



Published in final edited form as:

Early Child Res Q. 2006 October 1; 21(4): 491–506. doi:10.1016/j.ecresq.2006.09.002.

Parenting quality: Confirmation of a higher-order latent construct with mothers of Head Start children

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Abstract

We proposed a higher order latent construct of parenting young children, parenting quality. This higher-order latent construct comprises five component constructs: demographic protection, psychological distress, psychosocial maturity, moral and cognitive reflectivity, and parenting attitudes and beliefs. We evaluated this model with data provided by 199 mothers of 4-year-old children enrolled in Head Start. The model was confirmed with only one adjustment suggested by modification indices. Final RMSEA was .05, CFI .96, and NNFI .94, indicating good model fit. Results were interpreted as emphasizing the interdependence of psychological and environmental demands on parenting. Implications of the model for teachers, early interventionists, and public policy are discussed.

We propose a higher-order latent construct of parenting young children that extends and moves beyond ecological and process models. Ecological and process models (e.g., Belsky, 1984; Bronfenbrenner & Morris, 1998; Kotchik & Forehand, 2002) differentiate family environmental or contextual variables from parental personality and psychological functioning. We, too, subscribed for many years to such a model, proposing that parenting beliefs and attitudes as well as behaviors would be predicted by (1) age of mother; (2) demographic characteristics; (3) maternal affect; and (4) maternal developmental level (Hubbs-Tait, Culp,

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& Culp, 1997). Our viewpoint changed when we tried to integrate the child's perspective on his/her demands with the parent's perspective on meeting them. From the child's perspective, the identity of predictors of parenting quality is irrelevant. What matters to the child is whether the parent can be responsive to the child's needs and supportive of the child's development. Put most simply, anything that interferes with the parent's ability to address the child's needs is bad; anything that enhances the parent's ability is good. What matters to the parent is having the physical and emotional energy first, to be patient with the child's demands and, second, to respond appropriately to them. Integrating across parent and child perspectives, anything that depletes parenting quality is bad; anything that promotes it is good.

This integrated child and parent perspective suggested to us that traditional separations of psychological distress, demographic risk and protective factors, and parenting attitudes and beliefs were artificial. All contribute to but are also an integral part of *parenting quality*. Furthermore, like others, we thought that moral and cognitive reflectivity (Powers, 1988) and psychosocial maturity (Erikson, 1959, 1968; Peterson, Smirles, & Wentworth, 1997; Pratt, Danso, Arnold, Norris, & Filyer, 2001) are an integral part of parenting quality. An example will illustrate the latent construct of parenting quality (see Figure 1a). Consider a mother with high moral reflection and cognitive skills; well-developed identity and capacity for intimate relationships; married for 10 years, with two children, and a dual income; minimal depression, hostility, and anxiety; and highly positive parenting attitudes. This mother's parenting quality is excellent; she is emotionally supportive, responsive, cognitively stimulating, and involved in the range of her children's activities. However, consider what happens when this mother's parents are both killed in a car accident and she becomes too depressed to continue working. As a result, her joy in her interactions with her husband and children is diminished; however, due to her high moral and cognitive reflectivity, she has the ethical strength and cognitive awareness to continue to provide the basics of care for her children. The change in family income decreases the number of recreational activities for her children and the mother's depression limits her involvement in those that remain. Although she remains cognitively stimulating and her capacity for intimate relationships has not changed, her parenting quality as a whole has altered.

Metaphorically, the resulting change in parenting quality is similar to what happens in an aquifer when a major spring dries up, reducing the number of sources for recharging it. Not only is the amount of water reduced, but its artesian quality has also been altered. Even when rainfall increases to make up the amount of water, the change in water quality remains. In the paragraphs below, we discuss the individual components of our higher-order parenting quality construct.

Moral and Cognitive Reflectivity

We begin with parental ethical strength and thoughtfulness, which we call moral and cognitive reflectivity. Parents with greater moral and cognitive reflectivity are better able to see their child's perspective, to consider the consequences of their behavior for the child, and to put their child's needs before their own. We operationalized this construct as maternal sociomoral reflection and education.

Sociomoral reflection on moral values (e.g., importance of telling the truth, keeping a promise, saving a life, and not taking things that belong to others) constitutes a developmental continuum that ranges from superficial to profound (Gibbs, Basinger, & Fuller, 1992). As individuals develop, their sociomoral reflective capacity increases from reflections that are unilateral and focused on power, status, and authority (stage 1); to reflections that are instrumental, pragmatic, and quid pro quo (stage 2); to reflections that recognize relationships, depend on empathic role taking, and include prosocial intentions and caring (stage 3); to reflections that affirm basic

rights and values, accept societal responsibility, and reveal individual character and standards of conscience (stage 4, Gibbs et al., 1992).

There are precedents for including sociomoral reflection in parenting quality. First, in developing questions to stimulate sociomoral reflection, Gibbs et al. (1992) incorporated one question that specifically addressed a parenting issue: “How about keeping a promise to a child? How important is it for parents to keep promises, if they can, to their children?” (p. 150). Thus, sociomoral reflection includes reflections on the importance of a contract between the parent and his/her child. Second, Powers (1988) found that in family moral discussions, mothers with higher levels of moral reasoning were more likely to be encouraging of other family members' contributions and were more accepting of family members' voicing different perspectives. According to Powers, “the moral stage of a parent influences the parent's behavior with the child” (1988, p. 216). Third, in a group of foster parents, Richardson, Foster, and McAdams (1998) found that moral reasoning as measured by the Defining Issues Test and positive parenting attitudes were significantly positively correlated. These studies are consistent with our hypothesis that sociomoral reflection contributes to moral and cognitive reflectivity, which, in turn, enhances parenting quality.

Education is the other component of moral and cognitive reflectivity in our model. Although there are many measures of specific parental cognitive functions, we selected educational attainment precisely because it is associated with a wide range of higher cognitive and social cognitive functioning and behavior. For example, educational attainment was positively and significantly related to prosocial helpfulness in a random national sample of approximately 5,000 adults (Sares, 1998). Among urban biological and foster parents of Head Start children, Coolahan, McWayne, Fantuzzo, and Grim (2002) found that parental education was related to active-responsive parenting behaviors, which included such prosocial behaviors as demonstration of affection (hugging and kissing), praising the child, and responsivity to the child's own emotions. In a study of 386 families participating in the national Early Head Start Evaluation study, Tamis-LeMonda, Shannon, Cabrera, and Lamb (2004) found that greater maternal educational attainment was linked with higher cognitive stimulation, positive regard, and sensitivity as well as lower intrusiveness. Thus, mothers with more education have more parenting skills and parenting skills of higher quality. Thus, parental educational attainment is part of parenting quality.

Psychosocial Maturity

Psychosocial development from late adolescence through adulthood, the periods of development relevant to mothers of young children, reflects both general growth and individual differences in identity, intimacy, and generativity (Erikson, 1963). General growth in Erikson's theory refers to the maturation of particular capacities for experiencing reality. As each capacity emerges and attempts to express itself, it has to be integrated into the social and cultural contexts of the individual's life. This attempt occasions a crisis, an acute period that is similar to a medical crisis, in which psychosocial functioning may take a turn for the better or worse, with the healthiest resolution being a balance between the extremes of the continuum of psychosocial functioning appropriate to the particular stage (Erikson, 1959, 1963; Evans & Hubbs-Tait, 1991, p. 325). In adolescence, the crisis is between identity and identity confusion. Turning for the better involves a healthy balance between self-certainty and self-consciousness, apprenticeship and work paralysis, and ideological commitment versus confusion of values, among other things (Erikson, 1968, p. 94). In young adulthood, the crisis is between intimacy and isolation. Individual differences in Erikson's theory refer to each individual's history of resolutions of crises in previous stages that increase the likelihood of turning for the better (or worse) in the current stage (Erikson, 1959, 1968). In adolescence and young adulthood, the positive resolutions of previous crises affect the degree of identity and intimacy arising from

those two stages and continuing on into adulthood. In turn, the degree of identity and intimacy arising in adolescence and young adulthood affect the resolution of the crisis of middle age between generativity and stagnation (Erikson, 1959, 1963, 1968).

There are precedents for including psychosocial maturity in parenting quality. In a sample of 76 mothers, McKeering and Pakenham (2000) found that both identity and intimacy were closely related to generativity. In turn, Pratt, et al. (2001) and Peterson et al. (1997) found that mothers' generativity was linked to their authoritative parenting. The latter two samples consisted of mothers of adolescents whereas the former also included mothers of preadolescent children, suggesting that identity and intimacy are relevant indicators of the psychosocial development of mothers of young children and should be related to their parenting. Consistent with this assumption, O'Brien and Peyton (2002) found that, among mothers of young children, marital intimacy was related to mothers' parenting attitudes. Thus, in samples of mothers of young children, identity and intimacy are part of parenting quality.

Psychological Distress

Precedents for including freedom from maternal psychological distress in parenting quality abound. With respect to *depression*, in their meta-analysis of 46 studies Lovejoy, Graczyk, O'Hare, and Neuman (2000) found moderate effect sizes for the relation between maternal depression and maternal negative or disengaged behaviors and a small effect size for the relation between maternal depression and positive behaviors. More recent studies continue to confirm these findings (e.g., Campbell, Brownell, & Hungerford, 2004; Cummings, Keller, & Davies, 2005). With respect to *anxiety*, Whaley, Pinto, and Sigman (1999) found that anxious mothers compared to non-anxious controls scored higher on measures of criticism and catastrophizing and lower on measures of enthusiasm, warmth, and granting of autonomy. Similarly, Woodruff-Borden, Morrow, Bourland and Cambron (2002) found that compared to control parents, more anxious parents were more withdrawn and disengaged and exhibited fewer productive behaviors like agreeing or praising their children. With respect to *hostility*, maternal reports of hostile parenting are highly correlated with children's reports on a puppet task of their mothers' hostile practices such as yelling and hitting (Silk, Sessa, Morris, Steinberg, & Avenevoli, 2004).

Although depression, hostility, and anxiety each have unique features, there are precedents for including them in a single construct, psychological distress (Coyne & Gotlib, 1983). Furthermore psychological distress as composed of symptoms of depression, hostility, and anxiety has been argued to be positively related to problematic parenting and negatively related to parenting quality (Lovejoy et al., 2000; Mammen, Kolko, & Pilkonis, 2002). Thus, we include psychological distress in parenting quality.

Demographic Protection

We have included four indicators of demographic protection as part of parenting quality: income, number of children in the family, age of the mother when her first child was born, and marital status. Each of these variables has been recognized as contributing to family risk or protection depending on the positive or negative impact of the variable. *Low family income* has long been recognized as a risk factor in terms of its negative impact on parenting with higher family income regarded as a protective factor (e.g., Bradley, Corwyn, McAdoo, & Garcia-Coll, 2001; Conger, Ge, Elder, Lorenz, & Simons, 1994; Conger et al., 2002; Klebanov, Brooks-Gunn, & Duncan, 1994; McLoyd, 1990). Low family income is regarded by many as impacting parenting not only in terms of lacking both the necessities and the stimulating toys that money can buy, but also as a correlate of multiple other stressors on parents (Leinonen, Solantus, Punamaeki, 2002; Mayer, 1997; Shonkoff & Phillips, 2000).

Parenting quality differs as a function of *marital status* in that single parents may experience stress related to role-strains from being the primary parent and provider for their children (Amato & Fowler, 2002; Hilton & Desrochers, 2000). Because single parent status and income are often linked, it is important to note that research also demonstrates that significant effects exist for residing in a single parent household independent of income (Dodge, Petit, & Bates, 1994; Lipman, Boyle, Dooley, Offord, 2002). Like marital status, the *number of children* in the family is a drain on parenting quality. Even increasing from one to two children in the family affects the quality of parenting offered to preschool children (Benigno & Ellis, 2004). More children are linked to less supportive home environments (Luster & Dubow, 1990) and greater abuse and neglect (Zuravin, 1988).

Parenting quality also differs as a function of the mothers' *birth age*, particularly whether she was an adult or an adolescent mother when her first child was born. For example, adolescent mothers' perceptions of infant emotions are less accurate and positive than the perceptions of adult mothers and non-pregnant adolescents (Osofsky & Culp, 1993). When compared to adult mothers, adolescent mothers are less verbal with their infants (Culp, Osofsky, & O'Brien, 1996).

Parenting Attitudes and Beliefs

Parenting attitudes are “childrearing opinions” (Holden & Buck, 2002, p. 552) whereas parenting beliefs are more cognitive in nature (Sigel & McGillicuddy-De Lisi, 2002). Unfortunately, and as noted by Holden and Buck, measures of parenting attitudes are rarely pure indicators of attitudes but include items evaluating beliefs, values, attributions, and other constructs. We have named our construct “attitudes and beliefs” not only to reflect the reality of measurement but also because we think that the cognitive aspect of beliefs is important to parenting quality. Parents with more positive attitudes and beliefs not only have positive opinions about their children but also have more accurate cognitions about them. They are less likely to endorse such items as “children will quit crying faster if they are ignored” and “children under three years of age should be expected to feed, bathe, and clothe themselves” (Bavolek, 1984, 1989a, 1989b). In fact, research on a nationally representative sample shows that parents with attitudes that devalue children are much more likely to use physical discipline with their children (Thompson et al., 1999). Mothers who endorsed items reflecting the negative attitude of parent-child role reversal when their children were age 2 were more likely to show rejecting parenting behaviors in videotaped interactions at the same time (Shaw, Criss, Schonberg, & Beck, 2004). Further, parent-child conflict at age 5 was related to parental endorsement of items reflecting low empathy when the child was age 2 (Criss, Shaw, & Skuban, 2003). Thus, positive attitudes are linked to improved parenting quality whereas negative attitudes are associated with deteriorating quality.

We do recognize that it is possible that positive attitudes are an expression of parenting quality rather than a part of the construct of parenting quality itself. This modified construct of parenting quality is depicted in Figure 1b and is consistent with research showing significant differences in parenting attitudes and beliefs associated with differences in a measure of cumulative risk that included psychological distress, measures of demographic risk, and other measures (Nair, Schuler, Black, Kettinger, & Harrington, 2003). Figure 1b is also consistent with research predicting parenting attitudes and beliefs from maternal depression (Pascoe & Solomon, 1994), socioeconomic status (Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000), maternal education, depression, and other variables (McKenry, Kotch, & Browne, 1991), and number of children in the household (Strom, Hathaway, & Slaughter, 1981). Note that the models in Figure 1a and Figure 1b are conceptually equivalent in proposing that parenting quality is a higher order latent construct. They differ only in that 1a includes parenting attitudes and beliefs as part of parenting quality whereas 1b does not.

Previous Research

To our knowledge no previous research group has proposed or tested a higher-order latent construct of parenting young children. A number of researchers have proposed empirical links between two of the component constructs. For example, the inverse relation between parental *psychological distress* and *demographic protection*, particularly as indicated by income, is well recognized (e.g., Brody, Murry, Kim, & Brown, 2002; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998). However, empirical links between components do not necessarily indicate that all of the components constitute a unified whole, which is what a single latent factor is (e.g., Halliday-Boykins & Graham, 2001).

The construct that comes closest to parenting quality is *cumulative risk*. Sameroff, Seifer, Barocas, Zax, and Greenspan (1987) conceptualized environmental risk as the total number of risk factors present from a set consisting of maternal mental health, maternal anxiety, maternal rigidity/flexibility in parenting attitudes, maternal spontaneity in interactive behavior, maternal education, occupational status of head of household, minority group status, presence of father, number of children, and stressful life events. Thus, this measure of risk included elements of demographic protection/risk, psychological distress, moral and cognitive reflectivity, and parenting attitudes and behavior. However, the identity of the component constructs is lost in the computation of cumulative risk. Most research groups sum the indicators of risk (0=absent; 1=present) so that all measures of cumulative risk are the sum of the number of risk factors (e.g., Burchinal, Roberts, Hooper, & Zeisel, 2000; Dumka, Roosa, & Jackson, 1997; Nair et al., 2003). Thus, the cumulative risk model follows two rules: all or nothing (for each contributing risk factor) and whole equals the sum of the parts (for the whole model). If the measured risk factor is sufficiently high, it is present; otherwise it is not. However, its identity is not important nor is any variation in the factor above or below the threshold that indicates the risk is present. In contrast, our latent construct conserves the identity of component constructs and component indicators, includes all variation in each indicator, and allows testing of whether all of the components can constitute a unified whole of parenting quality.

In sum, we proposed the higher order latent construct of parenting quality, because we think that parenting quality is a single factor. We proposed the two variants (Figures 1a and 1b), because sufficient research exists to suggest that parenting attitudes and beliefs may be predicted by the construct (referred to hereafter as “alternative theoretical model”) rather than being a part of the construct (referred to hereafter as “primary theoretical model”).

Method

Participants

Participants were 199 mothers of 4-year-old children (102 boys, 97 girls) attending their pre-kindergarten year of Head Start in 1995-1996 or 1996-1997. Data from four grandmothers, four stepmothers, and one great-grandmother were excluded from this report. Mothers' ages on the date on which they completed all the information on which this report is based ranged from 19.75 to 46.23 ($M = 29.05$, $SD = 5.62$). Mothers' ethnicity was 78% European American, 17% American Indian, 2% African American, 2% Hispanic, and 1% multiethnic. Mothers were asked to report on the ethnicity of the father of their child who was attending Head Start. Fathers' ethnicity was 67% European American, 22% American Indian, 6% African American, 3% Hispanic, and 2% multiethnic.

Forty-six percent of the mothers were married; 20% were divorced; 17% were remarried; 10% had never been married; 4% were separated; and 3% were widowed. Twenty-three percent of the mothers had dropped out of school in high school or earlier (8% before 10th grade); 73% completed high school or obtained an equivalency diploma; 4% had attended or completed

college (see Table 1). All families lived in rural, north-central Oklahoma. Monthly household income ranged from \$0 (one family) to \$4000 (one family); median monthly household income was \$1250 (see Table 1 for mean). Household size ranged from 2 to 8 persons ($Mdn = 4$ persons), with the number of adults ranging from 1 to 4 ($Mdn = 2$) and the number of children ranging from 1 to 6 ($Mdn = 2$).

Procedure

Mothers were recruited in the Fall of their child's pre-kindergarten year in Head Start. At the time of recruitment, mothers completed a demographic information form, the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977, 1991), the Aggression Questionnaire (AQ; Buss & Perry, 1992), the State-Trait Anxiety Inventory-Trait form (STAI-T, Spielberger, 1983), the Erikson Psychosocial Inventory (EPSI, Rosenthal, Gurney, & Moore, 1981), the Adult-Adolescent Parenting Inventory (AAPI; Bavolek, 1984, 1989), and the Sociomoral Reflection Measure-Short Form (SRM-SF, Gibbs et al., 1992).

Measures

Operationalization of constructs—*Family demographic protection* was assessed by answers to questions on the demographic information form. *Maternal psychological distress* was assessed by scores on the CES-D, the AQ, and the STAI-T. *Maternal psychosocial maturity* was assessed by scores on two subscales of the EPSI: identity and intimacy. *Maternal moral and cognitive reflectivity* were assessed by scores on the SRM-SF and responses to a question about number of years of education on the demographic information form. *Maternal parenting attitudes and beliefs* were assessed by scores on the four subscales of the AAPI: endorsement of physical punishment, lack of empathy, inappropriate expectations, and role reversal.

Demographic information form—On the demographic information form, mothers indicated the range of monthly household *income* that characterized their family. We followed the procedures used in the Infant Health and Development Program studies (e.g., Duncan, Brooks-Gunn, & Klebanov, 1994; Klebanov et al., 1998) to convert the categorical responses to a continuous measure by assigning the midpoint of each interval. Income midpoints were \$0, \$50, \$250, \$750, \$1250, \$1750, \$2250, \$2750, \$3750, and \$4000 per month. On the same form, mothers indicated their marital status. Mothers who were married, remarried, or widowed were classified as “married”; mothers who were separated, divorced, or never married were classified as “not married”. The criterion for classifying widows as “married” was that the marital bond was never dissolved. Switching the six widows to the “single” group did not affect the final model. Mothers listed their birth date and the birth date of their pre-kindergarten child as well as the ages of all of their children. Dates and ages were used to compute each mother's age at the birth of her first child and at the date of her target (i.e., Head Start) child's birth.

Center for Epidemiologic Studies Depression Scale—The CES-D is a 20-item self-report instrument scored on a 4-point (0 to 3) Likert scale that measures the degree to which participants have been bothered by depressive symptoms in the previous week (Radloff, 1977). Items include “My sleep was restless;” “I felt lonely;” “I had crying spells;” “I did not feel like eating; my appetite was poor;” “I was bothered by things that usually don't bother me.” Internal consistency and test-retest reliability of the CES-D are within the acceptable range for samples that include females of the same age as the current sample (Radloff, 1977, 1991). Internal consistency of the 20 items in the current sample was .92.

Aggression Questionnaire—The AQ (Buss & Perry, 1992) is a 29-item questionnaire consisting of four subscales: hostility, anger, verbal aggression, and physical aggression. Respondents rate each item on a 1 (“extremely uncharacteristic of me”) to 5 (“extremely

characteristic of me”) Likert-type scale. Test-retest reliability for a sample of women in the same age range as the current sample is moderate to high for all four subscales over 7 months (.67 to .82, Harris, 1997). Convergent validity is indicated by moderate to high correlations (.32 to .76) of all four subscales with measures of affect instability, aggression, negative interpersonal relationships, and low frustration tolerance (Harris, 1997). Internal consistency of the 29 items in the current sample was .90.

State-Trait Anxiety Scale-Trait Form—The STAI-T consists of 20 items rated by participants on a 4-point scale to reflect how they “generally feel” (Spielberger, 1983). Items include 11 statements directly reflecting anxiety (e.g., I feel nervous and restless; “I wish I could be as happy as others seem;” “I lack self-confidence”), and 9 reverse-coded statements (e.g., “I am happy;” “I feel secure”). In addition to the evidence for construct validity offered by Spielberger, independent research shows that mothers classified as high versus low or moderate on anxiety by the state and trait versions of the STAI differed significantly 4.5 years later on autonomic anxiety symptoms as well as on social phobia and lack of confidence in mothering capabilities (Barnett, Schaafsma, Guzman, & Parker, 1991). We analyzed total scores computed from all 20 items; internal consistency of the 20 items was .92.

Erikson Psychosocial Inventory—The EPSI is a 72-item scale, consisting of six 12-item subscales, each assessing one of Erikson's first six stages or psychosocial functioning (Rosenthal et al. 1981). We administered only two of the subscales, identity and intimacy, using the modifications recommended by Arehart and Smith (1990). Sample items from the identity subscale include “I can't decide what to do with my life (reverse);” “I like myself and am proud of what I stand for.” Sample items from the intimacy subscale include “I have a close physical and emotional relationship with another person;” “I care deeply for others;” “I think it's crazy to get too involved with people (reverse).” Test-retest and internal consistency reliability and construct validity are acceptable (e.g., Rosenthal et al., 1991; Dyk & Adams, 1990). Internal consistency for identity and intimacy in the current sample was .89 and .73, respectively.

Sociomoral Reflection Measure - Short Form—The SRM-SF is an 11-item production task that assesses judgments and justifications of the importance of such values as contract and truth, affiliation, life, property and law, and legal justice. Participants are first given real-life scenarios (e.g., “Think about when you've made a promise to a friend of yours”) and are then asked to provide judgments of importance (“How important is it for people to keep promises, if they can to friends?”) using the scale, “very important,” “important,” or “not important.” Finally, participants are asked to give a moral justification for why that value is (or is not) important. Justifications are scored for stage of sociomoral reasoning according to their degree of match with stage-diagnostic justifications (see Gibbs et al., 1992). The resulting Sociomoral Reflection Maturity Score (SRMS) ranges from 100 (Stage 1) to 400 (Stage 4). Test-retest reliability and internal consistency are acceptable (Basinger, Gibbs & Fuller, 1995; Gibbs et al., 1992). Construct validity has been demonstrated by a high correlation with Kohlberg's Moral Judgment Inventory (e.g., Basinger et al., 1995) and criterion validity by its discrimination of delinquent from non-delinquent samples (Gregg, Gibbs, & Basinger, 1994). In samples of university students and community-dwelling adults, there are no gender differences in SRMS (Garmon, Basinger, Gregg, & Gibbs, 1996), supporting the appropriateness of the instrument for the current sample of adult females. Every SRM-SF protocol in the current sample was scored by two of the developers of the measure, Drs. John Gibbs and Karen Basinger. One served as the primary and the other as the reliability rater (Gibbs et al., 1992). Both raters independently scored written responses by 27 mothers (14%) randomly selected by the fourth author. Inter-rater reliability for the present sample was acceptable, $r(27) = .96, p < .01$.

Education—Mothers filled in their highest grade completed on the demographic information form. Because many students enroll in vocational-technical institutions and high school classes concurrently, we did not give greater value to completion of vocational training than completion of high school.

Adult-Adolescent Parenting Inventory—The AAPI is a 32-item inventory of negative parenting attitudes and beliefs related to child abuse (Bavolek, 1984, 1989b), consisting of four subscales: endorsement of physical punishment (“children should always be spanked when they misbehave”), lack of empathy (“parents who are sensitive to their children's feelings and moods often spoil their children”), inappropriate expectations (“children under three years should be expected to feed, bathe, and clothe themselves), and role reversal (“young children should be expected to comfort their mother when she is feeling blue”). We scored the Likert-scale (1 to 5) responses so that higher subscale scores reflect more negative attitudes. Test-retest reliability and construct validity are reported to be acceptable (Bavolek, 1989b).

According to Holden and Buck (2002), the power of attitudes as a construct is their relation to behaviors. Thus, support for construct validity of the AAPI as a measure of parenting beliefs and attitudes is provided by the link between rejecting maternal behavior and AAPI role reversal (Shaw et al., 2004). Further, Kiang, Moreno, and Robinson (2004) found that negative parenting attitudes and beliefs measured prenatally by total AAPI scores predicted both later maternal insensitive behavior and mothers' perceptions of their children as having more difficult temperament. Internal consistency for the subscales in the current sample was as follows: role reversal ($\alpha = .87$); physical punishment ($\alpha = .80$); inappropriate expectations ($\alpha = .73$); and lack of empathy ($\alpha = .85$).

Results

Preliminary Analyses

Means, standard deviations, and ranges for all of the variables are in Table 1. The correlation matrix of all variables is provided in the Appendix. In terms of univariate normality, anxiety, marriage, and mother's education were nonnormally distributed. In terms of multivariate normality, the assumption of multivariate normality was violated (Mardia's criterion (a measure of multivariate kurtosis) = 23.77). As this value was above the recommended cutoff of 21 (West, Finch, & Curran, 1995), we first examined the influence of outliers. After deleting the two most highly influential outlying cases, Mardia's criterion was 19.37 indicating that the multivariate normality assumption for SEM was met. However, because all of the analyses reported below yielded the same results with the outliers included or excluded, we retained the two outlying cases.

There are several different estimation methods that can be used in SEM. We used maximum likelihood estimators because the alternatives were less satisfactory. For example, there are several alternate estimation techniques, but a minimum sample size of 500 is required in order to use them (West et al., 1995). Another solution to nonnormality is to transform the variables. However all conclusions are then based on the transformed variables, rendering inferences about theoretical and measurement models based on the original variables difficult.

Primary Analyses

Measurement model—Following the approach recommended in Anderson and Gerbing (1988) and demonstrated in Halliday-Boykins and Graham (2001) and Newcomb and Loeb (1999), we tested a measurement model before evaluating our theoretical model of interest. Using confirmatory factor analysis (CFA) we hypothesized that five constructs - psychological distress, moral and cognitive reflectivity, parenting attitudes and beliefs, psychological maturity, and demographic protection - generated the observed variables. We used several

indices to determine model fit. We initially looked at the model χ^2 , which, if the data fit the model well, is nonsignificant. However, as early as 1969, it was recognized that this χ^2 oftentimes would remain significant even if the data fit the model (Jöreskog, 1969; see also Mueller, 1997). Thus three additional fit indices were examined: the Comparative Fit Index (CFI), the Nonnormed Fit Index (NNFI; recommendation for use in Hu & Bentler, 1995) and the Root Mean Square Error of Approximation (RMSEA; developed by Browne & Cudek, 1993). Ideally based on a sample size of at least 250, an NNFI greater than .90 and RMSEA less than .05 are indicative of good model fit. The measurement fit statistics are presented in the top row of Table 2. In a measurement model, the main concern is how the observed variables load on their respective factors rather than on model fit. Although it is possible to make modifications to the model, post hoc adjustments that are not theoretically justifiable are likely to be based on idiosyncrasies in the data and are not recommended (Hoyle & Smith, 1994). Standardized factor loadings of this measurement model are presented in Table 3. With the exception of mother's age at first birth, all of the factor loadings were high, in the expected direction (except for total number of children), and significant ($p < .05$). Birth age (regardless of whether it was measured at age of birth of first child or at birth of the target child) did not load on the demographic protection factor and was thus dropped from the model.

Intercorrelations among the latent factors are presented in Table 4. Most correlations of latent factors were in the expected direction and all were significant with the exception of the relation between demographic protection and moral and cognitive reflectivity.

Primary Theoretical Model

The hypothesized model depicted in Figure 1a was tested using CFA. Note that this model represents a theoretical model and is not a direct illustration of the statistical model. For example, none of the error terms are included in this depiction. It should be noted though that in order for the model to be estimable, a path between the error terms for psychological maturity and psychological distress was included. The fit statistics for the initial model examining whether or not there is a higher order construct, parenting quality, that generates the latent constructs from the measurement model are presented in the second row of Table 2. As seen, the fit although adequate, is not ideal. To improve the model fit, we examined the modification indices making suggested changes that were theoretically plausible, one change at a time. We made one adjustment to the model based upon these indices. Specifically, we correlated the error terms of sociomoral reflection and endorsement of physical punishment. The standardized loadings for this final model are presented in Figure 2 and the fit statistics are in the third row of Table 2. Although the chi-square is still significant, the RMSEA suggests good fit (i.e., = .05), the NNFI is .94, and the CFI is .96.

Alternative Theoretical Model

The hypothesized model in Figure 1b was also tested using CFA. Note that this model represents a theoretical model and is not a direct illustration of the statistical model. For example, none of the error terms are included in this depiction. It should be noted though that in order for the model to be estimable, a path between the error terms for psychological maturity and psychological distress was included. We did not include a figure of this model with its coefficients because the only difference was that parenting attitudes and beliefs switched to an observed variable, which is depicted in Figure 1b. However, the other four component constructs of parenting quality remained the same. The fit statistics for the initial model examining parenting attitudes and beliefs as an observed variable are presented in the fourth row of Table 2. As seen the fit is very good. The chi-square is nonsignificant, the RMSEA = .03, and the NNFI is .98.

Discussion

The results support our higher-order latent construct, parenting quality. The paths from all proposed component constructs to parenting quality are significant. With the exception of mothers' age at the time of her child's birth, all indicators contributed to their respective component constructs.

Nonetheless, the model of parenting quality that provided the best fit was the model in which parenting attitudes and beliefs were not included in the construct, but instead were predicted by parenting quality. Thus, it could be that parenting attitudes and beliefs are a reflection or expression of parenting quality and may best be conceptualized as lying outside the construct of parenting quality. Alternatively, it could be that this model fits better as it has fewer constraints than the original model (i.e., parenting attitudes and beliefs as a latent construct has more parameters to estimate than parenting attitudes and beliefs as an observed variable). In both models, there is a path leading from parenting quality to parenting attitudes and beliefs, so they are very similar mathematically. However, they differ in whether parenting attitudes and beliefs are an observed outcome or a component construct of parenting quality. Both models support the construct of parenting quality, but the support for the alternate model suggests that parenting attitudes and beliefs may mediate between parenting quality and parenting behaviors.

Confirmation of this model extends the literature on parenting in two ways. First, both models emphasize that resources for parenting are interdependent. Isolating the impact of psychological distress from that of demographic protection, psychosocial maturity, parenting attitudes and beliefs, or moral and cognitive reflectivity is an artificial division, as is any other separation of component constructs. We emphasize this interdependence, as it suggests that assigning environmental factors such as family economic status to a different level or sphere of influence than parental psychological characteristics is a conceptual error. Instead, demographic protective factors and a variety of psychological constructs - distress, maturity, and attitudes - all contribute significantly to the same higher-order construct. Second, the model includes components that have heretofore received insufficient attention in the early childhood and parenting literatures, specifically parental psychosocial maturity and sociomoral reflection. Sociomoral reflection contributes not only to its component construct and the higher-order latent construct, but also, in the current sample, is specifically associated with endorsement of physical punishment. That is, mothers with higher SRM scores have lower scores on endorsement of physical punishment.

As we have noted, the specific characteristics of the current sample dictated several modifications to the proposed theoretical model: associations between psychosocial maturity and psychological distress and between sociomoral reflection and endorsement of physical punishment. Thus although only a few modifications are data set specific, the model will need to be replicated across more samples. Finally, in the current sample, number of children is positively associated with demographic protection. This is likely accounted for by the fact that mothers who were married had larger families and lived in households with higher incomes. Testing of our higher-order model with other less economically disadvantaged families is necessary to see if similar relations hold.

The higher order latent construct of parenting quality shares a few features of general systems models. Both models of parenting quality are interdependent wholes in that all of the parts are linked together (von Bertalanffy, 1968), both in the conceptual framework we proposed and in the results of the confirmatory factor analyses. However, these models are static, not changing and not dynamic. Thus, although they are consistent with two of the features of organized systems, wholeness and hierarchical structure, they are not consistent with the other

two features of organized systems: adaptive self-stabilization and adaptive self-organization (Cox & Paley, 1997). Parenting quality subsumes its component constructs (hierarchical order) and is a coherent factor as demonstrated by the analyses. But, evaluating the other two features of systems requires information on change over time, information that we do not have on this sample of 199 mothers.

Implications for Policy and Practice

The current research supporting parenting quality as a single coherent factor lends support to innovative programs offering parent education or family-centered prevention programs in schools (Kumpfer & Collings, 2004). Our model of parenting quality includes parental moral reasoning and psychosocial maturity with more traditional constructs - psychological distress, demographic protection, and perhaps parenting attitudes and beliefs. Teachers are neither trained nor do they have the time to deliver mental health services much less moral education to parents. However, when schools, parents, and communities join together to intervene (Kumpfer & Collings, 2004), interventions can change families. Thus, it is important to consider parenting quality in the risk factors families bring to preschool programs, in order to develop effective interventions for young children (Hubbs-Tait et al., 2002).

Recent research on the effectiveness of attachment interventions provides some important lessons for the new trend toward family-centered prevention in schools. Effecting systemic change is difficult, and usually requires targeting more than one component of the system (e.g., Lewis, Lamey, & Douglas, 1999), although it is possible to identify single control parameters that can produce change throughout an entire system (see Thelen & Smith, 1998).

Representative of interventions that target multiple components of the attachment system is the Circle of Security (COS) intervention implemented with Head Start and Early Head Start children and their families. The COS targets a panoply of maternal characteristics simultaneously, including empathy and reflective functioning (Cooper, Hoffman, Powell, & Marvin, 2005). In contrast, meta-analyses by Bakermans-Kranenburg, van IJzendoorn, and Juffer (2003) have demonstrated that intervention programs targeting only maternal sensitivity are effective in promoting infant attachment security, a different component in the attachment system. As far as the construct of parenting quality is concerned, we do not yet know whether interventions targeting multiple components or focusing on single components, such as maternal sociomoral reflection alone, will be more effective. Future intervention research will be needed to answer this question.

Acknowledgments

We gratefully acknowledge the support of the participating mothers as well as the teachers and administrators of United Community Action Program, Inc. Head Start. Funding for this study was provided by grants from the Department of Health and Human Services, Administration on Children, Youth and Families (90-YD-0036) and the National Institute of Mental Health (R03MH52115) to L. Hubbs-Tait, A. M. Culp, and R. E. Culp. The John and Sue Taylor Professorship in Human Environmental Sciences also supported the contribution of L. Hubbs-Tait. Elizabeth Harper's work was supported by a National Science Foundation Research Experiences for Undergraduates grant (SES-0097643) to M. Page. Portions of these data were presented at the 2003 meeting of the Society for Research in Child Development in Tampa. We are grateful for assistance in data collection to Layle Reese Krogel, Jane Flett, Kerri Horton, Kim Austin, Pamela Carr, and Tara Saathoff-Wells.

Appendix

Appendix

Correlation Matrix of all Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Income														
Age at target child's birth	.07													
Marital status	.42**	.09												
Number of children	.12	.26**	.21**											
Hostility	-.10	-.07	-.16*	-.07										
Depression	.29**	.00	-.18*	-.02	.46**									
Anxiety	-.18*	.12	-.15*	.07	.54**	.65**								
Intimacy	.17*	-.08	.12	.04	-.38**	-.45**	-.52**							
Identity	.27*	.00	.20**	.03	-.54**	-.62**	-.73**	.62**						
Physical punishment	-.10	.08	-.08	-.02	.32**	.14*	-.26**	-.22**	-.24**					
Inappropriate behavior	-.18*	.00	-.12	-.09	.19**	.27**	.34**	-.24**	-.26**	.44**				
Lack of empathy	-.15*	.04	-.04	-.07	.24**	.27**	.35**	-.33**	-.25**	.44**	.61**			
Role reversal	-.19**	-.04	-.06	-.06	.19**	.23**	.19**	-.08	-.11	.47**	.55**	.56**		
Sociomoral reflection	.07	.11	.10	-.01	-.13	-.16*	-.22**	.12	.15*	-.06	-.28**	-.39**	-.36**	
Education	.17*	.13	.02	-.13	-.12	-.16*	-.26*	.19**	.16*	-.14**	-.30**	-.31**	-.33**	.35**

Note:

* $p \leq .05$;** $p < .01$

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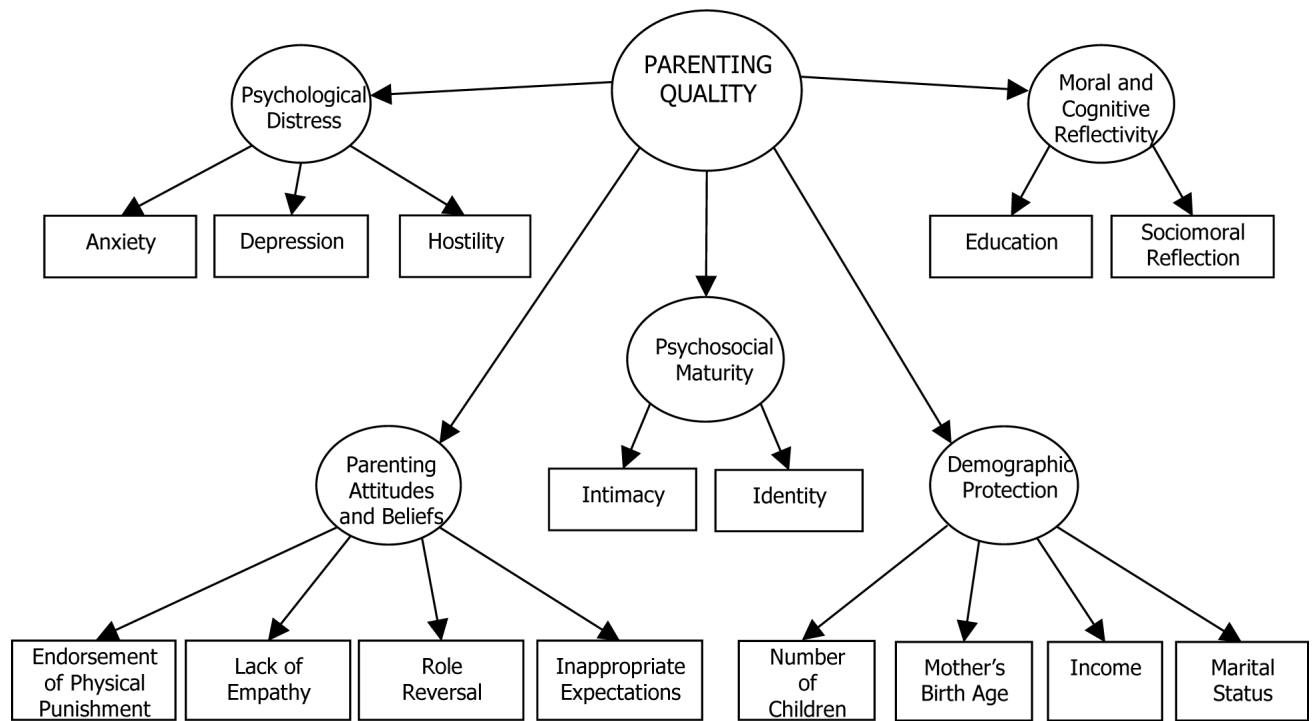


Figure 1a.
Five Factor Hypothetical Higher Order Latent-Construct Model

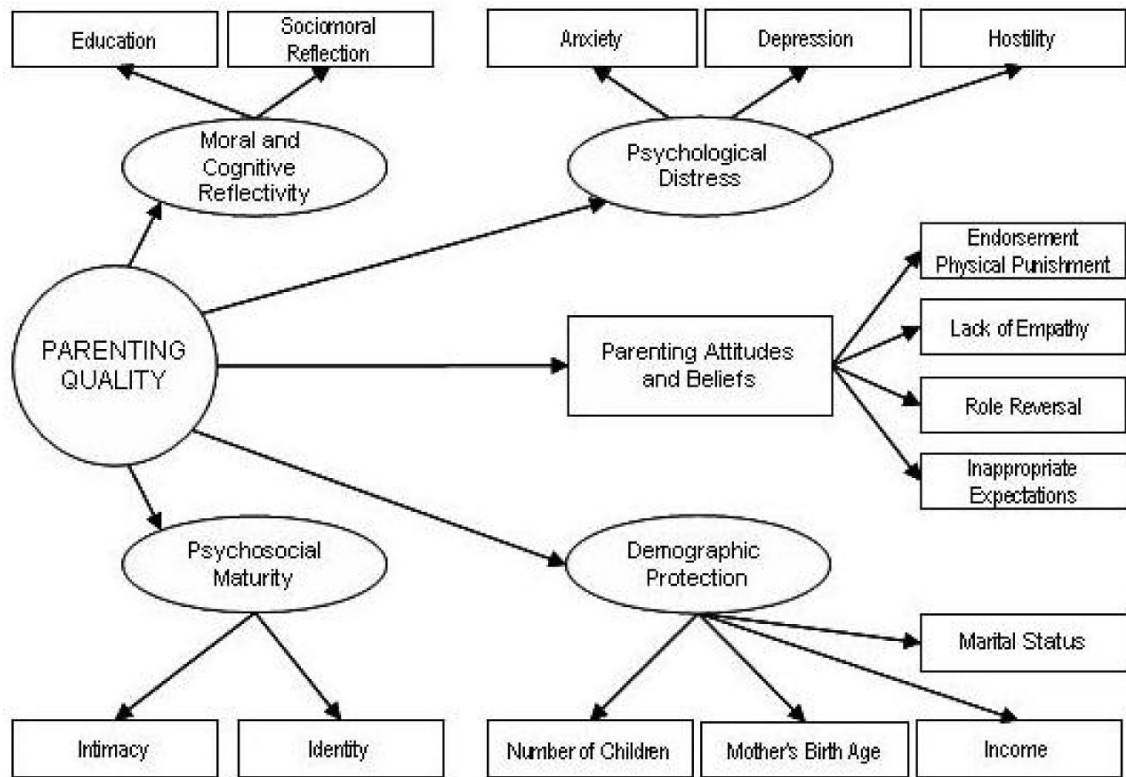


Figure 1b.
Four Factor Hypothetical Higher Order Latent-Construct Model

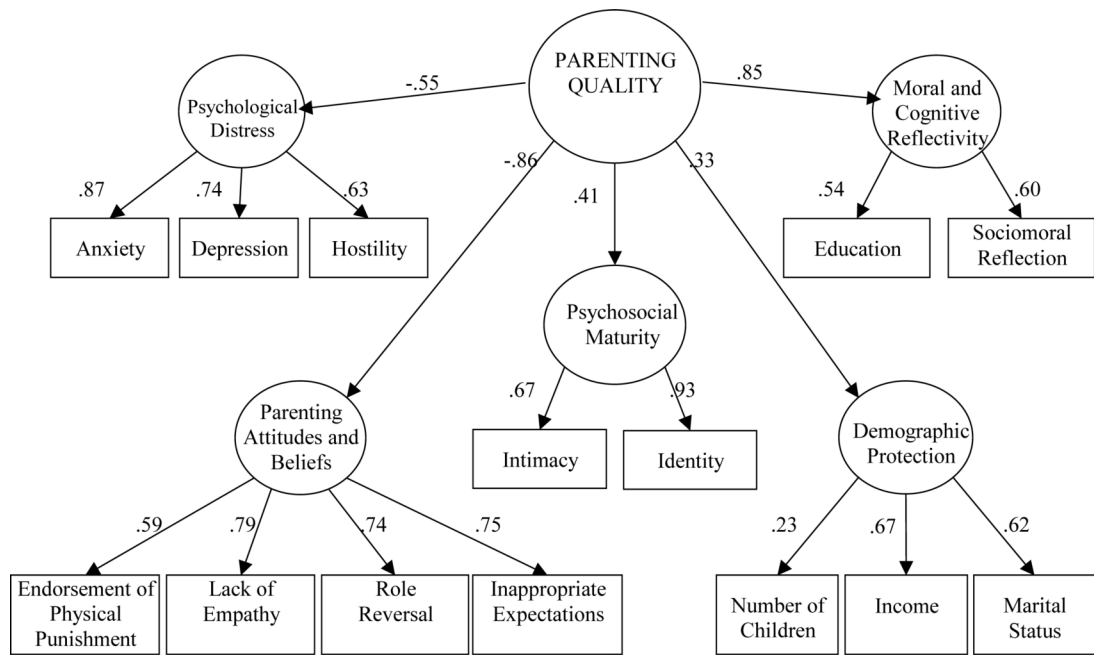


Figure 2.
Final Model and Standardized Loading

Table 1

Descriptive Statistics for all Measures

Construct and Variable	Mean	SD	Possible range	Actual range
Demographic Protection				
Monthly household income	1344.47	740.39		\$0 - \$4,000
Number of children	2.5	1.01		1 - 6
Mother's age at birth of first	21.39	4.40		14.48 - 39.55
Mother's age at birth of target	24.29	5.60		14.48 - 41.34
Psychological Distress				
Depression	15.39	11.71	0 - 60	0 - 55
Anxiety	37.13	10.10	20 - 80	20 - 77
Hostility	59.46	16.11	29 - 145	30 - 133
Psychosocial Maturity				
Intimacy	46.34	6.79	12 - 60	25 - 60
Identity	49.06	8.60	12 - 60	21 - 60
Moral and Cognitive Reflectivity				
Education	11.96	1.47		5th grade - college
Sociomoral reflection	300.13	32.81	100 - 400	207 - 373
Parenting Attitudes and Beliefs				
Endorsement of physical punishment	20.79	6.14	10 - 50	10 - 38
Inappropriate expectations	10.20	3.11	6 - 30	6 - 20
Lack of empathy	13.72	4.73	8 - 40	8 - 30
Role reversal	17.86	6.39	8 - 40	8 - 38

Table 2

Measurement Fit Statistics

Model	χ^2	df	p value	CFI	NNFI	RMSEA
Measurement	111.86	67	.00	.95	.93	.06
Initial theoretical	120.86	71	.00	.94	.92	.06
Primary five-factor theoretical	108.93	70	.00	.96	.94	.05
Alternative four-factor theoretical	49.21	39	.13	.98	.98	.03

Table 3

Loadings for Measurement Model

Indicator	Component Construct	Standardized Factor Loadings
Income	Demographic Protection	.716
Number of children	Demographic Protection	.216
Marital status	Demographic Protection	.584
Depression	Psychological Distress	.741
Anxiety	Psychological Distress	.874
Hostility	Psychological Distress	.628
Intimacy	Psychosocial Maturity	.663
Identity	Psychosocial Maturity	.934
Sociomoral reflection	Moral and Cognitive Reflectivity	.602
Mother's education	Moral and Cognitive Reflectivity	.586
Endorsement of physical punishment	Parenting Attitudes and Beliefs	.566
Inappropriate expectations	Parenting Attitudes and Beliefs	.760
Lack of empathy	Parenting Attitudes and Beliefs	.789
Role reversal	Parenting Attitudes and Beliefs	.734

Table 4

Intercorrelations of Latent Factors

Factor/variable	(1)	(2)	(3)	(4)	(5)
(1) Demographic Protection	1				
(2) Psychological Distress	-.33*	1			
(3) Psychosocial Maturity	.38*	-.90*	1		
(4) Moral and Cognitive Reflectivity	.21*	-.42*	.29*	1	
(5) Parenting Attitudes and Beliefs	-.26*	.40*	-.33*	-.68*	1

* Note: $p < .05$