

The relationship between preschool children's field dependence-independence and mothers' traditionalism and intellectual stimulation provided in the home was investigated in rural Guatemala. Contrary to several previous studies—which have not measured traditionalism at the level of the family, but rather compared children from more and less traditional communities—EFT scores were found to be unrelated to traditionalism. EFT scores were related to both material sources of stimulation as well as to the presence of better educated older siblings in the home. It was argued that in previous studies traditionalism has been confounded with other variables such as the availability of intellectual stimulation.

TRADITIONALISM AND FIELD DEPENDENCE

A Failure to Replicate

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Recently a number of investigators have presented evidence that traditionalism, where it is associated with social conformity (Witkin et al., 1974) or adherence to authority achieved through strict socialization practices, is related to high field dependence in children. This evidence has come from studies comparing children matched for ethnicity, but from backgrounds or communities differing in degree of traditionalism (e.g., Zadik, 1968; Dershowitz, 1971; Rand, 1971; Weller and Sharan, 1971; Ramirez et al.; 1974; Witkin et al., 1974; Park and Gallimore, 1975).

While the consistency of these findings is impressive, a problem of interpretation remains: as in any comparison of pairs of communities, many developmentally significant

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intercommunity differences are likely to exist besides that of degree of traditionalism. For these pairs of more and less traditional samples, for example, differences in urbanism, amount or quality of subjects' education, and amount of intellectual stimulation provided in the home all appear to have existed and may have played an important role in the development of group differences in field dependence-independence.

A more adequate design for examining the relationship between traditionalism-modernity and field dependence-independence would be one in which the unit on which measurements of traditionalism are made is not the entire community, but the individual family—thus shortening what is otherwise a long chain of inferences regarding individual behavioral organization. Such a strategy not only permits a more precise estimate of the socialization pressures on a given child but also controls for such community-level variables as degree of urbanism and quality of education available. It also permits the assessment of the relative influence on children's field dependence-independence of the social-conformity pressures frequently associated with traditionalism, as compared to that of other family-level variables such as the amount of intellectual stimulation in the home.

The present investigation employed such a within-community design to study rural ladino children in Eastern Guatemala and their families. The culture of rural Spanish-speaking areas of Guatemala is similar to that which has been described for the Mexican M.C. (more conforming) village in Witkin et al. (1974), as well as to that of the rural Mexican sample in Holtzman et al. (1975). An authoritarian family structure, strict socialization practices, close mother-child ties, and adult political passivity, fatalism, and a sense of powerlessness are all modal characteristics associated with the traditional culture in the communities studied here (Mejia-Pivaral, 1972).

In the present paper, the relationship between mothers' traditionalism-modernity as measured by a Guatemalan adap-

tation of the Inkeles Overall Modernity scale (Inkeles and Smith, 1974) and children's field dependence-independence as measured by an adaptation of the Embedded Figures Test (EFT) is examined. Also investigated is the relationship between intellectual stimulation in the home, material stimulation as well as that provided by the presence of educated family members, and children's EFT performances.

METHOD

SUBJECTS

Subjects were 1555 children between ages 3 and 7 residing in four subsistence agricultural communities participating in the Institute of Nutrition of Central America and Panama's (INCAP) longitudinal study of the effects of nutrition and other variables on mental development. A detailed description of the longitudinal study setting and design as well as the sample has been given elsewhere (Klein et al., forthcoming). As the design of the study is longitudinal, involving annual testing, most children appear in more than one age cell for the data which will be presented in the present paper. A total of 1557 EFT observations for boys and 1465 for girls are employed, with somewhat fewer observations for other measures used as a result of missing data. Subject ns broken down by age are found in Tables 1, 2, and 3.

FIELD DEPENDENCE

Children in the longitudinal study are tested annually within a month of their birthdays on a battery of 22 tests, including an Embedded Figures Test (EFT). Testing is done in Spanish by Guatemalan female experimenters.

Two versions of the EFT are employed. The first, which is used only with 3 year olds, has been described in Kagan (1973). Stimulus cards each contain an embedded common

object (e.g., a dog). Each object appears in progressively more difficult embeddings. The second version, employed with 4 through 7 year olds, is adapted from the Children's Embedded Figures Test (Karp and Konstadt, 1963). Each stimulus card contains a triangle embedded in a culturally relevant scene. Both tests possess adequate reliability (Division of Human Development, 1975) and have also been subject to a series of validity studies (Irwin et al., 1975) which have demonstrated both emic and Western construct validity in the research setting.

TRADITIONALISM-MODERNITY

Traditionalism-modernity of mothers was measured by an adapted version of the Inkeles Scale of Overall Modernity (Inkeles and Smith, 1974). The scale contains questions relating to being informed about the world and taking an active role as a citizen, stressing individual responsibility and seeing the virtues of planning, approving social change and being open to new experience, manifesting a sense of personal efficacy, and freedom from absolute submission to authority.

HOME STIMULATION

Two measures of the amount of intellectual stimulation provided by the child's home environment are reported in the present paper.

- (1) Books and objects: an inventory of the number of books, magazines, and visually stimulating objects (such as drawings, photographs, pictorial calendars, diplomas, and decorated furniture) found in the home.
- (2) Educated siblings: mean number of years of school passed by older siblings living in the home.

RESULTS

Mean EFT scores and standard deviations for boys and for girls at each age (3 through 7) are shown in Table 1. Though boys had slightly higher mean scores than girls at every age but 4, sex differences in performance were not statistically significant.

Correlations between EFT performance and mother's overall modernity scores and the two measures of intellectual stimulation provided by the child's home environment are presented in Table 2. Correlations between EFT and mother's modernity scores were around zero for all age-sex combinations except that for 4 year old boys, which was significant at the .05 level. By contrast, correlations between EFT and the two measures of home stimulation were larger and frequently significant. Significant correlations between EFT and books and objects were seen for boys at 3, 5, 6, and 7, and for girls at 5 and 6. Significant correlations between EFT and siblings' education were seen at all ages for boys, and 5, 6, and 7 for girls.

The near absence of significant correlations between our measure of traditionalism-modernity and the EFT raises the

TABLE 1
Mean EFT Scores and Standard Deviations for
Boys and for Girls at Ages 3-7^a

Age:	Boys			Girls		
	M	SD	N	M	SD	N
3	9.90 ^b	3.26	339	9.78	2.83	301
4	2.80 ^c	1.85	329	2.83	1.76	295
5	4.26	2.21	316	4.25	2.21	301
6	5.88	2.30	294	5.81	2.18	285
7	7.33	2.10	279	7.24	2.25	283

a. Sex differences were nonsignificant at every age.

b. Maximum possible score for 3 year test = 18.

c. Maximum possible score for 4-7 year test = 12.

TABLE 2
Correlations Between EFT Performance and Overall Modernity and Two Measures of
Intellectual Stimulation in the Home Environment

Age:	Modernity		Books & Objects		Siblings	Education
	Boys	Girls	Boys	Girls	Boys	Girls
3	.09 (285) ^a	-.03 (263)	.19** (285)	.05 (262)	.22** (285)	.02 (262)
4	.18* (275)	-.06 (248)	.04 (274)	.09 (243)	.18** (274)	.08 (246)
5	.07 (251)	.07 (241)	.24** (251)	.16* (240)	.27** (251)	.13* (240)
6	.06 (223)	.00 (220)	.27** (221)	.21** (220)	.17* (221)	.14* (220)
7	-.07 (196)	.06 (200)	.20** (195)	.09 (201)	.25** (195)	.20** (201)

a. () = cell n

*p < .05

**p < .01

possibility that our adaptation of the Inkeles Overall Modernity scale could have been lacking either in emic validity (Berry, 1969; Irwin et al., 1975) or sufficient variance to relate meaningfully to children's behavior in our study village. As we have noted earlier, the reliability and validity of our EFT measures have been previously established. To assess the adequacy of our modernity measures we have examined the correlations between mothers' modernity scores and a composite score representing an unweighted sum of children's standardized scores on five tests from our 22-test Preschool Battery which content and factor analyses have indicated to be representative of the entire battery. These correlations are presented in Table 3. It will be noted that although modernity scores had been found to be unrelated to EFT scores, they were significantly related to cognitive composite scores—with significant correlations occurring for boys at 3, 5, 6, and 7, and or girls at 5, 6, and 7.

TABLE 3
Correlations Between Preschool Cognitive Composite
Scores and Mothers' Modernity Scores

Age:	Boys		Girls	
3	.13*	(290) ^a	.01	(265)
4	.11	(281)	.06	(259)
5	.24**	(252)	.17**	(293)
6	.19**	(225)	.16*	(222)
7	.15*	(197)	.14*	(201)

a. () = cell n

*p < .05

**p < .01

DISCUSSION

Virtually no relationship was found in the present study between family traditionalism-modernity and field dependence-independence. This result contrasts sharply with that of previous studies, which have all employed community-level measurement of the traditionalism-modernity dimension. Although the more and less traditional communities they have employed have clearly differed from one another in a variety of ways, these previous studies have focused exclusively on the dimension of traditionalism-modernity in attempting to explain observed differences in community children's field dependence-independence.

The present study's findings of significant relationships between the presence of material stimulation and of educated siblings in the home and greater field independence of preschool children suggest that, where shifts from traditionalism toward modernity occur, it is through the increased availability of stimulation, rather than through the lessening of pressures toward greater social conformity, that increases in field independence take place.

Relevant to this argument is the literature on field dependence-independence and acculturation to Western technological cultural forms, which has recently been reviewed by Witkin and Berry (1975). Acculturation and modernization are closely related processes: increases in acculturation imply compensatory decreases in traditionalism. Witkin and Berry argue that the acculturative influences of wage work and formal education generally produce increases in field independence among older subjects. Though we have no data available concerning wage work, the data we have presented concerning older siblings' education suggest that acculturative influences may, by increasing stimulation within the home, indirectly affect preschool children as well.

Significant sex differences in EFT performance were not found among the preschool children tested in the present study. Witkin and Berry (1975) have noted that sex

differences are only inconsistently found among young children, but consistently reported beyond adolescence among sedentary agricultural groups such as the rural Guatemalans we have studied. Thus, sex differences in field dependence-independence resulting from differential socialization pressures may take many years to develop. This possibility is consistent with the absence of sex differences among 3 to 7 year olds in our study communities, where rigid sex typing is imposed from very early ages (Mejia-Pivaral, 1972).

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