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ABSTRACT

This study examined the stability of the child's behavior and psychosocial environment during the early school years. Longitudinal correlations of psychosocial environment indices with teacher ratings of child school behavior were also investigated. The original subjects of this longitudinal study consisted of 321 low-income mothers recruited from public health clinics, who were first interviewed before the birth of a child and were included in the study if the child was healthy at birth. Of this original sample 237 mothers were interviewed during their child's kindergarten year. Three years after kindergarten 212 mothers were reinterviewed. Teacher ratings of the child's school behavior were collected each year the child was in school. Results suggest that the child's environment, as measured by parent characteristics, is relatively stable from infancy through the early school years. Results also show that ratings of the child's academic competence are significantly correlated with psychosocial indices, while correlations with teacher ratings for socialization and extroversion are typically low and insignificant. (PCB)

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Cross-sectional and longitudinal research has frequently reported significant correlations of parent characteristics with child intellectual development (Hunt, 1961; Clarke-Stewart, 1977). Studies of child intelligence have reported increasing stability from the preschool through the early school years (Wohlwill, 1980). However, individuals have shown stable levels, increases, and decreases in intelligence during the school years (McCall, Applebaum, and Hogarty, 1973). Hanson (1975) reported stability of ratings of the child's verbal environment from birth to ten years and significant correlations with child's intelligence. Further study is needed of stability of the child's environment and of environmental correlations with child intelligence during the early school years. Evidence of increases in child mental test scores following early intervention and decreases in test scores after the intervention suggest that child mental test scores change with changes in the child's environment, (Lazar and Darlington, 1982). Therefore a study of stability of the child's psychosocial environment, stability of child's behavior during the early school years and longitudinal correlations of psychosocial environment indices with teacher ratings of child school behavior was planned.

Wohlwill (1980: 432) has identified the "need for further work on the construction of instruments to measure the quality and type of environment, physical and social, impinging on the child." The concepts and measures of the child's psychosocial environment that are used in this research are suggested by Inkeles and Smith's (1974) research on overall individual modernity and by Schaefer and Edgerton's (1985) research on parental modernity in childrearing

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beliefs, values and behavior. Both individual and parental modernity are significantly correlated with parent education and other indicators of parent participation in modern society (Inkeles and Smith, 1974; Schaefer and Edgerton, 1985). Measurement and aggregation of a number of parent psychosocial environment indicators may yield more reliable and stable estimates of the child's educational environment than was provided by Hanson's (1975) ratings of parent behavior.

Method:

Subjects

The original subjects of this longitudinal study consisted of 321 low-income mothers recruited from public health clinics, who were first interviewed before the birth of a child and were included in the study if the child was healthy at birth. Of this original sample 237 mothers were interviewed during their child's kindergarten year. Three years after kindergarten 212 mothers were reinterviewed. Attrition from the sample was largely due to inability to locate the mothers. Over half of the subjects lost to follow-up had moved from the area and could not be located. The remainder of the attrition was due to a variety of reasons including death of the target child, maternal incarceration or mental illness, child no longer in the mother's custody, refusal to participate, and repeated broken interview appointments.

Comparison of demographic characteristics at pregnancy of subjects included in the kindergarten interview with those lost to followup showed no significant difference on maternal age, education, income, number of children, or verbal IQ. Analyses of attrition by maternal employment status, marital status, and race revealed only a significant association between subjects lost to followup at kindergarten and race. A greater number of white than black subjects were lost.

Characteristics of the mothers at the kindergarten followup included mean education of 11.4 years, mean number of children of 2.6, 55 percent unemployed, 35 percent married, and 76 percent Black subjects. Median estimated family income of $5,000 during the kindergarten year suggests that many of the initially medically indigent mothers continued at the poverty level.

Data collection included an interview with the mother during the third trimester of pregnancy, and observation and interviews with the mother in the home at four and twelve months postnatally. The mothers were again interviewed during the child's kindergarten year and three years later. Teacher ratings of the child's behavior and school record data were collected during each school year. The methods that were used to collect data on the psychosocial environment of the home during infancy, kindergarten, and three years later are listed in Table 1.

(Table 1 here)

Observations of mother-infant interaction at twelve months postnatally were recorded on standard forms immediately after bathing, dressing and play situations. Factor analyses of observations of each situation yielded factor scores of high interaction that were summed for the three situations. Ratings of mother child interaction during the home visit also yielded a factor of high interaction that was correlated with the interaction observations. The interviewer ratings of mother cooperativeness and communicativeness, of mother language skills, and of physical condition of the home also contributed to descriptions of the child's environment. Brief versions of mother's scores on the Peabody Picture Vocabulary Test (Dunn & Dunn, 1981) and Quick Test (Ammons & Ammons, 1962) were used to investigate the language environment of the child. Self-reports methods included brief measures of locus of control (Rotter, 1966),

conforming values for children (Kohn, 1977), modern childrearing beliefs (Schaefer and Edgerton, 1985), provision of preschool educational experiences (Schaefer and Edgerton, 1985), overall modernity (Inkeles and Smith, 1974) and membership in social groups which is an indicator of participation in modern society. Intercorrelations of the several measure support aggregation into total scores for the child's psychosocial environment during infancy, kindergarten and three years later by summing standardized scores for each measure.

Teacher ratings of child's school behavior were collected on scales of the Classroom Behavior Inventory (Schaefer and Edgerton, 1978). Factor analyses reveal three dimensions: (1) socialization - with high loadings for considerateness and hostility, (2) academic competence - with high loadings for verbal intelligence and curiosity/creativity, and (3) extroversion versus introversion. Higher reliabilities have been found for the five items scales that describe adaptive behavior than for the three-item scales of maladaptive behavior. Validity of the scales of academic competence has been shown by correlations with mental test measures (Schaefer, 1981) with highest validity for the rating of verbal intelligence that includes items for vocabulary, information, comprehension, generalization, and assimilation.

Internal consistency reliabilities of the psychosocial environment indices for infancy, kindergarten, and three years later were computed and the indices were intercorrelated to determine stability over time. Correlations between teacher ratings during kindergarten and the following three years were computed to determine stability of child behavior. Finally each of the psychosocial environment indices were correlated with each of the teacher ratings of child behavior to determine relationships between the child's environment and child behavior in the classroom.

Results:

The internal consistency reliabilities of the psychosocial environment indices reported in Table 2 reveal that the combination of six or eight measures resulted in reliabilities that vary from .74 to .79. The combination of brief measures with limited reliability from different methods and for different concepts may limit reliability of total scores for the combined domain of individual and parental modernity. Correlations among the psychosocial environment indices for infancy, kindergarten, and three years later reveal relatively high stability across time varying from .61 to .80. The correlation of .80 between kindergarten and three years later, despite the reliabilities of .79 and .77 may be explained by repeated use of the same measures. The reliability and stability results suggest that the child's environment as measured by parent characteristics is relatively stable from infancy through the early school years.

(Table 2 here)

Intercorrelations and stabilities of teacher ratings for the positive behaviors of considerateness, verbal intelligence, and extroversion are reported in Table 3. Considerateness appears to have the highest stability over a three year period with year-to-year correlations showing approximately the same correlations as for two- and three-year intervals between ratings. Verbal intelligence has higher year-to-year correlations than for two- and three-year intervals between ratings, with ratings for kindergarten and the following year showing correlations of .32 and .31 with the third year after kindergarten. Teacher ratings of extroverted behavior show the lowest correlations across years with correlations across two- and three-year intervals approximately as high as across one year intervals. Halo effects in ratings by the individual

teacher are suggested by correlations of verbal intelligence with considerateness and extroversion but correlations between ratings of considerateness and extroversion are low and insignificant.

(Table 3 here)

Correlations of the psychosocial environment indices for infancy, kindergarten, and three years later with teacher ratings for kindergarten and the subsequent school years are reported in Table 4. Each of the teacher ratings of child academic competence are significantly correlated with the psychosocial indices while correlations with teacher ratings for socialization and extroversion are typically low and insignificant. The highest correlations of the psychosocial indices with child academic competence are during the child's kindergarten year and the lowest three years later, although the decrease in correlations is greatest from kindergarten to the year after kindergarten. Patterns of correlations of the psychosocial environment indices with verbal intelligence and curiosity/creativity are similar with both showing highest correlations with child behavior during the kindergarten year.

(Table 4 here)

Discussion:

Conceptualizations of individual modernity and parental modernity have contributed to the identification of variables that supplement parent socio-economic status and intelligence as indicators of the psychosocial educational environment of the child. The moderate correlations between the psychosocial environmental indices and the internal consistency reliabilities that vary from .74 to .79 suggest that further conceptualization and measurement is needed. Reliabilities for the psychosocial environment indices could be increased by increasing reliability of measurement of each of the brief component measures.

For example, repeated observations of parent-infant interaction would yield a more reliable measure of parent behavior. Total psychosocial environment scores might also be developed that include other variables that are correlated with child intellectual development. Probably parent and family variables that are correlated with parent socio-economic status or parent intelligence as well as with measuresof individual modernity and parental modernity would also be correlated with child intellectual development. Identification of additional psychosocial environment variables and development of reliable measures for those measures would contribute to improvement in prediction of child competence. Identification of psychosocial measures that are related to child development would also contribute to planning for parent-centered interventions and to evaluation of the effectiveness of those interventions in changing the child's family environment as well as child development.

Relatively high stability of total psychosocial environment scores despite moderate internal consistency reliabilities suggests that the environment of the child reared by natural parents is relatively stable. Stability of the child's environment would contribute to stability of the child's mental test scores. However the finding that teacher ratings of the child's academic competence are less stable than teacher rating of the child's socialization suggests that the child's experiences with teachers, peers, and the educational program may result in changes in intellectual functioning. The finding that the psychosocial environment indices, whether collected during infancy, kindergarten, or three years later, are most highly correlated with teacher ratings of child academic competence during kindergarten suggests that parents of this low income sample may have decreasing influence upon child development during the school years. Studies of school related influences upon child development are needed to

complement studies of parent influence upon child development. Increases in child mental test scores with early interventions and decreases in test scores after the interventions suggest that changes in child mental test scores are related to changes in the child's psychosocial environment. Apparently school entry also results in a significant change in the child's environment that is related to early changes in child's academic competence.

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TABLE 1

Psychosocial Environment Measures for Infancy, Kindergarten and Three Years Later

| | Infancy | Kinder-garten | Three Years Later |
|---|---|---|---|
| Observations and Ratings: | | | |
| Mother-Child Interaction Observation | X | | |
| Mother-Child Interaction Rating | X | | |
| Mother's Language Skills Rating | | X | |
| Physical Condition of Home Rating | | X | |
| Cooperativeness with Interviewer Rating | X | | |
| Mental tests: | | | |
| Peabody Picture Vocabulary Test | X | | |
| Quick Test of Receptive Vocabulary | | | X |
| Self-Reports: | | | |
| External Locus of Control | X | X | X |
| Conforming Values for Children | X | X | X |
| Provision of Educational Experiences | | X | |
| Modern Childrearing Beliefs | | X | X |
| Overall Modernity | | X | X |
| Membership in Organized Groups | | X | X |

TABLE 2

Internal Consistency Reliabilities and Stability of Psychosocial Environment Indices for Twelve Months, Kindergarten, and Kindergarten plus Three Years

| | Twelve Months | Kindergarten | Kindergarten plus 3 years |
|---|---|---|---|
| Twelve Months | (.74) | | |
| Kindergarten | .63 | (.79) | |
| Kindergarten + 3 years | .61 | .80 | (.77) |

TABLE 3

Intercorrelations and Stability of Teacher Ratings of Child Behavior

| | | Considerateness | | | | Verbal Intelligence | | | | Extroversion | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | K | 1 | 2 | 3 | K | 1 | 2 | 3 | K | 1 | 2 | 3 |
| Considerateness | K | - | | | | | | | | | | | |
| | 1 | 49 | - | | | | | | | | | | |
| | 2 | 54 | 45 | - | | | | | | | | | |
| | 3 | 47 | 46 | 59 | - | | | | | | | | |
| Verbal Intelligence | K | 23 | 07 | 06 | 11 | - | | | | | | | |
| | 1 | 15 | 22 | 11 | 18 | 53 | - | | | | | | |
| | 2 | 17 | 11 | 28 | 34 | 45 | 51 | - | | | | | |
| | 3 | 31 | 14 | 25 | 35 | 32 | 31 | 57 | - | | | | |
| Extroversion | K | 09 | -06 | -09 | -06 | 33 | 07 | -05 | 02 | - | | | |
| | 1 | -08 | 05 | -02 | -10 | 05 | 23 | 12 | 03 | 29 | - | | |
| | 2 | -09 | -06 | 07 | 07 | 11 | -01 | 36 | 25 | 20 | 29 | - | |
| | 3 | -02 | 04 | 01 | 16 | 21 | 06 | 26 | 40 | 30 | 36 | 47 | - |

TABLE 4

Longitudinal Correlations Between Maternal Psychosocial Indices and Child Adaptive Behavior

| MATERNAL PSYCHOSOCIAL INDEX | CHILD SCHOOL YEAR | CHILD ADAPTIVE BEHAVIOR | | | | | |
|---|---|---|---|---|---|---|---|
| | | SOCIALIZATION | | ACADEMIC COMPETENCE | | EXTROVERSION | |
| | | HOSTILITY | CONSIDERATENESS | INTELLIGENCE | CURIOSITY | EXTROVERSION | INTROVERSION |
| INFANCY | K | -.01 | .07 | .42• | .36• | .15 | -.14 |
| | 1 | -.07 | .10 | .28• | .25• | .07 | -.14 |
| | 2 | -.07 | .12 | .23• | .22• | .07 | -.15 |
| | 3 | -.09 | .12 | .21• | .23• | .21• | -.11 |
| KINDERGARTEN | K | -.02 | .02 | .35•• | .36•• | .18• | -.17• |
| | 1 | -.01 | .04 | .23•• | .18• | .03 | -.08 |
| | 2 | -.09 | .08 | .27•• | .34•• | .14 | -.16 |
| | 3 | -.01 | .06 | .23•• | .21• | .10 | -.07 |
| THREE YEARS LATER | K | -.09 | .08 | .32•• | .31•• | .12 | -.08 |
| | 1 | .01 | .07 | .29•• | .22• | .01 | -.04 |
| | 2 | -.12 | .13 | .26•• | .30•• | .05 | -.09 |
| | 3 | -.03 | .06 | .27•• | .20• | .07 | -.04 |

NOTE: • $p < .01$
•• $p < .001$