JOURNAL OF RESEARCH IN PERSONALITY 11, 329–339 (1977)

Attribute Generality: The Development and Articulation of Attributes in Person Perception

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This research focused on the development and articulation of the attributes given by individuals in describing others. Of special interest was the generality with which the individual uses an attribute to characterize stimulus persons. In the first experiment, free descriptions of eight acquaintances were obtained from 88 subjects; the sample included approximately equal numbers of male and female fourth-, sixth-, ninth-, and twelfth-grade students. These descriptions were content analyzed such that the number of different attributes and the generality of every attribute used by a subject could be determined. Developmental increments in both the number of attributes identified by a subject and the proportion of general attributes identified by a subject were found. A second experiment was undertaken to elucidate the function of the developmental increases in attribute generality. It was found that the articulation of an attribute, the likelihood that fine discriminations among stimulus persons are made in terms of the attribute, is concomitant with the level of generality of the attribute.

A number of researchers have noted that the attributes employed by an observer to characterize persons are not all used with the same frequency (see, e.g., Hastorf, Richardson, & Dornbusch, 1958). Thus an observer might report the occurrence of one attribute in describing a variety of different persons, but select another attribute to portray only a particular individual. With the exception of studies by Scott and his colleagues (Faguy-Coté, 1965; Kelling, 1968; Scott, 1969, 1974), attribute generality has typically been treated as a source of methodological difficulties (Schneider, 1973) and not as a variable of theoretical interest. It can be argued, though, that the generality or specificity of attributes employed in the construal of persons is an important determinant of social cognitive

This report is based on a doctoral dissertation submitted to Michigan State University. The contributions of William D. Crano, chairman of the committee, and of members Lawrence A. Messé, James Phillips, and Ellen Strommen are greatly appreciated, as are the helpful comments of Robin R. Vallacher. A preliminary report of the second experiment was presented at the meeting of the Midwestern Psychological Association, Chicago, May 1975.

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structure, and, as such, deserves both empirical investigation and theoretical elaboration.

Consider first the role of attribute generality in the development of social thought. Evidence from many studies of intellectual and language development can be cited to support the notion that the development of person perception might best be conceptualized in terms of the increasing generality of the attributes used by the individual to comprehend others. The research of Vygotsky (1962), for example, illustrates developmental levels in the ability to form concepts, and also indicates that it is only relatively late in development that the child is regularly capable of forming groups of objects on the basis of single attributes held in common by all members of the group. A general attribute, one which can be applied to many persons, seems quite beyond the capacity of the young child, while a specific attribute, one which is recognized with respect to only one stimulus person, is within the conceptual realm of the child. Vygotsky observed that such early concepts seem directly related to perceptual experience and do not perform the generalizing function of later concepts.

Similar analogies between the development of intellect and the development of person perception can be drawn in reflecting upon results reported by Maccoby and Modiano (1966). These researchers found that both younger and older children are able to describe differences between objects by referring to a specific attribute of one which is not shared by the other, but that the ability to describe similarities among objects by referring to a general attribute held by two or more objects is an increasing function of age. The implication for person perception, of course, is that attribute generality increases developmentally. Since parallel predictions can also be drawn from many theoretical treatments of cognitive development (see, e.g., Werner, 1957; Wohlwill, 1962), Experiment 1 was designed to test the hypothesis that the proportion of general attributes given by individuals in describing others increases with the age of the individual.

A second line of reasoning can be traced to the conclusion that the generality of an attribute determines the mode of judgment which the observer can exercise with respect to that attribute. Consider the case of judgments based upon an attribute which applies to only one person. Such a judgment is necessarily dichotomous in nature, the attribute either applying or not applying to the person, and may therefore be conceptualized in terms of a categorical model of judgment (cf. Bruner, 1957; Wallach, 1958). If the attribute is general, however, then the observer is afforded a second judgmental option. He can respond to persons construed on the attribute according to their relative magnitude along a continuum of "best fit" to the attribute (cf. Rosch, 1973). Under these conditions, judgments made by the observer might best be approached

from the perspective of a dimensional model of judgment (cf. Bieri, Atkins, Briar, Leaman, Miller, & Tripodi, 1966).

The difference between dimensional judgments based on general attributes and categorical judgments based on specific attributes can be calculated in terms of judgmental articulation, a cognitive structural variable defined by Bieri (1966) and by Scott (1969). According to Bieri, the articulation of an attribute is "the number of categories or intervals which may be discriminated along the dimension" (p. 21); according to Scott, articulation is "the number of reliable distinctions among objects that a person makes on an attribute" (p. 263). Clearly, a specific attribute cannot supply the basis for an articulated judgment, while a general attribute might well be used in such a capacity. Yet the suggestion of a relationship between the generality and articulation of attributes which appeals only to the depiction of specific attribute judgments as categorical and general attribute judgments as dimensional is not a particularly strong one, since questions still exist regarding the fate of attributes intermediate in generality.

To clarify further the relationship between generality and articulation, it is necessary to return to a consideration of cognitive development. Suppose that a young child learns that the word *fat* applies to his Uncle Harry. The next occasion on which the child employs the attribute might be in describing the local grocer—who sports a mustache like Uncle Harry's. The meaning of *fat* is not at all clear to the child when he has experienced using it to describe only one or a few individuals. This possibility was recognized by Vygotsky, who pointed out that early in development "one word may in different situations have different or even opposite meanings" (1962, p. 70). An attribute which initially is specific acquires a more stable meaning for the individual as it is used in the repeated construal of different persons. The stability of the attribute's meaning, in turn, can be equated with the reliability and articulation of judgments based on the attribute. The expectation that attribute generality and articulation are positively related was tested in Experiment 2.

EXPERIMENT 1

This study was designed to examine developmental changes in the generality of attributes exercised by the individual in comprehending persons. To this end, a measure of the generality of attributes used by an observer was designed to reflect the proportion of general attributes in a sample of the attributes given in free descriptions of a variety of different stimulus persons. Secondary aims of the study included the assessment of developmental changes in differentiation (the total number of attributes given by the observer) and the measurement of the effects of observer's

sex and verbal intelligence upon both attribute generality and differentiation.

Method

Subjects. A sample of 88 students drawn from the fourth, sixth, ninth, and twelfth grades of a middle-class suburban public school district served as subjects. Approximately equal numbers of males and females comprised each grade-level group. Grade was retained as the classificatory variable for age because there was no overlap between age ranges associated with grades.

Free description procedure. A number of researchers have found that subjects' free response descriptions of others can be reliably coded into systems of content categories (see, e.g., Faguy-Coté, 1965; Livesley & Bromley, 1973). This response format was considered desirable for the present purpose, since the wide variation in subjects' age was a factor which would needlessly limit the attribute vocabulary used in a more structured instrument.

For the administration of the free description task, subjects were assembled in groups of three to five in a testing room in their school building. Their introduction to the task stressed the confidential nature of their responses and encouraged them to avoid censoring or limiting their descriptions. Each subject was first asked to write down the names of eight acquaintances in response to role descriptions similar to those used by Crockett (1965). The role descriptions consisted of statements of age (peer or older person), sex, and liking (liked or disliked person), such that each of the stimulus persons was specified by a different combination of the three variables. This population of stimulus persons was presented to subjects in hopes that widely varying sets of attributes would result. Subjects were subsequently asked to write or print "what you think about each person" on a separate page in the test booklet. The instructions, designed to elicit a full range of responses (cf. Livesley & Bromley, 1973), also included the suggestion that subjects try to answer the question, "What is this person like?" Although there was no time limit imposed on this task, all subjects completed it in less than 1.25 hr.

Coding procedure and intercoder agreement. The coding system was designed on the basis of both previous systems (see, e.g., Faguy-Coté, 1965; Livesley & Bromley, 1973) and the present data.[1] The unit of analysis—the attribute—was defined as a unit of meaning referring to the stimulus person (a word, phrase, or sentence), which in the context of the entire description was not divisible into smaller units. The attribute coding system was useful in categorizing 81% of subjects' responses in terms of 47 different attributes; 19% of the attribute population, usually specific examples or little-used terms, was not codable. The uncodable attributes were treated separately in the derivation of measures, but in a manner consistent with that used for coded attributes.

Ten undergraduate students (who were unaware of the hypotheses of this investigation) served as coders. Two types of intercoder agreement were assessed: the agreement on the definition of an attribute and the agreement on the subsequent coding of attributes into the category system. The measure of agreement on attribute definition, for a particular subject's booklet, was the number of identical attributes isolated by two coders divided by the average number of attributes identified in the booklet. Expressed as a percentage, this index of agreement on a single booklet ranged from 93 to 100%, with a mean value across booklets of 96%. The second index of agreement, for a particular booklet, was the number of identical attributes isolated by the two coders which were also identified as members of the same coding category divided by the average number of attributes identified in the booklet.

[1] Copies of the coding system may be obtained by writing to the author.

Although this second index is obviously dependent upon fluctuations in the first index, the range of values across subjects' booklets was satisfactory (77–98%), and the mean value across booklets was also high (82%).

Design and measures. A 2 × 4 factorial design with sex and grade of subject as the independent variables was used to assess sex differences and developmental changes in the cognitive structural measures. For each subject, measures of differentiation and attribute generality were derived from their coded free descriptions. A subject's *differentiation score* was defined as the number of different attributes he used in describing all eight stimulus persons. This score included not only the number of attribute categories to which codable attributes were assigned but also the number of additional different uncodable attributes. In this second case, any two attributes were judged as different when they were stated in different words; similar attributes were those stated in the same word or words, with negations also considered similar.

The measure of attribute generality, the *generality ratio*, was the number of general attributes used by the subject in describing the eight persons divided by the number of different attributes the subject used. A general attribute was defined as one used to describe more than one of the eight persons. A zero generality ratio would indicate that no attribute was used to describe more than one person, while a ratio of one would indicate that every attribute mentioned was used to describe more than one person. As in the calculation of the differentiation score, the generality ratio was based upon both codable and uncodable attributes.

Since the possibility existed that systematic differences in verbal intelligence among grade groups might act to attenuate the effects of chronological age upon the dependent measures, verbal intelligence scores on the school-administered Lorge–Thorndike Intelligence Test (Lorge & Thorndike, 1954) were also collected for all subjects.

Results

Preliminary analysis. To investigate the possible biasing influence of verbal intelligence upon the dependent measures, an initial correlational analysis was performed. It was found that differentiation scores were significantly correlated with verbal IQ, $r(88) = .39$, $p < .001$. Generality ratios were not significantly correlated with IQ, $r(88) = .02$. In accord with these findings, verbal intelligence was included as a covariate in the subsequent analysis of differentiation scores, but was not included in the analysis of generality ratios.

Differentiation. A 2 × 4 factorial unweighted means analysis of covariance, with sex and grade of subject as independent variables, differentiation scores as the criterion measure, and verbal IQ as the covariate, was employed. Table 1 shows the adjusted cell means for the differentiation measure. The analysis of covariance revealed a significant main effect for Grade, $F(3, 79) = 6.04$, $p < .005$, and a significant main effect for Sex, $F(1, 79) = 8.49$, $p < .005$; the Grade × Sex interaction was not significant.

A decomposition of the significant main effect for grade (Newman–Keuls procedure) revealed that the fourth-grade subjects' mean differentiation score of 22.4 was significantly lower than the sixth-grade mean of 31.4, the ninth-grade mean of 31.7, and the twelfth-grade mean of 33.2;

TABLE 1
MEAN DIFFERENTIATION SCORES AND GENERALITY RATIOS BY GRADE AND SEX

Sex	Grade 4	6	9	12
	Differentiation scores			
Males	22.0	29.6	27.0	28.4
Females	22.8	33.1	36.3	38.2
	Generality ratios			
Males	.153	.149	.191	.283
Females	.179	.153	.215	.292

Note. Sample sizes ranged from 9–14 subjects in each grade by sex group.

$p < .01$ in each case. While the means increased monotonically with grade level, none of the other possible comparisons among grade levels reached statistical significance. The significant main effect for sex confirmed that the mean for females of 32.6 was greater than the males' mean of 26.8. Since potential sex differences in verbal intelligence were removed from the data, it would seem that this result is not interpretable in terms of sex differences in verbal skills. In sum, the results substantially support the notion that differentiation increases with level of development, and that females are more differentiated than males. It should be noted that an analysis of variance in which verbal IQ was not a covariate produced comparable results.

Generality ratio. A 2 × 4 factorial unweighted means analysis of variance of generality ratios with sex and grade as the independent variables was used. Table 1 shows the generality ratio means by grade and sex. The analysis revealed a significant main effect for grade, $F(3, 80) = 13.23, p < .001$; the main effect for sex was not significant, nor was the interaction effect. Subsequent multiple comparisons among generality ratio means for all grade levels (Newman–Keuls procedure) showed that the twelfth-grade mean of .287 was significantly greater than the ninth-grade mean of .204, the sixth-grade mean of .151, and the fourth-grade mean of .166; $p < .01$ in each case. In addition, the ninth-grade mean was significantly greater than the sixth-grade mean, $p < .05$. No other differences between grades reached significance. Thus, although the progression of generality ratio means with higher grade levels was not strictly monotonic, the anomalous pair of means (for fourth and sixth grades) were not significantly different; the significant differences encountered were all in the direction of increasing attribute generality with age. The pattern of results

is highly supportive of the hypothesis that the proportion of general attributes in the population of attributes used by the individual to characterize persons increases with the age of the individual.

EXPERIMENT 2

This study was designed to examine the relationship between the generality of an attribute and the articulation of judgments based on the attribute. Given the arguments presented earlier, and evidence from methodological studies suggesting a positive relationship between the applicability (relevance) of trait rating scales and the reliability of scale judgments (Koltuv, 1962; Warr & Knapper, 1968, Experiment 3), it was expected that the generality of an attribute for a particular observer would be associated with the articulation of the observer's judgments of persons with respect to that attribute.

Method

Subjects and design. Twenty undergraduates (10 males and 10 females) enrolled in introductory psychology classes agreed to take part in the study in exchange for extra course credit. The effect of attribute generality upon articulation was assessed by measuring each subject's mean articulation for a sample of his selected general attributes and for a sample of his selected specific attributes.

Attribute selection procedure. To select a sample of the general and specific attributes used by each subject, the free description task outlined in Experiment 1 was administered; testing sessions were attended by groups of three to five subjects. The subsequent coding of these protocols by two coders also followed the procedure of the earlier experiment. The mean intercoder agreement for attribute definition was 99% and for attribute categorization was 84%. From the set of attributes obtained from each subject, a set of five general attributes and a set of five specific attributes were randomly chosen.

Articulation measurement. From the variety of measures of judgmental articulation developed in the last few years (see, e.g., Bieri et al., 1966; Scott, 1969, 1974; Signell, 1966), a measure designed by Scott (1969) was selected. This index, the number of groups into which the subject sorts stimulus persons along a given attribute dimension, is highly reliable, and is significantly correlated with other operationally distinct measures of articulation (Scott, 1969, 1974).

For the administration of this measure, each subject returned for an individual session within 3 days of the group session. The subject was first directed to examine each of the 10 selected attributes and to create anchors for a bipolar dimension based on the attribute. When the subject then sorted the stimulus persons (the eight acquaintances identified in the free descriptions) into groups along each dimension, the number of groups was recorded. This index could vary between 1 and 8, with higher scores indicating greater articulation of judgment.

Results

For each subject, the mean number of groups formed was computed separately for the five general attributes and five specific attributes. A *t* test for related measures performed on the mean of within-subject means for general and specific attributes revealed that the mean of 4.48 groups

formed on the basis of general attributes was significantly greater than the mean of 3.80 groups formed for specific attributes, $t(19) = 5.51, p < .001$. No reversals in the direction of this mean difference were found for any of the 20 subjects. This results suggests that the individual is capable of making more articulated judgments of stimulus persons when those judgments are based on attributes which he uses generally to describe the persons.

A more convincing argument for a relationship between attribute generality and articulation can be made on the basis of an alternate analysis of these data. It can be suggested that the observed relationship was embedded within the context of a particular set of stimulus persons, and, consequently, that the result indicates only a propensity for greater articulation in judgments of persons when the judgmental attribute applies specifically to those persons. To demonstrate the cognitive structural function of generality, it is necessary to show that attributes applied generally to one set of persons are employed with greater articulation in judgments of another set of persons. For this purpose, each subject's groupings of stimulus persons were analyzed once more. For each of the general and specific attributes, four stimulus persons for whom the attribute had not been mentioned in the free descriptions were selected. The positions of these persons in the sortings were used to define new groups; thus, if two of these stimulus persons were located in, say, a group of four made by the subject, they were defined as a group. In short, this strategy led to a second measure of judgmental articulation, one which was based upon subjects' judgments of persons not associated with the attribute in the free descriptions. This second measure could vary between 1 and 4, with higher scores indicating greater articulation. A t test for related measures performed on the mean of the within-subject means for the five general and five specific attributes revealed that the mean of 3.14 groups formed for general attributes was significantly greater than the mean of 2.76 groups formed for specific attributes, $t(19) = 2.72, p < .02$. Only two of the 20 subjects showed reversals of this mean difference. The summary implication of these results is that the function of general attributes in social cognitive structure is to allow for precise dimensional judgments of persons.

DISCUSSION

The development of person perception, as portrayed in Experiment 1, is a process of change in the structure of cognitive representations exercised in the construal of persons. Congruent with the earlier findings of Livesley and Bromley (1973) and Yarrow and Campbell (1963), it was found that one such change is increasing differentiation, the proliferation of attributes with development; the young child has few attributes upon

which to base responses to persons, while the older child identifies many attributes. Although this dimension of developmental change is probably not specific only to person perception (in that developmental increments in verbal fluency may mediate an increase in attributional responses to physical objects as well), it does have the function of increasing the number of ways in which the observer may isolate a stimulus person from the field of persons in general.

A more profound developmental change takes place in the internal structure of the attributes themselves. The present results suggest strongly that an increasing proportion of the attributes become more general as development progresses. In this sense, many of the attributes identified by the mature observer are generally applicable to a variety of persons. As Scott (1974) has pointed out, the formation of general attributes is a type of cognitive integration process, in that each general attribute can be characterized as an integrative theme employed in the construal of many persons. Given that attributes are the concepts and words of social thought, their maturation into the integrative themes of adult social cognition through increasing generality is reminiscent of the parallel ongoing processes of word and concept generalization central to the development of language and intellect.

One important function of the observed developmental increases in the generality of attributes was illustrated in Experiment 2. Observers were found to be better able to make articulated judgments of persons when referring to attributes which they used more generally. Apparently the ability to make precise dimensional judgments of others depends upon some previous experience in the use of the dimension. Yet it might also be contended that the ability to make fine discriminations on a dimension leads the observer to frequent usage of the dimension (cf. Scott, 1974). Since the direction of causality in the relationship getween generality and articulation cannot be addressed through the present data, this question remains for future research.

When the results of both present experiments are viewed conjointly, the implication engendered is that the development of person perception involves increasing attribute generality and increasing attribute articulation. Since the research of Signell (1966) has already demonstrated that articulation of person judgments is an increasing function of age, the value of the present findings lies in providing an empirical link between the development of attribute generality and judgmental articulation. Given the positive correlations reported by Scott (1974) between individual difference measures of articulation and image comparability (an index somewhat similar to the present generality ratio), it may also be argued that the articulation and generality of adult attribute systems are closely related. In sum, it appears that generality and articulation covary with

development, at the level of individual differences, and among attributes given by the individual observer.

The overall pattern of past and present findings can be summarized in terms of a depiction of cognitive structure which emphasizes the developmental function of attribute generality: With growth, some attributes increase in generality as the observer represents more than one stimulus person with them. As generality increases, the meaning of each attribute becomes more stable, since it is defined by the persons it represents. Thus, the observer's judgments are more reliable and articulated for general attributes than they were for the specific attributes used most frequently earlier in development. In this sense, the developing individual is becoming more competent in his perceptions of people; fine discriminations in the judgment of persons are the product of a stable perspective from which persons can be viewed.

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