discuss the conceptualization of EI on which the present contribution is based, and provide an overview of existing programs for fostering EI in schools. Based on some major flaws we have identified in these programs, we present a framework of antecedents, "intelligent" processing, and effects of academic emotions. Subsequently, a model for fostering EI in academic learning and achievement situations is presented, and tangible instructional suggestions are provided. The chapter closes with implications for research and scholastic applications.

11.1 INTRODUCTION

"I am not that good at emotions." This real-life response is what a male student wrote on the top of a questionnaire on academic emotions (emotions directly linked to academic learning, classroom instruction, and achievement; see Goetz, Zirngibl, Hall, & Pekrun, 2003; Pekrun, Goetz, Titz, & Perry, 2002); most likely as an excuse for not completing the survey (Molfenter, 1999). What does it mean to "not be good at emotions"? How could we have prevented this student from developing such poor judgment of his emotional self? With respect to the first question, the student perhaps thought his knowledge about emotions was too limited, that he was not aware of his own emotions, or that he could not adequately deal with them. The latter question is also a difficult one to answer. Perhaps, apart from socialization authorities such as parents, it is the task of educational institutions to teach students knowledge and skills concerning one of the most important areas of human functioning: emotions.[1]

11.2 CONCEPTUALIZATION OF EMOTIONAL INTELLIGENCE

In light of the host of diverse conceptualizations of emotional intelligence (EI; see Matthews, Zeidner, & Roberts, 2002), one must first decide on a definition of this construct that is adequate to apply to learning and achievement. Studies investigating EI in the classroom usually lack a theoretical framework (Zeidner, Roberts, & Matthews, 2002), or do not explicate the bases for the choice of their employed construct (cf. Cohen, 2001; Elias, Hunter, & Kress, 2001). In choosing an adequate theory of EI for academic learning and achievement situations, we considered the following criteria. The theory should:

1. be consistent with the cognitively referenced conceptualization of intelligence (see Mackintosh, 2001; Sternberg, 1997),
2. need a minimal number of context-specific modifications and supplements,
3. be suitable for operationalization and evaluation, and
4. be conducive to the development of intervention programs.

We consider Mayer and Salovey's (1997; Salovey & Mayer, 1990) revised ability model of EI to be particularly suitable for meeting Criteria 1 through 4. Consistent with standard conceptualizations of intelligence, Mayer and Salovey (1997) explicitly define EI as a mental ability concept (see also Chapter 2 by Neubauer & Freudenthaler). Specifically, the authors integrate four branches (i.e., facets) of emotional abilities in their model:

[1]For the pros and cons of emotion education in school, see Elias et al. (1997); Zeidner, Roberts, and Matthews (2002). Concerning the promotion of emotional intelligence by parents, see Martinez-Pons (1998).

- Branch I: Perception, appraisal, and expression of emotion.
- Branch II: Emotional facilitation of thinking.
- Branch III: Understanding and analyzing emotions; employing emotional knowledge.
- Branch IV: Reflective regulation of emotions to promote emotional and intellectual growth.

For our conceptualization of EI, we focus on those aspects of this model that appear to be most important within our framework that is explicitly intervention oriented. These include (1) perceiving emotions (Mayer and Salovey's Branch I), (2) reflecting on emotions (knowledge about emotions; e.g., knowledge about the causes of emotions, their manifestations and effects, as well as knowledge about methods of emotion regulation, Mayer and Salovey's Branch III), and (3) managing one's own emotions in the sense of being able to regulate them (Mayer and Salovey's Branch IV). We omit Mayer and Salovey's Branch II (emotional facilitation of thinking) because we think this aspect is less applicable for intervention. Overall, we thus define EI, within our framework, as a person's cognitive ability for the perception, reflection, and regulation of emotions.

11.3 PROGRAMS FOR FOSTERING EMOTIONAL INTELLIGENCE IN STUDENTS

At the time of writing, a literature search constrained to the German language revealed only occasional, primarily practice-oriented publications concerning the topic of EI at school (e.g., Hofer, 2000). However, Klauer's research does suggest some valuable techniques for the promotion of students' "classical" intelligence (see Klauer, 1988; Klauer & Phye, 1994). In the U.S.A., there have been numerous practice-oriented publications on this topic since the 1990s (for a description of intervention programs and their evaluation, see Zeidner, Roberts, & Matthews, 2002), with most of these studies published in the context of Social and Emotional Learning (SEL; Cohen, 1999, 2001).

SEL programs were developed in response to an increasing body of research showing that children's and adolescents' socio-emotional competencies are important to foster (cf. the terms *social and emotional literacy*, Cohen, 2001; (Elias et al., 1997)). It has been further acknowledged that these competencies need to be taught in educational institutions, above all, in our schools (Mayer & Salovey, 1997). SEL is a comprehensive approach that attempts to encompass numerous, rather heterogeneous, approaches. Typical SEL programs involve social skills training, cognitive-behavioral modification programs, self-management and conflict-solving programs, general promotion of problem-solving skills, and also prevention programs against suicide, drug abuse, and violence (see Elias et al., 2001; Topping, Holmes, & Bremner, 2000).

Due to the popularity of EI in the past 10 years, many of the SEL programs in wide-spread use in the U.S.A. have post-hoc been declared as EI programs,

despite not having been explicitly developed for the promotion of EI. Nevertheless, many of these programs do address some of the pivotal components of EI. Zeidner, Roberts, and Matthews (2002) list six central aspects of programs for the promotion of EI:

1. Problem solving—a term used extensively in the context of SEL and EI programs that is partially related to aspects comprising Points 2 to 6 below (i.e., it encompasses multiple ways of solving problems or the ability to take someone else's perspective; e.g., ICPS [I can problem solve] program, Shure & Glaser, 2001);
2. Perception and understanding of emotions in oneself and in others;
3. Controlling of impulses;
4. Emotion regulation;
5. Coping with stress and negative emotions; and
6. Being able to take someone else's perspective (i.e., empathy).

The degree to which these programs actually foster EI is dependent on the underlying definition of the construct. Very few programs, however, have explicitly been designed to foster EI (e.g., the PATHS program [Promoting Alternative Thinking Strategies]; Greenberg, Kusche, Cook, & Quamma, 1995).

EI programs can also be distinguished as being either intra- or extracurricular in nature. Intra-curricular programs integrate socio-emotional learning into classroom activities by promoting the idea of dealing with the emotion-oriented aspects of specific subject areas (Cohen, 1999). Works of literature, art, or musical pieces are particularly suitable as starting points for discussions. By contrast, extracurricular programs explicitly and exclusively deal with the topic of socio-emotional learning outside the regular classroom setting.

From our perspective, existing programs for the promotion of EI in schools have the following central problems:

1. The programs usually lack a clear definition of the construct of EI.
2. Evaluations are problematic because there are no adequate instruments for the measurement of EI in a classroom setting (cf. the evaluation of SEL programs; Elias et al., 1997).
3. In these programs, negative emotions, and how to deal with them, is almost exclusively the topic of discussion, with positive emotions seen as irrelevant to coping. However, more recent findings show that positive emotions—in spite of their predominantly positive effects—can in specific circumstances also have detrimental effects. When making a decision, for example, people in a positive mood may not take negative, albeit important, aspects of a situation into account in order to maintain their positive feelings (*mood maintenance*; for a critical discussion, see Aspinwall, 1998). Although selecting exclusively positive aspects can maintain "pleasing" emotions in the short term, it may also lead to wrong decisions, resulting in prolonged negative emotions in the long run.

4. The question of whether EI may be emotion-specific, meaning that someone could be good at perceiving, reflecting on, or regulating certain emotions (e.g., anger) and not others (e.g., anxiety), remains to be addressed.
5. This is also true for the question of EI being situation-specific (e.g., that someone would be differentially skilled at regulating their emotions in social vs. academic situations).
6. The confounding of maturation with external influences is also rarely taken into consideration.
7. Theories and empirical findings of research on emotions are often overlooked (e.g., findings on the phenomenology of emotions and on the effects of emotions on learning and achievement).
8. These programs predominantly address the importance of emotions in social contexts, with the consequences of emotions on learning and achievement remaining largely unexplored.

Overall, even though it is intuitively plausible that EI needs to be fostered during school hours, existing programs lack persuading and operationalizable theoretical frameworks. Consequently, as for their evaluation, many of these programs lack clear, testable hypotheses. To make matters worse, we also lack instruments for the assessment of students' EI that are reliable, valid, and sensitive to change. As such, in the drive to foster EI in students, practice appears to have surpassed supporting research, making the results of these programs theoretically questionable.

11.4 FRAMEWORK OF ANTECEDENTS, "INTELLIGENT" PROCESSING, AND EFFECTS OF ACADEMIC EMOTIONS

Our framework of antecedents, "intelligent" processing, and effects of academic emotions in a school setting is based on three central components that are presented below.

11.4.1 Focus on Academic Emotions

The model is focused on a person's academic emotions and is thus different from other models of EI that are predominantly concerned with social emotions (cf. models in the context of SEL; e.g., Elias et al., 1997). As mentioned earlier, the literature on EI in schools almost exclusively deals with social aspects.[2] In this chapter, we focus on the perception, reflection, and regulation of academic emotions such as enjoyment of learning, hope for success in an exam, and boredom during instruction.

[2]For example, classroom climate or social competence (Cohen, 2001) and the assessment of intra- and interpersonal aspects of emotional intelligence with the BarOn Emotional Quotient Inventory (BarOn EQ-i; Bar-On, 1997).

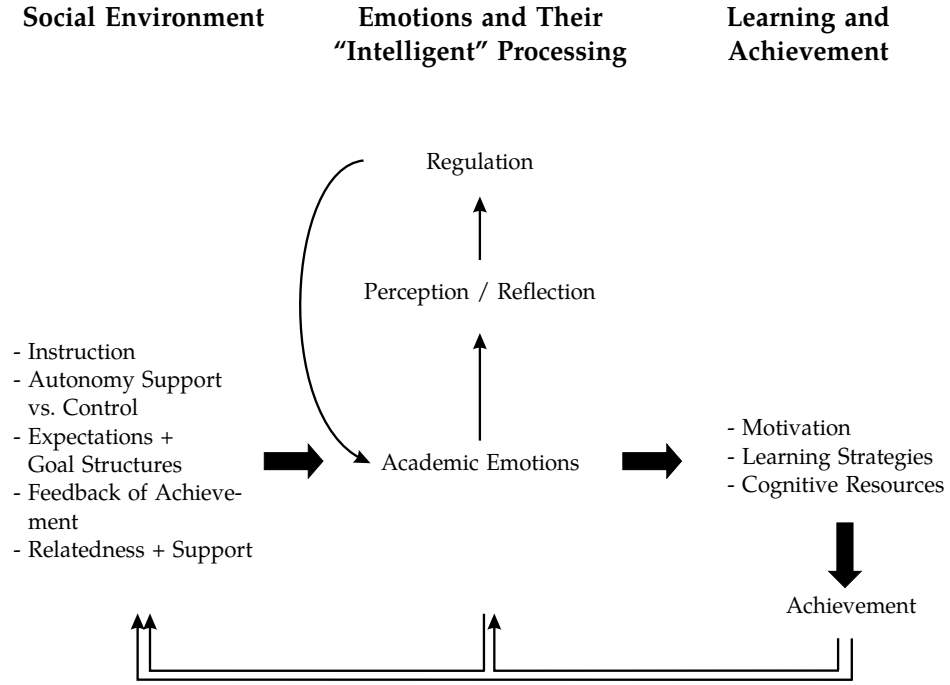

Figure 11.1 Antecedents, "intelligent" processing, and effects of academic emotions.

11.4.2 Integration of Emotional Intelligence Into the Emotion Research Tradition

It is interesting to note that models and theories of EI rarely refer to previous findings from the emotion research tradition (cf. Mayer, Salovey, & Caruso, 2002). Standard works in emotion psychology, which are central in terms of both content and research heuristics (e.g., Frijda, 1998; Scherer, 1984), are rarely cited in the literature on EI. However, knowledge concerning taxonomies and the phenomenology of emotions is highly applicable to the study of perception and regulation of emotions. Moreover, without a fundamental knowledge of the achievement-related effects of specific emotions, their regulation toward achievement goals is impossible. Within our framework, we deliberately integrate EI into an existing model from the emotion research tradition.

11.4.3 Emotion-Focused Regulation

Following the classical coping literature (e.g., Lazarus & Folkman, 1984), one can differentiate between two basic types of regulatory processes: emotion-focused and problem-focused regulation. The first refers to the direct regulation of one's own emotions, the latter to the goal-directed modification of emotion-inducing circumstances (e.g., leaving or restructuring the situation). Basically, both emotion- and problem-focused regulation are applicable in a classroom setting and may be used alternatively, or in parallel, depending on the situation. In our model (depicted in Figure 11.1), we concentrate on emotion-focused regulation processes.

The model presented in Figure 11.1 is based on Pekrun and colleagues' framework that incorporates the antecedents and effects of academic emotions (Pekrun, 2000; Pekrun et al., 2002) and integrates our described conceptualization of EI with that outlined by Mayer and Salovey (1997). In this model, variables concerning the social environment are primarily conceptualized as emotional *antecedents*. At the same time, emotions are also assumed to influence a person's social environment. Previous exploratory and confirmatory analyses (structural equation models) confirm relationships between the social environment and students' emotional experiences as postulated in our model (Goetz, 2004; Titz, 2001). A cognitive-motivational model (Pekrun et al., 2002) provides the theoretical basis for understanding the *effects* of emotions on learning and achievement. Specifically, this model suggests that emotions affect students' motivation, quality of learning strategies, and the mobilization of cognitive resources which, in turn, affect scholastic achievement (itself recursively affecting emotions and aspects of the social environment).

The middle section of the model, emotions and their "intelligent" processing, is considered to be a self-regulatory process closely intertwined with social antecedents and the effects of emotions (on the topic of self-regulation in the context of learning and achievement see Boekaerts, Pintrich, & Zeidner, 2000; concerning EI as a self-regulatory process see Martinez-Pons, 2000, 2001). According to this model, emotionally intelligent behavior means applying one's cognitive abilities for perceiving and reflecting on emotion-related information in learning and achievement situations, and regulating these emotions in a goal-directed way. Perception represents the identification of one's own emotions related to learning and achievement situations (e.g., anger about overly difficult tasks); reflection refers to knowledge about these emotions (e.g., knowledge about their positive or negative consequences for learning and achievement); and regulation stands for knowledge concerning the goal-directed modification of one's current emotion.

11.5 A MODEL FOR THE PROMOTION OF EI IN LEARNING AND ACHIEVEMENT SITUATIONS

In this section, we present possibilities for the promotion of EI in the context of learning and achievement situations at school (for increasing positive emotions and decreasing negative emotions in students during instruction, see Astleitner's Fear, Envy, Anger, Sympathy, and Pleasure [FEASP] approach, 2000). We refer to the conceptualization of EI as described above and outline a model that focuses attention on the three components of EI (perceiving emotions, reflecting on emotions, and regulating emotions) comprising our theoretical framework (see Section 11.4). This model allows for numerous implications and should be seen as a heuristic for the development of EI-based intervention and promotion programs. Figure 11.2 shows a model incorporating facets of expectancy-value theory that originates from the motivational-psychological research tradition (Atkinson, 1957, 1964).

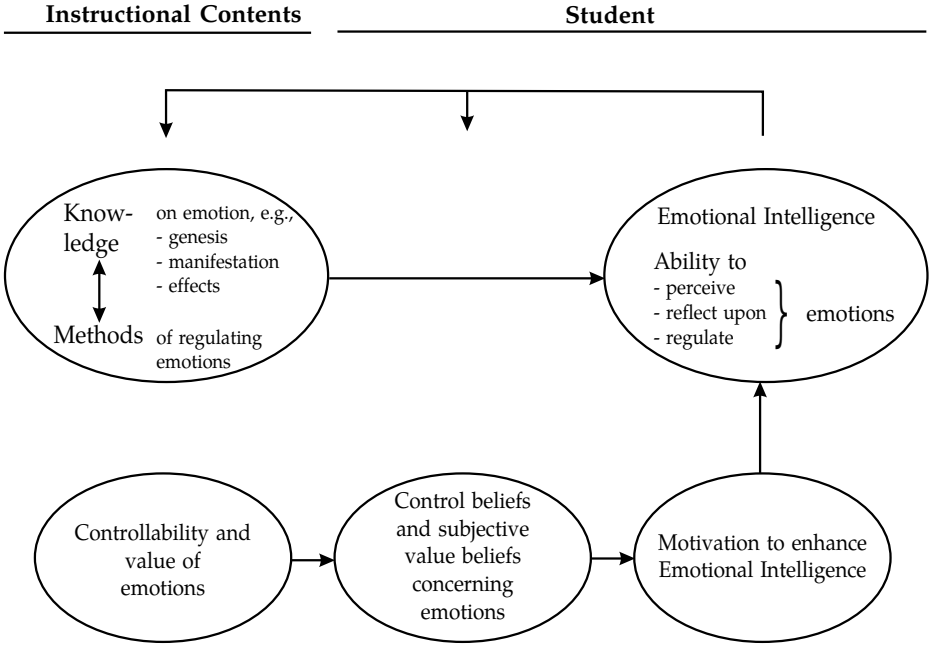

Figure 11.2 A model for the promotion of EI in learning and achievement situations.

In this tradition, it is typically argued that motivation is based on subjective appraisals of the probability of action outcomes and the values of these outcomes. These two aspects are assumed to be multiplicatively combined, implying that both components have to be above some minimum level for motivation to arise. Following this approach, our model considers subjective perceptions of control and value of emotions as antecedents of the motivation to enhance EI. According to this model, students' EI can be fostered by teaching them both knowledge and methods of regulation concerning emotional experiences, while making clear to them at the same time that emotional experiences are valuable and controllable. The students' levels of EI, in turn, recursively affect their subjective perceptions of control and value. Further, the content of instruction is dependent on the level of EI among the students in a given class.

The instructional content of EI training programs can generally be taught by all socialization authorities, including teachers, parents, and peers, but also the media (on the promotion of EI by teachers, see Mayer & Salovey, 1997; Zins, Travis, & Freppan, 1997; on the promotion by parents, see Martinez-Pons, 1998). As such, we suggest possibilities for the promotion of students' EI at school, focusing exclusively on individuals' academic emotions in the scholastic environment, and specifically the promotion of students' EI as pertaining to emotion-focused regulation (see above). Corresponding to our model (Figure 11.2), our discussion also concerns the following: (a) knowledge about academic emotions, (b) knowledge of affective self-regulation, (c) perceived controllability of emotions, as well as (d) perceived value of emotions related to learning and achievement situations. Because previous programs for the pro-

motion of EI have been poorly integrated into the emotion research tradition, we will also attempt to highlight potentially related points and cross-linkages with research on emotions and clinical psychology.

11.5.1 Teaching Knowledge About Academic Emotions

Having knowledge about emotions related to learning and achievement is helpful for their regulation. In the following sections, we list core components of this knowledge that can be imparted during instruction and scholastic interactions directed toward the promotion of EI.

Definition of emotions related to learning and achievement. First, it can be discussed with students what the phenomenon of *emotion* actually represents. Within the numerous definitions of emotions (see Van Brakel, 1994), component theories or definitions are highly applicable, with knowledge concerning the differential components of emotions contributing to a multi-dimensional, and thus differentiated, perception of emotions. Scherer (1993), for example, suggests the following five components of emotions: cognition, physiology, motivation, motor expression, and affect. Selected emotions can be discussed in terms of these components. To this end, individually experienced emotions described in interviews from emotion research (e.g., Titz, 2001) can be used. Conducting sample interviews with students based on existing interview manuals may also be considered (e.g., Kusche Affective Interview Revised, KAI-R; Kusche, Greenberg, & Beilke, 1988). After a general definition of emotions on the basis of their components, subsequent discussions may involve a greater focus on academic emotions specifically.

Extension of the emotion vocabulary. Included in the descriptive knowledge of emotions, one's understanding of emotion-related terminology appears to be an important subcomponent of EI. To be able to adequately talk about and discuss emotions, it is necessary that students have a broad emotion vocabulary. Thus, it is important to teach students a diverse vocabulary of emotion words (e.g., adjectives like blithe, cheery, glad, or bright for the differentiated description of the experience of joy). Extending students' emotion vocabulary is an important goal that can be incorporated into the study of nearly all academic subjects. Particularly suitable are language-related courses and subjects in the arts (music, art education) where the expression of emotions in pieces of art or fictitious persons found in works of literature can be discussed. An example for extracurricular teaching of emotional words is Greenberg's PATHS program (see also Kusche & Greenberg, 2001). In a subsection of that program, students are taught approximately 35 affective states by means of so-called "Feeling Units" where students learn emotion words in a hierarchical way, beginning with common emotions (e.g., happiness, sadness, anger) and proceeding to more complex emotional experiences (e.g., jealousy, guilt, pride).

Mimicked and gesticulated representations of emotions and discussion of their messages may also build a basis for extracurricular activities aimed at extending students' emotion vocabulary. For example, a group of students might be encouraged to express specific emotions through pantomime, while their classmates try to figure what they mean. In another exercise, two students might act as politicians discussing a certain topic, with the audience taking notes on their impressions of the emotional experiences of the actors. Further, students could be given very specific emotion words (like hope, tenderness, loneliness, rage) which they should assign to pictures. Extensive material from emotion research is applicable to this end (e.g., Facial Action Coding System [FACS], Ekman & Friesen, 1978; Emotional Facial Action Coding System [EFACS], Friesen & Ekmann, 1984; Self-Evaluative Emotions Coding System [SEECS], Geppert, Schmidt, & Galinowski, 1997; International Affective Picture System [IAPS], Lang, Bradley, & Cuthbert, 1995; see also pictures and stories from the MSCEIT, Mayer et al., 2002).

Teaching emotion taxonomies. To be able to categorize emotions, it is important to teach students taxonomies of emotional experiences that reduce complexity. Classic criteria for building emotion taxonomies are qualitative aspects such as mood versus emotion (e.g., differentiating between "being in a bad temper" vs. "being angry at something or someone"; see Abele, 1996), as well as quantitative aspects like intensity (e.g., differentiating being enraged vs. being annoyed; see Ricci-Bitti & Scherer, 1986). For teaching emotion taxonomies, educators can rely on classification schemes derived from emotional research such as Plutchik's (1980) circumplex model of basic emotions, or other categorizations considering valence, expression, and physiological activity (Ekman & Davidson, 1994) or their cognitive appraisal (Smith & Ellsworth, 1985). Watson and Tellegen (1985) suggest a categorization of emotions based on the dimensions of activation and valence. Using these dimensions, emotions relevant for the context of learning and achievement can be classified as follows: positive activating emotions (e.g., enjoyment, hope), positive deactivating emotions (e.g., relaxation, relief), negative activating emotions, (e.g., anxiety, anger), and negative deactivating emotions (e.g., hopelessness, boredom). A further categorization of emotions suggested by Pekrun et al. (2002) categorizes emotions according to the dimensions of valence (positive vs. negative emotions), point of reference (task-related vs. self-related emotions), as well as a temporal factor (process-oriented, prospective, and retrospective emotions). Basically, such schemas can be starting points for teaching the ability to categorize emotions. Emotion taxonomies can, for example, be taught by asking students to work together to categorize various emotions and to explain the criteria for their arrangement. Subsequently, their taxonomies can be compared and contrasted with existing taxonomies from the literature on emotions.

Knowledge about the effects of academic emotions on learning and achievement. For the goal-oriented regulation of emotions, it is helpful for students

to have personal goal statements about their emotional experiences. As pointed out by Boekaerts (1999), the choice of goals is a prerequisite of self-regulation. To this end, students can be advised to make up their minds about their emotional goals (i.e., desirable emotional experiences) before they start regulating their emotions. In academic settings, this means that it is beneficial for students to know about the consequences of specific emotional experiences for learning and achievement; for example, how positive and negative emotions influence the way they think and solve problems at school (on the effects of moods and emotions on thinking and problem solving, see Ellis & Ashbrook, 1988; Fiedler, 1988). Bases for discussing the effects of emotions on learning and achievement can be Pekrun et al.'s (2002) emotion taxonomy, which classifies the effects of emotions based on a 2×2 factorial cross of the activation and valence of emotions. Similarly, Pekrun et al.'s (2002) cognitive-motivational mediation model, which outlines the effects of emotions on motivation/volition, learning strategies, and cognitive resources, may be helpful.

11.5.2 Knowledge of Methods for the Self-Regulation of Academic Emotions

Definition of emotional self-regulation. Before discussing the teaching of knowledge and methods of emotional self-regulation, the term self-regulation should be clarified and illustrated. Self-regulation can be seen as a form of problem-solving in the sense of reducing the difference between the actual value and the target value of a given internal state (Anderson, 2000; see also Self-Regulation Scale of Emotional Intelligence [SRSEI], Martinez-Pons, 2001). In this case, emotion-related self-regulation activities are directed towards changing actual emotional states into target emotional states.

Teaching knowledge about methods of emotion regulation and their application. Of the numerous potential methods for the regulation of emotions, we review four in the present context. Emotion regulation in the context of learning and achievement can be understood as involving areas of research from both the educational and clinical psychological domains. Emotion regulation can take place, first, by means of a change of meta-levels (for meta-emotions in the context of EI, see Gohm, 2003). In this respect, students can observe and analyze their emotional experiences in a concrete situation. For example, if a student feels ashamed during instruction, he or she can consider the potential reasons for this emotion or analyze it in terms of its structural components. Inspecting an emotion at a meta-level may be helpful in order to distance oneself from the emotion. On the other hand, clinical research suggests that meta-levels of emotion may also be the starting point of a self-intensifying circle of emotional experiences (e.g., phobophobia).

Second, students could also be taught a repertoire of relaxation techniques (e.g., breathing techniques, autogenic training, and/or progressive muscle relaxation). This can be particularly helpful for the regulation of negative emotions such as anxiety or anger.

Third, positive self-instruction (self-communication) concerning the valence and controllability of academic emotions should also be encouraged; factors that can significantly influence one's emotional experiences. Becoming aware of the controllability of emotions, and meta-emotions, may be crucial for students' motivation to alter their emotional experience. When lacking control beliefs, a student can, for example, get excessively anxious over an increase in test anxiety, especially if perceived as uncontrollable in nature. Moreover, meta-anxiety due to a perceived lack of control can be more intense and thus even more performance-inhibiting than the initial anxiety surrounding an exam.

Finally, students should try to reduce their subjectively experienced work-play dichotomy (Covington & Wiedenhaupt, 1995). For example, if a student gets angry during her mathematics homework because a problem is hard to solve, she can try to deliberately see the problem as a game.

11.5.3 Teaching That Academic Emotions Are Controllable

The development of subjective perceptions of control related to emotions is very important for the promotion of students' EI (for a developmental-psychological examination of subjective perceptions of control related to emotions, see Stegge & Terwogt, 1998). Emotional control beliefs significantly determine the interpretation of previous emotional experiences. For example, intense anger surrounding a previous exam can simply be interpreted as uncontrollable, or as a result of poor self-regulation of this potentially controllable emotion. Such interpretations influence subsequent emotional goals, expectations, the application of emotion-regulation strategies, and in turn, future emotional experiences (Covington, 1997). Subjective interpretations of preceding events are far-reaching both within and outside an achievement context, as has been shown in the literature on attribution theory (Möller & Köller, 1996; Weiner, 1985, 1995), and in the literature on learned helplessness and learned optimism, respectively (Peterson, 2000; Seligman, 1991, 1993).

In terms of teaching the controllability of emotional experiences, methods of attributional retraining (Perry, 1991; Schunk, 1984; Struthers, Perry, & Menec, 2000; Van Overwalle & De Metsenaere, 1990) can be adapted or used as a basis for instructional activities (on attributional emotion theories, see Weiner & Graham, 1985). Specifically, emotion focused attributional retraining may help students to interpret their previous emotional experiences as unstable and potentially controllable in nature. As a starting point, students could be asked to report about a recent exam and explore in detail the phenomenology of their anxiety with respect to this exam, and also elaborate on possible reasons for why they were anxious. Students' attention can also be directed toward the fact that they have not been equally anxious on other exams. Becoming aware that one's emotions need not be perceived as due to immutable, stable traits will help students see that both negative and positive academic emotions may be, in part, controllable (for an empirical examination of emotion-focused attributional retraining in college students, see Hall, Perry, Chipperfield, Clifton, & Haynes, in press).

11.5.4 Teaching That Academic Emotions Are Valuable

According to the model depicted in Figure 11.2, students' EI can be fostered by developing or enhancing their subjective value beliefs concerning emotions through corresponding instructional activities. To do so, in the class room, the importance of emotions to subjective well-being (Ekman & Davidson, 1994; Goleman, 1995) and to one's quality of life should be stressed (for discussion of subjective well-being in the context of positive psychology, see Seligman & Csikszentmihalyi, 2000). Experiencing positive emotions is an essential component within most modern definitions of subjective well-being (Diener, 2000). What matters is not the intensity of positive emotions (overwhelming emotions), but their frequencies of occurrence. Thus, subjective well-being is experienced when positive emotions are predominant over time. In the classroom context, asking students about what is really important in life could lead to topics such as well-being and positive emotional experiences, and serve to highlight the value of emotional experiences both within and outside school. Starting points for a discussion could also be a proverb or a statement such as "That we call Good which is apt to cause or increase pleasure, or diminish pain" (Locke, 1690/1975, p. 2).

It is also important to point out to students the significance of emotions for communication processes at school (see Andersen & Guerrero, 1998; on the significance of emotions in nonverbal communication with numerous examples, see also Molcho, 2001). To this end, students can be instructed to engage in role playing, in which they ask each other simple questions like "What are you doing?" with different emotional undertones. Students will experience that the same sentence can be interpreted as expression of interest, as curiosity, as reproach or as derision. According to the emotional undertone of the questioner, the answers may be quite different in content (e.g., normal answer, lie, justification) and emotional reaction (e.g., neutral, pride, anger, anxiety).

Finally, the importance of emotions for the quality of learning and achievement might be demonstrated to students (Pekrun et al., 2002). Teachers could ask them to imagine the learning process of a happy, proud, bored, anxious, or hopeless person and to estimate the quality of learning and achievement outcomes for each of these persons. Differences in motivation, learning styles, and activation of internal and external resources (e.g., effort as internal resource and seeking help as external resource) can be the focus of discussion. In addition to the value of emotions in the scholastic environment, the value of emotions outside school can be discussed with the students. Popular scientific publications on EI provide numerous issues for discussion (on emotions and occupational success, see Caruso & Wolfe, 2001; Goleman, Boyatzis, & McKee, 2003). An achievement-related situation outside school is, for example, a job interview. A possible starting point for a discussion could be the following situation: There are two job candidates of equal gender, comparable age, and the same high school grades. In the process of generating additional arguments for employing the one person over the other, students will likely suggest qual-

ities like sympathy, openness, and the expression of optimism and positive emotions.

11.6 IMPLICATIONS FOR RESEARCH AND PRACTICE

Based on the preceding models and concepts, we discuss the central implications of EI for researchers and practitioners in the passages that follow.

11.6.1 Becoming More Aware of the Relevance of EI for Achievement

Promoting EI is by no means considered important in all societies (Zins, Elias, Greenberg, & Weissberg, 2000). For researchers and practitioners alike, it is important to discuss the relevance of EI for learning and instruction in school. From an achievement-oriented perspective, it is only important to identify and regulate emotions related to academic achievement. Thus, when arguing in favor of the significance of EI in the classroom, the importance of emotional experiences for learning and achievement should play a major role.

11.6.2 Linking EI with the Psychology of Emotions

It is striking that the literature on EI rarely refers to theories and findings from the psychology of emotions (Mayer et al., 2002). We would like to encourage researchers to integrate knowledge from the field of research on emotions into ongoing research on EI. Conversely, the psychology of emotion should consider incorporating some aspects that are relevant for EI in an academic setting. For example, we still lack knowledge about the differential effects of specific emotions on scholastic learning and achievement, even though this is a central issue for the goal-directed regulation of students' emotions.

11.6.3 Linking EI with Clinical (Child) Psychology

In the context of EI, emotion regulation may be seen to form a central interface with clinical psychology. While many branches of psychology have developed theories on emotions (primarily the discipline of general psychology), it was almost exclusively in clinical research in which diverse techniques for their regulation were explicated and encouraged. Those techniques are, for example, anger management methods (Howells & Day, 2003), aspects of rational emotive behavior therapy (Ellis, 2002), and focusing oriented therapy (Gendlin, 1991, 1997). These methods, most of which have been developed for pathological samples, could be rather easily adapted for use in an academic context for the promotion of EI in students. In an academic setting, findings from research on clinical child psychology could also be incorporated, for example, the Anti-Stress-Training for Children (Hampel & Petermann, 1998; Meichenbaum, Turk, & Burstein, 1975).

11.6.4 Developing Age-Specific Materials

The psychology of emotion provides an extensive array of materials suitable for fostering EI in schools (see above). However, these materials would have to be adapted for specific age groups. For example, emotion pictures used in the context of research on emotions (e.g., the Facial Expression Analysis Tool [FEAT], Kaiser & Wehrle, 1994) could be used in developing age-specific materials for the extension of emotion-related vocabulary. Complexity of the emotions depicted in the pictures might depend on the age-group that the materials are developed for. The affectmeter, often used in research on work satisfaction, could also be tailored to illustrate emotions to younger students in particular (on the utilization of the affectmeter in the context of emotion research in schools, see Helmke, 1993).

11.6.5 Teaching Components of EI Step-by-Step

Because perception and reflection of emotions are key aspects of emotion regulation, these two aspects should be taught to students first, before concrete regulation techniques are dealt with. Similar to other self-regulation models, extensive knowledge is a necessary condition for the successful development of emotional regulation processes (see the hierarchical structure of Boekaerts's, 1999, self-regulation model).

11.6.6 Training Teachers

The promotion of EI at school should be integrated into teacher training at universities, and become a module for advanced training for active teachers. Teachers need a comprehensive repertoire of knowledge and methods, as well as expertise in teaching EI in situations of learning and achievement (Zeidner, Roberts, & Matthews, 2002). Multiplier programs could be an effective method for implementing this knowledge. For example, school principals or selected teachers could attend training sessions on encouraging EI in their students and then act as multipliers, passing their knowledge on to their colleagues, or teachers from other schools, while also exchanging experiences in the application of these skills.

11.6.7 Developing Instruments for the Assessment of EI That Are Age- and Subject-Specific

There is a lack of appropriate instrumentation for the evaluation of programs fostering EI. Because of the complexity of the construct of EI, it would make sense to generate instruments that are suitable for the evaluation of sub-goals for its promotion. Such an instrument might exclusively assess an individual's emotion vocabulary, or comprise a knowledge test on the intensity of certain components of specific emotions.

11.7 CONCLUSION

As the necessity of fostering students' EI makes intuitive sense, a number of EI promotion programs have been conceptualized and realized. However, most of these programs lack a theoretical and scientifically sound basis. It appears that in the realm of academic EI, practitioners have surpassed researchers in developing EI programs without the empirical data required to support and guide such initiatives. As most EI promotion techniques appear to have little or no scientific basis, we recommend that such programs be viewed with greater skepticism. In the present chapter, we presented a theoretical model for the promotion of EI in an academic setting, embedded in a larger framework of antecedents, "intelligent" processing, and the effects of academic emotions. While this theoretical foundation can initiate the theory-directed development of EI promotion programs, the evaluation of such initiatives is limited due to the need for corresponding assessment tools. Consequently, the development of instruments for assessing the effectiveness of EI promotion programs, with respect to theoretically derived subcomponents of EI, is critical to the future success of training programs aimed at fostering emotional intelligence in the classroom.

REFERENCES

Abele, A. E. (1996). Einfluss positiver und negativer Stimmungen auf die kognitive Leistung [On the impact of positive and negative moods on cognitive performance]. In J. Möller & O. Köller (Eds.), *Emotionen , Kognitionen und Schulleistung* (pp. 91–111). Weinheim, Germany: Psychologie Verlags Union.

Andersen, P. A., & Guerrero, L. K. (1998). Principles of communication and emotion in social interaction. In P. A. Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion* (pp. 49–96). New York: Academic Press.

Anderson, J. R. (2000). *Cognitive psychology and its implications*. New York: Freeman.

Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, *22*, 1–32.

Astleitner, H. (2000). Designing emotionally sound instruction: The FEASP-approach. *Instructional Science*, *28*, 169–198.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, *64*, 359–372.

Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.

Bar-On, R. (1997). *BarOn Emotional Quotient Inventory (EQ–i): Technical manual*. Toronto, Canada: Multi-Health Systems.

Boekaerts, M. (1999). Self-regulated learning: Where we are today. *International Journal of Educational Research*, *31*, 445–475.

Boekaerts, M., Pintrich, P. R., & Zeidner, M. (Eds.). (2000). *Handbook of self-regulation*. San Diego, CA: Academic Press.

Caruso, D. R., & Wolfe, C. J. (2001). Emotional intelligence in the workplace. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life* (pp. 150–167). Philadelphia: Psychology Press.

Cohen, J. (1999). *Educating minds and hearts: Social emotional learning and the passage into adolescence*. New York: Teachers College Press.

Cohen, J. (2001). *Caring classrooms/intelligent schools: The social emotional education of young children*. New York: Teachers College Press.

Covington, M. V. (1997). A motivational analysis of academic life in college. In R. P. Perry & J. C. Smart (Eds.), *Effective teaching in higher education* (pp. 61–100). New York: Agathon Press.

Covington, M. V., & Wiedenhaupt, S. (1995). Turning work into play: The nature and nurturing of intrinsic task engagement. In J. C. Perry & R. Smart (Eds.), *Effective teaching in higher education: Research and practice* (pp. 101–114). New York: Agathon Press.

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, *55*, 34–43.

Ekman, P., & Davidson, R. J. (1994). Affective science: A research agenda. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 411–434). New York: Oxford University Press.

Ekman, P., & Friesen, W. V. (1978). *The facial action coding system*. Palo Alto, CA: Consulting Psychologist Press.

Elias, M. J., Hunter, L., & Kress, J. S. (2001). Emotional intelligence and education. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life* (pp. 133–149). Philadelphia: Psychology Press.

Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., et al. (1997). *Promoting social and emotional learning: Guidelines for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.

Ellis, A. (2002). *Overcoming resistance: A rational emotive behavior therapy integrated approach* (2nd ed.). New York: Springer.

Ellis, H. C., & Ashbrook, P. W. (1988). Resource allocation model of the effects of depressed mood states on memory. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition, and social behavior* (pp. 25–43). Toronto, Canada: Hogrefe & Huber.

Fiedler, K. (1988). Emotional mood, cognitive style, and behavior regulation. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 25–43). Toronto, Canada: Hogrefe & Huber.

Friesen, W. V., & Ekmann, P. (1984). *EMFACS-7: Emotional facial action coding system.* Unpublished Manual, University of California, San Francisco, CA.

Frijda, N. H. (1998). *The emotions*. Cambridge, UK: Cambridge University Press.

Gendlin, E. T. (1991). On emotion in therapy. In J. D. Safran & L. S. Greenberg (Eds.), *Emotion, psychotherapy, and change* (pp. 255–279). New York: Guilford Press.

Gendlin, E. T. (1997). The use of focusing in therapy. In J. K. Zeig (Ed.), *The evolution of psychotherapy: The third conference* (pp. 197–210). Philadelphia: Brunner/Mazel.

Geppert, U., Schmidt, D., & Galinowski, I. (1997). *Self-evaluative emotions coding system (SEECS)* (Technical Manual No. 19/1997). Munich, Germany: Max-Planck-Institute for Psychological Research.

Goetz, T. (2004). *Emotionen und selbstreguliertes Lernen bei Schülern im Fach Mathematik* [Students' emotions and self-regulated learning in mathematics]. Munich, Germany: Utz.

Goetz, T., Zirngibl, A., Hall, N., & Pekrun, R. (2003). Emotions, learning and achievement from an educational-psychological perspective. In P. Mayring & C. Rhoeneck (Eds.), *Learning emotions. The influence of affective factors on classroom learning* (pp. 9–28). Frankfurt am Main, Germany: Peter Lang.

Gohm, C. L. (2003). Mood regulation and emotional intelligence: Individual differences. *Journal of Personality and Social Psychology*, *84*, 594–607.

Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. New York: Bantam Books.

Goleman, D., Boyatzis, R. E., & McKee, A. (2003). *The new leaders: Transforming the art of leadership into the science of results*. London: Little Brown.

Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology*, *7*, 117–136.

Hall, N., Perry, R. P., Chipperfield, J. G., Clifton, R. A., & Haynes, T. (in press). Enhancing primary and secondary control in achievement settings through writing-based attributional retraining. *Journal of Social and Clinical Psychology*.

Hampel, P., & Petermann, F. (1998). *Anti-Stress-Training für Kinder* [Anti-stress training for children]. Weinheim, Germany: Beltz Psychologie Verlags Union.

Helmke, A. (1993). Die Entwicklung der Lernfreude vom Kindergarten bis zur 5. Klassenstufe [The development of enjoyment of learning from kindergarten to fifth grade]. *Zeitschrift für Pädagogische Psychologie*, *7*, 77–86.

Hofer, T. (2000). *Emotionale Intelligenz im Schulalltag: Erfahrungen und Anregungen für den Regelklassen- und Spezialunterricht* [Emotional intelligence in the classroom: Experiences and recommendations for regular and special education]. Biel, Germany: Schüler AG.

Howells, K., & Day, A. (2003). Readiness for anger management: Clinical and theoretical issues. *Clinical Psychological Review*, *23*, 319–337.

Kaiser, S., & Wehrle, T. (1994). Emotion research and AI: Some theoretical and technical issues. *Geneva Studies in Emotion and Communication*, *8*, 1–16.

Klauer, K. J. (1988). Paradigmatic teaching of inductive thinking. In H. Mandl, E. De Corte, N. Bennett, & H. F. Friedrich (Eds.), *Learning and instruction* (2nd ed., pp. 23–45). Oxford, UK: Pergamon Press.

Klauer, K. J., & Phye, G. D. (1994). *Cognitive training for children: A developmental program of inductive reasoning and problem solving*. Toronto, Canada: Hogrefe & Huber.

Kusche, C. A., & Greenberg, M. T. (2001). PATHS in your classroom: Promoting emotional literacy and alleviating emotional distress. In J. Cohen (Ed.), *Caring classrooms/intelligent schools: The social emotional education of young children* (pp. 140–161). New York: Teachers College Press.

Kusche, C. A., Greenberg, M. T., & Beilke, B. (1988). *The Kusche affective interview.* Unpublished manuscript, Department of Psychology, University of Washington, Seattle, WA.

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1995). *International affective picture system (IAPS): Technical manual and affective ratings*. Gainesville, FL: University of Florida, The Center for Research in Psychophysiology.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Locke, J. (1975). *Essays concerning human understanding*. Oxford, UK: Clarendon Press. (Original work published 1690)

Mackintosh, N. J. (2001). *IQ and human intelligence*. New York: Oxford University Press.

Martinez-Pons, M. (1998). Parental inducement of emotional intelligence. *Imagination, Cognition and Personality*, *18*, 3–23.

Martinez-Pons, M. (2000). Emotional intelligence as a self-regulatory process: A social cognitive view. *Imagination, Cognition and Personality*, *19*, 331–350.

Martinez-Pons, M. (2001). *The psychology of teaching and learning: A three step approach*. New York: Continuum.

Matthews, G., Zeidner, M., & Roberts, R. D. (2002). *Emotional intelligence: Science and myth*. Cambridge, MA: MIT Press.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–31). New York: Basic Books.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): User's manual*. Toronto, Canada: Multi-Health Systems.

Meichenbaum, D., Turk, D., & Burstein, S. (1975). The nature of coping with stress. In I. Sarason & C. Spielberger (Eds.), *Stress and anxiety* (Vol. 2, pp. 337–360). Washington, DC: Hemisphere.

Molcho, S. (2001). *Alles über Körpersprache: Sich selbst und andere besser verstehen* [Everything about body language: Understanding oneself and others better]. München, Germany: Mosaik.

Molfenter, S. (1999). *Prüfungsemotionen bei Studierenden: Explorative Analysen und Entwicklung eines diagnostischen Instrumentariums* [University students' test emotions: Exploratory analyses and development of a diagnostic instrument]. Unpublished doctoral dissertation, University of Regensburg.

Möller, J., & Köller, O. (1996). Attributionen und Schulleistung [Attribution and scholastic performance]. In J. Möller & O. Köller (Eds.), *Emotionen, Kognitionen und Schulleistung* (pp. 115–136). Weinheim, Germany: Psychologie Verlags Union.

Pekrun, R. (2000). A social-cognitive, control-value theory of achievement emotions. In J. Heckhausen (Ed.), *Motivational psychology of human development.* Oxford, UK: Elsevier.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist*, *37*, 91–105.

Perry, R. P. (1991). Perceived control in college students: Implications for instruction in higher education. In J. Smart (Ed.), *Higher education: Handbook for theory and research* (Vol. 7, pp. 1–56). New York: Agathon Press.

Peterson, C. (2000). The future of optimism. *American Psychologist*, *55*, 44–55.

Plutchik, R. (1980). *Emotion: A psychoevolutionary synthesis*. New York: Harper and Row.

Ricci-Bitti, P., & Scherer, K. R. (1986). Interrelations between antecedents, reactions, and coping responses. In K. R. Scherer, H. G. Wallbott, & A. B. Summerfield (Eds.), *Experiencing emotion: A cross-cultural study* (pp. 84–97). Cambridge, UK: Cambridge University Press.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, *9*, 185–211.

Scherer, K. R. (1984). On the nature and function of emotion: A component process approach. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 293–317). Hillsdale, NJ: Lawrence Erlbaum.

Scherer, K. R. (1993). Neuroscience projections to current debates in emotion psychology. *Cognition and Emotion*, *7*, 1–41.

Schunk, D. H. (1984). Sequential attributional feedback and children's achievement behaviors. *Journal of Educational Psychology*, *76*, 1159–1169.

Seligman, M. E. P. (1991). *Learned optimism*. New York: Knopf.

Seligman, M. E. P. (1993). *Learned helplessness*. New York: Oxford University Press.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5–14.

Shure, M. B., & Glaser, A. L. (2001). I can problem solve (ICPS): A cognitive approach to the prevention of early high-risk behaviors. In J. Cohen (Ed.), *Caring classrooms/intelligent schools: The social emotional education of young children* (pp. 122–139). New York: Teachers College Press.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, *48*, 813–838.

Stegge, H., & Terwogt, M. M. (1998). Perspectives on the strategic control of emotions: A developmental account. In A. H. Fischer (Ed.), *Proceedings of the Xth conference of the international society for research on emotion.* Amsterdam: International Society for Research on Emotion.

Sternberg, R. J. (1997). The concept of intelligence and its role in lifelong learning and success. *American Psychologist*, *52*, 1030–1037.

Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationships among academic stress, coping, motivation, and performance at college. *Research in Higher Education*, *41*, 579–590.

Titz, W. (2001). *Emotionen von Studierenden in Lernsituationen: Explorative Analysen und Entwicklung von Selbstberichtskalen* [Students' emotions in learning situations: Exploratory analyses and development of self-report scales]. Münster, Germany: Waxmann.

Topping, K. J., Holmes, E. A., & Bremner, W. G. (2000). The effectiveness of school-based programs: For the promotion of social competence. In R. Bar-On & J. D. A. Parker (Eds.), *The handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (pp. 411–432). San Francisco, CA: Jossey-Bass.

Van Brakel, J. (1994). Emotions: A cross-cultural perspective on forms of life. In W. M. Wentworth & J. Ryan (Eds.), *Social perspectives on emotion* (Vol. 2, pp. 179–237). Greenwich, CT: JAI Press.

Van Overwalle, F., & De Metsenaere, M. (1990). The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen. *British Journal of Educational Psychology*, *60*, 299–311.

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, *98*, 219–235.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, *92*, 548–573.

Weiner, B. (1995). *Judgements of responsibility: A foundation for a theory of social conduct*. New York: Guilford Press.

Weiner, B., & Graham, S. (1985). An attributional approach to emotional development. In E. Izard, J. Kagan, & R. B. Zajonc (Eds.), *Emotions, cognition, and behavior* (pp. 167–191). New York: Cambridge University Press.

Zeidner, M., Roberts, R. D., & Matthews, G. (2002). Can emotional intelligence be schooled? A critical review. *Educational Psychologist*, *37*, 215–231.

Zins, J. E., Elias, M. J., Greenberg, M. T., & Weissberg, R. P. (2000). Promoting social and emotional competence in children. In K. M. Minke & G. C. Bear (Eds.), *Preventing school problems—promoting school success: Strategies and programs that work* (pp. 71–99). Bethesda, MD: National Association of School Psychologists.

Zins, J. E., Travis, F., & Freppan, P. A. (1997). Linking research and educational programming to promote social and emotional learning. In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence* (pp. 168–192). New York: Basic Books.