

Parent Differentiation of Self and Cognitive Competence in Low-Income, Rural Families (At-Risk Youth)

Marquita L. Stokes, McNair Scholar, The Pennsylvania State University

**Faculty Research Advisor: Dr. Elizabeth A. Skowron
Associate Professor of Counseling Psychology
Department of Counselor Education, Counseling Psychology, and Rehabilitation
Services
College of Education
The Pennsylvania State University**

In this project, the relationship between parent differentiation of self and child cognitive competence will be examined in a sample of 60 low-income, rural families. Specifically, we hypothesized that greater differentiation of self among mothers will predict higher cognitive achievement in children as measured by the Stanford-Binet-5. Results will be presented and implications for counseling will be discussed.

Many studies suggest that emotional characteristics of family interactions influence children's cognitive abilities. Particularly, research has shown that parent personality and parenting competence predicts both children's cognitive competence and their socio-emotional functioning (Blair, 2002). This relationship may be due to children's initial reliance on caregivers for social and intellectual stimulation as well as for their physical needs (Bowlby, 1969; Cowan, 1982; Sroufe, 1979; Estrada, Arsenio, Hess, & Holloway, 1987). Research supports the idea that strong behavioral regulation is associated with higher levels of academic achievement in elementary school. It has been found that children with higher behavioral regulation achieved at significantly higher levels in emergent literacy, vocabulary, and math tasks (McClelland, Cameron, Connor, Farris, Jewkes, & Morrison, 2007). There is less work examining this relationship before the onset of formal education (i.e., kindergarten). Studies of attachment have indicated that parent-child affective relationships influence children's cognitive and social competence during the preschool years. Children who are securely attached as infants subsequently approach cognitive tasks with more curiosity, persistence, enthusiasm, and less frustration than less securely attached infants (Bretherton, 1985). There is also increasing evidence that young children's attention, working memory, and inhibitory control are each important for school performance and adjustment (Alexander, Entwisle, & Dauber, 1993; Blair, 2002; Bull & Scerif, 2001; McClelland, Acock, & Morrison, 2006; National Institute of Child Health & Human Development [NICHD] Early Child Care Research Network, 2003). The NICHD Early Child Care Research Network (2003) found that children's attention in preschool predicted their reading and math achievement at 54 months of age (McClelland et al., 2007)

Moreover, low-socioeconomic status (SES) kindergarteners showed poorer attention while performing a difficult computer task compared with students from more affluent homes, and lower attention predicted lower achievement skills in the low-SES

group (Howse, Lange, Farran, & Boyles, 2003). In rural families, a lack of adequate financial resources was associated with more depressive symptoms and lower self-esteem among mothers. Self-esteem was linked with family routines and mother-child relationship quality. Furthermore, the link between mother-child relationship quality and child academic and psychosocial adjustment was mediated by the development of child self-regulation (Brody & Flor, 1997). High levels of motivation and self-regulation were significantly associated with academic achievement independent of measured intelligence (Gottfried, 1990; Skinner, Zimmer-Gembeck, & Connell, 1998; Blair, 2002).

Likewise, research shows that protective factors in the family system and the individual child each play a role in decreasing the growth of problem behaviors and supporting competence (Cicchetti, Rappaport, Sandler, & Weissberg, 2000; Durlak & Wells, 1997; Garnezy, 1991; Masten & Coatsworth, 1998; Weissberg, Kumpfer, & Seligman, 2003). Specifically, a parent's ability to manage their own emotions is thought to influence their child's ability to remain calm under stress, to focus their attention and apply the mental processes necessary for learning. When affect can assist and support processes of executive function, it promotes self-regulation and optimal functioning (Campos & Barrett, 1984). That is, under optimal conditions, affective experience does not compete with or interfere with the cognitive demands of a particular setting (Blair, 2002). This study will focus on testing the relationship between one parent characteristic thought to be central to parenting competence, specifically parent differentiation of self (Bowen, 1978), for predicting cognitive competence among at-risk pre-school children.

Bowen theory is considered one of the most comprehensive explanations of individual functioning from a family systems perspective. Of the six major concepts of Bowen family systems theory, differentiation of self arises as the most central component (1978; Kerr & Bowen, 1988; Titelman, 1998). Theoretically, Bowen proposes that the level of adaptive functioning in family members, including children, reflects the level of differentiation in the family system (1978; Kerr & Bowen, 1988). Differentiation of self is defined as the degree to which one is able to balance (a) emotional and intellectual functioning and (b) intimacy and autonomy in relationships (Bowen, 1978; Skowron & Friedlander, 1998). In particular, greater differentiation of self in a family system is characterized by lower emotional reactivity, greater calm under stress, ability to distinguish between thoughts and feelings and a greater capacity for both intimacy and autonomy in relationships. Parents with higher levels of differentiation of self are better able to self-regulate, to think clearly in the midst of strong affect, and maintain a clear sense of self (Bowen, 1978; Titelman, 1998). More flexibility and ability to adapt are thought to be qualities that signify differentiation. Greater differentiation of self is thought to facilitate better management of emotional responses and consequently aiding in cognitive composure under stress. In contrast, less differentiated parents are less able to regulate their emotional responses or maintain a solid sense of self in relationships, are more emotionally reactive, and less comfortable with intimacy and/or autonomy in family relationships (Bowen, 1978; Kerr & Bowen, 1988). Therefore, this study sought to determine whether parents who are more differentiated have children who demonstrate greater cognitive competence. According to Bowen theory (1978), more differentiated parents are those who think clearly, regulate their emotions under stress and remain connected with their children while also supporting their autonomy. As such, these more differentiated parents would be expected to have children who are better able to engage in

academic learning and achieve greater cognitive competence. In other words, a parent's level of differentiation—that is, being able to modulate their emotional arousal, think clearly under stress, take an “I” position in relationships—should result in greater child cognitive function. Parent's ability to modulate their emotions provides relational experiences for the child to control their own emotional impulses and self-regulate when faced with stress (Skowron, 2005). Parents are the major influence among pre-school age children and formal education has not yet begun, therefore, the correlation observed between parent and child functioning would be at its highest in these pre-school years. In addition to learning behavior, a parent who is more capable of self-regulating will implement these abilities during interactions and the child may be more apt to learn and engage in this way when faced with stressful and frustrating tasks, such as challenging cognitive tests. Essentially, this research will provide information on the extent to which parent differentiation of self—in other words, their capacity for emotion regulation and comfort with defining a self in connection to others—predicts cognitive performance in early childhood.

The relationship between parent differentiation of self and child competence was recently examined. Skowron (2005) first analyzed relations between parent differentiation of self (Bowen, 1978) and cognitive proficiency in at-risk children. Participants were urban families from an African American/Black background. In a sample of 55 mother-child dyads, children ranged from 6 to 13 years. Skowron (2005) administered the Differentiation of Self Inventory (DSI; Skowron & Friedlander, 1998) to assess parents' emotional management while evaluating the child's verbal and math aptitude and academic self-concept. Skowron (2005) predicted and found that greater differentiation of self among mothers in low-income, urban families yields greater competence among their children, in spite of the family stress and neighborhood violence. A significant relationship between parent differentiation of self and child vocabulary scores was found, over and above neighborhood violence (distal) and family life stress (proximal). Furthermore, a significant relationship between parent DS and child cognitive ability was established even after accounting for parent level of education.

I will be replicating and extending this study. A slightly younger child population will be assessed. Children will range from the ages 3 to 5 years old. At 6 to 13, school has become a factor amongst other influencing factors. Children, ages 3-5, are not yet of school age and their main influence are parents. Moreover, the strength of the relationship between parent DS and child cognitive ability should be higher at this time due to the absence of external influences (not yet in school, etc.). A rural, at-risk sample, as opposed to urban, will be studied and results will be compared to the initial sample. In addition to these conditions, I will be using an alternative measure of child cognitive competence. The Vocabulary subtest of the Wechsler Intelligence Scale for Children-III (WISC-III; Wechsler, 1991) and the Arithmetic subtest of the Wide Range Achievement Test-3 (WRAT-3; Wilkinson, 1993) were used to measure verbal and math skills in Skowron (2005). Child cognitive ability is the central outcome variable being measured for this research. Comparatively, the Fifth Edition of the Stanford-Binet Intelligence Scale (SB-5) will measure fluid reasoning and verbal knowledge as single score. Lastly, the DSI will also be used to assess mom's capacity to manage emotional reactivity, take the “I” position in relationships, emotional cutoff and fusion with others. Multiple regression analysis will examine the role of the four components of differentiation of self

in predicting child cognitive ability.

If the results mirror Skowron's (2005) findings, it would be a significant contribution to current knowledge about child achievement. If high cognitive achievement in a sample of at-risk rural, pre-school children is found to be associated with greater parent abilities to regulate emotional reactivity, think clearly under stress, and maintain good connection while also supporting autonomy, this would suggest several important avenues for intervention. Specifically, if future research were to find a causal link between parent DS and child cognitive functioning, then interventions designed to enhance caregiver (i.e. parent, teacher) DS could in turn have positive effects on improving children's cognitive performance and school success. In addition, such findings would signify the responsibility that experts have to share this knowledge and implement this emotional management system into models and teachings. Possible implications could include improved family therapy interventions as well as enhanced assessment and facilitation in academic settings such as student-teacher relationships.

Methods

Participants

Participants will consist of 60 biological mother-child dyads, with the children ranging in age from 3 to 5 years. Mothers and their pre-school children were recruited through Centre, Clearfield, Blair, Huntington and Mifflin County Children & Youth Service agencies. The sample will be from a larger NIMH-funded project investigating relations between parenting processes and child self-regulation and behavior problems in at-risk families. Participating mothers will be 18 years of age or older, speak fluent English, must be the primary caregiver for their pre-school child, and live with their child at the time of study participation. Information about marital status, mothers' employment status, ethnic background, and household composition will be assessed and reported. In cases of multiple children who fall into target ages, a random selection will be made.

Instruments

Parent differentiation of self. The full 46-item Differentiation of Self Inventory is a self-reported measure that will be used to assess ability to self-regulate in relationships with significant others as well as individually (DSI; Skowron & Friedlander, 1998; Skowron & Schmidt, 2003). The DSI is comprised of 4 subscales: Emotional Reactivity, Emotional Cutoff, difficulties taking an "I" Position, and Fusion with Others. The Emotional Reactivity scale assesses the ability to manage extreme and impulsive expressions of emotion (e.g., "At times my feelings get the best of me and I have trouble thinking clearly."). Emotional Cutoff displays distress in intimacy and feelings of excessive vulnerability in relationships (e.g., "When one of my relationships becomes very intense, I feel the urge to run away from it."). Fusion with Others asks questions pertaining to over involving oneself with others to see if the individual doesn't lose their emotional self in interpersonal relations (e.g., "I often feel unsure when others are not around to help me make a decision"). Lastly, the ability to take an "I" Position is exhibited by a strong sense of self and clear cognition even under external pressure and influence (e.g., "I usually do not change my behavior simply to please another person."); Skowron & Schmitt, 2003).

The full DSI will be administered to the mother and a score will be calculated by

adding her responses (after reversing negative items) and then dividing that number by the total number of items on the scale to yield a score ranging from 1 to 6. Higher scores reflect less emotional reactivity, emotional cutoff and fusion with others as well as less difficulty taking an “I” Position and thus, a greater differentiation of self. Internal consistency reliability of the DSI scores will be calculated and compared to the estimate of .88 reported by Skowron and Friedlander (1998).

Child cognitive competence. The Early Stanford-Binet Intelligence Scale-Fifth Edition (SB5) is an individually administered assessment of intelligence and cognitive abilities customized for use with examinees ages 2 through 7 years, 3 months. The two major factors of child cognitive ability being measured are Non-Verbal Fluid Reasoning (FR) and Verbal Vocabulary Knowledge (KN). Fluid Reasoning is the ability to solve nonverbal (in this case) problems using inductive or deductive reasoning. It requires the ability to solve novel figural problems and to identify sequences of pictured objects or matrix-type geometric patterns. Vocabulary knowledge is a person’s accumulated body of learned general information and requires the ability to apply this knowledge of concepts and language and to identify and define increasingly difficult words (Roid, 2003).

A single Abbreviated Battery IQ (ABIQ) score will be calculated. Scores range from 40 to 160 with the lower score signifying moderate impairment/delay and the higher score signifying giftedness/advancement. A hand scoring process is used to determine the examinee’s exact chronological age, calculate raw and scaled score totals, and converting these scaled scores into standard T-scores with a mean of 100 and standard deviation of 15. Because the SB5 is being used as a part of a comprehensive examination, the ABIQ is used to provide a reliable estimate of a child’s overall level of cognitive functioning. The reliability of the ABIQ, although good, is below that of the Full Scale IQ obtained from a more complete assessment. An average split-half reliability of .91 is reported by Roid and Barram (2004). Specifically, the average split-half reliability coefficient for children ages 3-5 on the Nonverbal Fluid Reasoning is .86 and .87 for Verbal Knowledge. The composite IQ scores of the SB5 were found to be highly correlated with composite scores from previous Stanford-Binet editions and all of the major IQ batteries, such as the Weschsler scales (Roid, 2003).

Demographic questionnaire. Parents will complete a demographic interview which includes information about age, gender, ethnicity, family structure and composition, living situation, relationship status, education, and any relevant concerns about target child. As a part of the larger research protocol, mothers also complete additional instruments which assess further life events and stressors.

Procedure

An initial sub-sample of families, drawn from up to 5 rural counties in central Pennsylvania, will be pulled from the larger NIMH-funded research project called the Family Study. Low income, rural families will be included for participation. A total of three 2-hour sessions are completed as part of the study protocol. During an initial screening visit, the brief SB-5 is among one of the measures administered to the child. A two-person research team blind to the referral source will travel to the home and administer this scale in a discreet interview design. A brief demographic questionnaire will be completed by the mother in this first visit. Also, study procedures will be

reviewed with the mom as well as attaining informed consent. During the second home visit, which is scheduled approximately 1-2 weeks after, the DSI will be one survey completed amongst several assessments. A third visit requires mother and child to travel to the Child Study Center at the University Park campus. There, they will participate in a series of joint parent-child tasks and child regulatory tasks. Transportation to and from the laboratory will be provided, if necessary. The laboratory playroom is set up with video cameras positioned to capture the behavior of both mother and child. Behind a one-way mirror, controls for the video cameras and ECG monitoring equipment (for both mom and child) are located. Regular rest breaks will be provided during all visits. Families are compensated a total of \$150 for their participation in the three visit protocol.

Analytic Plans

A multiple regression analysis will be performed that maps the four DSI variable (Emotional Reactivity, Emotional Cutoff, "I" Position, and Fusion with Others) scores onto one criterion variable (SB-5 ABIQ score). The means and standard deviations of the DSI total scores and child cognitive competence SB5 scores will be calculated and presented. Then intercorrelations among parent differentiation and child competence will be reported. An omnibus *F* test will be run for the four predictor variables. Collectively, if the *F*-Test is significant ($p < .05$), then we can conclude there is a significant relationship between DSI and the criterion variable of child cognitive competence in the form of an SB5 score. The multiple *r* and R^2 will be computed to show the proportion of variance in child cognitive ability that can be accounted for by the scores on the predictor variable (DSI scores). Follow up *T*-tests will be completed on each of the four standardized beta-weights (β) or regression coefficients using $\alpha = .05$ to conclude which individual component has a unique/significant relationship to cognitive functioning. If the *T*-value is large enough, this will sufficiently display that the relationship between the variables is not likely due to chance.

Discussion

This study will examine whether parent differentiation of self accounts for variation in child cognitive competence among low-income, rural families. It is presumed that greater differentiation of self among mothers (measured by the 4 DSI subscales) will predict higher cognitive achievement in children. If the results were to provide empirical evidence for a relationship between mother's level of differentiation and the level of cognitive functioning in their child, this would lend support to Bowen's (1978; Kerr & Bowen, 1988) theory that the level of functioning in family members (i.e., children) echoes the level of differentiation in the family system (i.e., parents). Specifically, it could then be concluded that mom's ability to manage her emotional reactivity and maintain intimacy and autonomy facilitates a relational environment in which children are better able to think, reason and develop cognitively. Support for this hypothesis would suggest several implications for interventions focused on enhancing children's cognitive development. First, family therapy might be indicated as a viable intervention to enhance children's cognitive performance. Further, if positive results are found, they might suggest that individual parents who enhance their differentiation might indirectly benefit the family as a whole. Moreover, if one or more subscales of the DSI (Emotional Reactivity, Emotional Cutoff, "I" Position, and Fusion with Others) were to

have a significant, unique relationship with child cognitive functioning, it would advance our understanding of which aspects of parent differentiation of self seem to be particularly salient to child cognitive function. In short, family-based interventions might represent a beneficial set of strategies for helping children with cognitive delays and be a supplement to school-based interventions.

Alternatively, parent differentiation could fail to predict child cognitive competence. In this instance, we would not be able to conclude that there is a significant and stable relationship between parent DS and child cognitive ability among low-income rural families. Possible confounds should be considered such as parent IQ and child maltreatment as accounting for such large amounts of variation in child cognitive ability that parent DSI scores are rendered insignificant. Additionally, instead of the pre-school sample rendering a stronger relationship because of the lack of external influences, it could have the opposite effect. Perhaps the children are too young for the parent's differentiation ability to garner significant effects on their cognitive ability. Furthermore, it could be that different characteristics predict child cognitive ability in rural but not urban settings. Bowen theory suggests that associations between parent differentiation of self and child competence are expected in family systems across the socioeconomic spectrum. While family socioeconomic markers and stressors are said to have a direct influence on the academic successes of young people, these effects may be moderated by external strategies such as community involvement (Russell & Elder, 1997). Small community members rely upon the participation of as many community members as possible (Salamon, 1992). Children living in small and farm towns displayed higher academic success than non-farm children reasoning being that farming is associated with strong community ties (Russell & Elder, 1997). In rural communities, parental ties to community (i.e., church involvement, leadership, formal religion, etc.) enhance the educational influence on children (Coleman, 1988).

Less work has been done to determine the cross-cultural validity of Bowen family systems theory (Bowen, 1976, 1978; Kerr & Bowen, 1988). The purpose of Skowron's (2004) study was to examine the theory's relevance, specifically differentiation of self, for persons of color. Sixty-one undergraduate and graduate ethnic minority students (African-American, Latino/a, Native American, Asian American, and Multiethnic) attending a large, Midwestern university, completed the differentiation of self inventory, an interview of ethnic group belonging, and 3 indices of personal adjustment—psychological, physical, social problem-solving. Higher levels of differentiation of self predicted better psychological adjustment, social problem-solving abilities, and greater ethnic group belonging among the minority college students. The DSI scores obtained from the students were moderate and comparable to those of a European American sample similar in terms of age and gender. There is still a debate as to whether the concept of differentiation of self is applicable for persons of color from non-Western cultures. This study only garnered preliminary evidence for the cross-cultural efficacy of Bowen family systems theory. Continued studies are needed to directly examine relations between differentiation of self and personal adjustment within diverse ethnic, cultural, and socioeconomic groups (Skowron, 2004). Moreover, a more comprehensive research study would be needed to conclude if there are more central qualities in the parent other than modification of emotion and maintaining an autonomous self with intimacy in relationships that will affect the child's cognitive abilities.

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