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From children's expressive control to emotion regulation: Looking back, looking ahead

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Abstract

In 1984, Carolyn Saarni published an important cross-sectional study on the development of children's expressive control. That paper, as with much of her early work, presaged interest in the development of emotion regulation and of the efforts to understand emotion regulation both in typical and at risk children. In this paper, we look back on Dr. Saarni's work on expressive control and studies that used her creative disappointment task. We discuss conclusions from that work and how this germinal work on expressive control contributed to the study of the broader concept of emotion regulation. We look ahead to the next steps that carry this line of research forward contributing to the development of emotional competence and mental health.

Keywords

development; emotion regulation; expressive control

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Over the last three decades, there has been burgeoning interest in children's emotion regulation. The interest stems from the importance of emotion regulation for the development of healthy, competent functioning in childhood (Saarni, 1999). Prior to this period, knowledge about emotional development focused mainly on children's knowledge about emotions, and less on their emotional experiences and behavior (Saarni, 1978). As a result, there was limited knowledge to aid understanding the nature and development of children's emotional problems (Digdon & Gotlib, 1985; Jacobsen, Lahey, & Strauss, 1983). A vigorous debate about whether young children could be depressed illustrated the need. Some scholars contended that children lacked sufficient cognitive development to suffer certain symptoms of depression like hopelessness (Rutter, 1987). Others posited that children's behavior problems could mask depression (Cytryn & McKnew, 1974), and yet others claimed childhood depression was similar to that of adults (Carlson & Cantwell,

1980). The problem was that the conceptualization of childhood depression was in terms of adult depression, using clinical models that could not address development and developmental research did not address the full range of children's emotional functioning. There was little scientific guidance on normative aspects of how children become emotionally competent, and on the conditions that divert typical emotional functioning to atypical forms implicated in psychological disorders. Today knowledge of children's development of emotion regulation has contributed to an appreciation that even preschool age children can suffer depression (Luby, 2009).

The study of children's emotion regulation, a core feature of emotional competence, owes homage to the germinal research of Carolyn Saarni. Saarni was one of the first scholars to integrate clinical and developmental psychology using empirical methods, as is evident in her creative study of children's expressive control (Saarni, 1984). Children's ability to control their expressive behavior when emotional, e.g., applying a cultural display rule such as smiling when disappointed by a gift, is one aspect of emotion regulation. Saarni's studies of children's understanding of display rules, and their ability to control the expression of disappointment, modeled a way to study one aspect of emotion regulation. Emotion regulation is the ability to respond to the ongoing demands of experience with a range of emotions in a manner that is socially tolerable and sufficiently flexible to permit both spontaneous reactions as well as the ability to modulate those reactions (Cole, Michel, & Teti, 1994; Saarni, 1999). Expressive control is one form of modulating an emotional reaction.

The concept of emotion regulation entered the developmental literature shortly after Saarni's work was published (e.g., Dodge, 1989; Garber & Dodge, 1991) leading to research that shows that emotion regulation plays a major role in the development of competence and psychopathology (e.g., Cole et al., 1994; Saarni, 1999). In this article, we pay tribute to Carolyn Saarni by describing her studies of children's expressive control and suggesting they inspired contemporary research on children's emotion regulation. We look back on what we have learned since Saarni's published studies, and ahead to ways can further our knowledge about typical and atypical emotion regulation.

Children's Display Rule Knowledge and Expressive Control

The first evidence related to children's expressive control in everyday social situations involved their knowledge of display rules (Saarni, 1979). To conceptualize her interests in the intersection of clinical and developmental psychology, Saarni drew from Vygotsky's (1978) social constructivist approach, which theorizes that sociocultural context, more than biological determinism, influences the nature of human experience. We construct psychological experience, such as emotion, its expression, and our control of it, through what we learn in social exchanges. Eventually, Saarni conceptualized emotional competence in terms of effective self-regulation in the context of social interactions, which influenced practical applications of her concept of emotional competence (Buckley, Storino, & Saarni, 2003; Saarni, 1999).

Initially, the social constructivist perspective led Saarni to ask when elementary age schoolchildren understand that one should appear differently than one feels, i.e. understand social display rules that require expressive control. In her first study, 6-, 8-, and 10-year-olds were told four scenarios in which a target child faced a delicate interpersonal situation in which social norms required masking how one feels. For example, target characters received a disappointing gift for their birthday or fell down after boasting about their prowess at skating. The participating children were asked to describe how the target children felt, what facial expressions they would have, the reason for their expression, and whether they could look differently. Ten-year-olds articulated more display rules, more complex reasoning about their choices, and more references to maintaining norms, than the younger children. This work contributed to the study of children's verbal knowledge of display rules and emotion cognition more generally (Harris & Saarni, 1989). For example, we learned that school age children have a stronger grasp of verbal versus facial display rules, and yet children as young as preschool age appear able to represent the difference between appearance and reality (e.g., Banerjee, 1997; Gnepp & Hess, 1986).

Saarni's observational research however, perhaps more than her work on emotion cognition, stimulated decades of research on children's *use* of display rules and, more broadly, their ability to regulate their own emotional reactions, including their emotional expressions. In 1984, Saarni published the first behavioral evidence of spontaneous expressive control in school age children. Up to this point, the small corpus of evidence about children's ability to control expressions mainly involved procedures in which they were instructed to pretend they liked, or disliked, something they tasted (e.g., Feldman, Jenkins, & Popoola, 1979). Saarni extended that work by investigating spontaneous, rather than instructed, emotion expressions and doing so in a more natural context, i.e. receiving an undesirable gift. To do this, she developed a new procedure—the “disappointment” task. In its original version, first-, third-, and fifth-graders were told they would be invited to evaluate children's workbooks and that they would be videotaped and were then allowed to select a gift bag that contained juice, candy, and 50 cents. This first session established children's expectation of getting good gifts in this project. For the next session, children returned to evaluate the difficulty of the workbooks. This time, however, the gift bags contained infant toys that should be disappointing for school age children. Video records of children's expressive behavior as they opened each type of gift were coded for the degree to which children expressed positive, negative, and transitional expressions. Transitional expressions were those deemed to convey tension, uncertainty, and minimal positive emotion.

The results provided the first evidence of children's spontaneous control of emotion expression. The youngest and oldest boys expressed more negative emotion when receiving the baby gift compared to the snacks and coins. Third- and fifth-grade girls, however, showed the least difference in positive expressions across the two sessions. The findings further indicated that when receiving a disappointing gift older girls expressed positive emotion whereas older boys engaged in transitional expressions. Given her prior findings (Saarni, 1979), the observational results raised the possibility that the acquisition of display rule knowledge in middle childhood enabled children of that age to mask disappointment.

The disappointment study augured a new era in developmental research. With the emergence of the developmental psychopathology framework (Cicchetti, 1984; Sroufe & Rutter, 1984), and the appreciation of the importance of emotion regulation within this framework (Garber & Dodge, 1991; Dodge, 1989), it became possible to study emotional development in ways that were valuable to understanding both typical and atypical development. The developmental psychopathology framework articulated the benefits of studying typical and atypical development in concert to inform both basic developmental science and clinical research. Emotion regulation was seen as a central but understudied feature of both typical development and of child psychopathology (Calkins, 1994; Cole et al., 1994).

The Saarni (1984) study galvanized my own research plans, serving as a starting point to study the early development of emotion regulation in both typically developing and at-risk children. To begin, I conducted a similar cross-sectional study (Cole, 1986) that varied from Saarni's in several ways: (a) instead of assuming what disappoints young children, children ranked eight prizes, two of which were broken, and were given their last choice prize as a disappointment and were allowed to trade it at the end of the procedure; (b) the disappointment was administered in the same session as the desired (first choice) prize; (c) instead of smiling at the children (as Saarni told me she did), research assistants were trained to appear emotionally neutral and not engage in any directive or regulatory behavior, avoiding the possibility that their behavior would influence children's emotions; (d) instead of rating emotion expressions on positive, negative and transitional dimensions, facial activity was coded using the original Facial Action Coding System (Ekman & Friesen, 1978), targeting muscle movements in the face that were empirically associated with anger, sadness, and happiness, and allowed for capturing nuanced, blended emotion expressions; and (e) children's understanding of expressive control was assessed to determine if it was systematically related to children's behavior. In addition, given my plans to study young children with behavior problems in a subsequent study, we recruited preschool, first grade, and third grade children, a younger cross-section that overlapped with Saarni's sample.

The results both paralleled and differed from those reported by Saarni. In terms of similarities, gender differences emerged. Essentially, girls smiled more fully than boys when receiving the disappointing gift; boys smiled but in a more subdued manner. Moreover, two-thirds of the children also displayed negative emotion when receiving the disappointing gift relative to their first choice gift. All children traded in the disappointing gift for their first choice, and all acknowledged feeling positively about receiving the desired gift. All but four children acknowledged feeling negatively about the disappointing gift. In terms of display rule knowledge, very few preschoolers showed understanding that children could appear differently than they felt. Third-graders referred to felt emotion/expression discrepancies more than first-graders. In addition, boys referred to emotion/expression discrepancies more than girls.

What differed from Saarni's findings was an unexpected absence of significant grade differences in children's facial expressions. In video after video, the preschool age children smiled when they received the disappointing gift, although their smiling was not convincing. The use of micro-analytic facial action coding appeared to reveal that younger children attempted to control the expression of disappointment. To test this interpretation, a follow-up

study of 3-year-old girls repeated the disappointment task with one additional experimental manipulation (Cole, 1986). The research assistant remained with half of the girls, but left after giving the last choice gift to the other half of the girls. This manipulation revealed that 3-year-old girls smiled when the research assistant was present but not when they were alone. Thus, children as young as three years of age appeared to have the spontaneous tendency to try to appear pleased when disappointed. Moreover, this behavior was not related to display rule knowledge, for which there were clear age-related differences. The development of self-regulation of emotion expression appeared to begin as early as the preschool years.

Looking Back: From Expressive Control to Emotion Regulation

In the decades following Saarni's germinal study, there has been an amazing burst of research on children's emotion regulation. A PsycINFO search (June 5, 2017) using the term "emotion regulation" in the document title yielded 965 articles, chapters, books, and dissertations. Saarni's research forecast the emergence of the construct of emotion regulation, which was introduced into developmental psychology as the 1990's began (Dodge, 1989; Garber & Dodge, 1991; Fox, 1994). The first studies of children's emotion regulation investigated school age children's perceptions of emotion regulation (e.g., Rossman, 1992), young children's observed emotion expression and physiological activity (e.g., Fabes, Eisenberg, Karbon, Troyer, & Switzer, 1994), and relations between emotion expression and individual differences in children and youth. The latter studies related emotion expression to different types of attachment status (Connell & Thompson, 1986; Cassidy, 1994; Kobak, Cole, Ferenz-Gillies, & Fleming, 1993), temperament (e.g., Eisenberg, Wentzel, & Harris, 1998; Goldsmith, Buss, & Lemery, 1997), and behavior problems (e.g., Cole, Zahn-Waxler, & Smith, 1994).

Many studies of emotion regulation use the Emotion Regulation Checklist, which addresses it as a characteristic of children (Shields & Cicchetti, 1997). Other studies observe children's actual behavior, as Saarni did with the disappointment procedure. The results of observational studies support several conclusions about children's knowledge and behavior from the early disappointment studies. Harris and colleague (this issue) summarize research on children's emotion knowledge. Here we note that research has not yet answered questions about what level or type of knowledge is required for children's expressive control. Competent preschool age children know which expressions are associated with specific basic emotions or situational contexts (Denham et al., 2012; Raver, Garner, & Smith-Donald, 2007), but it is less clear how well they understand how emotions are regulated and what strategies to use to do so (Cole, Dennis, Smith-Simon, & Cohen, 2009; McCoy & Masters, 1985; Sala, Pons, & Molina, 2014). The ability to conceptualize and verbalize about strategies and expressive control may require a level of self-awareness and cognitive and linguistic skills that emerge in middle childhood, as Saarni (1979) suggested. These skills may explain why children in this middle childhood evidence greater comprehension about emotion and how it can be modulated (Harris, Olthof, & Meerum Terwogt, 1981; Pons, Harris, & de Rosnay, 2004; Sala et al., 2014). One recent study found that the ability to differentiate between expressed and felt emotion may be related to skill at masking disappointment (Kromm, Färber, & Holodynski, 2015). Tasks that engage and support

young children's ability to verbalize about hypothetical situations (e.g., use of puppets) suggest that preschool age children have some awareness of regulatory strategies, but are more aware of seeking adult support than of cognitive strategies (Cole et al., 2009; Davis, Levine, Lench, & Quas, 2010; Sala et al., 2014).

In terms of children's actual behavior, we turn to research using behavioral observations during procedures designed to elicit fearfulness, anger, frustration, or disappointment. Unlike the disappointment task, which cleverly assesses expressive control, many studies use anger- or fear-eliciting tasks from the Laboratory Temperament Assessment Battery (Goldsmith, Reilly, Lemery, Longley & Prescott, unpublished manuscript, 1995). Others use tasks that require children to wait to satisfy their desires, which reliably elicit anger (Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998; Vaughn, Kopp, & Krakow, 1984). In observational studies, children's behavior is video recorded and later coded (or rated) for either positive or negative valence or for occurrence of specific emotion displays. Most code children's behavior using brief intervals (e.g., 1s or 15s intervals), and the codes are then used to generate sums reflecting the number of intervals in which the target emotions occurred. Following Thompson (1994), some studies generate temporal variables such as latencies and durations, as well as intensity ratings, to strengthen inferences related to regulatory processes (e.g., Calkins & Johnson, 1998).

Children who show less negative emotion (or less anger or fear) are assumed to be better regulated than children who show more negative emotion. However, such interpretations are risky; this type of evidence does not address whether children who display more negative emotion are more reactive to task challenges or less able to regulate their reactions (or both). An advantage of the disappointment task's design is that it creates comparative task contexts in which certain emotions are likely to be elicited and masked, increasing the strength of evidence for inferring emotion regulation (Cole, Martin, & Dennis, 2004). That is, children display more negative emotion when they are alone than they do when in the presence of a person giving them a disappointing gift; supplemented with their self-reports of negative emotion and their willingness to trade the disappointing gift, this procedure strengthens the inference that smiling when disappointed reflects regulation.

One way to approximate emotion regulation is to include assessment of children's strategy use (e.g., Calkins & Johnson, 1998; Cole et al., 2011; Gilliom et al., 2002; Grolnick et al., 1998; Mangelsdorf, Shapiro, & Marzolf, 1995; Raver, 1996; Stansbury & Sigman, 2000). The strategies usually involve self-comforting, instrumental behaviors, distraction (shifting attention from a desired object), and verbalizations, which may range from venting (Fabes et al., 1994) to support seeking (Grolnick et al., 1998), self-instruction (Stansbury & Sigman, 2000), or information seeking (Silk, Shaw, Skuban, Oland, & Kovacs, 2006). However, only a few studies relate children's strategy use to their emotion expressions. Toddlers whose anger is longer and more intense also engage in fewer strategies (Calkins & Johnson, 1998) and those who use a putative strategy the moment after they display anger show less anger in the subsequent moment (Buss & Goldsmith, 1998; Stifter & Braungart, 1995). These associations improve the inference that toddlers have some capacity to regulate emotion, although they do not address how long a given strategy is effective. Ultimately, effectiveness

over the course of an entire situation is more pertinent to the concerns of parents and educators.

Gender, Age, and Risk Status as Predictors of Individual Differences in Emotion Regulation

Most research on children's emotion regulation focuses on individual differences rather than on the process of emotion regulation (Diaz & Eisenberg, 2015). The main individual differences studied are children's gender and risk status and, to a lesser degree, age.

Saarni (1984) found gender differences in children's emotion expressions during the disappointment, with girls expressing more positive emotion than boys do. However, subsequent studies using the procedure yield mixed gender effects. In several disappointment studies, girls express more positive emotion than boys (Cole, 1986; Cole, Zahn-Waxler, & Smith, 1994; Garner & Power, 1996; Hudson & Jacques, 2014; Josephs, 1994; Kromm, Färber, & Holodyski, 2015; Tobin & Graziano, 2011), in others boys express more negative emotion than girls (Davis, 1995; Liew, Eisenberg, & Reiser, 2004; McDowell et al., 2000), and in several no gender difference is observed (Brinton et al., 2015; Bohnert, Crnic, & Lim, 2003; Carlson & Wang, 2007; Garrett-Peters & Fox, 2007; Kieras, Tobin, Graziano, & Rothbart, 2005; Kromm et al., 2015; Silk et al., 2006; Simonds, Kieras, Rueda, & Rothbart, 2007; Spinrad, Stifter, Donelan-McCall, & Turner, 2004; Williams et al., 2013). Children's age did not moderate gender effects.

Stepping back from expressive control, we note more generally that *observed* gender differences in emotion expression are inconsistent relative to the more pronounced effects found when via questionnaires, perhaps because the latter are more influenced by stereotypes (Chaplin & Aldao, 2013). The appearance of gender differences in emotion regulation may depend on the interpersonal context (Cole, 1986; Cole et al., 1994; Chaplin, Klein, Cole, & Turpyn, 2017; Josephs, 1994). Chaplin and colleagues indicate that girls smile more than boys do when frustrated if they are with a research assistant but not if they are alone or with a parent, and that this context-specific gender difference in emotion regulation may emerge over the course of early childhood (Chaplin et al., 2017).

Age differences was the individual difference motivating Saarni's innovative research. She suggested that expressive control emerges in middle childhood. Subsequent research with her procedure provides behavioral evidence that typically developing children, from ages 3 through 11 years of age, attempt perhaps with varying degrees of credibility, to engage in expressive control. Unfortunately, there is very little longitudinal evidence on the development of expressive control or any form of emotion regulation. One longitudinal study investigating anger and strategy use in a frustrating task suggests that emotion regulation improves during the preschool age years (Cole et al., 2011), as has been shown for behavioral self-regulation (Kochanska, Coy, & Murray, 2001). As a result, there are preventive interventions designed to bolster the emotion regulation skills of preschool age children (e.g., Domitrovich, Cortes, & Greenberg, 2007; Havighurst, Kehoe, Harley, & Wilson, 2015).

The importance of bolstering emotion regulation in preschool age children stems from the evidence that a third individual difference, children's risk status, is associated with poorer emotion regulation. There are many risk conditions one could consider but most studies focus on one of the following: (a) temperamental vulnerability, particularly negative emotionality, (b) insecure attachment, (c) elevated symptoms or disorder, or (d) adverse environmental conditions, such as child maltreatment, marital conflict, or economic disadvantage. In general, children who are at risk in one of these ways display more negative emotion than children without the risk in laboratory emotion-eliciting tasks, including the disappointment task (e.g., Blandon, Calkins, & Keane, 2010; Brown & Ackerman, 2011; Buss, 2011; Crockenberg, Leerkes, & Lekka, 2007; Cole, Teti, & Zahn-Waxler, 2003; Cole, Zahn-Waxler, & Smith, 1994; Cummings & Davies, 1996; Eisenberg, Spinrad, & Eggum, 2010; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Maughan & Cicchetti, 2002; Raver, Garner, & Smith-Donald, 2007; Silk, Shaw, Forbes, Lane, & Kovacs, 2006).

However, negative emotions are not inherently problematic. The reason that the capacity for negative emotions has been preserved in human beings is because of their adaptive function (Barrett & Campos, 1987). Studies including children with a known risk condition emphasize the problematic aspects of negative emotion. However, securely attached infants display as much negative emotion as avoidantly attached infants, with both displaying less distress than resistant infants (Leerkes & Wong, 2012). Indeed, a blunted or overly bright emotional presentation—that is, the absence of negative emotion in situations in which it is expected—is associated with certain forms of insecure attachment and exposure to maltreatment (Cassidy, 1994; Sinha & Pollak, 2002). Moreover, low level anger is associated with adaptive coping in frustrating situations in which preschool age children are able to act to correct a situation (Dennis, Cole, Wiggins, Cohen, & Zalewski, 2009; He, Xu, & Degnan, 2012). Temperament research, which conceptualizes individual differences in biological proneness in terms of (a) negative emotionality and (b) effortful control of attention, emotion, and behavior (Rothbart & Bates, 2006), shows that higher negative emotionality is a risk factor when children have poorer effortful control (Eisenberg, Spinrad, & Eggum, 2010). That is negative emotionality is a risk factor if a child is less able to recruit executive processes such as redirecting attention or engaging reasoning. This value of negative emotion is consistent with Saarni's (1999) view that emotional competence includes access to the full range of emotional experiences and expressions as long as they are regulated.

Thus far, we have looked back at research on children's emotion regulation that was inspired, in part, by the contributions of Carolyn Saarni. Nonetheless, there is much yet to learn. In looking ahead, we focus on three critical issues that need to be addressed: the development of emotion regulation, the dynamic nature of regulatory processes, and contextual specificity.

Looking Ahead: Emotion regulation as a developing dynamic process in context

Three developmental frameworks guide contemporary research on the development of emotion regulation: Kopp's (1989) framework for the emergence of self-regulation of

negative emotion and distress in early childhood, Thompson's (1990, 1994) emphasis on the functionality of emotion and how temporal and intensive features of emotion-related behavior indicate emotion regulation, and Saarni's (1999) social-constructivist framework for the development of emotional competence throughout childhood. Together, these complementary perspectives emphasize the role of cognitive development, caregiver-child relationships, and socialization in children's internalization of cultural standards for behavior and ability to regulate emotions without adult direction or monitoring. In considering these, it is clear that there is considerable research yet to be done. We know surprisingly little about how emotion regulation changes with age, studies that generate time series data generally do not exploit to investigate emotion regulation as a dynamic process and how those dynamics change with age, and the extent to which emotion regulation is understood in context – situational, interpersonal, and/or cultural – is not fully understood. Here, inspired by Saarni's broad and nuanced thinking, we suggest future research directions.

The development of emotion regulation.

Although much of the research on children's emotion regulation is framed in developmental context, relatively few studies examine age-related changes in emotion regulation. A few studies investigate emotion regulation at two points in time (e.g., Graziano, Calkins, & Keane, 2011; Spinrad, et al., 2006) or in a cross-sectional design but there is limited longitudinal research. Most longitudinal studies have examined emotion regulation as a predictor or moderator of developmental change in children's social competencies or risk status (e.g., Blair, Perry, O'Brien, Calkins, & Keane, 2015; Hill, Degnan, Calkins, & Keane, 2006; Morris, Silk, Steinberg, Terranova, & Kithakye, 2010; Supplee, Skuban, Shaw, & Prout, 2009). There are interesting questions that remain to be understood.

Our longitudinal study found that young children who have to wait to open a gift are quicker to distract themselves, take longer to get frustrated, and are frustrated for shorter periods between ages 18 and 48 months (Cole et al., 2011). Is this because they have acquired a good strategy, or are better at deploying it? Does their strategy use work temporarily and eventually develop more lasting effectiveness? It is often assumed that children's strategy repertoires increase with age and as Saarni (1999) suggested they use strategies more flexibly. Yet, we lack a substantive evidence base for these assumptions. Does this depend upon the emotion, the situational context, or whether the child is alone or with a parent or other adult? In sum, future research must address how emotion regulation changes across the period from infancy through adolescence.

Emotion regulation as a dynamic process.

Most studies of emotion regulation focus on it as an individual difference, but advances in knowledge depend upon also investigating emotion regulation as a process (Cole et al., 2004; Diaz & Eisenberg, 2015). Although the concept of regulation implies change, most studies of children's emotion regulation do not investigate change over the course of moments, or hours, or weeks.

This gap in knowledge is being addressed as developmental scientists apply techniques from other disciplines to study change over the course of a task. This not only addresses a basic aspect of developmental psychology but has potential to inform preventive and therapeutic interventions. For example, event history analyses reveal that 5-year-olds, depending on their gender and personality, down-regulate negative emotion over the course of an hour when their mothers have hostile or depressive moods (Dagne & Snyder, 2011). Moreover, the speed of down regulation of negative emotion may slow with cumulative exposures to these maternal moods. The use of time series data, with observational and/or physiological data, can capture both the unfolding of emotional reactions and the extent to which strategy use alters the intrinsic ebb and flow of children's emotions (Cole, Bendezú, Chow, & Ram, 2017; Helm et al., 2016). Recently, we applied dynamic modeling procedures to study the ebb and flow of 36-month-olds' desire and frustration, and their strategy use, as they waited for 8 minutes to open a gift (Cole et al., 2017). The results suggest individual differences in effective strategy use. In the presence of greater negative affectivity, a temperamental risk factor, strategy use eventually exacerbated 36-month-olds' desire and frustration. In the presence of higher levels of externalizing behavior problems, another risk factor, desire and frustration ultimately diminished children's strategy attempts. Modeling the time series of observed behavior can reveal the degree to which individual differences influence the effective and ineffective regulation of emotions.

Emotion regulation in context.

As the social constructivist perspective that guided Saarni notes (e.g., Saarni, 1999; Saarni, Campos, Camras, & Witherington, 2006), emotions are best understood in their contexts. Moreover, context is multi-dimensional. Context includes the particulars of a situation and how these relate to children's goals. Procedures are used that heighten the probability of particular emotions being elicited—for example, blocking children's access to a toy or snack is used to elicit emotions in the anger family—but often the child's desire for the object is not assessed. A clever aspect of the disappointment paradigm and its variations is the use of within-subject designs to contrast children's behavior receiving desirable and disappointing gifts, the ranking of gifts in advance and administration of both the most and least desired gifts, and offering children opportunities to trade gifts (Cole et al., 1994; Saarni, 1984). The situational context and how it is perceived influences which emotions are evoked, which strategies are possible, and how effective the strategies may be. For example, Buss and Goldsmith (1998) found that toddlers' strategy use temporarily modified the intensity of their angry reactions but not their fearful reactions. Consistent with a social constructivist view, research on children's emotion understanding indicates that children have beliefs about how others will react to different emotion expressions, which may influence whether or how they regulate emotion expression (e.g., Raval et al., 2007; Zeman & Garber, 1996).

In addition to situational context, a dyad's relationship history and the interpersonal circumstances during a situation (e.g., who is with the child) are likely to be important as has been suggested in the literature. As noted, children smile in a frustrating situation with a research assistant more so than they do during challenging tasks in which they are with a parent or alone (Chaplin et al., 2017). When children are with their mothers, they may expect their mothers to aid them with the challenging situation or depend on their mothers'

natural tendencies to help them manage distress (Morris et al., 2011; Spinrad et al., 2004). Notably, the effectiveness of maternal strategies on children's negative expression during a disappointment task increases with child age, both from toddler to preschool age (Spinrad et al., 2004) and from preschool to early school age at least for sadness (Morris et al., 2011). The same reliance, or perhaps trust, is not typically placed in friendly but unfamiliar research assistants; children are more likely to deceive an unfamiliar adult (Williams et al., 2013). Another interpersonal context of importance is the peer context (see von Salisch, this issue), but there is very little research on this important context. One study shows that children smile more when disappointed if a peer is present, an effect that may strengthen with age (Visser et al., 2015)

Another context in which emotion regulation must be considered is cultural context. Emotional display rules vary by culture and may influence how children are socialized and therefore how they react in emotion-eliciting situations (Friedlmeier, Cole, & Corapçi, 2011; Halberstadt & Lozada, 2011; Saarni, 1998). Most studies involve cross-cultural comparisons between U.S. children and children of East or South Asian heritage, either living in Asia or in the U.S. In general, children of East or South Asian heritage are less expressive than European-American children (e.g., Louie, Oh, & Lau, 2013; Raval, Martini, & Raval, 2007; Wilson, Raval, Salvina, Raval, & Panchal, 2012; Friedlmeier & Trommsdorff, 1999), although some published studies do not show this (Garrett-Peters & Fox, 2007). The latter study found that European-American children were more expressive, engaged in more positive expressiveness, and the 7-year-olds engaged in fewer negative displays than 4-year-olds in contrast to Chinese-American 4- and 7-year-olds who displayed negative expressions. However, contrasts between children and their families in Asia versus North America provide limited information about how cultural priorities influence the developmental predictors of children's expressive behavior and ability to regulate emotion. Saarni (1998) pointed out that studies often impose Western models onto cross-cultural research and argued for greater intercultural approaches to the study of cultural influences on emotion regulation. Within nation variations are relegated to error variance; the degree to which citizenship influences the degree to which participants espouse, explicitly or implicitly, traditional or changing culture-specific beliefs is not known. Moreover, cultural identity is fluid. One's cultural sense of self, and how that influences behavior, depends on the situation in which one is. The social or interpersonal context in which emotion regulation is studied must be understood.

Conclusions

Since Saarni's (1984) innovative cross-sectional study of school age children's expressive control, we have learned a great deal about the emotional capacities and vulnerabilities of children in the first five years of life. As early as three years of age, typically developing children show a spontaneous tendency to smile at a kind but unfamiliar research assistant when that person creates situations that frustrate or disappoint children. Children become better at this skill, more convincing managers of their emotional expressions, as they advance through middle childhood. The antecedents of this aspect and other aspects of the ability to regulate the expression of emotion include children's temperament and the conditions under which they are developing; when risk factors are present and they are not

mitigated by some protective factors children are more openly negative in their expressive behavior. All of the evidence points to the importance of early childhood and middle childhood in the development of emotion regulation. However, there is still much to be known to have an adequate knowledge base for understanding both typical and atypical trajectories of emotion regulation. We need longitudinal research that not only conceptualizes emotion regulation as a link between risk and outcome, but that addresses how emotion regulation itself changes as children age. In addition to its role as a characteristic of an individual, we must understand it as a dynamic, unfolding process that changes with age. How do contextual factors, such as family climate, cultural norms, and interpersonal dynamics, influence the dynamics of self-regulation of emotion? Building on knowledge gained since Saarni's innovative research, we are in a position to address these next questions. Consistent with her motivations for her research, the answers to these questions will not only inform our understanding of typical emotional development. Importantly, they will inform how we prevent and remediate children's emotional dysfunction.

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