

Linking maternal warmth and responsiveness to children's self-regulation

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Linking maternal warmth and responsiveness to children's self-regulation

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Abstract

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6 The present study demonstrated that a more differentiated view of positive parenting practices
7
8 is necessary in the study of children's acquisition of self-regulation. Here, the unique
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10 contributions of maternal warmth and responsiveness to distress to children's self-regulation
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12 were tested in a sample of 102 German mothers and their kindergarten children (51 girls and
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14 51 boys). Behavior regulation and internalization of rules of conduct were examined as
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16 specific components of children's self-regulation. As expected, maternal warmth was
17
18 positively related to the child's behavior regulation. Responsiveness to distress was positively
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20 linked to the child's internalization of rules of conduct. No significant interactions between
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22 maternal parenting and either the child's gender or effortful control were found. The results
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24 are discussed with regard to the unique functions that different parenting practices have for
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26 children's self-regulation.
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Linking maternal warmth and responsiveness to children's self-regulation

Learning to effectively self-regulate one's own behavior in accordance with social standards is critical to children's development. In the literature, various parenting practices that promote this process have been identified (e.g., Chen, Lui, & Li, 2000; Friedlmeier & Trommsdorff, 1999; Jones et al., 2008). There is a growing body of empirical evidence that details the extent to which a specific parenting practice has a unique effect on a specific developmental outcome (see e.g., Davidov & Grusec, 2006; Jones et al., 2008; Mize & Pettit, 1997). However, studies reporting functionally different effects involving positive parenting practices in non-American samples are scarce. Moreover, it has been pointed out that considerable differences exist between the US and European cultures, for instance, regarding parents' naïve theories of child development and socialization goals (Harkness, Super, & van Tiejn, 2000; Keller et al., 2006). Therefore, the purpose of the present study was to clarify the association of two aspects of positive parenting with two types of children's self-regulation in a German sample of kindergarten children. Positive parenting includes behaviors such as support, nurturance, and warm and appropriate discipline which promote a positive parent-child relationship (e.g., Tildesley & Andrews, 2008). Specifically, we investigated maternal warmth and responsiveness to distress in relation to children's behavior regulation in a delay task and children's internalization of rules of conduct. Moreover, the effects of children's gender and temperament on the relations between positive parenting and children's self-regulation were investigated as previous research has shown that children's characteristics moderate relations between parenting and developmental outcomes (e.g., Bates, Pettit, Dodge, & Ridge, 1998; Eisenberg et al., 2001). So far however, most of these studies have focused on the development of externalizing problem behavior.

Self-Regulation

Self-regulation is a broad concept that focuses on an individual's motivation and ability to modify his or her emotion and behavior to achieve goals (Kopp, 1982; McClelland et al.,

1
2
3 2007; Trommsdorff, 2009a). As a superordinate construct, self-regulation includes narrower
4 constructs, such as the regulation of behavior (e.g., Kopp & Wyr, 1994) and the
5
6 internalization of rules of conduct (e.g., Kochanska, DeVet, Goldman, Murray, & Putnam,
7
8 1994). Behavior regulation is defined as the ability to express or control one's impulses,
9
10 motor responses, and other behavior (Wong et al., 2006). Behavior regulation in children
11
12 progressively shifts from external to internal processes (Kopp, 1982; McClelland, Ponitz,
13
14 Messersmith, & Tominey, in press). During development children become increasingly aware
15
16 of social standards. They learn to take a more active role in the self-regulation process and to
17
18 regulate their behavior more independently of parental monitoring and intervention
19
20
21 (Kochanska & Aksan, 2006). Internalization involves adopting rules and norms, so that acting
22
23 according to social standards is motivated not only by external consequences but increasingly
24
25 by internalized rules (Grusec & Goodnow, 1994). The development of behavior regulation
26
27 proceeds on an observable level of concrete behaviors, whereas internalization implies the
28
29 acquisition of conscience.
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35 36 *Socialization of Self-Regulation* 37

38
39 Psychologists have identified children's self-regulation as an important socialization
40
41 goal of parents (e.g., Grusec, Goodnow, & Kuczynski, 2000; Maccoby & Martin, 1983).
42
43 Typically, such socialization efforts begin in early childhood, when children become
44
45 increasingly aware of the expectations of their social environment through parental rule-
46
47 setting. For almost 30 years, research on parenting with regard to child outcomes was
48
49 dominated by Baumrind's (1971) classification of parenting styles. A parenting style refers to
50
51 a constellation of attitudes toward a child that is fairly constant over time and in a variety of
52
53 contexts (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Darling & Steinberg,
54
55 1993; Maccoby & Martin, 1983). However, Darling and Steinberg (1993) argue that for an
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57 understanding of the processes through which parenting influences child outcomes, one needs
58
59 to differentiate between parenting style (e.g., authoritative or authoritarian) and parenting
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1
2
3 practices (e.g., warmth, responsiveness, control). Individual parenting practices that often
4
5 have been grouped together for research purposes can serve different functions for children's
6
7 developmental outcomes (Maccoby, 2000; Porter et al., 2005). Specific parenting practices
8
9 are used by parents to help children achieve particular socialization goals (Darling &
10
11 Steinberg, 1993; Mize & Pettit, 1997). They operate in circumscribed socialization domains,
12
13 such as self-regulation, directly affect child behaviors (e.g., the ability to resist temptations),
14
15 and have an impact on parent's socialization efforts (Mize & Pettit, 1997). According to the
16
17 specific developmental outcome in question, different parenting practices need to be
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19 investigated (Darling & Steinberg, 1993; Grusec & Davidov, 2007). Stewart and Bond (2002)
20
21 stated, "Instead of describing parenting characteristics by using typologies, an alternative
22
23 approach is to dismantle typologies into their component parts" (p. 381; cf. also Darling &
24
25 Steinberg, 1993). Nonetheless, many studies take a global approach to positive parenting, in
26
27 which different positive parenting practices are grouped together (Goldberg, Grusec, &
28
29 Jenkins, 1999; Porter et al., 2005). In particular, two aspects of positive parenting, warmth
30
31 and responsiveness to distress, have often been treated as one, because their characteristics
32
33 and their functions for child development seem to be very similar. Research, however,
34
35 demonstrated a wide variability in warm and responsive parenting (e.g., Cahill, Deater-
36
37 Deckard, Pike, & Hughes, 2007). MacDonald (1992) suggested that warmth and
38
39 responsiveness to distress are not generally associated (such as that the level of warmth
40
41 influences the effects of responsiveness and vice versa). Mize and Pettit (1997) found support
42
43 for functionally different effects of these different aspects of parenting: responsive parenting
44
45 (i.e., warmth, synchrony) accounted for unique variance in teacher ratings of children's social
46
47 skills and aggression. Recently, a study by Davidov and Grusec (2006) has provided further
48
49 evidence that warmth and responsiveness to distress are two distinct features of positive
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51 parenting. These features require different skills and resources from parents. Moreover, they
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53 serve different functions in children's development. Parental warmth is characterized by high
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3 degrees of affection, spontaneous expressions of positive emotions in parent-child interactions,
4
5 and frequent praise of the child, as expressed by behaviors such as kissing and hugging the
6
7 child (Davidov & Grusec, 2006; MacDonald, 1992). As distinguished from warmth,
8
9 responsiveness to distress focuses on parental reactions when a child is upset. Positive
10
11 parental responsiveness to distress involves supportive reactions: for example, comforting or
12
13 helping the child when he or she is facing an upsetting situation (Davidov & Grusec, 2006).
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16
17 *Warmth and children's behavior regulation.* By frequently engaging their children in
18
19 interactions involving positive emotions, love, and praise of the child, parents facilitate
20
21 children's ability and motivation for behavior regulation. For instance, a parent consistently
22
23 expressing love and affection induces positive mood in the child. The child in turn is willing
24
25 to control impulses and behaviors in order to continue the positive and satisfying parent-child
26
27 interactions (Grusec & Davidov, 2007). Thus, parental warmth might be particularly related
28
29 to children's development of behavior regulation. Studies have consistently demonstrated
30
31 positive links between parental warmth and children's behavior regulation as assessed by
32
33 parents' reports (e.g., Colman, Hardy, Albert, Raffaelli, & Crockett, 2006). In a recent study
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35 by Jennings et al. (2008), a positive relation between maternal warmth and behavior
36
37 regulation in toddlers was observed. Other studies (e.g., Eisenberg et al., 2005; Jones et al.,
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39 2008; Russell & Russell, 1996) have shown that parental warmth was related to low levels of
40
41 externalizing problems in children, and that high levels of behavior regulation were likewise
42
43 associated with the absence of externalizing problems in childhood and adolescence (Wong et
44
45 al., 2006). Thus, parental warmth is expected to be positively related to behavior regulation. .
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53 *Responsiveness to distress and children's internalization of rules of conduct.* The
54
55 process of internalization is accompanied by children's experience of and coping with
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57 negative emotions, for instance, when being scolded for some mischief. Parents' active
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59 strategies affect how a child copes with these experiences. Responsive strategies help a child
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to acquire and to internalize social rules and standards (e.g., Kochanska & Thompson, 1997)

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3 thus enhancing a child's motivation and ability to comply with parental demands and to
4
5 internalize rules of conduct (Karreman, van Tuijl, van Aken, & Dekovic, 2006; Kochanska &
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7 Murray, 2000). According to Maccoby and Martin (1983), responsive parenting practices
8
9 facilitate children's understanding of principles of cause and effect. These practices influence
10
11 how open children are to parental socialization efforts and how willingly they learn to make
12
13 appropriate choices (Grusec & Goodnow, 1994). Parental responsiveness thus facilitates
14
15 children's motivation to meet situational demands. Further evidence is provided by a study
16
17 examining the role of early versus ongoing maternal responsiveness in predicting cognitive
18
19 and social development in full-term and preterm children (Landry, Smith, Swank, Assel, &
20
21 Vellet, 2001). The results of this study showed that children's internalization is fostered when
22
23 parents demonstrate consistent patterns of responsiveness to their children's emotional needs
24
25 throughout infancy and early childhood. Correspondingly, we expected that responsiveness to
26
27 distress is positively related to internalization of rules of conduct.
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33 *Child's Gender and Effortful Control*

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36 Previous studies (e.g., Bates et al., 1998; Blair et al., 2008; [Davidov & Grusec, 2006](#);
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38 Eisenberg, Hofer, & Vaughan, 2007; ~~[Davidov & Grusec, 2006](#)~~, Kochanska et al., 1994) have
39
40 shown that gender and effortful control are relevant in the development of children's self-
41
42 regulation. Several studies revealed gender differences in children's and adolescents' self-
43
44 regulation: Overall, girls have, compared to boys, stronger self-regulation skills (Duckworth
45
46 & Seligman, 2006; Matthews, Ponitz, & Morrison, 2009; Raffaelli, Crockett, & Shen, 2005).
47
48 However, these findings appear to be unique ~~in~~to North-American samples and may not
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50 apply to other cultures, especially when observational measures of self-regulation are used
51
52 (McClelland et al., in press). Some studies investigating gender as a moderating link between
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54 parenting and self-regulation revealed mixed and inconsistent findings (e.g., Colman et al.,
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56 2006; Davidov & Grusec, 2006). Davidov and Grusec (2006) found that the child's gender,
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58 for instance, moderated the relationship between maternal responsiveness to distress and
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3 emotion regulation. The associations were obtained only for boys but not for girls. In contrast,
4
5 in a study by Colman et al. (2006) child gender did not moderate the effects of parenting on
6
7 later self-regulation.
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10 Generally, effortful control has been defined as the competence to inhibit a dominant
11 response and/or to activate a subdominant response (Rothbart & Bates, 2006). Children's
12 individual differences in effortful control may lead to different reactions to parenting. As a
13 result, a child is more or less susceptible to parent behaviors (Belsky, 2005). Additionally,
14 child protective factors such as effortful control may buffer the consequence of negative
15 parenting (Bates & Pettit, 2007; Rothbart & Bates, 2006). Consistent with this view, effortful
16 control has previously been identified as a moderator of the relation between parenting and
17 children's self-regulation (e.g., Lengua, 2008; Xu, Farver, & Zhang, 2009). A high level of
18 effortful control in children, for example, reduced the risk of externalizing problems in a
19 family context of corporal punishment (Lengua, 2008).
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33 *Study Aim*

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36 Although, there is a growing body of evidence for incremental effects of different
37 parenting dimensions in the prediction of different child outcomes (e.g., Davidov & Grusec,
38 2006; Mize & Pettit, 1997; Pettit, Laird, Dodge, Bates, & Criss, 2001; Reitz, Dekovic, &
39 Meijer, 2006) the specific functions of different parenting practices for children's self-
40 regulation need to be untangled in more detail, especially in non-American samples. In the
41 present study, we expected that maternal warmth and responsiveness to distress would
42 uniquely contribute to various self-regulation skills in kindergarten children. Maternal warmth
43 was hypothesized to be positively related to the child's behavior regulation. Furthermore, we
44 expected that maternal responsiveness to distress would correlate positively with the child's
45 internalization of rules of conduct. In addition, we expected that the children's gender and
46 effortful control would interact with parenting behavior (i.e., maternal warmth and
47 responsiveness to distress) in predicting self-regulation skills: Stronger associations were
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3 expected for girls compared to boys and for children with higher levels of effortful control in
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5 comparison to children with lower effortful control. Mother's level of education served as a
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7 control variable as research has found links between family demographic variables (i.e.,
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9 parental education) and the factors of interest in the current study (e.g., Connell & Prinz,
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11 2002; Evans & Rosenbaum, 2008; Howse, Lange, Farran, & Boyles, 2003).
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15 Method

16 *Participants*

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20 Participants consisted of 102 mother-child dyads (50 percent girls; 4-years 5 months to
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22 6-years 5-months, $M = 66$ months). The mothers reported no evidence of any general medical
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24 disorder; for six children, a delay in language development was reported. The families were
25
26 recruited from public kindergartens. The recruitment procedure included an information letter
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28 about the study that was distributed through kindergartens in ~~Constance~~Konstanz, a town in
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30 the south of Germany. Approximately, 700 mothers received a letter. Mothers ($n = 149$) who
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32 agreed to participate were contacted by phone; 117 mother-child dyads finally attended the
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34 study. Fifteen participants had missing data, yielding the final sample size of 102 dyads.
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37 Participants were primarily of middle-class socioeconomic status. All families came from a
38
39 European cultural background. The majority of children lived in a two-parent household
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41 (80%). Twenty-six children (25%) were living in one-child-families, 61 (60%) had one
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43 sibling, and 15 (15%) had two or more siblings. All mothers had at least 12 years of schooling.
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46 Using ICSED-97 (Organization for Economic Co-operation and Development, 1999) to
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48 indicate mother's level of education, 69 mothers (68%) in the sample had completed the first
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50 stage of tertiary education (i.e., BA or MA). Sixty-two mothers (61%) were currently
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52 employed, half of these working full-time.
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57 *Procedures*

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60 The mothers and children visited the laboratory of the Developmental and Cross-
Cultural Psychology research group at the University of Konstanz twice within one week.

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3 During the first session, a delay task (explained in greater detail below) was conducted by a
4 trained female graduate student in Psychology. In a separate room, the mothers individually
5 completed questionnaires on parenting practices, children's internalization of rules of conduct,
6 and temperament. During the second session, the mothers answered an additional
7 questionnaire on parenting practices. At the end of each session, the mothers and children
8 received small presents. All mothers signed an informed letter of consent before participating
9 in the study.

19 *Measures*

22 Measures that had not been previously used for German samples were translated by two
23 German speakers fluent in both German and English. Divergent translations were checked
24 and corrected.

29 *Maternal warmth.* The *Child-Rearing Practices Report Q-Sort* (CRPR Q-Sort; Block,
30 1965, modified by Roberts, 1989, 1999) measures parents' attitudes, behaviors and feelings
31 about their children using 99 item-cards, each with statements such as, "*I express affection by*
32 *hugging, kissing and holding my child.*" and "*My child and I have warm, intimate times*
33 *together.*" Mothers were asked to evaluate their parenting behavior by sorting the cards into 9
34 piles, each containing 11 cards, according to the degree to which the items were descriptive of
35 their parenting behavior (ranging from 1, "These cards are most un-descriptive", to 9, "These
36 cards are most descriptive"). The CRPR Q-Sort items that asked directly about maternal
37 responsiveness to distress ($n = 9$) were deleted prior to analyses in order to avoid interference
38 between the two variables. A criterion sort of warmth was used on the basis of independent
39 ratings from six experts (see Roberts, 1989). Correlations between mothers' individual ratings
40 and this criterion sort were computed. The correlation coefficient can range from -1.00 (low
41 warmth) to 1.00 (high warmth).

59 *Maternal responsiveness to distress.* The *Coping with Children's Negative Emotion*
60 *Scale* (CCNES; Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002) is a self-report

1
2
3 instrument consisting of six subscales that represent different parental responses to children's
4
5 negative emotions. The questionnaire includes 12 hypothetical situations of common
6
7 emotionally evocative events that young children often experience (for example, a bicycle
8
9 accident or being rejected by a friend). The mothers answered questions about each situation
10
11 on a 7-point scale (from 1, "very unlikely", to 7, "very likely"), indicating the probability that
12
13 they would respond to the situation in the explained manner. Each question represents a
14
15 typical response pattern for one of the six subscales: emotion-focused reactions, problem-
16
17 focused reactions, expressive encouragement, distress reactions, punitive reactions, and
18
19 minimization reactions. Studies have shown that the CCNES is a valid and reliable instrument
20
21 to assess parental responsiveness to children's distress (Fabes et al., 2002; Gentzler,
22
23 Contreras-Grau, Kerns, & Weimer, 2005). In the present study, Cronbach's α Alphas ranging
24
25 from .70 to .86 for the six subscales were found. These are consistent with the results of other
26
27 studies (Coutu, Dubeau, Provost, Royer, & Lavigueur, 2002; Davidov & Grusec, 2006).
28
29 Following Davidov and Grusec (2006), a total score for responsiveness to distress was
30
31 derived by averaging the six subscales (reversing the distress reactions, punitive reactions,
32
33 and minimization reactions subscales).
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41 *Assessment of behavior regulation.* The behavior regulation of the children was
42
43 observed using the Snack Delay task of the *Laboratory Temperament Assessment Battery –*
44
45 *Preschool Version* (Lab-TAB; Goldsmith, Reilly, Lemery, Longley, & Prescott, 1993). The
46
47 procedure was videotaped. The children were offered candy under the constraint that they
48
49 were to wait with their hands in their laps until a bell rang before eating the candy. The
50
51 procedure was introduced with a practice trial. Six trials followed with different pause lengths,
52
53 varying between 0 and 30 seconds (5s, 10s, no pause, 20s, no pause, and 30s). To judge
54
55 whether the child violated the given rule before the experimenter rang the bell (i.e., by
56
57 reaching for the candy), two previously trained raters coded the video for each trial (with 0 =
58
59 no and 1 = yes). Overall possible scores ranged from zero to six. For analyses, the variable
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3 was recoded, with zero corresponding to low behavior regulation and six to a high level of
4
5 behavior regulation. Inter-rater reliability, computed for 30% of the cases, was good ($\kappa = .87$).

6
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8 *Assessment of internalization of rules of conduct.* The *Maternal Reports of Conscience*
9
10 *Development* (MRCD; Kochanska et al., 1994) was used as a parent-report instrument to
11
12 measure each child's internalization of rules of conduct. The original instrument consists of
13
14 100 items. The response format is a 7-point scale ranging from 1 ("extremely untrue, not at all
15
16 characteristic") to 7 ("extremely true, very characteristic"). The MRCD was used in an
17
18 abridged version, because the questionnaires for this study were administered as part of a
19
20 larger set of questionnaires relevant to other research questions. The items ($n = 43$) forming
21
22 the factor "active moral regulation" were given to the mothers as a questionnaire according to
23
24 the original sequence of items. This factor consists of four scales: confession (e.g., "*My child*
25
26 *will spontaneously admit fault or wrongdoing, either verbally or nonverbally.*"), reparation
27
28 (e.g., "*My child seems relieved when given an opportunity to repair a damage s/he has*
29
30 *caused.*"), concern about others' transgressions (e.g., "*My child gets upset when a guest*
31
32 *breaks a household rule.*"), and internalized conduct (e.g., "*My child clearly hesitates before*
33
34 *doing something forbidden, even when alone.*"). The observed Cronbach's α s, ranging
35
36 from .74 to .87, were comparable to those of an American sample reported by Kochanska et al.
37
38 (1994). The scales were averaged to form a single active moral regulation score (Cronbach's
39
40 $\alpha = .76$).

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48 *Assessment of effortful control.* The *Children's Behavior Questionnaire* (CBQ; Rothbart,
49
50 Ahadi, Hershey, & Fischer, 2001) was used to measure each child's level of effortful control.
51
52 Mothers completed the CBQ short form, consisting of 94 items. In this parent-report measure,
53
54 the mother indicates whether a statement about her child is true on a 7-point scale (from 1,
55
56 „extremely untrue of your child”, to 7, “extremely true of your child”). The instrument
57
58 includes 15 scales that can be aggregated to three temperamental dimensions: *effortful control*,
59
60 *negative affectivity*, and *surgency*. For our study, we adopted the factor solution of Rothbart et

al. (2001) to derive the factor for effortful control. As in Kochanska et al. (1994), all items were checked for any face resemblance to items relevant to internalization of rules, in order to avoid interference between these variables. Three items were consequently deleted. The scales “inhibitory control” (“*My child approaches sites, it has been told, that they are dangerous, slowly and carefully.*”), “attentional focusing” (“*When drawing or coloring in a book, my child shows strong concentration.*”), “low intensity pleasure” (“*My child enjoys gentle rhythmic activities, such as rocking or swaying.*”), and “perceptual sensitivity” (“*My child seems to listen to even quiet sounds.*”) were averaged. The resulting Cronbach’s α (.60) was lower than the Cronbach’s α (.74) reported by Putnam and Rothbart (2006) for the very short form. The deletion of items did not alter reliability.

Results

Preliminary Analyses

The obtained correlation coefficients for maternal warmth were transformed using Fisher’s r to z procedure to enable their use in data analysis (a common procedure when using Q-sort measures; e.g., [Roberts, 1999](#); Cassibba, Van IJzendoorn, & D’Odorico, 2000; [Roberts, 1999](#)). This was done to adjust the distribution by converting Pearson’s r to the normally distributed variable z . Maternal warmth was relatively high in the sample. The scores for maternal responsiveness to distress were comparable to the means reported by Davidov and Grusec (2006): mothers perceived themselves to be highly responsive when confronted with their children’s distress. Mothers also reported high scores for their children’s internalization of rules of conduct and effortful control. The means were comparable to those reported in other studies (e.g., Kochanska et al, 1994; Komsı et al., 2006). The children’s observed behavior regulation ranged from low (“0”) to high (“6”). Table 1 shows means and standard deviations of all variables.

T -tests of two independent groups revealed a significant effect of the child’s gender only on his or her internalization of rules of conduct, $t(100) = -2.12, p < .05, \eta^2 = .04$.

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3 Mothers reported a higher level of internalization of rules of conduct for girls ($M = 4.82$, $SD =$
4 0.56) than for boys ($M = 4.52$, $SD = 0.82$). Pearson correlations yielded no significant
5
6 relations between the age of the child, the level of effortful control, and any predictor or
7
8 outcome variable, respectively. However, mother's level of education was significantly and
9
10 positively related to her warmth. Therefore, mother's level of education was entered in further
11
12 hypotheses testing. The correlations are presented in Table 2.
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17 *Overview of Analyses*

18
19 The hypotheses were tested with hierarchical regression analyses. Behavior regulation
20 and the internalization of rules of conduct served as dependent (outcome) variables. The first
21
22 block included mother's level of education and the child's gender (or effortful control,
23
24 respectively). The second block included maternal parenting variables. Because maternal
25
26 warmth and responsiveness to distress were positively and significantly correlated (see also
27
28 Davidov & Grusec, 2006), we entered both variables together in the second block to test the
29
30 unique effects of maternal warmth and responsiveness to distress on the child outcome
31
32 variables. Furthermore, we also tested whether maternal warmth and responsiveness to
33
34 distress interacted with the child's gender or effortful control to predict any of the child's
35
36 outcome variables, respectively. The interaction terms were entered in a separate third block.
37
38 The variables were centered before the interaction terms were computed (Cohen, Cohen, West,
39
40 & Aiken, 2003).
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48 *Predicting Children's Behavior Regulation*

49
50 First, we examined relations between parenting and children's behavior regulation.
51
52 Consistent with our hypothesis, maternal warmth was a significant predictor of higher levels
53
54 of behavior regulation, independent of any contribution of maternal responsiveness to distress.
55
56 Neither of the child variables (gender and effortful control) nor the mother's level of
57
58 education reached significance in predicting the child's behavior regulation. There were no
59
60 significant interactions between the child's gender (effortful control, respectively) and the

1
2
3 parenting variables, although the interaction between the child's effortful control and maternal
4
5 responsiveness to distress approached significance ($p = .06$). The results are presented in
6
7 Tables 3 and 4.

10 *Predicting Children's Internalization of Rules of Conduct*

12 The prediction of children's internalization of rules of conduct was considered next.
13
14 Analyses yielded significant main effects for the child's gender and mother's responsiveness
15
16 to distress. Girls showed a higher level of internalization than boys. Consistent with our
17
18 hypothesis, maternal responsiveness and children's internalization of rules of conduct were
19
20 significantly and positively associated, whereas maternal warmth was not a significant
21
22 predictor. Again, there was no significant effect of mother's level of education. There were no
23
24 significant interaction between the child's gender and responsiveness to distress, however the
25
26 g Gender x m Maternal w Warmth interaction was marginally significant ($p = .08$). A
27
28 summary of results is presented in Table 5.

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33 Table 6 shows the results of the regression analysis involving the child's effortful control as
34
35 predictor. Mother's responsiveness to distress was again predictive of the child's level of
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37 internalization. The analysis yielded no main effects for mother's level of education, maternal
38
39 warmth, and the child's effortful control. Again, no significant interaction between the child's
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41 effortful control and responsiveness to distress was found. For maternal warmth, there was a
42
43 significant interaction with the child's effortful control. Please note, however, that contrary to
44
45 the previously presented results, the full regression equation of this analysis did not reach
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47 significance.

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52 In summary, consistent with our hypotheses, maternal warmth significantly predicted
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54 behavior regulation, over and above the influence of maternal responsiveness to distress. In
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56 contrast, the child's gender and effortful control were not significant predictors or moderators
57
58 in the prediction of behavior regulation. As expected, maternal responsiveness to distress
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60 significantly and positively predicted the child's internalization of rules of conduct when

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2
3 controlling for maternal warmth. The child's gender was also a significant predictor: girls
4
5 showed higher levels of internalization than boys as reported by mothers. There were no
6
7 significant interaction effects in the prediction of internalization. Mother's level of education
8
9 did not reach significance, neither in the prediction of the child's behavior regulation nor in
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11 the prediction of internalization.
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14 Discussion

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17 The purpose of the present study was to specify the function of distinct positive
18
19 parenting practices – maternal warmth and responsiveness to distress – in children's self-
20
21 regulation (behavior regulation and internalization of rules of conduct) and to extend
22
23 previous findings (e.g., Davidov & Grusec, 2006) to a different population (i.e., a non-
24
25 American sample). The results were consistent with our expectations, and confirmed the
26
27 necessity of a separate examination of maternal warmth and responsiveness to distress in
28
29 regard to child outcomes (Davidov & Grusec, 2006). In line with previous findings (e.g.,
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31 Colman et al., 2006; Jennings et al., 2008; Karreman et al., 2006), maternal warmth was
32
33 positively related to children's behavior regulation, whereas responsiveness to distress was
34
35 positively associated with children's internalization of rules of conduct. Both parenting
36
37 practices exerted their specific effects on child outcomes independently.
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44 The present study extends previous work (e.g., Darling & Steinberg, 1993; Davidov &
45
46 Grusec, 2006; Mize & Pettit, 1997) on functionally different effects of different parenting
47
48 dimensions. Davidov and Grusec (2006) found evidence in favour of positive links between
49
50 maternal warmth, children's emotion regulation, and peer group acceptance. Our study
51
52 demonstrated that maternal warmth is also important for children's behavior regulation. In
53
54 early childhood, behavior regulation begins to develop within child-caregiver interaction
55
56 (McClelland et al., in press). Warm and supportive parenting, including positive emotional
57
58 expressions (e.g., hugging), provides the emotional climate for the development of behavior
59
60 regulation. Maternal warmth fosters a child's willingness to control his or her impulses and

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2
3 behaviors according to given rules, in order to continue the positive parent-child-interactions
4
5 (Jennings et al., 2008). Part of the explanation is that maternal warmth promotes a child's
6
7 enjoyment of interactions with the mother (Kochanska, Aksan, Prisco, & Adams, 2008).
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10
11 Furthermore, the results illustrate that mother's responsiveness to distress specifically
12
13 enhances children's motivation and ability to internalize rules of conduct. Internalization
14
15 implies refraining from prohibited actions even when not under surveillance (Grusec &
16
17 Goodnow, 1994; Kochanska et al., 1994). A child caught in misbehavior may experience
18
19 negative emotions, for example when she or he is scolded by the parent. The parent's
20
21 responsive reactions to the expression of negative emotions, even though the parent is
22
23 currently upset about the child's misbehavior, facilitate the child's emotion regulation
24
25 (Bugental, 2000; Roberts & Strayer, 1987). These links, however, may also be of more
26
27 indirect nature. Since maternal responsiveness to distress is positively associated with a
28
29 child's emotion regulation (Davidov & Grusec, 2006), a child of a responsive mother is more
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31 motivated and better able to regulate his or her emotion during discipline situations and, thus,
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33 is more attentive to parental messages (Grusec & Davidov, 2007).
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39 Contrary to our expectations, we found no significant interaction effects of parenting
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41 variables and the child's gender or effortful control in the prediction of behavior regulation or
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43 in the prediction of internalization of rules of conduct. In contrast, other studies reported clear
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45 gender differences. For example, Russell and Russell (1996) reported significant relation
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47 between warmth and rates of misbehavior in girls but not in boys whereas Davidov and
48
49 Grusec (2006) reported a significant positive association between maternal warmth and child
50
51 peer acceptance in boys only. This pattern of results suggests that the mother's parenting
52
53 practices impact boys' and girls' development differently (Colman et al., 2006). However,
54
55 recently it has been suggested that gender differences may be unique to North American
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57 samples and to parent- or teacher-rated measures. No significant gender differences were
58
59 found, for example, in Taiwanese, South Korean, and Chinese samples when using a direct
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1
2
3 measure of behavior regulation (McClelland et al., in press). This possibility is consistent with
4
5 our findings as we found gender differences only regarding parents' reports (mothers reported
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7 higher levels of internalization for girls than for boys) but not in the direct measure of
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9 behavior regulation. However, the lack of significant moderating effects in our study may as
10
11 well be a consequence of the difficulty finding moderator effects in field studies (McClelland
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13 & Judd, 1993).
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17 Although mother's level of education was statistically controlled in our study, the
18
19 characteristics of the sample (e.g., socio-economic background), and hence the kind of
20
21 observed and reported behavior need to be taken into account when interpreting the present
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23 findings. Mothers in the sample tended to show higher levels of warmth than in other studies,
24
25 due to sample characteristics. Maybe, the importance of warm parenting arises primarily in
26
27 samples with higher economic backgrounds. These mothers may be more sensitive to their
28
29 children's abilities and capable of adapting their parenting to their children's developmental
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31 skills than mothers with less economic resources (Bakermans-Kranenburg, van IJzendoorn, &
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33 Kroonenberg, 2004).
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39 Similarly, the moderate correlation between maternal warmth and responsiveness to
40
41 distress may be explained by measurement constraints. Both, maternal warmth and
42
43 responsiveness to distress, were assessed through mothers' self-reports. However, the use of
44
45 parental reports in the assessment of these constructs and the finding of a positive relation
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47 between warmth and responsiveness to distress is consistent with prior research (e.g.,
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49 Davidov & Grusec, 2006). Therefore, the level of warmth might influence the effects of
50
51 responsiveness, and vice versa. An alternative explanation of the shared variance between
52
53 warmth and responsiveness is suggested by MacDonald (1992), who claims that warmth and
54
55 responsiveness to distress are linked in Western cultures, but not universally. ~~This~~
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57 explanation points to the necessity to integrate the role of culture into the study of parenting
58
59 and development (Trommsdorff, 2006, 2009b). These limitations aside, the results still
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2
3 demonstrate ~~unique contributions of that~~ warmth and responsiveness to distress make unique
4 contributions to concerning different developmental domains. ~~The~~se results highlights the
5
6 importance of disentangling parenting typologies or styles into their distinct components
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8 (Mize & Pettit, 1997; Stewart & Bond, 2002). Warmth and responsiveness operate in different
9
10 socialization domains and serve different functions for child development (Davidov & Grusec,
11
12 2006; Grusec & Davidov, 2007; Roberts & Strayer, 1987).
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16
17 Several limitations of the present study should be noted. The study included cross-
18
19 sectional data only. Although we are aware of the discussion of bidirectionality in the
20
21 socialization of children (Collins et al., 2000; Grusec, 2006; Karreman et al., 2006;
22
23 Trommsdorff & Kornadt, 2003), no interpretation about the direction of effects nor about
24
25 long-term effects in the relationships between various aspects of positive parenting and self-
26
27 regulation can be drawn from the present study. However, this criticism also applies to many
28
29 studies where results have been interpreted to suggest that parenting influences self-regulation
30
31 (Davidov & Grusec, 2006; Dennis, 2006; Eiden, Edwards, & Leonard, 2006). Further studies
32
33 should include longitudinal data to determine the direction of the relations between positive
34
35 parenting practices and child self-regulation. Additionally, our sample was not
36
37 socioeconomically diverse, and it is possible that sample characteristics (e.g., mother's
38
39 socioeconomic and educational background) may function as possible moderators of the
40
41 connection between parenting and self-regulation (Paulussen-Hoogeboom, Stams, Hermanns,
42
43 & Peetsma, 2007). For a better understanding of potential moderator effects, more variation in
44
45 sample characteristics is needed.
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53 In conclusion, the pattern of results we obtained is consistent with the hypothesis that
54
55 maternal warmth and responsiveness to distress are distinct positive parenting practices. Each
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57 makes unique contributions in the development of different aspects of self-regulation in
58
59 kindergarten children. We therefore second the proposal of Davidov and Grusec (2006) that,
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contrary to the common practice of grouping warmth and responsiveness to distress together,

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3 these features of positive parenting are not interchangeable. However, further research is
4
5 needed to untangle the different pathways through which various parenting practices uniquely
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7 contribute to children's different developmental outcomes. Other closely related parenting
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9 practices, like control, should be further studied as well to avoid oversimplification of
10
11 complex interactions. This type of research has definite concrete applications: for early family
12
13 intervention programs, for promoting parents' understanding of the specificity of the
14
15 relationship between various parenting practices and their psychological meaning for different
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17 developmental outcomes.
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51
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55
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57
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59
60

References

- 1
2
3
4
5
6 Bakermans-Kranenburg, M. J., van IJzendoorn, M., & Kroonenberg, P. M. (2004).
7
8 Differences in attachment security between African-American and white children:
9
10 Ethnicity or socio-economic status? *Infant Behavior and Development*, *27*, 417-433.
11
12
13 Bates, J. E., & Pettit, G. S. (2007). Temperament, parenting, and socialization. In J. Grusec &
14
15 P. Hastings (Eds.), *Handbook of socialization* (pp. 153-177). New York: Guilford.
16
17
18 Bates, J. E., Pettit, G. S., Dodge, K. A., & Ridge, B. (1998). Interaction of temperament
19
20 resistance to control and restrictive parenting in the development of externalizing
21
22 behavior. *Developmental Psychology*, *34*, 982-995.
23
24
25 Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology*, *4*, 1-
26
27 103.
28
29
30 Belsky, J. (2005). Differential susceptibility to rearing influence: An evolutionary hypothesis
31
32 and some evidence. In B. Ellis, & D. Bjorklund (Eds.), *Origins of the social mind:*
33
34 *Evolutionary psychology and child development* (pp. 139-163). New York: Guilford
35
36 Press.
37
38
39 Blair, C., Granger, D. A., Kivlighan, K. T., Mills-Koonce, R., Willoughby, M., Greenberg, M.
40
41 T. et al. (2008). Maternal and child contributions to cortisol response to emotional
42
43 arousal in young children from low-income, rural communities. *Developmental*
44
45 *Psychology*, *44*, 1095-1109.
46
47
48 Block, J. (1965). The Child-Rearing Practices Report (CRPR): A set of Q-items for the
49
50 description of parental socialization attitudes and values. *Unpublished manuscript*.
51
52 Institute of Human Development, University of Berkeley, California.
53
54
55 Bugental, D. B. (2000). Acquisition of the algorithms of social life: A domain-based approach.
56
57 *Psychological Bulletin*, *126*, 187-219.
58
59
60 Cahill, K. R., Deater-Deckard, K., Pike, A., & Hughes, C. (2007). Theory of mind, self-worth
and the mother-child relationship. *Social Development*, *16*, 45-56.

- 1
2
3 Cassibba, R., Van IJzendoorn, M. H., & D'Odorico, L. (2000). Attachment and play in
4
5 childcare centers: Reliability and validity of the attachment Q-sort for mothers and
6
7 professional caregivers in Italy. *International Journal of Behavioral Development, 24*,
8
9 241-255.
10
11
12 Chen, X., Lui, M., & Li, D. (2000). Parental warmth, control, and indulgence and their
13
14 relations to adjustment in Chinese children: A longitudinal study. *Journal of Family*
15
16 *Psychology, 14*, 401-419.
17
18
19 Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple*
20
21 *regression/correlation analyses for the behavioral sciences* (3rd ed.). Mahwah, NJ:
22
23 Erlbaum.
24
25
26
27 Collins, A. W., Maccoby, E. E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H.
28
29 (2000). Contemporary research on parenting: The case of nature and nurture.
30
31 *American Psychologist, 55*, 218-232.
32
33
34 Colman, R. A., Hardy, S. A., Albert, M., Raffaelli, M., & Crockett, L. J. (2006). Early
35
36 predictors of self-regulation in middle childhood. *Infant and Child Development, 15*,
37
38 421-437.
39
40
41 Connell, C. M., & Prinz, R. J. (2002). The impact of childcare and parent-child interactions on
42
43 school readiness and social skills development for low-income African American children.
44
45 *Journal of School Psychology, 40*(2), 177-193.
46
47
48 Coutu, S., Dubeau, D., Provost, M. A., Royer, N., & Lavigueur, S. (2002). Validation de la
49
50 version française du questionnaire Coping with Children's Negative Emotions Scale –
51
52 CCNES [Validation of the French version of the Coping with Children's Negative
53
54 Emotions Scale – CCNES]. *Revue Canadienne des Science du comportement, 34*, 230-
55
56 234.
57
58
59 Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model.
60
Psychological Bulletin, 113, 487-496.

- 1
2
3 Davidov, M., & Grusec, J. E. (2006). Untangling the links of parental responsiveness to
4
5 distress and warmth to child outcomes. *Child Development, 77*, 44-58.
6
7
8 Dennis, T. (2006). Emotional self-regulation in preschoolers: The interplay of child approach
9
10 activity, parenting, and control capacities. *Developmental Psychology, 42*, 84-97.
11
12
13 Duckworth, A. L., & Seligman, M. E. P. (2006). Self-discipline gives girls the edge: Gender in
14
15 self-discipline, grades, and achievement test scores. *Journal of Educational Psychology,*
16
17 98, 198-208.
18
19
20 Eiden, R. D., Edwards, E. P., & Leonard, K. E. (2006). Children's internalization of rules of
21
22 conduct: Role of parenting in alcoholic families. *Psychology of Addictive Behaviors,*
23
24 20, 305-315.
25
26
27 Eisenberg, N., Hofer, C., & Vaughan, J. (2007). Effortful control and its socioemotional
28
29 consequences. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 287-306).
30
31 New York: Guilford.
32
33
34 Eisenberg, N., Losoya, S., Fabes, R. A., Guthrie, I. K., Reiser, M., Murphy, B. C., et al.
35
36 (2001). Parental socialization of children's dysregulated expression of emotion and
37
38 externalizing problem. *Journal of Family Psychology, 15*, 183-205.
39
40
41 Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005).
42
43 Relations among positive parenting, children's effortful control, and externalizing
44
45 problems: A three-wave longitudinal study. *Child Development, 76*, 1055-1071.
46
47
48 Evans, G. W., & Rosenbaum, J. (2008). Self-regulation and the income-achievement gap.
49
50 *Early Childhood Research Quarterly, 23*, 504-514.
51
52
53 Fabes, R. A., Poulin, R. E., Eisenberg, N., & Madden-Derdich, D. A. (2002). The Coping
54
55 with Children's Negative Emotions Scale (CCNES): Psychometric properties and
56
57 relations with children's emotional competence. *Marriage & Family Review, 34*, 285-
58
59 310.
60

- 1
2
3 Friedlmeier, W., & Trommsdorff, G. (1999). Emotion regulation in early childhood: A cross-
4 cultural comparison between German and Japanese toddlers. *Journal of Cross-*
5 *Cultural Psychology, 30*, 684-711.
6
7
8
9
10 Gentzler, A. L., Contreras-Grau, J. M., Kerns, K. A., & Weimer, B. L. (2005). Parent-child
11 emotional communication and children's coping in middle childhood. *Social*
12 *Development, 14*, 591-612.
13
14
15
16
17 Goldberg, S., Grusec, J. E., & Jenkins, J. M. (1999). Confidence in protection: Arguments for
18 a narrow definition of attachment. *Journal of Family Psychology, 13*, 475-483.
19
20
21
22 Goldsmith, H. H., Reilly, J., Lemery, K. S., Longley, S., & Prescott, A. (1993). *The*
23 *Laboratory Temperament Assessment Battery (Preschool Version 0.5): Technical*
24 *Report*, Department of Psychology, University of Wisconsin – Madison.
25
26
27
28
29 Grusec, J. E. (2006). The development of moral behaviour and conscience from socialization
30 perspective. In M. Killen, & J. G. Smetana (Eds.), *Handbook of moral development*
31 (pp. 243-265). Mahwah, NJ: Erlbaum.
32
33
34
35
36 Grusec, J. E., & Davidov, M. (2007). Socialization in the family. In J. E. Grusec, & P. D.
37 Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 284-308). New
38 York: Guilford.
39
40
41
42
43 Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's
44 internalization of values: A reconceptualization of current points of view.
45 *Developmental Psychology, 30*, 4-19.
46
47
48
49
50 Grusec, J. E., Goodnow, J. J., & Kuczynski, L. (2000). New directions in analyses of
51 parenting contributions to children's acquisition of values. *Child Development, 71*,
52 205-211.
53
54
55
56
57 Harkness, S., Super, C. M., & van Tijen, N. (2000). Individualism and the „Western Mind“
58 reconsidered: American and Dutch parent's ethnotheories of the child. In S. Harkness,
59
60

1
2
3 C. Raeff, & C. M. Super (Eds.), *Variability in the social construction of the child* (pp.
4 23-39). San Francisco: Jossey-Bass.

7
8 Howse, R. B., Lange, G., Farran, D. C., & Boyles, C. D. (2003). Motivation and self-
9 regulation as predictors of achievement in economically disadvantaged young children.
10
11 *Journal of Experimental Education, 71*, 151-174.

14
15 Jennings, K. D., Sandberg, I., Kelley, S. A., Valdes, L., Yaggi, K., Abrews, A. et al. (2008).
16 Understanding of self and maternal warmth predict later self-regulation in toddlers.
17
18 *International Journal of Behavioral Development, 32*, 108-118.

21
22 Jones, D. J., Forehand, R., Rakow, A., Colletti, C. J. M., McKee, L., & Zalot, A. (2008). The
23 specificity of maternal parenting behavior and child adjustment difficulties: A study of
24
25 inner-city African American families. *Journal of Family Psychology, 22*, 181-192.

28
29 Karreman, A., van Tuijl, C., van Aken, M. A. G., & Dekovic, M. (2006). Parenting and self-
30 regulation in preschoolers: A meta-analysis. *Infant and Child Development, 15*, 561-
31
32 579.

35
36 Keller, H., Lamm, B., Abels, M., Yovsi, R., Borke, J., Jensen, H., et al. (2006). Cultural
37 models, socialization goals, and parenting ethnotheories: A multicultural analysis.
38
39 *Journal of Cross-Cultural Psychology, 37*, 155-172.

42
43 Kochanska, G., & Aksan, N. (2006). Children's conscience and self-regulation. *Journal of*
44
45 *Personality, 74*, 1587-1617.

47
48 Kochanska, G., Aksan, N., Prisco, T. R., & Adams, E. E. (2008). Mother-child and father-
49 child mutually responsive orientation in the first 2 years and children's outcomes at
50
51 preschool age: Mechanisms of influence. *Child Development, 79*, 30-44.

54
55 Kochanska, G., De Vet, K., Goldman, M., Murray, K. T., & Putnam, S. P. (1994). Maternal
56 reports of conscience development and temperament in young children. *Child*
57
58 *Development, 65*, 852-868.
59
60

- 1
2
3 Kochanska, G., & Murray, K. T. (2000). Mother-child mutually responsive orientation and
4
5 conscience development: From toddler to early school age. *Child Development, 71*,
6
7 417-431.
8
9
- 10 Kochanska, G., & Thompson, R. A. (1997). The emergence and development of conscience in
11
12 toddlerhood and early childhood. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting*
13
14 *and children's internalization of values: A handbook of contemporary research* (pp.
15
16 53-77). New York: Wiley.
17
18
- 19 Komsí, N., Ráikkönen, K., Pesonen, A.-K., Heinonen, K., Keskiavaara, P., Järvenpää, A.-L., et
20
21 al. (2006). Continuity of temperament from infancy to middle childhood. *Infant &*
22
23 *Behavior Development, 29*, 494-508.
24
25
- 26 Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective.
27
28 *Developmental Psychology, 18*, 199-214.
29
30
- 31 Kopp, C. B., & Wyer, N. (1994). Self-regulation in normal and atypical development. In D.
32
33 Cichetti, & S. L. Toth (Eds.), *Disorders and dysfunction of the self* (pp. 31-56).
34
35 Rochester, NY: University of Rochester Press.
36
37
- 38 Landry, S. H., Smith, K. E., Swank, P. R., Assel, M. A., & Vellet, S. (2001). Does early
39
40 responsive parenting have a special importance for children's development or is
41
42 consistency across early childhood necessary? *Developmental Psychology, 37*, 387-
43
44 403.
45
46
- 47 Lengua, L. J. (2008). Anxiousness, frustration, and effortful control as moderators of the
48
49 relation between parenting and adjustment in middle-childhood. *Social Development,*
50
51 *17*, 554-577.
52
53
- 54 Maccoby, E. E. (2000). Parenting and its effects on children: On reading and misreading
55
56 behavior genetics. *Annual Review of Psychology, 51*, 1-27.
57
58
59
60

- 1
2
3 Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-
4 child interaction. In P. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 1-
5 101). New York: Wiley.
6
7
8
9
10 MacDonald, K. (1992). Warmth as a developmental construct: An evolutionary analysis.
11
12 *Child Development, 63*, 753-773.
13
14
15 Matthews, J. S., Ponitz, C. C., & Morrison, F. J. (2009). Early gender differences in self-regulation
16 and academic achievement. *Journal of Educational Psychology, 101*, 689-704.
17
18
19 McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and
20 moderator effects. *Psychological Bulletin, 114*, 376-390.
21
22
23
24 McClelland, M. M., Cameron, C. E., McDonald, C. C., Farris, C. L., Jewkes, A. M., &
25 Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy,
26 vocabulary, and math skills. *Developmental Psychology, 43*, 947-959.
27
28
29
30
31 McClelland, M. M., Ponitz, C. C., Messersmith, E. E., & Tominey, S. (in press). Self-regulation: The
32 integration of cognition and emotion. In R. Lerner (Series Ed.) & W. Overton (Vol. Ed.),
33 *Handbook of life-span development*. Hoboken, NJ: Wiley and Sons.
34
35
36
37
38 Mize, J., & Pettit, G. S. (1997). Mothers' social coaching, mother-child relationship style, and
39 children's peer competence: Is the medium the message? *Child Development, 68*, 312-
40 332.
41
42
43
44
45 Organization for Economic Co-operation and Development (1999). Classifying educational
46 programmes: Manuel for ICSED-97 implementation in OECD countries. Retrieved
47 December 4, 2007 from <http://www.oecd.org/dataoecd/7/2/1962350.pdf>.
48
49
50
51
52 Paulussen-Hoogbeem, M. C., Stams, G. J. J. M., Hermanns, J. M. A., & Peetsma, T. T. D.
53 (2007). Child negative emotionality and parenting from infancy to preschool: A meta-
54 analytic review. *Developmental Psychology, 43*, 438-453.
55
56
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2
3 Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and
4
5 behavior-problem outcomes of parental monitoring and psychological control in early
6
7 adolescence. *Child Development, 72*, 583-598.
8
9
- 10 Porter, C. L., Hart, C. H., Chongmin, Y., Robinson, C. C., Frost Olsen, S., Zeng, Q., et al.
11
12 (2005). A comparative study of child temperament and parenting in Beijing, China and
13
14 the western United States. *International Journal of Behavioral Development, 29*, 541-
15
16 551.
17
18
- 19 Putnam, S. P., & Rothbart, M. K. (2006). Development of short and very short forms from the
20
21 Children's Behavior Questionnaire. *Journal of Personality Assessment, 87*, 103-113.
22
23
- 24 Raffaelli, M., Crockett, L. J., & Shen, Y.-L. (2005). Developmental stability and change in
25
26 self-regulation from childhood to adolescence. *The Journal of Genetic Psychology,*
27
28 *166*, 54-75.
29
30
- 31 Reitz, E., Dekociv, M., & Meijer, A. M. (2006). Relations between parenting and
32
33 externalizing and internalizing problem behaviour in early adolescence: Child
34
35 behavior as moderator and predictor. *Journal of Adolescence, 29*, 419-436.
36
37
- 38 Roberts, W. (1989). Criterion sortings for warmth and control for the Child Rearing Practices
39
40 Q-Sort (Block, 1965). Retrieved October 25, 2006 from
41
42 <http://www.tru.ca/faculty/wlroberts/crp-criteria.pdf>.
43
44
- 45 Roberts, W. (1999). The socialization of emotion expression: Relations with prosocial
46
47 behavior and competence in five samples. *Canadian Journal of Behavioural Science,*
48
49 *31*, 72-85.
50
51
- 52 Roberts, W., & Strayer, J. (1987). Parents' responses to the emotional distress of their
53
54 children: Relations with children's competence. *Developmental Psychology, 23*, 415-
55
56 422.
57
58
59
60

- 1
2
3 Rothbart, M. K., Ahadi, S. A., Hershey, K. L., & Fisher, P. (2001). Investigations of
4
5 temperament at three to seven years: The Children's Behavior Questionnaire. *Child*
6
7 *Development, 72*, 1394-1408.
8
9
- 10 Rothbart, M. K., & Bates, J. E. (2006). Temperament. In N. Eisenberg, W. Damon, & R. M.
11
12 Lerner (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and*
13
14 *personality development* (6th ed., pp. 99-166). Hoboken, NJ: Wiley.
15
16
- 17 Russell, A., & Russell, G. (1996). Positive parenting and boys' and girls' misbehavior during
18
19 a home observation. *International Journal of Behavioral Development, 19*, 291-307.
20
21
- 22 Stewart, S. M., & Bond, M. H. (2002). A critical look at parenting research from the
23
24 mainstream: Problems uncovered while adapting Western research to non-Western
25
26 cultures. *British Journal of Developmental Psychology, 20*, 379-392.
27
28
- 29 Tildesley, E. A., & Andrews, J. A. (2008). The development of children's intentions to use
30
31 alcohol: Direct and indirect effects of parent alcohol use and parenting behaviors.
32
33 *Psychology of Addictive Behaviors, 22*, 326-339.
34
35
- 36 Trommsdorff, G. (2006). Development of emotions as organized by culture. *ISSBD Newsletter,*
37
38 *49*, 1-4.
39
40
- 41 Trommsdorff, G. (2009a). Culture and development of self-regulation. *Social and Personality*
42
43 *Psychology Compass, 3*, 1-15.
44
45
- 46 Trommsdorff, G. (2009b). Intergenerational relations and cultural transmission. In U.
47
48 Schoenpflug (ed.), *Cultural transmission: Psychological, developmental, social, and*
49
50 *methodological aspects* (pp. 126-160). New York: Cambridge University Press.
51
52
- 53 Trommsdorff, G., & Kornadt, H.-J. (2003). Parent-child relations in cross-cultural perspective.
54
55 In L. Kuczynski (Ed.), *Handbook of dynamics in parent-child relations* (pp. 271-306).
56
57 London: Sage.
58
59
60

- 1
2
3 Wong, M. M., Nigg, J. T., Zucker, R. A., Puttler, L. I., Fitzgerald, H. E., Jester, J. M., et al.
4
5 (2006). Behavioral control and resiliency in the onset of alcohol and illicit drug use: A
6
7 prospective study from preschool to adolescence. *Child Development, 77*, 1016-1033.
8
9
10 Xu, Y., Farver, J. A. M., & Zhang, Z. (2009). Temperament, harsh and indulgent parenting,
11
12 and Chinese children's proactive and reactive aggression. *Child Development, 80*,
13
14 244-258.
15
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Table 1

Descriptive Statistics (N = 101)

	Measure	<i>M</i>	<i>SD</i>	Range
Mother's positive parenting variables	Responsiveness to distress (CCNES)	5.52	0.46	4.28-6.51
	Warmth (CRPR) ^a	0.64	0.18	0.22-0.84
Child variables	Internalization of rules of conduct (MRCD)	4.67	0.71	2.24-6.53
	Behavior regulation (Snack Delay)	2.56	1.93	0-6
	Effortful control (CBQ)	5.65	0.60	4.07-6.83

Note. ^a Fisher's z-scores.1
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Table 2
Intercorrelations between Mother’s Positive Parenting Practices, Mother’s Level of Education, Child Age, Self-regulation, and Temperament

N = 102	1	2	3	4	5	6	7
1. Maternal responsiveness to distress	--						
2. Maternal warmth	.26**	--					
3. Mother’s level of education	-.04	.32**	--				
4. Child’s age	.03	-.09	-.07	--			
5. Child’s internalization of rules of conduct	.21*	.11	-.01	.04	--		
6. Child’s behavior regulation	.15	.29**	.13	.03	.20*	--	
7. Child’s effortful control	.06	.04	.06	-.05	.06	.10	--

** $p < .01$. * $p < .05$.

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Table 3

Regression Analysis Predicting the Child's Behavior Regulation with Gender as Moderator

Dependent Variable: Child's Behavior Regulation			
	B	SE(B)	β
Step 1: Covariates	$R^2 = .04$		
Mother's level of education	.35	.25	.14
Gender ^a	.61	.38	.16
Step 2: Predictors	$\Delta R^2 = .07^*$		
Responsiveness to distress	.46	.43	.11
Warmth	2.43	1.18	.22*
Step 3: Gender interaction	$\Delta R^2 = .01$		
Gender ^a x Responsiveness to distress	.61	.85	.10
Gender ^a x Warmth	1.74	2.24	.11

Note. ^aDummy coded (boys = 0; girls = 1). * $p < .05$.

The full regression equation was significant: $F(6, 94) = 2.24, p < .05$. The full model explained 6.9% of the variance (Adjusted $R^2 = .069$).

Table 4

Regression Analysis Predicting the Child's Behavior Regulation with Effortful Control as Moderator

Dependent Variable: Child's Behavior Regulation			
	B	SE(B)	β
Step 1: Covariates	$R^2 = .03$		
Mother's level of education	.32	.25	.13
Effortful control	.31	.33	.09
Step 2: Predictors	$\Delta R^2 = .07^*$		
Responsiveness to distress	.35	.42	.08
Warmth	2.71	1.17	.25*
Step 3: Effortful control interaction	$\Delta R^2 = .04$		
Effortful control x Responsiveness to distress	1.58	.81	2.17 ⁺
Effortful control x Warmth	.14	2.02	.07

Note. ⁺ $p < .10$. * $p < .05$.

The full regression equation was significant: $F(6, 94) = 2.45, p < .05$. The full model explained 8% of the variance (Adjusted $R^2 = .080$).

Table 5

Regression Analysis Predicting the Child's Internalization of Rules of Conduct with Gender as Moderator

Dependent Variable: Child's Internalization of Rules of Conduct				
		B	SE(B)	β
Step 1: Covariates	$R^2 = .04$			
Mother's level of education		.00	.09	.00
Gender ^a		.30	.14	.21*
Step 2: Predictors	$\Delta R^2 = .06^*$			
Responsiveness to distress		.38	.16	.25*
Warmth		-.14	.47	-.03
Step 3: Gender interaction	$\Delta R^2 = .05^+$			
Gender ^a x Responsiveness to distress		-.29	.31	-.13
Gender ^a x Warmth		-1.44	.82	-.24 ⁺

Note. ^aDummy coded (boys = 0; girls = 1). ⁺ $p < .10$. * $p < .05$.

The full regression equation was significant: $F(6, 94) = 2.70, p < .05$. The full model explained 9.3% of the variance (Adjusted $R^2 = .093$).

Table 6

Regression Analysis Predicting the Child's Internalization of Rules of Conduct with Effortful Control as Moderator

Dependent Variable: Child's Internalization of Rules of Conduct			
	B	SE(B)	β
Step 1: Covariates	$R^2 = .00$		
Mother's level of education	-.01	.09	-.01
Effortful control	.07	.12	.06
Step 2: Predictors	$\Delta R^2 = .04$		
Responsiveness to distress	.32	.16	.21*
Warmth	.04	.44	.01
Step 3: Effortful control interaction	$\Delta R^2 = .06^+$		
Effortful control x Responsiveness to distress	.28	.31	1.05
Effortful control x Warmth	1.59	.76	2.23*

Note. ⁺ $p < .10$. * $p < .05$.

The full regression equation did not reach significance: $F(6, 94) = 1.83, p = .10$.