

Children's Conscience and Self-Regulation

Grazyna Kochanska and Nazan Aksan

University of Iowa

ABSTRACT We focus on children's conscience, an inner guiding system responsible for the gradual emergence and maintenance of self-regulation. Drawing from our research program that has encompassed three large longitudinal studies cumulatively covering the first 6 years of life, we discuss two major components of conscience: moral emotions (guilt, discomfort following transgressions) and moral conduct compatible with rules and standards. We discuss the organization of young children's conscience, focusing on relations between moral emotions and moral conduct, and the development of conscience, focusing on its early form: the child's eager, willing stance toward parental socialization. We also review research on two major sets of influences that predict individual differences in moral emotions and moral conduct: biologically based temperament and socialization in the family. We discuss two inhibitory systems of temperament—fearfulness and effortful control—and several features of socialization, including the style of parental discipline and the quality of the parent-child relationship. Early conscience is an important early personality system, coherently organized, relatively stable over time, and subject to individual differences that emerge as a result of a complex interplay between children's temperamental individuality and socialization in the family.

Research described in this article has been supported by the grants from NIMH, RO1 MH63096 and KO2 MH01446, and from NSF, SBR-9510863 to the first author. We are grateful to numerous dedicated students and staff members in our laboratory at the University of Iowa, the many enthusiastically committed families who have participated in our studies, and our collaborators and colleagues, including Steven Anderson, Lee Anna Clark, Katherine Coy, David Forman, Don Fowles, Kathleen Murray, Judith Smetana, and Ross Thompson. We also thank the editor of the special section, Rick Hoyle, and the anonymous reviewers, whose many helpful comments have improved the quality of this article.

Correspondence concerning this work may be sent to Grazyna Kochanska, Department of Psychology, University of Iowa, Iowa City, IA 52242-1407. E-mail: grazyna-kochanska@uiowa.edu.

Journal of Personality 74:6, December 2006

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DOI: 10.1111/j.1467-6494.2006.00421.x

Over the last decade, we have investigated how young children, who at first are almost totally dependent on external regulation, gradually become increasingly guided by inner mechanisms and, thus, self-regulated. Although societies resort to external means, such as law enforcement or judicial systems, to ensure people's compliance with shared rules and standards, inner guidance systems are by far the most effective. Those inner guidance systems are critical for viability of social life and social institutions, as well as for adaptive functioning, mental health, and sociomoral competence of individuals. Those self-regulatory systems have been examined from multiple perspectives, many of which are represented in this special issue. We focus on very early development of aspects of self-regulation.

In our approach, we use the constructs of *conscience* or *morality* to describe some of those autonomous inner guiding systems independent of external control. In developmental psychology, conscience was once a strong focus influenced by psychoanalytic theory and studied in preschoolers (Sears, Rau, & Alpert, 1965). Subsequent cognitive research traditions, mostly Piaget's (1932) and Kohlberg's (1969), shifted the focus to older children and adolescents, with an emphasis on progress of moral reasoning, seen as linked to processes of cognitive change within an individual. The contemporary, updated version of this approach—social-domain theory—focuses on cognitive representations of moral rules (Nucci & Turiel, 1978; Turiel, 1998). These contemporary scholars have expanded the original approach by considering young children and studying links between socialization and cognitive reasoning (Smetana, 1997).

Recently, interests in conscience have resurged. Notably, very young children, once considered oblivious to rules and values and incapable of mature self-regulation, are now seen as having rich consciences (Eisenberg, 1998; Eisenberg & Fabes, 1998; Emde, Biringen, Clyman, & Oppenheim, 1991; Grusec & Goodnow, 1994; Grusec, Goodnow, & Kuczynski, 2000; Kochanska, 1993, 1994; Kochanska & Thompson, 1997; Laible & Thompson, 2000; MacCoby, in press; Radke-Yarrow, Zahn-Waxler, & Chapman, 1983; Thompson, 1998). Further, bridges have been forged between developmental research on conscience and research on psychopathology (Blair, 1995; Frick & Ellis, 1999; Quay, 1988). Consequently, the current zeitgeist has shifted to an emphasis on early development and to a focus on individual differences and personality. Our research program on conscience is grounded in this recent tradition.

We see early conscience—an inner self-regulatory system—as encompassing three main interrelated mechanisms: emotional, behavioral or executive, and cognitive. Moral emotion of guilt, actually experienced following a transgression or merely anticipated, is the motivational engine that infuses misdeeds with negative personal valence (Damasio, 1994). Moral conduct, or the child's actual behavior, reflects the executive capacity to abide by rules and standards. Moral cognition reflects the child's growing understanding of rules and standards of conduct and the ability to represent consequences of violations of those standards for oneself and others.

Those components of conscience—moral emotions, moral conduct, and moral cognition—show a remarkable range of individual differences. Children embark on diverse pathways to conscience and reach varying outcomes. We seek to understand processes and factors that account for those different trajectories over developmental time. In particular, we focus on two major sources of individual variation: children's biologically based temperament characteristics and their socialization experiences, emphasizing their early relationships with caregivers.

In the following discourse, we draw from the results of three large, multimethod, multitrait longitudinal studies, each with a community sample of approximately 100 families. In the first study, we followed mothers and children from toddler age to early school age; in the second, we followed mothers and children from infancy to early school age; in the currently ongoing third study, we follow mothers, fathers, and their children from infancy to kindergarten age (to date, up to 3 years). In all studies, assessments occurred frequently to allow for repeated measurements of child conscience, temperament, and socialization. Although we occasionally collect parental and teacher reports, the majority of our measures come from behavioral observations of children and their families in standard, yet naturalistic, social-interactive paradigms. Those paradigms and measures have been comparable across the studies, and thus we can draw from the cumulative body of largely replicated findings.

In this article, we focus on two components of conscience: moral emotions and moral conduct. Although we study moral cognition as well, this component emerges later than the first two, and its origins and individual variation are influenced by other factors in addition to temperament and socialization. Therefore, for the present purpose, we considered moral cognition beyond the scope of this article.

We will first discuss the organization and development of young children's conscience. To that end, we will outline relations between moral emotions and moral conduct and describe early antecedents or precursors of conscience. We will show that early conscience is clearly an important early personality system, coherently organized, and subject to individual differences.

Second, we will discuss the major predictors of conscience development (temperament and family socialization). To that effect, we will describe how child temperament and socialization influence each of the conscience components: moral emotions and moral conduct. Finally, we will briefly theorize about future questions and directions of research.

ORGANIZATION OF CONSCIENCE

In the domain of moral emotions, we have focused on the main moral affect: discomfort following wrongdoing, or guilt (Kochanska, Gross, Hua-Lin, & Nichols, 2002; Kochanska, Tjebkes, & Forman, 1998). In the domain of moral conduct, we have measured children's ability to engage in rule-compatible conduct without surveillance, including refraining from prohibited acts and sustaining required mundane activities (Aksan & Kochanska, 2005). One of the primary goals of our research program has been to assess the extent of coherence among those components of conscience and the degree of longitudinal stability within and across them. Note that those perennial questions about consistency of "moral character" were first posed in the 1930s by Hartshorne and May (1928–1930).

Moral emotions and conduct emerge early. We have observed reliable individual differences in children's distress following transgressions and in their conduct in prohibition contexts prior to the second birthday. By and large, our findings support moderate coherence between moral emotions and conduct, contemporaneously and longitudinally (Aksan & Kochanska, 2005; Kochanska, Aksan, & Nichols, 2003; Kochanska, Forman, Aksan, & Dunbar, 2005; Kochanska, Padavich, & Koenig, 1996). Collectively, our work has produced three principal insights regarding children's fledgling conscience during the toddler and preschool years.

First, both components of conscience—children's moral emotions and rule-compatible conduct—show cross-situational consistency. Second, concurrent correlations indicate moderate coherence

across children's moral emotions and conduct. Third, both components of conscience show a moderate degree of longitudinal stability between consecutive assessments and, occasionally, across several assessments. Those findings clearly indicate that children's conscience is cross-situationally consistent and longitudinally stable.

In a recent study, we also utilized confirmatory factor-analytic techniques to examine the underlying latent structure of conscience. We considered children's distress following their own transgressions (causing damage and hurting another) and rule-compatible conduct in the absence of surveillance in three contexts including maternal requests and prohibitions: sustaining a mundane activity, refraining from touching out-of-limits objects, and playing a game following a set of rules, each measured at two assessment occasions in the 3rd and 4th years of life (Aksan & Kochanska, 2005). We found that a moderately correlated two-factor structure representing children's moral emotions and rule-compatible conduct fit the data best at both ages. Further, both latent factors showed moderate stability between the 3rd and 4th years, but the factor structure was remarkably stable across those assessment occasions. For example, both the common factor loadings and unique sources of variance in each measure remained stable in a 12-month period. Strong patterns of metric invariance increase our confidence that the measures obtained from those paradigms tap a similar phenomenon during the preschool years.

Importantly, the two latent factors accounted for less than half the variation observed in each measure of emotion and context-specific conduct measures. Such findings would lead us to expect that distinct sources of influence or antecedent factors need to be considered in understanding variation among various measures of children's moral emotions and among various measures of children's conduct. That finding is, by and large, consistent with our findings from other studies examining influences on children's conscience.

Summary. Collectively, our findings support a view of marked individual differences in moral emotions and moral conduct early in development that are likely reflections of a forming personality system. Each component—emotion and conduct—shows evidence of cross-situational consistency and longitudinal stability. Further, each is meaningfully related to the other, within and across times, reflecting a coherent system of emerging self-regulation.

PRECURSORS OF CONSCIENCE

When does conscience emerge? What are its earliest forms? These questions are central to understand children's emerging self-regulatory capacities.

Maccoby (1983, 1999; Maccoby & Martin, 1983) noted that, under some conditions, children adopt an eager, willing stance toward parental directives and demands, whereas under other conditions they simply yield to parental pressure. Maccoby proposed that this eager, willing stance to embrace a parental agenda may be a critical ingredient for children's eventual autonomous self-regulation or conscience. Note that this approach parallels a long tradition of inquiry into motivational bases of behavior. For example, attributional frameworks, self-determination theory, social-learning theorists, and traditional socialization researchers (Deci & Ryan, 1991; Dienstbier, 1984; Hoffman, 1970a, 1970b, 1983; Lepper, 1981) all emphasized that genuine internalization or autonomous self-regulation depends in part on the child's inner, genuine motivation to comply with standards of conduct. Most of that research emphasized situational contingencies that may foster internal motivation, such as attributing one's own compliance to internal causes.

We, however, have approached those important motivational distinctions from a dispositional perspective. We view the child's eager, willing stance to embrace a parental agenda as a trait-like quality and therefore as subject to individual differences. Further, following Maccoby (1983), we view this stance as the earliest form of conscience. Consequently, we set out to identify, describe, and measure such an early internally driven, receptive stance toward parental influence. Toward this goal, we have developed measures that captured this willing stance in a variety of parent-child contexts including discipline, teaching, and naturalistic interactions.

For example, considering discipline or control contexts, when parents try to endorse various prohibitions and requests, we proposed a construct of committed compliance—a willing, eager stance to go along with parental directives—and we contrasted it with situational compliance sustained by parental pressure (Kochanska & Aksan, 1995; Kochanska, Aksan, & Koenig, 1995). In teaching contexts, when parents demonstrated simple play scripts and tried to elicit matching performance from their children, we captured children's eager, responsive imitation (Forman & Kochanska, 2001;

Kochanska, Forman, & Coy, 1999). Finally, in routine daily interactive contexts, such as playing or sharing a snack (Kochanska & Aksan, 2004), we captured the child's eager responsiveness to parental bids and overtures.

Those motivationally parallel measures of children's willing stance converged across contexts (Forman, Aksan, & Kochanska, 2004; Forman & Kochanska, 2001). Children who were generally eager and receptive to parental guidance in teaching contexts also showed greater rates of committed compliance. Finally, children's committed compliance in discipline contexts (Kochanska, Coy, & Murray, 2001) and eager, receptive stance toward parental guidance in teaching contexts were longitudinally stable across the preschool years (Forman et al., 2004). Collectively, those findings supported the viewpoint that the latent motivational quality of children's responses to parental directives and guidance in both discipline and teaching contexts shows situational consistency and is longitudinally stable.

Importantly, this early, eager, willing stance predicted children's concurrent and future conscience (e.g., Forman et al., 2004; Forman & Kochanska, 2001; Kochanska, 2002a; Kochanska & Aksan, 1995; Kochanska et al., 1995; Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996; Kochanska et al., 2001). Children who showed more committed compliance also demonstrated well-regulated conduct in the absence of surveillance and produced "moral" solutions to hypothetical dilemmas that pitted self-interest against the welfare of others. Similarly, children who were eager to imitate their mothers in the teaching contexts in the 2nd and 3rd years of life developed more mature consciences by 4 years of age.

Summary. Those findings collectively support the view that children's willing stance toward parental influence is a cross-situationally consistent and longitudinally stable disposition. Further, those dispositional characteristics strongly predict various components of conscience concurrently and longitudinally, supporting the notion that they are both necessary precursors to, and perhaps even reflections of, a "proto-conscience" with strong dispositional features.

PREDICTORS OF CONSCIENCE

Like adults, children exhibit a striking array of differences in self-regulatory capacities. Some are mortified by their real or imagined

transgressions, strongly empathic towards others, and prosocial and rule abiding in their behavior and moral choices. Others deliberately violate standards of conduct, remain unremorseful, and appear callous and indifferent to consequences of their actions for others' well-being. In extreme cases, those antisocial, callous traits lead to conduct disorders and psychopathy in adulthood (Blair, 1995; Fowles, 1994; Frick & Ellis, 1999; Lykken, 1957). What are the origins of those differences?

We have proposed that the marked variability in children's conscience outcomes has dual roots: children's temperamentally based differences and qualities of early socialization in the family, particularly in the context of early relationships with caregivers. We have examined both, as separate and interacting sets of influences, in our research program.

Child temperament. We focused on two inhibitory systems of temperament: fearfulness, or passive, reactive inhibition, and effortful control—voluntary, active, vigilant control of behavioral impulses (Goldsmith et al., 1987; Kagan, 1998; Rothbart, 1989a, 1989b; Rothbart & Bates, 1998). Research has shown that those two systems are critical to children's functioning in a variety of domains, including many aspects of self-regulation (Caspi, Henry, McGee, Moffitt, & Silva, 1995; Derryberry & Rothbart, 1997; Eisenberg & Fabes, 1998; Kagan & Snidman, 1999; Kochanska, 1995, 1997b; Kochanska, Murray, & Coy, 1997; Kochanska, Murray, & Harlan, 2000; Nigg, 2001; Posner & Rothbart, 2000). Our temperament measures have been mostly observational, based on standard laboratory paradigms, though we occasionally complement them with parental reports. Those observational measures have good internal consistency from toddler to early school years, are sensitive to developmental changes, have robust longitudinal stability, and converge with maternal reports of temperament.

We observed fearfulness mostly in situations when the child was faced with unfamiliar, slightly threatening events and stimuli (Goldsmith & Rothbart, 1999; Kagan, 1998). When exposed to such events, some children respond with a pattern of shy, inhibited behavior. These children take longer to explore, to approach or play with new, novel toys and persons, and they appear tense and sometimes distressed. In contrast, other children respond with a pattern of

bold and uninhibited behavior, readily engage with new surroundings and people, show pleasure from exploring and approaching novel situations, and do not appear tense or threatened.

Children's fearful or reactive inhibition has been a critical component in a variety of conceptual frameworks that speak to the development of children's conscience. Those frameworks include Hoffman's (1983) model, attributional approach (Dienstbier, 1984), as well as psychopathy research (Gray, 1991; Quay, 1988). A central tenet of all of those models is the assumption that most children readily experience anxious arousal as a consequence of transgressions and that this unpleasant affective state consequently serves to suppress future wrongdoing and foster internalized conduct (Damasio, 1994). We, too, reasoned that fearful or reactive inhibition may be an important main temperamental underpinning of children's guilt (Kochanska, 1993).

Effortful control refers to the capacity to deploy voluntary control mechanisms to suppress dominant responses in favor of subdominant responses (Derryberry & Rothbart, 1997; Posner & Rothbart, 2000; Rothbart & Bates, 1998). We have designed extensive laboratory batteries of tasks to assess different aspects of young children's effortful control. Those tasks require children to slow down motor movement, delay approach responses, and flexibly suppress dominant responses to perform subdominant responses.

Effortful control begins to emerge early in the 2nd year of life. At the same time, most parents form expectations that children begin to exercise voluntary control over their behavior. From the very beginning, there are individual differences among children in those capacities. Children's effortful control capacities continue to show developmental gains, reflected in growing flexibility and capacity in behavioral and impulse control in a variety of contexts. Moral conduct often requires that the child refrain from an act he or she desires but has been prohibited from performing and sustain a mundane or aversive activity that he or she has been requested to perform. Consequently, we reasoned that effortful control is a natural candidate for a temperamental underpinning of children's emerging ability to regulate their conduct in ways that are compatible with broader values of the society (Kochanska, 1993).

Socialization in the family. Most developmental theories have offered accounts of conscience development as an outcome of

socialization. A large literature has focused on the style of parental discipline of children's transgressions (Dienstbier, 1984; Hoffman, 1970a, 1983; Maccoby, 1999; Maccoby & Martin, 1983). Another body of literature has focused on more relationship-oriented constructs, such as parental responsiveness, sensitivity, and availability, the key concepts in attachment research (Lay, Waters, & Park, 1989; Londerville & Main, 1981; Matas, Arend, & Sroufe, 1978; Parpal & Maccoby, 1985; Stayton, Hogan, & Ainsworth, 1971; Thompson, 1998; van IJzendoorn, 1997; Volling, McElwain, Notaro, & Herrera, 2002). Recently, Collins and Laursen (1999) explicitly deemed early relationships to be critical developmental contexts for a variety of children's outcomes.

Cumulatively, those various conceptual frameworks have produced evidence consistent with the notion that parental gentle discipline strategies that rely on inductive methods and thus deemphasize power assertion and responsive, sensitive caregiving foster children's willingness to cooperate or go along with parental agenda. Although proposed mechanisms of influence vary from one conceptual framework to another, the common underlying theme is that a reciprocal, positive interpersonal orientation between the parent and the child is a critical factor in the development of conscience or autonomous self-regulation.

Consistent with the increasing emphasis on relationship approaches, we have proposed a construct of *mutually responsive orientation* (MRO) to describe parent-child relationships that can be described as cooperative, trusting, reciprocal, and infused with positive feelings (Aksan, Kochanska, & Ortmann, in press; Kochanska, 1997a; 2002b). We further proposed that MRO encompasses two major components: the parent's and the child's cooperation with and responsiveness to each other and shared dyadic positive affectivity.

This construct is compatible with developmental literature, particularly attachment research. Within the attachment literature, responsiveness promotes trust in the partner, security, mutual bond, and expectations of future positive reciprocity. Research supports links between high parental responsiveness and children's positive outcomes including cooperation (Bryant & Crockenberg, 1980; Lay et al., 1989; Londerville & Main, 1981; Lytton, 1980; Martin, 1981; Parpal & Maccoby, 1985; Westerman, 1990). Shared affective positivity, characterized by mutually experienced positive affect, and joint pleasurable, smoothly flowing activities infused with positive

emotion in both partners, has been studied less than responsiveness. Its importance, however, has been hypothesized by many (Ainsworth, Blehar, Waters, & Wall, 1978; Dix, 1991; Emde et al., 1991; Lay et al., 1989; Maccoby & Martin, 1983; Radke-Yarrow, Richters, & Wilson, 1988).

Initial studies of the MRO construct produced promising evidence regarding the prediction of various components of conscience (Kochanska, 1997a, 2002b; Kochanska & Murray, 2000). A summary of those findings is presented later. We have also begun the process of testing specific mechanisms that may be responsible for those links (Kochanska et al., 2005).

We now turn to the two specific conscience components: moral emotion and moral conduct. We first briefly review assessment methods we have developed to capture each component. We follow up with the findings that elucidate the roles of temperament and socialization in the predicting variability in each component, concurrently and longitudinally.

MORAL EMOTIONS: GUILT

Assessments of Guilt

Guilt is very difficult to study. Unlike some of the basic emotions such as anger and fear, guilt does not have a clear expressive “signature” (Darwin, 1965). It occurs infrequently even in free-flowing naturalistic daily contexts, and it is even harder to elicit in controlled laboratory settings. To be effective, laboratory paradigms need to ensure that the child feels that he or she has caused damage or a bad event to happen. Consequently, there are few comprehensive studies of young children's guilt (Zahn-Waxler & Kochanska, 1990).

Recent research by Cole and colleagues (Cole, Barrett, & Zahn-Waxler, 1992) provided a methodological breakthrough in the study of guilt. We have drawn from that research to develop our own measures. To assess children's guilt, we have designed laboratory paradigms that lead children to believe that they have broken or damaged items of special significance to the familiar female experimenter. These paradigms encompass several scripted steps: (a) the experimenter conveys to the child the special value of the object and elicits a promise to be careful; (b) the child begins to handle the object, which breaks

dramatically (having been rigged earlier); (c) the experimenter expresses mild regret, and pauses for 60 seconds, and then (d) questions the child about the event, (e) leaves the room for 30 seconds, and (f) returns with a whole, “fixed” replica of the object, and reassures the child. Using very short coding segments, we capture children’s gaze aversion, bodily tension, global positive and negative affectivity, confession, apology, self-blame, etc. Those components of emotional reactivity strongly cohere and are thus aggregated into a composite of guilt. This composite has several robust trait-like qualities: it is coherent across the instances of mishaps and longitudinally stable from toddler to preschool age.

In this context, we should note that social psychologists (Tangney, 1998) and, occasionally, development scholars (Barrett, Zahn-Waxler, & Cole, 1993) make distinctions between guilt and shame. Although those distinctions are compelling and substantiated in research with adults, we find them premature in our work with very young children. Currently available empirical evidence on young children’s emotions in the wake of transgressions is very limited. In our experience, young children tend to show a blend of diverse negative emotions following wrongdoing.

Temperament and Socialization in the Development of Guilt

Due to the dearth of studies on guilt in young children, our understanding of its predictors is poor. It is important to address this gap, given guilt’s prominent role in many theories of psychopathy and its origins (Gray, 1991; Lykken, 1995). Both the nonnormative and normative literatures emphasize the role of the fear system as an important antecedent of distress reactions following wrongdoing. For example, psychopathic individuals are seen as perseverating with a reward-dominant response style and failing to inhibit behavior in response to punishment cues due to a low or dysfunctional fear or anxiety system (Blair, 1995; Fowles, 1994; Frick & Morris, 2004; Newman, Wallace, Schmitt, & Arnett, 1997). In the normative literature, children’s propensity for anxious arousal is thought to provide the motivational ground to avoid future transgressions (Blair, 1995; Dienstbier, 1984; Hoffman, 1983; Kagan, 1998, 2005; Kochanska, 1993, 1995, 1997b; Lepper, 1981; Maccoby, 1983).

Socialization in the family also influences guilt. Despite Freud’s belief that the threat of parental power promotes the development of guilt, most of the extant evidence suggests otherwise. Power-assertive

parenting strategies are detrimental to children's guilt. They breed resentment and anger toward the parent, which, in turn, can lead to external attributions for transgressions and thus undermine guilt. In contrast, parental warmth has been associated with more guilt-proneness (Dienstbier, 1984; Hoffman, 1970a, 1983; Lepper, 1981; Zahn-Waxler & Kochanska, 1990).

We have examined child temperament, emphasizing fearfulness, and parent-child relationship, including power assertion, maternal responsiveness, and overall dyadic MRO as predictors of children's guilt (Kochanska et al., 1999; 2002). Those links were examined across various ages concurrently and longitudinally. As expected, both fearfulness and maternal power assertion predicted children's distress following wrongdoing, concurrently and longitudinally. Toddlers who were fearful or inhibited in novel contexts and situations were more guilt prone. Children of power-assertive mothers were less likely to show distress following wrongdoing in mishap paradigms. When examined jointly, both temperamental fearfulness and maternal power assertion made independent contributions to children's future guilt, even after earlier guilt levels were controlled.

We have also examined dyadic characteristics of the mother-child relationship as contributors to guilt (Kochanska et al., 1999; Kochanska et al., 2005). The mother-child shared positive affective ambience at 14 months predicted greater guilt at 22 months. In the follow-up of that sample, we found that MRO (both responsiveness and shared positive ambience) between mothers and children during the first 2 years of life predicted greater guilt at preschool age.

Summary. Collectively, our findings suggest that both child temperament, particularly the fear system, and experiences in early relationships influence the development of guilt. Children prone to fearful arousal show amplified guilt responses to transgressions. Positive, mutually trusting parent-child relationship promotes guilt development, whereas parental power assertive discipline practices undermine it.

MORAL CONDUCT

Assessments

We have designed multiple paradigms where children's conduct compatible with the rules formulated by parents or experimenters

can be observed in a variety of contexts in the absence of surveillance. Some paradigms call for restraint in the face of prohibitions. Typically, those involve a child being left alone with extremely attractive but prohibited objects following a lengthy period of interaction during which the parent has articulated and enforced the prohibition. Some paradigms call for sustaining a mundane chore. Here, a child is alone and facing a boring task requested by the parent, such as cleaning up toys. Other paradigms are set up as games in which the child can presumably win attractive prizes; he or she is asked by the experimenter to abide by the rules of the game. Those rules typically make winning impossible, and thus the child is strongly tempted to violate them. Again, using short coding segments, we capture measures such as latency to first perform an illegal act, time spent following the rules, time spent violating the rules, varying degrees of seriousness of transgressions, etc.

Like guilt, children's conduct in these various situations had trait-like qualities: Children's conduct cohered concurrently across paradigms at various ages, and it was typically longitudinally stable (Aksan & Kochanska, 2005, Kochanska, 2002a). Those behavioral measures also converged with parental reports (Kochanska, DeVet, Goldman, Murray, & Putnam, 1994). Further, children's observed conduct in those paradigms showed substantial individual difference variation. We next summarize the sources of influence in those differences.

Temperament and Socialization in the Development of Moral Conduct

Once again, we have examined the child's temperamental characteristics and qualities of family socialization as contributors to children's internalized conduct. Those predictions have included direct, mediated, and moderated links involving child temperament and various aspects of the family socialization. Our summary highlights replicated and robust links across various ages of assessment and across samples.

In multiple analyses, we have replicated links between the two inhibitory temperamental systems, fearfulness and effortful control, and children's internalized conduct. We expected that effortful control would be the main temperamental underpinning of moral conduct, and evidence supported this hypothesis. Across different samples, we have found that children's effortful control predicts

their internalized conduct both concurrently and longitudinally from toddler age to early school age (Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996; Kochanska et al., 1997, 2000, 2001). Further, those studies have also shown that those links held across observed and parent-reported measures of both effortful control and conscience.

We have also shown that children's passive inhibitory system, fearfulness, predicted their internalized conduct (Kochanska, 1995; Kochanska et al., 2001, 2002). We also supported the hypothesis that children's anxious arousal during a transgression acts as a mediator that links children's fearfulness and their moral conduct. We found that fearful inhibition in response to novel situations and persons increases children's anxious arousal during transgressions, which, in turn, promotes internalized conduct. This finding is consistent with the attributional framework (Dienstbier, 1984) as well as Damasio's (1994) Somatic Marker Hypothesis.

Collectively, our findings on the role of child temperament in conscience development are consistent with Rothbart's model of self-regulation (Derryberry & Rothbart, 1997; Posner & Rothbart, 2000; Rothbart & Bates, 1998). Rothbart has proposed that both fearful inhibition and effortful control work in distinct but important ways in the development of self-regulation. For example, consistent with psychopathy models, Rothbart has proposed that fearful reactivity helps sets the stage for motivation to avoid wrongdoing. In contrast, effortful control representing a more active, voluntary capacity to suppress dominant responses to perform subdominant responses provides the executive capacity to abide by standards of conduct in the absence of adult supervision and reminders.

We have also examined qualities of the mother-child relationship and socialization in the prediction of children's internalized conduct (Kochanska, 1991, 1995, 1997a, 1997b; Kochanska et al., 2003, 2005; Kochanska & Murray, 2000; Kochanska et al., 1996). Across two different samples, we found significant negative links between maternal power assertion and children's less mature moral conduct. Those links were very robust across a wide range of ages from toddler to early school age, across several conduct measures, and in concurrent and longitudinal analyses. In those analyses, we controlled for children's characteristics that may be directly responsible for parents' tendency to use increased power as well as for children's compromised conscience, such as child defiance.

We also focused on MRO between parents and children. Here again, we found robust links. MRO was strongly associated with children's internalized conduct (Kochanska, 1997a, 2002b; Kochanska et al., 1999; Kochanska & Murray, 2000). Those links were replicated across two studies that utilized different designs and age ranges. Further, the links were both concurrent (toddler, preschool age) and longitudinal (toddler to preschool age, toddler and preschool age to early school age, infancy to toddler age), and they held across various measures of internalized conduct from laboratory to maternal reports.

We have begun to investigate potential mechanisms or processes responsible for the links between MRO and children's internalized conduct (Kochanska et al., 2005). We proposed that a history of MRO leads children to enjoy their future interactions with the parent; this positive mood, in turn, promotes the child's cooperation and implicit internalization of the rules laid out by the parent. This model draws from social psychology research that has repeatedly shown links between positive mood and many forms of prosocial behavior (Carlson, Charlin, & Miller, 1988; Isen, 1999). We assessed mother-child MRO in the first 2 years, the child's enjoyment of interactions with the mother in the 3rd year, and moral conduct at approximately age 5. Indeed, the testing of such posited mediated link supported this model, even when earlier levels of children's enjoyment as well as earlier levels of moral conduct were controlled.

We have also investigated the mother-child relationship as a context that may moderate the impact of parenting on the development of moral conduct. We expected that early secure attachment at the end of the 1st year of life would create an especially conducive context for maternal efforts to promote children's future moral behavior. Indeed, we found that although attachment security at 14 months did not directly predict children's conscience at 4.5 years, it moderated the links between adaptive, responsive, gentle parenting and future conscience (Kochanska, Aksan, Knaack, & Rhines, 2004). Specifically, in insecurely attached mother-child dyads, the effectiveness of maternal adaptive parenting on future conscience was muted or diminished. Those findings underscore the emerging view that relationship quality, as reflected for example in attachment security, can be viewed as an ecological factor that modifies the impact of parental influence in important ways (Allen, Moore, Kuperminc, & Bell, 1998; Thompson, Laible, & Ontai, 2003).

Developmentalists have been increasingly aware that to understand sources of influence for children's socialization outcomes we must move beyond models limited to main effects. Several scholars have discussed the notion that children's temperaments may lead to different outcomes in different relationship contexts (Bates, Pettit, Dodge, & Ridge, 1998; Lengua, Wolchik, Sandler, & West, 2000; Lerner & Lerner, 1994), and others have suggested that socialization factors may affect children with varying temperaments differently (Belsky, 1997; Belsky, Hsieh, & Crnic, 1998; Crockenberg, 1987; Kochanska, 1997b; Rothbart & Bates, 1998; Wachs & Gandour, 1983).

We have examined interactions between temperament and socialization regarding the development of moral conduct. We reasoned that for fearful children, gentle parental discipline would be particularly effective, because it elicits just the right amount of apprehension, and promotes behavior change and internalization (Hoffman, 1983; Kochanska, 1993). For fearless children, however, similar gentle discipline may not create sufficient arousal; yet increasing power assertion to the point when a fearless child begins to respond would likely undermine internalization due to anger and resentment toward the parent. Consequently, we proposed that for fearless children, the pathway to internalized conduct involves an alternative mechanism, based on MRO rather than on anxious arousal.

We have found, and replicated, across children's varying ages and multiple conscience measures, support for such a model (Kochanska, 1995, 1997b). Maternal gentle discipline practices that deemphasized power assertion predicted internalized conduct particularly for fearful children, both concurrently and longitudinally. Attachment security and maternal responsiveness predicted internalized conduct particularly for fearless children, again, both concurrently and longitudinally.

Further, we also replicated this model using physiological rather than behavioral measures of fearfulness (Fowles & Kochanska, 2000)—children's electrodermal reactivity to emotional stimuli. This reactivity was assumed to be a physiological reflection of fearful temperament. For electrodermally reactive children, maternal gentle discipline predicted conscience, whereas for nonreactive children attachment security predicted conscience. These findings are particularly notable because they provide a bridge between research on conscience development in a community sample and research on

psychopathy, where dysfunctional fear has been broadly implicated in severely compromised conscience (Blair, 1995; Fowles, 1994; Lykken, 1957).

Cumulatively, those moderated links support the notion that fearful inhibition provides a particularly important underpinning for intrinsic motivation to avoid wrongdoing. And in the presence of a history of parenting that deemphasizes power assertion in favor of inductive methods, both a motivation to avoid wrongdoing and internal attributions for compliance lead to genuine internalization (Dienstbier, 1984; Hoffman, 1983; Lepper, 1981; Kochanska, 1993). Those findings also support the notion that for particularly fearless children alternative mechanisms are necessary for effective internalization of the socialization message. Specifically, fearless children may be particularly dependent on a positive interpersonal orientation inherent in secure, mutually responsive parent-child bonds. Such positive relationships may provide an alternative, currently underestimated, motivational basis for children's willingness to embrace parental values and agenda (Maccoby, 1983; Shaw, 2003).

Summary. Characteristics of both child temperament and parental socialization are strongly implicated as sources of systematic variability in children's emerging moral conduct. Both inhibitory systems of temperament—fearfulness and effortful control—are associated with more mature moral conduct, although the main effects of effortful control appear more pronounced. Fearfulness, however, is an important moderator of the impact of socialization. Parental low power assertion and high MRO both promote the development of the conduct component of conscience.

OVERALL SUMMARY AND CONCLUSIONS

The overall picture emerging from our findings supports a view of early conscience as a meaningful early personality guiding system that is one of early foundations for future autonomous self-regulation. We have presented the findings on two components of that system: young children's emotional reactions to wrongdoing and their capacity for moral conduct. That early system shows remarkable individual variability, as well as cross-situational consistency and longitudinal stability.

The variability in this early emerging self-regulatory system, or conscience, is meaningfully related to a variety of organismic, likely biologically based factors that children bring to their environments and to multiple characteristics of the social environments in which children are raised. Those predictive relations include a highly differentiated set of direct, indirect, and moderated associations. Our findings support the notion that conceptual models or frameworks, which seek to account for the emergence of conscience, an early emerging component of broader self-regulatory capacities, have to take into account complex interplay of children's temperamental characteristics and socialization factors that unfolds over time.

FUTURE QUESTIONS AND DIRECTIONS OF RESEARCH

Developmental extensions. Our work focuses predominantly on young children, limiting our ability to make empirical contact with exciting bodies of research on self-regulation in social and clinical psychology (many of which are featured in this special issue). Potential future longitudinal extensions of our work may help open new avenues of research and forge conceptual bridges with adult models of self-regulation.

We found most individual differences in various components of children's conscience and in the temperamental construct of effortful control to be moderately stable. Rank-order stability correlations typically range from .30s to .60s for the components of conscience and effortful control. Magnitudes of those correlations are generally lower from late infancy to early toddler years and higher from the 3rd to 5th years of life. Rank-order stability in relationship-based constructs, such as parental responsiveness and power assertion, the child's willing stance, and dyadic constructs, such as MRO, follow a similar trend, with lower stability across late infancy to toddler years and greater stability during preschool years. Such differences likely reflect the major developmental transitions from infancy to toddlerhood that involve advances in motor and language development reflecting in part underlying neurological changes.

In contrast, rank-order stability in temperamental fearfulness is considerably lower, ranging from .20s to .40s when significant. Although magnitudes of the correlations tend to increase during the later preschool years similar to conscience and effortful measures,

stability in fearfulness does not exceed mid .40s. Such discrepancies in stability for fearfulness versus effortful control may suggest greater malleability in reactive or emotionally based individual differences, implying that the affective core of personality may not crystallize until later in childhood.

In general, the magnitudes of the longitudinal correlations imply both considerable stability and malleability in conscience, relationships, as well as temperament. Although our current research program does not extend into school years and adolescence, it is possible that the patterns of stability in various components of self-regulation and factors that influence it also apply to later periods. For example, perhaps rank-order stability tends to be lower across major developmental transitions, such as from preschool to school years and from prepubescence to adolescence, but higher during the school years and during adolescence.

Our understanding of the nature of the challenges posed by developmental transitions and how children and parents negotiate those challenges is highly limited (Caspi & Moffitt, 1993). Hence, our ability to speculate about the functional continuity between toddler and preschool age conscience and self-regulation and related constructs in adulthood is necessarily limited. Future studies need to address questions such as the following: What are the long-term consequences of early willing, receptive stance toward parents? What do early fearfulness, effortful control, and conscience predict over the life course? Here, we propose some possibilities.

For example, an early, willing, receptive stance, further nurtured in the context of a parent-child MRO, may foreshadow future agreeableness, empathy, and a capacity to form communal relationships (Graziano, 1994). Early effortful control likely evolves into future constraint, and early fearfulness might predict low sociability and high extraversion (Caspi, 1998; Posner & Rothbart, 2000; Rothbart, Ahadi, & Evans, 2000).

Relations between early guilt and future outcomes may be complex. Functional, moderate guilt may promote future altruism, personal responsibility, adaptive behavior in school, and harmonious, competent, and prosocial relationships with parents, teachers, and friends (Baumeister, Stillwell, & Heatherton, 1994; Estrada-Hollenbeck & Heatherton, 1998; Williams, 1998). Dysfunctional guilt, however—extremely low or extremely high—undermines adaptation (Bybee & Quiles, 1998; Donenberg & Weisz, 1998; Zahn-Waxler &

Kochanska, 1990). Children with a history of very deficient guilt develop callous-unemotional traits; those children are at risk for conduct disorder, covert, proactive aggression, and antisocial personality or psychopathy (Frick & Morris, 2004; Lykken, 1995). Children who are excessively guilt prone may develop a future ruminative, self-berating, depressive style; anxiety; and internalizing problems (Zahn-Waxler & Kochanska, 1990). However, to date, few, if any, studies comprehensively examined long-term developmental trajectories of guilt.

One of the main mechanisms of links and continuity between early conscience and later self-regulation may involve the formation of the self. Many models of self-regulation in adulthood incorporate the self-system as central for self-regulation. They emphasize how one's personal, "owned" standards that are integrated into his or her self—both standards that describe ideal or desired aspects of the self and those that describe its repudiated or rejected aspects—play a role in the autonomous regulation of behavior (Carver & Scheier, 1990; Manian, Papadakis, Strauman, & Essex, in press; Ryan & Deci, 2000).

The toddler age is broadly recognized as the context for the emergence of the self (Emde et al., 1991; Kagan, 1981). Thus, research on how early self mediates moral conduct may create exciting bridges to those bodies of social psychological literature. We have examined children's "moral self," or their views of themselves on moral dimensions at age 5, using an age-appropriate, puppet-based interview (Kochanska, 2002a). We found—though, surprisingly, for boys only—that the moral self was a product of the child's prior personal history of embracing maternal standards from 14 through 45 months and that it accurately reflected the history of the child's eager cooperation with or opposition to the mother. Further, in turn, moral self influenced the child's internalized conduct in the direction consistent with his view of himself. The analyses revealed that for boys, the moral self mediated the link between the early willing stance—a precursor of conscience—and future internalized conduct. Those findings may inform questions concerning how, over time, the self may come to predict aspects of conduct relevant to self-regulation.

Mechanisms of conscience development. We have demonstrated and replicated links among children's temperament, socialization factors,

and children's conscience. Many future questions, however, await scrutiny. Future research should address in more depth mechanisms responsible for those established and replicated links. We have begun to examine that issue. For example, in one study, we examined the potential role of children's positive mood in mediating the links between early parent-child MRO and future internalized conduct (Kochanska et al., 2005). One of our future goals is to conduct experimental studies that would permit us to test more rigorously a variety of potential mechanisms and pathways of influence that may account for the robust links summarized here.

We believe a better understanding of the mechanisms of conscience development in early childhood can considerably inform the understanding of person \times environment transactions that influence adult self-regulation. Such work may carry implications for building developmental cornerstones for later adult self-regulation in conceptual terms. In addition, such research may elucidate the nature of proximal and distal factors that precipitate failures to self-regulate, typically seen in maladaptive coping strategies in the context of adverse mental health events of a chronic or acute nature.

Expanding ecologies of development. It will be also important to understand better the development of conscience in the context of family ecology. We have begun to investigate unique roles of mothers and fathers in children's conscience development, and broader ecological factors, such as the quality of social support systems available to parents and the quality of their marriage. The initial findings from the first 2 years of this study indicate that a variety of factors impinge on children's dyadic interactions with their mothers and fathers (Kochanska & Aksan, 2004). Further, compared to fathers, mothers appear to play a more critical role in fostering children's receptive, willing stance toward both parents' socialization demands (Kochanska, Aksan, & Carlson, 2005).

Studying a broader ecology of development will also allow us to examine how changes in the child's environment, such as parental divorce, moves, losses, and family and school transitions affect long-term conscience development and perhaps alter individual trajectories. We expect that children who undergo a lot of changes in their environments will show less developmental stability and more variation in their individual characteristics, including those related to conscience and self-regulation. An ecological framework will also

allow us to ask whether the early temperament \times relationships interactions that we have found within the family would also be found in other ecologies over the child's life course. For example, do fearless children and adolescents fare better if they form future communal relationships with peers and romantic partners than if they find themselves in cold, unresponsive relationships?

Bridges with neuroscience. Future work on conscience will also benefit from tighter connections with affective neuroscience and physiology. Physiological characteristics and brain mechanisms have been broadly implicated in individuals with severely compromised consciences (Blair, 2004; Damasio, 1994; Fowles, 1994). Methodological and substantive integration of that research with research on normally developing young children will allow for a comprehensive understanding of adaptive and maladaptive conscience development in a developmental psychopathology framework. Our initial study of electrodermal reactivity, parental socialization, and children's conscience is a promising first step in that direction.

CONCLUSIONS

Conscience is a critical aspect of an individual's mental health and sociomoral competence. It has important implications for individuals' life trajectories and for the society as a whole. It is a complex, inner, self-regulation mechanism that is best understood as a system of interlocking, developmentally evolving components. Investigation of its early origins and developmental pathways is a promising and exciting enterprise.

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