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ABSTRACT

Forty-three preschoolers (14 three-, 16 four-, and 13 five-year-olds), who were attending four multi-age, child-centered classes in a University laboratory school, were assessed for perceptual, cognitive, and affective role-taking ability. These same children were then observed naturalistically (via systematic time sampling) in laboratory classrooms for 11 consecutive weeks. Among the data collected were frequency counts of peer and adult interactions entered into by each child while under observation. Following the final week of observation, the children were again assessed on the role-taking measures. In accordance with the predictions of the study: (a) children with high interaction rates scored higher on role taking than those with lower rates; (b) older children scored higher on role taking than younger children; (c) there were marked gains in role-taking performance across the span of the study. No significant differences were found between children who interacted more with adults and those who interacted more with peers. (Author/CM)

ADULT/PEER INTERACTIONS AND ROLE TAKING ABILITY AMONG PRESCHOOL CHILDREN

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SUMMARY

Forty-three preschoolers (14 three-, 16 four-, and 13 five-year-olds), who were attending four multi-age, child-centered classes in a University laboratory school, were assessed for perceptual, cognitive, and affective role-taking ability. These same youngsters were then observed naturalistically (via systematic time sampling) in laboratory classrooms for 11 consecutive weeks. Among the data collected were frequency counts of peer and adult interactions entered into by each child while under observation. Following the final week of observation, the children were again assessed on the role-taking measures. In accordance with the predictions of the study: (a) children with high interaction rates scored higher on role taking than those with lower rates; (b) older children scored higher on role taking than younger children; (c) there were marked gains in role-taking performance across the span of the study. No significant differences were found between youngsters who interacted more with adults and those who interacted more with peers.

A. INTRODUCTION

One of the most important trends in the cognitive growth of a child is movement away from egocentric thought (9). For the preschool child, egocentrism is frequently manifested as an inability to assume the role of another person. Presumably, then, egocentrism and role-taking ability must be inversely related; as egocentrism declines, role-taking improves. Furthermore, if

Piaget and his followers are correct, the ability to adequately construe another's point of view requires the cognitive sophistication of the concrete operational period of development. The rudiments of role-taking unquestionably exist in preschool children who often are well aware that alien perspectives exist, but who are not yet able to infer just what these perspectives are (1, 7, 8). Some investigators have even described a developmental progression for role-taking ability: at first the child is unaware of other perspectives; then he recognizes the existence of other perspectives, but is unable to appropriately construe them; and finally he is able to recognize, construe, and articulate perspectives other than his own (4, 6, 16).

Role-taking ability may be conveniently conceptualized as having three interrelated aspects, each of which can be independently assessed: first, there is "perceptual" role-taking, the ability to take another's visual perspective (e.g., 10); second, there is "cognitive" role-taking, the ability to recognize another person's knowledge or intention (e.g., 3, 5, 10, 16); and finally, there is "affective" role-taking, the ability to interpret how other people feel in a variety of situations (e.g., 1, 10, 13). In accordance with developmental theory, the cumulative evidence from studies of role-taking indicates that children become increasingly proficient in each of these aspects as they grow older.

According to Piaget (15), the primary impetus for the movement away from egocentric thinking comes from the multitude of interpersonal contacts (especially verbal) a young child makes, particularly with peers. It is through repeated interchanges with others that the child discovers their differing

perspectives, gains respect for their views, and learns the need for consideration of other points of view so that his own will be respected in turn. Thus, the crucial factor in overcoming egocentrism is the appearance of dissonant information in verbal exchanges with others (11). If interpersonal contact is an important prerequisite for movement away from egocentric thought, young children who interact frequently with others should be less egocentric (i.e., more developmentally advanced) than age-mates who interact less often. Each interaction exposes the child to more dissonant information; each provides an impetus to move the child incrementally away from egocentric thinking. Derivatively, it is predicted that children who are observed to interact more frequently with others in a naturalistic setting will outperform their low interacting counterparts on tests of role-taking. Since the effect is a cumulative one, role-taking ability (a developmental variable) should improve across successive assessments and with age.

B. METHOD

1. Subjects and Research Setting

The subjects were 43 children, 14 three-, 16 four-, and 13 five-year-olds, who were attending the Oklahoma State University Child Development Laboratories. All these youngsters were considered developmentally normal. There were 23 girls and 20 boys; the mean age for the total group was 53.3 months. Although the subjects were of mixed ethnic background, they all came from uniformly mid-western, middle-class homes.

Observations were made over an 11 week period in child development laboratory classrooms. The children were grouped into four multi-aged classes,

each meeting five days per week for two and one-half hours. Two of these groups met in separate settings during the morning, the remaining two in these same settings during the afternoon. The class sessions were child centered in the sense that the children were free to interact with each other, adults, and center equipment. Nearly identical schedules and curricula were followed in all four settings. Individual testing for the study was conducted in an adjacent room to each lab, a setting both free of distracting stimuli and familiar to the children.

2. Measures

a. Observational

The system of observation was similar in concept and design to that developed by Medley, Quirk, Schluck, and Ames (12). With this system a record was made of the peer interactions, teacher interactions, and the nature of these interactions which occurred for each child during sampled intervals of time. Each recording preserved the following information: (a) who initiated the interaction (i.e., the observed child, a peer, the teacher, or another adult); (b) whether or not the observed child verbalized during the interaction; (c) whether or not the observed child was manipulating equipment or materials at the time of the interaction; (d) whether physical conflict (hitting, biting, shoving, etc.) occurred during the interaction; (e) whether or not verbal conflict occurred during the interaction (name calling, disagreement, etc.); (f) with whom each interaction occurred (child, teacher, or other adult).

The major unit of observation for each child is called a "cycle." One cycle consists of five events, each signaled by a lapse of 30 seconds on a

stop watch. When 30 seconds elapsed, the observer recorded the type of interaction (if any) which took place during the interval. The time span covered by a complete cycle was 120 seconds. Thus, each child was observed for 120 seconds and five samples of his/her behavior were recorded on the observational record sheet. After one cycle was recorded for all the children, the first child was again observed for a second cycle. Information about the objectivity and stability of this observational system and an example recording sheet can be found in Castle (2).

b. Perceptual Role-Taking

Three perceptual role-taking tasks in which the child was required to identify the visual perspective of another person were adapted from Flavell, Botkin, Fry, Wright, and Jarvis (8). Each one of these tasks contained three or four items on which a child could demonstrate role-taking. For example, one of the items required the child to rotate a picture of a clown so that the tester (who sat opposite the child) would see the clown "standing on his head." Perceptual role-taking scores could range from 0 to 10, a zero indicating the complete absence of this ability. A description of each of the tasks, the scoring system, and metric information is presented in Castle (2).

c. Cognitive Role-Taking

The cognitive role-taking tasks were adapted from those used by Mossler, Greenberg, and Marvin (14). These tasks required the child to predict another person's response to a particular situation when the other lacked pertinent information to which the child was privy. As with perceptual role-taking, scores could range from 0 to 10 and additional information about the tasks,

how they were scored, and their metric properties can be found in Castle (2).

d. Affective Role-Taking

The affective role-taking tasks were adapted from Borke (1) and Irwin and Ambron (10). These tasks required the child to interpret the feelings of other people in various simulated situations and predict their reactions. In Task 1, for example, the subject was shown four drawings of faces expressing happy, sad, angry, and surprised emotional states and was asked to identify which emotion goes with each face. Then he was told four stories in which something happened to another child. After each story the subject was required to explain how the other child felt by choosing the picture which best illustrated the appropriate emotional state. A total affective role-taking score was obtained by summing across four tasks, each containing two or three scoring protocols. As with the perceptual and cognitive tasks, affective role-taking scores could range from 0 to 10, lower scores indicating less role-taking. A complete description of these tasks, how they were scored, and other metric information can also be found in Castle (2).

3. Procedure

The 43 subjects were individually tested for perceptual, cognitive, and affective role-taking at the beginning of the study. The presentation of the various tasks was counterbalanced to control for possible order effects. The observational data were then collected at least three times per week during the two morning and afternoon lab sessions for 11 consecutive weeks. Each observational session lasted approximately one and one-half

hours during which two cycles of observations were made on each child. In this manner, two to four cycles of observation (i.e., 10 to 20 events) were recorded for every subject per week in the two morning and two afternoon sessions. Following the 11 weeks of observation, the children were again tested for role-taking using the same tasks and materials.

4. Analysis

A preliminary analysis was conducted to determine the intercorrelations among the various pre- and post measures of role-taking. As can be seen in Table 1, the test-retest reliability (i.e., cross-time stability) of the three role-taking measures ranged from .61 (cognitive) to .85 (affective). Correlations among the three measures ranged from .25 to .50 for the pre-test assessment, and from .62 to .65 for the posttest assessment. Since perceptual, cognitive, and affective role-taking scores were commensurable and moderately intercorrelated, total role-taking scores were obtained by summing across the three measures. Total role-taking scores ranged from 0 to 30 and test-retest reliability for this combined index was .87 (see Table 1).

Insert Table 1 about here

Interaction rates were computed for each child by dividing the total number of peer and adult interactions observed over the 11 week period by the number of events recorded. Role-taking scores for the six highest and six lowest interactors (i.e., children with highest and lowest interaction rates) within each age group were selected for analysis. A 2 (high

vs. low interaction rate) X 3 (age group) X 2 (pre/post assessment) analysis of variance was conducted on the role-taking scores.

Finally, to test the conjecture that peer interactions facilitate the decline of egocentrism more than adult interactions, role-taking scores for the six highest peer interactors were compared to the six highest adult interactors (controlling for the effect of total interaction rate) within each age group. As with overall rate, a 2 (high peer vs. high adult rate) X 2 (age group) X 2 (pre/post assessment) analysis of variance was conducted on the role-taking scores.

C. RESULTS AND DISCUSSION

Pre- and post role-taking means as a function of age group and high vs. low interaction rate are shown in Table 2 and Figure 1; a summary of the first analysis of variance is presented in Table 3. In accordance with the predictions of the study, the analysis revealed: (a) children with high interaction rates scored generally higher on role-taking than those with lower rates ($p < .05$); (b) older children scored higher on role-taking than younger children ($p < .01$); (c) there were marked gains in role-taking performance across the span of the study ($p < .001$).

Insert Tables 2 and 3 and Figure 1 about here

A summary of the second analysis of variance is presented in Table 4. The conjecture that peer interactions facilitate the decline of egocentrism more than adult interactions was not supported by the data. There were significant main effects for age and pre/post assessment, but almost no effect

for type of interaction. In fact, subjects who were high adult interactors tended to score slightly higher on role-taking (mean of 21.3) than did high peer interactors (mean of 20.9). The significant B X C interaction term (see Table 4) is due to the greater gains made by four-year-olds than either of the other two age groups across the span of the study. Although not quite reaching accepted levels of significance, a similar interaction term can be seen in Table 3 as well.

Insert Table 4 about here

The results of the study are consistent with Piaget's view that the impetus for movement away from egocentric thinking comes from interactions with others, but whether such interactions are with peers or adults appears to make little difference. Children observed to be "loners" performed more egocentrically on the role-taking tasks than their more "social" counterparts. Unfortunately, data such as these cannot settle the issue of causality. It is certainly possible that egocentric children tend to shun others, while the less egocentric seek out interpersonal contact. Only longitudinal studies spanning several years can help to resolve this issue.

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Table 1

Intercorrelations of Pre- and Posttest

Measures of Perceptual, Cognitive, and Affective Role Taking

	Perceptual		Cognitive		Affective		Total	
Measure	Pre-	Post	Pre-	Post	Pre-	Post	Pre-	Post
Perceptual								
Pre-	1.00	.74**	.25*	.50**	.50**	.49**	.78**	.67**
Post		1.00	.28*	.62**	.69**	.65**	.74**	.87**
Cognitive								
Pre-			1.00	.61**	.44**	.58**	.72**	.56**
Post				1.00	.59**	.65**	.73**	.89**
Affective								
Pre-					1.00	.85**	.82**	.79**
Post						1.00	.81**	.87**
Total								
Pre-							1.00	.87**

*$p < .05$

**$p < .01$

Table 2

Pre- and Posttest Role Taking Means

As a Function of Age Group and High vs. Low Interaction Rate

Group	Pretest	Posttest	Total
Three-year-olds			
High Interactors	17.00	21.83	19.42
Low Interactors	11.67	14.83	13.25
Total	14.33	18.33	16.33
Four-year-olds			
High Interactors	21.17	27.33	24.25
Low Interactors	18.50	24.67	21.58
Total	19.83	26.00	22.92
Five-year-olds			
High Interactors	25.67	28.17	26.92
Low Interactors	23.17	27.67	25.42
Total	24.42	27.92	26.17
Total High Interactors	21.28	25.78	23.53
Total Low Interactors	17.78	22.39	20.08
All Subjects	19.53	24.08	21.81

Note--Each age by interaction rate subgroup contains the six highest or lowest interactors within each age group.

Table 3

Three-Way Analysis of Variance of Role Taking

As a Function of Interaction Rate, Age Group, and Pre-Posttesting

Source	SS	df	MS	F
A (Interaction Rate)	213.56	1	213.56	6.73*
B (Age Group)	1204.28	2	602.14	18.99**
A X B	71.28	2	35.64	1.12
Subj w. groups	951.17	30	31.71	
C (Pre- Posttesting)	373.56	1	373.56	94.10**
A X C	.06	1	.06	.02
B X C	24.11	2	12.06	3.04
A X B X C	10.11	2	5.06	1.27
C X Subj w. groups	119.17	30	3.97	

*$p < .05$

**$p < .01$

Table 4

Three-Way Analysis of Variance of Role Taking

As a Function of Type of Interaction, Age Group, and Pre- Posttesting

Source	SS	df	MS	F
A (Type of Interaction)	4.01	1	4.01	.14
B (Age Group)	1240.36	2	620.18	21.45**
A X B	85.03	2	42.51	1.47
Subj w. groups	867.42	30	28.91	
C (Pre- Posttesting)	360.01	1	360.01	72.88**
A X C	5.01	1	5.01	1.01
B X C	34.03	2	17.01	3.44*
A X B X C	.36	2	.18	.04
C X Subj w. groups	148.08	30	4.94	

Note.-- Some of the subjects included in the Table 3 analysis are not the same as those in the analysis reported above due to the differing criteria for inclusion.

*$p < .05$

**$p < .01$

FIGURE LEGEND

Figure 1. Total pre- and posttest role taking performance as a function of high and low interaction rate and age.