

The Cognitive Style of Breadth of Categorization: Longitudinal Consistency of Personality Correlates

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Four tasks measuring breadth of categorization in different ways were administered to 128 4-year-old children. Independent personality data were available on these children at ages 3, 4, and 7 in the form of behavior ratings by independent sets of teachers using the California Child Q-Set and in the form of behavior ratings by independent sets of examiners. The four category breadth measures were standard-scored and composited to generate a domain-representative index of category breadth. This index was then correlated with the independent personality ratings available at each of the four ages. A core set of relationships, common across both age and sex, indicated that broad categorizers, relative to narrow categorizers, had difficulty in stimulus exclusion, lacked autonomous structuring, and generally behaved with few internal constraints. Boys were significantly broader in their categorization than girls, although there was appreciable overlap between the sexes. Personality correlates of breadth of categorization observed as early as 3 years of age were also observed at age 7. Results were placed in a larger theoretical context by introducing the concept of under- and overperceptualization.

The act of categorizing objects and events is a way of structuring information about the world. Categorization provides an efficient strategy for managing inputs because it permits dealing with classes of objects rather than single entities, allows the specification of salient criterial features of categories according to which newly encountered events or objects can be classified, and facilitates information retrieval. Individuals differ in their categorizing proclivities: Category definitions may not be incisively formulated; criteria for category membership may be applied inconsistently or shift as a function of context; categories may be overly narrow and restrictive, resulting in the overexclusion of reasonably includable exemplars; and categories may be excessively broad, resulting in overinclusion of dissimilar exemplars.

Despite these vicissitudes in the construction and application of categories, the process is essential for simplifying and structuring person-environment interactions.

Broadly viewed, categorization behavior expresses the characteristic manner in which individuals organize and structure perceptual inputs deriving from the external environment. In the empirical literature, two types of tasks have been employed to measure categorization behavior, each imposing different experimental demands on the subject. The first kind of categorization task provides the subject with a focal exemplar of a single dimension and requires the establishment of boundary limits for that category (e.g., Pettigrew, 1958; Wallach & Caron, 1959). These boundary limits serve to define the individual's breadth of categorization. Subjects are considered broad categorizers if boundary limits are set at a considerable distance from the focal exemplar; subjects are considered narrow categorizers if these boundaries do not deviate appreciably from the focal exemplar.

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The second type of categorization task provides the subject with a disparate array of objects (e.g., toys, pencils, pipes, and so

on), and requires their sorting or organization into groups that "go together" on the basis of subject-provided categories or dimensions like color, size, function (Gardner & Schoen, 1962; e.g., Sigel, 1967). Several aspects of categorization behavior in this situation have been considered: number of categories employed, or "conceptual differentiation" (Gardner & Schoen, 1962); breadth of the categories formed (which is logically partially linked, negatively, to the number of categories formed); the semantic basis for category membership (e.g., morphological similarity, function); and the coherence of the categories formed.

The present study examined the relationship between breadth of categorization as measured by these two types of categorization tasks and independently assessed personality characteristics in a sample of children studied over time. The broad guiding hypothesis was that the way in which a child categorizes or structures perceptual inputs has important connections with his or her personality characteristics. More specific hypotheses follow shortly.

Focus on the interface of cognition and personality is not novel or particularly recent. Gardner and Schoen (1962), for example, suggested that category breadth has implications for openness to experience and rigidity. Wallach and Caron (1959) implied that "dependence on external standards" causally antecedes narrow categorization. Although these suggestions are intriguing, little empirical evidence has been reported to tie this cognitive style directly to behavior.

Our own guiding theoretical framework includes as conceptual precursors Lacey (1959), Bruner (1957), Lewin (1936), and McReynolds (1956). Lacey (1959) reported that various measures of autonomic reactivity identify those moments when an individual is "open to the environment" and predisposed to react to it, and when an individual is not open and hence rejects perceptual input. In a similar vein, Bruner (1957) proposed the concept of "perceptual readiness" to describe differential filtering of environmental stimuli by means of variability in category accessibility. The relevance of perceptual processes for categorization behavior has often been overlooked. Conceptualiza-

tions of categorization behavior traditionally invoke cognitive considerations alone. Examination of the operational tasks, however, indicates that stringent perceptual demands are placed on the subject. As Bruner succinctly stated, "Perception involves an act of categorization. . . . Perception is generic in the sense that whatever is perceived is placed in and achieves its 'meaning' from a class of percepts with which it is grouped" (1957, pp. 123-124). Although both Bruner and Lacey were concerned only with intraindividual differences in responsivity to the readiness for environmental stimuli, only a small extrapolation is necessary to conceptualize interindividual differences along similar lines. These differences are addressed in the following formulation.

In an unpublished manuscript, Block (Note 1) advanced the concept of a "perceptualizing apparatus," defined as "a relatively enduring and experientially evolved subsystem, existing within the larger personality system, which functions to assimilate or give order to environmental" stimuli. A central parameter of this perceptualizing apparatus is "permeability," the "modal threshold for perceptualization which characterizes the individual in this viewing of the world. . . . Individuals characterized by a permeable perceptualizing apparatus are known as 'under-perceptualizers'—they tend to see the raw, naked world"—imposing relatively little structure on environmental input. Conversely, "overperceptualizers"—individuals possessing a relatively impermeable perceptualizing apparatus—tend to "constrain, exclude, or impose structure on the environment." The notion of permeability derives from Lewin (1936). In setting the notion of permeability into a perceptual processing context, there is a theoretical indebtedness to McReynolds (1956).

Block has suggested several types of behaviors to index individual differences in the permeability-impermeability of the perceptualizing apparatus: for example, stimulus generalization, field dependence, the influence of one's surroundings in determining free-associations, incidental learning, and distractability. The underperceptualizer would be expected to be distractable, "for he is unable to exclude enough features of

the environment to permit directed activity consequently to take place" (Block, Note 1). Similarly, greater incidental learning would be manifested by the underperceptualizer because of the greater attention devoted to extraneous task features. Implied in this formulation are differential degrees of task-involvement: The underperceptualizer would be less task-involved, because both task-demands and other environmental stimuli impinging on the individual intrude, are not evaluated with regard to priorities, and consequently compete for attention. More behavioral implications of the degree of perceptualization dimension can be added, but this brief description serves to introduce the theoretical construct.

Within the theoretical schema just outlined, persons characterized by a relatively permeable perceptualizing apparatus should categorize in a broad fashion. Three considerations link underperceptualizing with broad categorization. First, an important consequence of permeability or the relative inability to exclude inputs is that many stimuli will possess functionally equivalent salience in competing for the underperceptualizer's attention. Second, excessive permeability is associated with "loose standards of similarity" (McReynolds, 1954), so disparities between two concepts may not be cognized and will thus be judged as similar. The third consequence of underperceptualizing is inevitably a broad attentional focus that interferes with the process of stimulus articulation.

The overperceptualizer, relative to the underperceptualizer, will "constrain, exclude, or impose structure on the intruding environment." (Block, Note 1). Because of perceptual impermeability, the overperceptualizer's effective perceptual field and attentional focus are narrower. Consequently, smaller featural differences among a group of objects will be perceived, cognized, and perhaps magnified. Such a fine-grained focus implies rigorous and demanding standards for similarity and forecasts narrow categorization.

To summarize, breadth of categorization is conceptualized here as a manifestation of the permeability or impermeability of the individual's perceptualizing apparatus. The hypothesized conjoint effects of individual

differences in breadth of attentional focus and differential subjective standards for judging stimulus arrays imply that broad categorization behavior should follow from a relatively permeable perceptualizing apparatus, whereas narrow categorization behavior should result from a relatively impermeable perceptualizing apparatus.

Hypotheses concerning the relationship between breadth of categorization and personality variables follow directly from the conceptual links established above. In general, it was predicted that broad categorizers, by virtue of their relatively permeable perceptualizing apparatus, would manifest behaviors reflecting greater influence of the external environment and, concomitantly, less internal or autonomous regulation of behavior. The actions of narrow categorizers, on the other hand, should be more autonomously based, reflecting relative independence from the ebb and flow of their environmental surroundings.

Method

Subjects

The subject sample included 128 children, 64 boys and 64 girls, participating in an ongoing longitudinal study of ego and cognitive development being conducted at the University of California, Berkeley. The exact number of subjects in any given analysis varied somewhat. The children lived in an urban setting and were heterogeneous with respect to the socioeconomic and educational levels of their parents. Data collection started when the children were 3 years old. Subsequent data were gathered when the children were 4, 5, and 7.

Categorization Tasks

When the children were 4 years old, four procedures assessing categorization behavior, as described below, were administered by three different examiners in different task sessions each separated by at least 1 week. Testing sessions also included a variety of other procedures tapping different areas of functioning.

Poggles test. In this test, adapted from Wallach and Caron (1959), the child first was presented with a diamond-shaped figure on a 3×5 in. (7.62×12.7 cm.) card and told that this figure was a *poggle*. The child was asked to sort 27 diamond-shaped figures presented in a fixed order (originally determined randomly) according to whether they were poggles or not-poggles. The stimulus cards diverged from the standard poggle along two dimensions: four variations in size and four variations in the acuteness of the angles defining the diamond shape. Three instances of each of the eight

variations and of the standard stimulus itself comprised the 27 items. To foster independence of successive judgments, two boxes with narrow slots for inserting the cards were placed before the child. One box with the standard stimulus displayed on its top was for poggles and the other box was for not-poggles. The cards were handed to the child one at a time for placement in one of the two boxes. The poggles breadth of categorization score was based on the total number of categories of stimulus cards placed in the poggle box (possible range from 1 – 9).

Blues test. Paralleling the poggle procedure, the child was presented with a card of medium-blue color that was defined as the standard for judging 27 stimulus cards varying along one dimension—color saturation. Four variations lighter than the standard and four variations darker than the standard, with three instances of each degree of saturation, including the standard, were presented for the child to judge. The methods of presentation was identical to that used in the poggles test. The blues breadth score was calculated as described in the poggles procedure.

Concept Evaluation Test. A modification of the Concept Evaluation Test (CET; McReynolds, 1954) was employed. In a training series experienced by each child, three cards resembling the Rorschach inkblots used as stimuli in the subsequent test series were designed so that each bore a resemblance to a familiar concept (a doll, a dog, and an elephant). In Rorschach terminology, the inkblots would be considered to be of high form quality. For each of the three training cards, the child was asked whether the inkblot picture looked like or could be one of the concepts to which its form corresponded and, also, whether the same picture might resemble an alternative concept to which it clearly did not correspond (a house, a fish, a chair). The order of presentation of the high and low form-level concepts was varied. In each case, training continued until the child discriminated correctly between the high and low form-level concepts. If this discrimination was not made by the child, testing was discontinued. When the ability to discriminate between the form quality of concepts was demonstrated, 35 of the original 50 concepts representing different degrees of form quality and distributed among different areas of the Rorschach cards were presented in turn for judgment according to the procedure developed by McReynolds (1954). The CET breadth score was based on the number of concepts endorsed by the child within the range of 5–30. Children either accepting or rejecting more than 30 concepts were considered to be responding in a nondiscriminating way and hence were excluded from analysis.

Sigel Object Categorization Test. The Sigel Object Categorization Test (SOCT; Sigel & Olmsted, 1970) consists of 12 familiar objects (e.g., pencil, cup, ball, etc.) that the child is first asked to identify and then to group. Each of the 12 stimulus objects is specified in turn and the child is asked to select the objects that “go with” each of the specified objects. Upon completion of each grouping, the child is asked to specify the basis for the choice of objects. The SOCT breadth score reflected the average number of objects grouped together (excluding trials on which no object was selected to go with the stimulus object).

Intelligence Measures

The Wechsler Intelligence Scale for Children (WISC) and Raven Progressive Matrices were administered to all subjects by examiners who did not participate in the collection of the categorization data.

Personality Characteristics

Personality characteristics were assessed by two independent observation-summarizing methods: (a) the California Child Q set (CCQ) and (b) a set of behavior ratings.

California Child Q-Set. Personality characteristics of the children were described by their nursery-school teachers at ages 3 and 4 and by their public school teachers at age 7 using the standard vocabulary of the California Child Q-Set (Block, Block, & Harrington, 1974; Block & Block, Note 2). The CCQ, an age-appropriate modification of the California Q-Set (Block, 1961, 1971), consists of 100 widely ranging statements about the psychological characteristics of children. At ages 3 and 4, each child was described by three nursery school teachers who had worked with the children for a minimum of 5 months prior to formulating their descriptions and who had received special training and calibration in the use of the CCQ. When the children were 7 years old and in public school, only one teacher was available to describe each child. Teachers described each child by arranging the 100 Q-set items in a forced, 9-step, rectangular distribution according to the salience of each item with respect to the particular child. The teachers worked entirely independently of one another. When multiple independent Q-sort formulations were available for a child, they were averaged to form a composite Q-sort description. The CCQ descriptions were completed by a total of 11 nursery school teachers when the children were 3 years old, an entirely different set of 9 teachers when the children were 4 years old, and 67 different public school teachers when the children were 7 years old.

Behavior ratings. Each child was a subject in a total of 11 experimental sessions at age 3, nine experimental sessions at age 4, and four sessions at the age of 7. During the course of an experimental session, during which a number of procedures were administered, different examiners had the opportunity of observing the child in a variety of contexts. Subsequently, each examiner rated, independently of other examiners, each child on a set of 12 7-point behavior dimensions: *talkative, involved in tasks, gives up easily, fidgety, emotional, distractable, dependent, curious, compliant, comfortable in social situations, willingness to come, and willingness to stay.* For each child, the behavior ratings assigned were composited after standardization of each rater's scores. Behavior ratings were completed by a total of 8 examiners at age 3, 11 different examiners at age 4, and 2 additional examiners at age 7. These composited behavior ratings provide a second source of characterological information, independent of the CCQ formulations.

Results

Composite Breadth of Categorization Score

Rationale. Instead of analyzing the implications of each of the breadth scores separately, as is common practice with laboratory-type procedures, we chose to employ the psychometric approach of formulating a composite breadth score. Because the psychometric orientation is not usually employed with the present kind of data, we will specify the rationale underlying our approach.

Scores or measures derived from standardized test situations or laboratory-type procedures can be viewed as behavioral items sampling a conceptually defined domain. Therefore, such measures are only partial indicators of the concept being investigated. For the same reasons that psychology does not measure intelligence with only one intelligence test item, a concept like category breadth should not be referenced by a solitary behavioral response or item; the psychometric principle of domain sampling applies as well to experimental or laboratory measures as to ability and personality measures. Like intelligence and inventory items, test or laboratory measures are often unreliable or highly specific, unduly reflecting method variance that is conceptually uninteresting. However, by compositing several measures of a construct, the dependable and concept-relevant variance common to each experimental measure can be expected to cumulate while error and method variance cancel out or fail to cumulate. The consequent composite achieves a degree of representativeness or construct validity and a reliability going well beyond that obtainable with single measures of narrow scope and poor reliability (Block, 1950; Block & Block, 1980; Epstein, 1979; Green, 1978; Hartshorne & May, 1928; Humphreys, 1960).

Following this by-no-means-new rationale, a composite score for breadth was generated by standardizing each of the breadth scores from the four individual categorization tasks and then taking their average.

Generalizability of the composite breadth score. Table 1 provides the intercorrelations of the four individual breadth scores for boys and for girls. For the sample of boys,

the mean correlation calculated via the r to z to r transformation was .17; for the sample of girls, the mean correlation was .22. Although the average level of intercorrelation among the diverse breadth measures was not high, it is worthy of note that it was as high or higher than the level of intercorrelation characterizing the items in well-established measures of intellectual ability such as the Scholastic Aptitude Test (SAT; Green, 1978). Further, the general psychometric principle of a tradeoff between the level of intercorrelations and the level of validity of the composite score applies (see e.g., Loevinger, 1954): Increasing the interrelations among the items beyond a certain point will operate to decrease the validity of the composite score as an index of a criterion or a concept.

To evaluate the internal consistency reliability of the composite breadth of categorization score, the Lambda4 reliability coefficient (Guttman, 1945) was calculated. The more conventional reliability estimate, coefficient alpha (Cronbach, 1951), was not employed because it is depressed unduly when the correlations among the "items" constituting the composite have different values, especially when relatively few items are involved, as is the present case. Both Lambda4 and coefficient alpha provide lower bound estimates of the internal consistency reliability of the composite, but Lambda4 generally can be expected to be a higher lower bound and hence a better estimate. For the sample of boys, the composite score based on the four situations, each tapping breadth of categorization in a different way, had an estimated reliability of .55; for the sample of girls, the reliability estimate was .56.

Table 1
Correlations Among the Four Breadth of Categorization Tests

Test	1	2	3	4
1. Blues	—	.18	.20	.30*
2. Poggles	.24*	—	.13	-.03
3. CET	.30*	.30*	—	.23
4. SOCT	.47**	-.14	.13	—

Note. Above the diagonal are the correlations for the boys; below the diagonal are the correlations for the girls. CET = Concept Evaluation Test, SOCT = Sigel Object Categorization Test.

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

These lower-bound values, although they are not high absolutely, are nevertheless high enough to indicate a usefulness for the composite index which, by the scope of its definition, has far greater conceptual implication than would be the case for any single category breadth measure. As Horn and Cattell (1965) have observed, "valid measurement of many important personality attributes requires that efforts be channelled away from near exclusive concern with internal-consistency reliability and rechannelled into attempts to create quite different ways of measuring the same attribute . . . weight(ing) tests that are *not* highly inter-correlated" (p. 265). Our composite index of category breadth is an instance of this psychometric logic.

Relationships Between Breadth of Categorization and Intelligence

The correlations between the breadth of categorization composite and three intelligence measures, the WISC Verbal IQ, WISC Performance IQ, and the Ravens Progressive Matrices, were $-.22$, $-.29$, and $.02$ for boys and $-.25$, $-.22$, and $-.19$ for girls, respectively. Of these six correlations, only one (WISC Performance IQ for boys) reached the .05 level of significance, although five of the six were in the negative direction. Thus, there was a slight tendency for broad categorizers to perform lower on intelligence tests (particularly on the WISC), but the magnitude of the relationship was small.

Gender Differences in Categorizing

The mean category breadth scores for boys and girls were 51.4 and 48.7, respectively ($p < .05$). The finding that girls were slightly but significantly narrower in categorization supports earlier findings by other investigators (e.g., Pettigrew, 1958; Wallach & Caron, 1959). However, extensive overlap of category breadth scores characterizes the sexes in our study.

Breadth of Categorization Related to CCQ Items and Behavior Ratings

The composite breadth of categorization measure at age 4 was correlated with the

CCQ items and behavior ratings for the total sample at ages 3, 4, and 7. Of the 336 correlations performed, 78 were significant beyond the .05 level; of these, 27 were significant beyond the .01 level; and of these, 8 were significant beyond the .001 level. In the interests of data reduction and to facilitate interpretation of these extensive data, we sought to extract a core set of relationships, consistent across ages for both sexes. Toward this end, two arbitrary but reasonable criteria were established for identifying dependable relationships: (a) For each CCQ item and behavior rating, the sign of all three correlations with the composite breadth of categorization measure had to be in the same direction; (b) at least two of the three correlations had to be statistically significant at the .05 level (two-tailed).

Table 2 presents the 23 CCQ items and behavior ratings satisfying these criteria. Table 3 reports the remaining correlations (those not meeting the criteria) to provide additional perspective. The teachers and examiners providing these characterological descriptions at the three different ages were nonoverlapping and operated independently of each other. It should also be remembered that the obtained correlations were attenuated appreciably as a function of the unreliability of the measures involved (Block, 1963, 1964).

The content of the core correlates of category breadth lends considerable support to the theoretical links between broad categorization and a more permeable, less autonomously structured mode of perceptualizing. The external environment appears to impinge with less selectivity on broadly categorizing children. Such children appear to be easily distracted and to have difficulty sustaining task involvement. Complementing this environmental orientation, broad categorizers seem to lack internal constraints; they tend to be restless and fidgety, have difficulty in concentrating, and seem less able to delay gratification. Narrowly categorizing children, on the other hand, appear to be more internally regulated and less susceptible to environmental distraction; they are described by their teachers as relatively dependable and competent, responsive to reason, attentive, and having the ability to concentrate well.

Table 2
Personality Correlates of Breadth of Categorization Consistent Over 4 Years

Age (years)			CCQ item or behavior rating
3	4	7	
26*	29***	24*	BR: Distractible
-29**	-31***	-26*	BR: Task involved
24*	22*	21*	Is unable to delay gratification
-37***	-31***	-26*	Is attentive, able to concentrate
-23*	-19*	-30**	Can be trusted, is dependable
-25*	-29***	-36***	Appears to have a high intellectual capacity
-26*	-26**	-48***	Is competent, skillful
-30**	-19*	-23*	Is creative in perception, thought, work, play
-26*	-20*	-22*	Uses and responds to reason
28**	19*	26*	Is restless, fidgety
13	18*	24*	Characteristically tries to stretch limits
23*	19*	16	Reverts to immature behavior under stress
-27**	-23**	-01	Shows concern for moral issues
17	20*	24*	Tries to take advantage of others
-29**	-11	-32**	Has high standards of performance for self
16	24**	32**	Is afraid of being deprived; concerned about getting enough
-30**	-22*	-18	Is playful, thinks ahead
-24*	-21*	-17	Is verbally fluent
13	23**	24*	Appears to feel unworthy, thinks of self as "bad"
40***	22*	13	Tends to imitate behavior of those s(he) admires
-28**	-18*	-15	Is reflective; thinks and deliberates before acting
19	23*	35*	BR: Gives up easily
-18	-19*	-32**	BR: Compliant

Note. CCQ = California Child Q-Set; BR = behavior rating.

* $p < .05$. ** $p < .01$. *** $p < .001$. All two-tailed.

In addition, broad categorizers are described as trying to stretch limits, trying to take advantage of others, and being concerned about getting enough. It is interesting that children who, on laboratory-type tasks, use relatively wide limits in their categorization behavior also appear to characteristically stretch limits in their nursery school and classroom behavior. Finally, broad categorizers tend to imitate the behavior of others—an example par excellence of being structured by the external environment rather than by internal dictates.

Sex Differences in the Correlates of Category Breadth

To examine potential sex differences in the correlates of category breadth, correlational differences between the sexes were examined separately at each age using the method described by McNemar (1969, p. 158). Of the 300 comparisons made (one for each of the CCQ items across three ages), 20 were significant beyond the .05 level at age 3, 5 were significant at age 4, and 4 were

significant at age 7. The items for which the correlates of category breadth differed significantly for the sexes are shown in Table 4. None of the items showed significant differences between the sexes at all three ages. In light of the small number of significant differences found, these data are presented, but not interpreted.

Discussion

To summarize, the core set of correlates of breadth of categorization appears congruent with the theoretical link proposed between breadth of categorization and degree of perceptualization. Due to a wide attentional field and difficulty in stimulus exclusion (both manifestations of the posited permeability parameter), the broad categorizer is easily distracted, has difficulty sustaining involvement in tasks, and tends to have difficulty in delaying gratification. Autonomous structuring and relative strength of internal controls—attributes associated with the narrow categorizers—are mani-

Table 3
Additional Personality Correlates of Breadth of Categorization

Age (years)			CCQ item or behavior rating
3	4	7	
24*	10	11	Is physically active
-23*	-09	-22	Is resourceful; does not give up easily
-31**	-09	-11	Becomes strongly involved in what s(he) does
-22*	03	-18	Is persistent; does not give up easily
-02	-18*	09	Behaves in a sex-typed manner
-08	-19*	-04	Is open and straightforward
05	20*	16	Tends to become rigidly repetitive, immobilized under stress
14	21*	11	Tends to go to pieces under stress
11	24**	12	Is jealous and envious of others
-15	22*	-07	Is calm and relaxed, easy-going
-20	-24**	-17	Is self-reliant, confident
12	23**	13	Emotional reactions are inappropriate
09	11	23*	Prefers nonverbal methods of communication
-09	-11	-28*	Gets along with other children
-11	-07	-24*	Is admired and sought out by other children
13	15	23*	Tries to be the center of attention
-12	01	22*	Has unusual thought processes
12	12	26*	Tends to be indecisive and vacillating
-02	-06	26*	Tends to be judgmental of others' behavior
13	15	21*	Is aggressive (physically or verbally)
14	16	24*	Is easily victimized by other children; scapegoated
-03	09	-33*	BR: Dependent

Note. CCQ = California Child Q-Set; BR = behavior rating.

* $p < .05$. ** $p < .01$. Both two-tailed.

fested in the ability to sustain concentration, in greater dependability, and in the capacity to postpone immediate gratification. Indications of the lack of autonomous structuring are seen in the tendency of broad categorizers to imitate the behavior of others more than do narrow categorizers. Finally, categorizing proclivities appear to extend well beyond the experimental tasks: children who categorize broadly in formally defined laboratory-type situations are described in social contexts as tending to stretch limits and as tending to take advantage of others.

These results have a number of implications. Using multiple observers and multiple methods, a picture develops of the personalities of children differing in breadth of categorization. Moreover, these personality dispositions remain relatively congruent across a 4-year span of time (from age 3 to age 7). The identifiability of such clearly formed personality constellations as early as the 3rd year of life and continuing over a 4-year span indicates that appreciable coherence and consistency of personality can be discerned

when domain-specifying, multiple-measurement techniques are employed.

Recently, Witkin and Goodenough (1977) have brought together considerable evidence that individual differences in field dependence have important and highly generalizable consequences for functioning in the interpersonal realm. The present study suggests that another cognitive style, breadth of categorization, importantly relates to behavior in both the interpersonal and instrumental domains. Further, these relationships emerge quite early in the course of development. This finding is especially important because categorization breadth is considered to be one of the relatively "pure" cognitive styles, unconfounded by ability (Kogan, 1977).

The present study bears on questions regarding the sources or antecedents of broad categorization. One potentially major source has been put forth by Saltz and Sigel (1967) and Saltz (1971): that broad categorization results from a higher level of integration of stimulus materials by which overarching

Table 4
Sex Differences in the Correlates of Breadth of Categorization

Girls	Boys	Item
Age 3		
-42**	21	Is helpful and cooperative
-29	23	Tends to keep thoughts and feelings to self
-19	32	Is eager to please
-29	16	Tends to be proud of accomplishments
37**	-15	Expresses negative feelings directly and openly
39**	-03	Tries to take advantage of others
27	-18	Is vital, energetic, lively
-37**	04	Tends to give, lend, share
46***	03	Is restless, fidgety
-30*	25	When in conflict, tends to give in
29*	-15	Is emotionally expressive
24	-20	Tends to be judgmental of others' behavior
-34*	32*	Is obedient, compliant
27	-19	Has rapid personal tempo
-25	22	Daydreams, tends to get lost in reverie
26	-23	Is self-assertive
29*	-30	Behaves in a dominating manner with others
36*	-03	Overreacts to minor frustrations; easily irritated
-18	26	Is shy and reserved, makes social contacts slowly
-52***	-09	Is reflective; thinks and deliberates before acting
Age 4		
35**	-01	Has transient interpersonal relationships
39**	-10	Characteristically tries to stretch limits
-19	22	Is eager to please
-23	18	Tends to withdraw or disengage self under stress
21	-24	Is self-assertive
Age 7		
39**	-28	Tries to manipulate others by ingratiation
28	-27	Is vital, energetic, lively
-04	47*	Tends to become rigidly repetitive or immobilized under stress
-27	30*	Is physically cautious

* $p < .05$. ** $p < .01$. *** $p < .001$.

conceptual links are noticed and used as a basis for similarity judgments. The present study suggests a second possible basis for broad categorization: the failure to make fine-grained perceptual/conceptual distinctions among objects with minimal featural differences because of looser standards employed for assessing similarity or because of a style that minimizes such differences. Broad categorization in the preschoolers of the present study appears to derive from this second cause, implied by the proposed theoretical framework. A highly permeable perceptualizing apparatus precludes making fine stimulus distinctions by virtue of the consequent broad attentional focus, the greater salience equivalency among stimuli, and looser standards of similarity. In view

of the behavioral implications of category breadth, future research might fruitfully explore and seek to separate these two potential antecedents of broad categorization.

The final implication of this study pertains to the theoretical framework within which the results are embedded. The concept of underperceptualizing—which is inferred from a behavioral constellation involving distractability, imitation of other's behavior, difficulty in sustaining task involvement, lack of autonomous striving, and so on—implies that a wider array of stimuli are effectively impinging without selectivity on the child possessing such a perceptualizing apparatus. The present study found that broad categorizers, as indexed by a composite of four categorization tasks, exhibit this pat-

tern of behaviors, whereas the opposite pattern (indicating more selective exclusion of stimuli) characterizes narrow categorizers. The extent to which this empirical link supports the theoretical connection between categorization breadth and the properties of the perceptualizing apparatus rests on the assumption that the inferences from observed behavior to the hypothesized perceptual apparatus are valid ones. Since the structure of the perceptualizing apparatus cannot be observed directly, indirect inferences of this kind are necessary. The heuristic utility of the conceptual framework proposed must be further evaluated by its future empirical successes and failures.

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