

DOCUMENT RESUME

ED 139 531

PS 009 290

AUTHOR Langlois, Judith H.; Downs, A. Chris  
TITLE Peer Relations as a Function of Physical Attractiveness: The Eye of the Beholder or Behavioral Reality?

SPONS AGENCY Spencer Foundation, Chicago, Ill.

PUB DATE Mar 77

NOTE 29p.; Portions of this paper were presented at the Biennial Meeting of the Society for Research in Child Development (New Orleans, Louisiana, March 17-20, 1977)

EDRS PRICE MF-\$0.83 HC-\$2.06 Plus Postage.

DESCRIPTORS \*Aggression; Attitudes; Early Childhood Education; Factor Analysis; \*Peer Relationship; \*Physical Characteristics; \*Preschool Children; Research Methodology; \*Stereotypes

IDENTIFIERS \*Physical Attractiveness

ABSTRACT

This study examines the relationship between physical attractiveness and behavior by assessing whether behavioral differences exist between children judged by adults to be physically attractive and unattractive. Sixty-four 3- and 5-year-old boys and girls were selected as subjects on the basis of physical attractiveness. Three types of same-age and sex dyads were formed on the basis of physical attractiveness (attractive, unattractive, and mixed-attractiveness) and were observed in a semi-naturalistic play setting. A categorical observational system was used to record positive social behaviors, aggressive behaviors, activity and object-directed behaviors, and sex-stereotyped behaviors. Few differences were found between attractive and unattractive children in the categories indexing positive social behaviors. A developmental trend was found for aggression: no differences based on attractiveness were found for 3-year-olds, but 5-year-old unattractive children hit peers more often than attractive children. Finally, unattractive children were generally more active and preferred to play with masculine toys while attractive children were less active and played with feminine toys. (Author/MS)

\*\*\*\*\*  
\* Documents acquired by ERIC include many informal unpublished \*  
\* materials not available from other sources. ERIC makes every effort \*  
\* to obtain the best copy available. Nevertheless, items of marginal \*  
\* reproducibility are often encountered and this affects the quality \*  
\* of the microfiche and hardcopy reproductions ERIC makes available \*  
\* via the ERIC Document Reproduction Service (EDRS). EDRS is not \*  
\* responsible for the quality of the original document. Reproductions \*  
\* supplied by EDRS are the best that can be made from the original. \*  
\*\*\*\*\*

ED139531

U S DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

Peer Relations as a Function of Physical Attractiveness:

The Eye of the Beholder or Behavioral Reality?

Judith H. Langlois and A. Chris Downs

The University of Texas at Austin

Running Head: Peer Relations and Physical Attractiveness

Footnote

This research was supported in part by a grant from the Spencer Foundation to Judith H. Langlois. Portions of this paper were presented at the biennial meeting of the Society for Research in Child Development, New Orleans, March, 1977. The authors wish to express their appreciation to Mrs. Pat Steinbach, director, and the teachers of the Little Red School House for their generous assistance and cooperation in providing subjects. The authors also thank Robert K. Young for his statistical advice and assistance and Douglas B. Sawin and Walter G. Stephan for their helpful comments and suggestions on the manuscript. Requests for reprints should be sent to Judith H. Langlois, Department of Psychology, University of Texas, Austin, Texas 78712.

PS009290

Abstract

The relation between physical attractiveness and behavior was examined by assessing whether behavioral differences exist between attractive and unattractive children. Sixty-four, 3- and 5-year-old boys and girls were selected as subjects on the basis of physical attractiveness. Same-age and sex, attractive, unattractive, and mixed-attractiveness dyads were formed and were observed in a semi-naturalistic play setting. A categorical observational system was used to record positive social behaviors, aggressive behaviors, activity and object-directed behaviors, and sex-stereotyped behaviors. Few differences were found between attractive and unattractive children in the categories indexing positive social behaviors. A developmental trend was found for aggression: no differences based on attractiveness were found for 3-year-olds, but 5-year-old unattractive children hit peers more often than attractive children. Finally, unattractive children were generally more active and preferred to play with a masculine toy while attractive children were less active and played with feminine toys.

Peer Relations as a Function of Physical Attractiveness:

The Eye of the Beholder or Behavioral Reality?

A child's physical appearance provides highly visible cues which indicate age, sex, race, and physical attractiveness. However, there has been little systematic study of the role these characteristics play as elicitors or modifiers of behavior in social interactions. The lack of research interest in these physical appearance variables is particularly surprising considering the implicit and explicit cultural values associated with beauty and ugliness (Berscheid & Walster, 1973). For example, through fairy tales we all know that Cinderella is beautiful, good and kind while her step-sisters are ugly, wicked, selfish and cruel; and the ugly duckling who is rejected by his "peers" finds happiness only when he grows up to become a beautiful swan. Indeed, there is recent evidence that children and adults make inferences about the behavior of others on the basis of physical appearance; desirable traits are attributed to attractive individuals while undesirable traits are attributed to unattractive persons (Dion, Berscheid & Walster, 1972; Dion, 1973).

In one study, the physical attractiveness of a child who committed a transgression was found to influence adult evaluations of the child and the seriousness of his or her transgression (Dion, 1972). Undergraduate women attributed more positive characteristics to attractive than to unattractive children whom they believed committed the same serious punishable act. Further, a transgression committed by an attractive child was evaluated less negatively than was the same transgression when committed by an unattractive child. Clifford and Walster (1973) demonstrated that elementary school teachers rated

unfamiliar attractive children as having greater intellectual potential, better social relations, and as more likely to become successful in life than unattractive children. This effect was found despite the fact that the teachers had been given identical objective information about both groups of children.

Not only do adults rate children differentially based on physical attractiveness, but children rate each other differentially. It has been demonstrated that children as young as three years of age can reliably discriminate differences in the facial attractiveness of age mates and, further, that their judgments agree with attractiveness ratings made by adults (Dion, 1973). In addition, unacquainted preschoolers have consistent behavioral stereotypes associated with appearance. Both male and female children preferred attractive peers as potential friends while they disliked unattractive children. Furthermore, attractive children were expected to behave prosocially while unattractive peers were expected to exhibit antisocial behaviors (Dion, 1973).

Taken together, these findings on behavioral expectations strongly suggest that physical attractiveness plays an important role in the development of peer preferences and peer interaction. However, the processes which mediate the relationship between perceptions of the behavior of attractive and unattractive children and the actual behavior emitted by these children remains largely unexplored. A number of questions about the relation between the social cognitions and the behaviors associated with physical attractiveness must be answered. For example, do adults and children react differentially to attractive and unattractive children because these children actually behave differently? That is, are unattractive children aggressive and antisocial while attractive children are friendly and behave prosocially? Or, is it the case that there are no real behavioral differences between attractive and

unattractive children, but rather, they are perceived by others to behave in this manner? Perhaps both children and adults have assimilated cultural stereotypes based on physical attractiveness which distort the perception of the behavior of others to fit these stereotypes. Finally, these two processes may interact. That is, because of cultural stereotypes we may expect attractive children to behave in one way and unattractive children in another. These expectations may in turn act as a self-fulfilling prophecy in which attractive children learn to behave in prosocial ways while unattractive children learn to behave in unacceptable, antisocial ways.

Our study was designed to clarify the process issues discussed above. We wished to assess whether or not behavioral differences exist between children judged to be attractive or unattractive and at what ages, if any, these differences appear. If no behavioral differences are found between attractive and unattractive children, this result would suggest that children are only perceived to behave differently. Developmental differences, however, would suggest that stereotypic expectations of behavior based on physical attractiveness and a self-fulfilling prophecy may be interacting such that no behavioral differences are found at younger ages, but behavioral differences become evident in older children. Finally, demonstrating substantial differences in behavior in both younger and older attractive and unattractive children might indicate that children learn these cultural stereotypes at younger ages than expected, or even perhaps that there is some biological relationship between appearance and behavior.

#### Method

Subjects. A full-face black and white photograph was taken of 110 children, all from a large, middle-class nursery school in Austin, Texas. All

photographs were cropped at chin level to eliminate clothing cues and children with eyeglasses or facial deformities were not included in the original stimulus set. Photographs were ranked from most to least attractive by 20 adult females who were unacquainted with the subjects. A Kendall Coefficient of Concordance performed on the rankings indicated that interjudge agreement was significant,  $\tau_b = .46$ ,  $p < .001$ .<sup>1</sup> Although the correlation falls in the moderate range, it is consistent with the findings of previous research (Dion & Berscheid, 1974; Styczynski & Langlois, in press). From these rankings, 64 white children, 32 girls and 32 boys, were selected. The selection procedure resulted in a final sample consisting of 16 attractive girls, 16 unattractive girls, 16 attractive boys, and 16 unattractive boys. Half of the subjects were 3-year-olds with a mean age of 3 years, 4 months while the other half were 5-year-olds with a mean age of 5 years, 1 month.

Apparatus. A portable child study device was erected in a room in the nursery school. This structure consists of two wooden panels, 3.05 m. long and 1.22 m. high, which are placed in a corner of the room to form a play area of 3.05 by 3.05 m. Five toys, a set of small blocks, a large riding truck, two stuffed dolls, a soft, medium-size ball, and a set of wooden puzzle were placed in the play area.

Design. Same-age and sex dyads were formed on the basis of physical attractiveness. For each age and sex, three types of dyads were formed in a factorial design: dyads consisting of two children who were both judged to be attractive in appearance, dyads whose members were judged to be unattractive and mixed dyads consisting of one attractive and one unattractive child. All dyads were observed twice and thus for each age and sex, there were eight observations for attractive children paired with other attractive children

(AA dyads), unattractive children paired with other unattractive children (UU dyads), attractive children paired with unattractive children (AU dyads), and unattractive children paired with attractive children (UA dyads). Within each age, sex, and physical attractiveness category, all children were paired randomly with the stipulation that the pairs must be from the same classroom.

Procedure. Children were allowed to play in the playroom on several occasions prior to data collection in order for the children to adapt to both the presence of the adult observers and to the playroom situation. During data collection, dyads were brought into the playroom and told that they could play. Two observers, each observing a single child, were seated on 76 cm. stools placed just outside the play area. Observations of dyads were counter-balanced across five trained observers who were naive as to the purpose of the study.

Data collection and analysis. Data were collected with the categorical observational system described by Gottfried and Seay (1973). This observational system was developed to permit meaningful comparison between cross-cultural and cross-species data, and consequently, is relatively free from high level inference during the data collection process. The basic score for each category is the number of 15-second intervals within which the defined behavior occurred. A specific category is recorded only once per 15-second interval. Reliability of observers was monitored during the course of the study and inter-observer reliabilities for the various categories ranged from  $r = .74$  to  $r = .99$ , mean  $r = .89$ . Table 1 presents the behavior categories used in this study.

-----  
Insert Table 1 about here  
-----

Preliminary analyses of variance were performed to examine effects due to observation period (observation 1 vs. observation 2 for each dyad). No effects due to observation beyond chance levels were found for the behavior categories and thus observation periods were combined in subsequent analyses.

In order to reduce the number of categories, a principle component factor analysis was executed on the scores for all behavior categories using a Varimax rotation. The individual behavior categories were thus reduced to eight factors. The scores for the categories comprising each factor were combined and  $2 \times 2 \times 2 \times 2$  analyses of variance were then performed to assess the effects of age, sex, subject attractiveness, and peer attractiveness for each factor.<sup>2</sup> Duncan's Multiple Range Test (Winer, 1971) was used to compare differences between cell means for all significant interactions. All differences reported between cell means are significant at the .05 level or greater.

### Results

Results are reported for factors representing four general types of behavior: A) Positive social behaviors including social signaling and communication (Factor 1), proximity and touching (Factor 2), and approach-withdraw (Factor 3); B) Aggressive behaviors including hitting (Factor 4); C) Activity and object-directed behaviors including high activity level play (Factor 5) and low activity level play (Factor 6); and D) Sex-stereotyped behaviors including playing with dolls and grooming (Factor 7) and play behaviors involving the riding truck (Factor 8). Lower-order interactions are not discussed when modified by higher-order interactions. Means for each behavior factor are shown in Table 2.

-----  
Insert Table 2 about here  
-----

Positive social behaviors.

Factor 1: Social signaling and communication. This factor includes smiling at, looking at, and talking to a peer and yielded an age main effect indicating that 5-year-olds exhibited more of these behaviors than 3-year-olds,  $F(1,48) = 43.91, p < .0001$ . Moreover, a subject attractiveness x peer attractiveness interaction revealed that children in same-attractiveness dyads (AA or UU) were more likely to exhibit these behaviors than children in mixed attractiveness dyads (AU or UA),  $F(1,48) = 5.68, p < .025$ .

Factor 2: Proximity and touch. A sex x subject attractiveness x peer attractiveness interaction,  $F(1,48) = 4.55, p < .05$ , yielded a pattern of results for girls similar to that found for social signaling and communication. Girls were significantly more likely to touch and maintain proximity when in same-attractiveness (AA or UU) than when placed in mixed-attractiveness (AU or UA) dyads. For boys, all dyads showed similar amounts of proximity and touching.

Factor 3: Approach-withdraw. An age main effect was found for approach and withdraw behaviors,  $F(1,48) = 6.81, p < .01$ . Higher levels were observed in the 5-year-olds than in 3-year-olds. In addition, an age x sex x subject attractiveness interaction,  $F(1,48) = 7.99, p < .01$ , was found for these behaviors. This interaction was due primarily to a cross-over age effect for boys. Attractive 3-year-old boys approached and withdrew more than unattractive 3-year-old boys while the pattern for both 5-year-old boys and 3-year-old girls was just the reverse; unattractive children exhibited these behaviors more than attractive children. No differences were found between attractive and unattractive 5-year-old girls.

Aggressive behaviors.

Factor 4: Hit. This factor includes behaviors such as hitting, biting, scratching, kicking and hitting with objects. Age,  $F(1,48) = 10.36, p < .01$ , and sex,  $F(1,48) = 12.20, p < .001$ , effects were found showing that boys were more aggressive than girls and 5-year-olds more than 3-year-olds. An age x sex x subject attractiveness x peer attractiveness interaction,  $F(1,48) = 11.93, p < .001$ , indicated that 3-year-olds of both sexes showed low amounts of aggression and that no differences based on attractiveness were evident for these 3-year-olds. In contrast, the highest amount of aggression was seen in 5-year-old male dyads in which at least one member of the pair was unattractive. The lowest level of aggression for 5-year-old boys was found in AA dyads. Moreover, hitting was observed twice as often in 5-year-old female UU dyads than in any other type of 5-year-old female dyad.

Activity and object-directed behaviors.

Factor 5: High activity level play. This factor included standing, walking and running, throwing toys, transporting toys, and playing with the ball. A sex main effect indicated that boys exhibited more high activity level play than girls,  $F(1,48) = 8.45, p < .01$ . An age x sex x subject attractiveness x peer attractiveness interaction,  $F(1,48) = 6.96, p < .01$ , yielded an interesting pattern. For 3-year-old boys, AA dyads exhibited more than twice the amount of this type of play than any other type of 3-year-old male dyad. The pattern for 5-year-old boys, however, was very different and the difference was due primarily to AA dyads who showed very low levels of these behaviors. Among 3-year-old girls, unattractive girls exhibited more high activity level play than attractive girls, and UU dyads played in this

manner most frequently, while AA dyads did so least frequently. The greatest frequency of these behaviors among 5-year-old girls was again among UU pairs while other pairs showed lower amounts.

Factor 6: Low activity level play. This factor includes sitting on the floor, crawling, and playing with puzzles or blocks. Sex,  $F(1,48) = 5.00$ ,  $p < .05$ , and subject attractiveness,  $F(1,48) = 4.59$ ,  $p < .05$ , effects revealed greater frequencies of this play among girls than boys and among attractive than unattractive children. A four-way interaction,  $F(1,48) = 13.37$ ,  $p < .001$  produced a pattern which was similar for 5-year-old boys and 3-year-old girls. Specifically, AA dyads exhibited more of this play than other dyads among these children. Among 3-year-old boys, however, the reverse was true such that AA dyads exhibited less of this type of play than other 3-year-old male dyads. For 5-year-old females, girls paired with attractive peers (AA or UA dyads) exhibited higher frequencies of these behaviors than girls paired with unattractive peers (AU or UU dyads).

Sex-stereotyped behaviors.

Factor 8: Doll play and grooming. Sex,  $F(1,48) = 20.09$ ,  $p < .001$ , and subject attractiveness,  $F(1,48) = 7.58$ ,  $p < .01$ , main effects for doll play and grooming indicated that girls exhibited more of these behaviors than boys and attractive children did so more than unattractive children. A sex x subject attractiveness x peer attractiveness interaction,  $F(1,48) = 6.57$ ,  $p < .01$  proved consistent with the sex and subject attractiveness main effects. All boys, regardless of dyadic composition, showed low amounts of these behaviors. For girls, however, the AA dyads exhibited extremely high amounts of doll play and grooming compared to other female dyads.

Factor 9: Riding truck play. A marginally significant sex main effect,  $F(1,48) = 3.38, p < .07$ , and a subject attractiveness main effect,  $F(1,48) = 6.53, p < .01$ , for playing with and riding on the riding truck indicated higher amounts of this play in boys than girls and in unattractive than attractive children. An age x sex x subject attractiveness interaction,  $F(1,48) = 3.87, p < .05$ , revealed that higher levels of play with the riding truck were seen among unattractive 3-year-old girls and unattractive 5-year-old boys than among their attractive counterparts. There were no differences, however, among the other groups.

#### Discussion

An overview of effects due to attractiveness reveals that behavioral differences between attractive and unattractive children are generally not found among positive social behaviors, but rather are evidenced primarily in aggressive, activity and object-directed, and sex-stereotyped behaviors.<sup>3</sup> The pattern of results for positive social behaviors is generally inconsistent with previous research based on children's and adults' attributions of behavior. In those studies, attractive children are perceived to be more friendly and prosocial than less attractive children (Dion, 1972, 1973; Dion & Berscheid, 1974). In this study, few differences were observed in the overall positive social behaviors of attractive and unattractive children. Clear differences were apparent, however, when the attractiveness of both the child and his or her peer was considered. Specifically, both attractive and unattractive children tended to smile, look, and talk more with peers who were similar to themselves in attractiveness. For girls, this pattern was also true for proximity and touch.

Two explanations seem possible for the inconsistency between these results for positive social behaviors and past research of attributions associated with attractiveness. First, there may be no relationship between children's behavioral expectations for each other and the actual overt behavior of children. This interpretation seems plausible since attributions of behavior are presumably extracted from what a target child is believed to be like across a wide variety of situations, while actual behavior may vary across situations. Several theorists have, in fact, argued that global ratings of behavioral traits may show little relationship to actual behavior in specific contexts (e.g., Mischel, 1970). Moreover, ratings which reflect perceived behavioral attributes ignore the role social agents, such as peers, play as elicitors of these behaviors in these contexts.

An alternative explanation for the inconsistency between the present findings and past social cognition research lies in the possible impact of children's learned perceptions of attractiveness on their overt behavior with peers. Namely, attractive children may perceive themselves and other attractive children as friendly and prosocial, but may view unattractive children as unfriendly and aggressive. Consequently, attractive children may exhibit positive social behaviors with attractive peers whom they perceive as friendly also, but may show lower amounts of positive social behaviors when playing with unattractive peers whom they perceive as antisocial. Similarly, unattractive children may learn that they are perceived as less friendly by attractive peers and thus, they may actually conform behaviorally to their attractive peers' expectations of them by exhibiting lower levels of social behaviors when in a play situation with an attractive child. In either

case, our findings indicate that the frequency of positive social behavior is not simply a function of a child's levels of attractiveness as suggested by previous social cognition research, but rather, these behaviors are a function of the physical attractiveness of both the subject and that of his or her playmate. These results further underscore the need to take into account the social-situational factors which impinge on peer interaction before generalizing from perceptions of behavior to actual overt behavior and vice versa.

The findings for aggressive behaviors both reaffirm and extend past research which indicates that unattractive children are expected to behave antisocially (Dion, 1973). Specifically, there were no differences in frequencies of aggressive behavior between attractive and unattractive 3-year-olds while higher frequencies were found among 5-year-old male pairs which included an unattractive child and among 5-year-old female UU pairs. These data suggest that differential behavioral expectations for attractive and unattractive children and a self-fulfilling prophecy may interact: unattractive children may become aware early that they are in fact perceived by others to be both unattractive and antisocial. Consequently, they may exhibit aggressive behaviors consistent with others' expectations of them. Indeed, Dion and Berscheid (1974) suggest that aggressive behaviors may be a response to being perceived as unattractive by others.

The results for activity and object-directed behaviors and sex-stereotyped behaviors revealed some unexpected differences between attractive and unattractive children. Attractive children generally exhibited more low activity level play as well as doll play and grooming while unattractive

children played more actively (e.g., with the riding truck). These data are consistent with those reported by Halverson and Waldrop (1976) in which positive relations were found between high levels of activity and minor physical anomalies. The index of minor physical anomalies employed (Waldrop & Halverson, 1971) actually represented physical characteristics commonly found in unattractive children (e.g., slight deviations with respect to features such as the eyes, mouth, and ears). Our data also supplement recent evidence that unattractive children are rated by teachers as exhibiting more masculine play behaviors than attractive children (LaVoie & Andrews, 1976). Further, our findings again indicate the impact of peer attractiveness on these behaviors. For example, attractive girls were more likely to play with dolls than unattractive girls, but only when paired with attractive peers.

Considering the findings for both aggressive behaviors and activity behaviors, a salient pattern emerges. Since unattractive children are more active, the probability of involvement in an aggressive act may be higher for these children than for the less active attractive children. Negative evaluations of transgressions committed by unattractive children may be a reflection of the fact that their higher activity level causes them to be involved in more disturbances and hence become "trouble makers". If these activity level differences generalize to the classroom, they may account for the desirable characteristics attributed to attractive children since teachers seem to prefer low activity levels in children (Fagot & Patterson, 1969).

Overall, our results indicate that behavioral differences do in fact exist between attractive and unattractive children and that these differences are found most clearly among aggressive, activity, and sex-stereotyped

behaviors rather than positive social behaviors. Further, the developmental trends in our data suggest that these differences in behavior seem more likely to be a function of learning processes rather than biological influences. Additional research is necessary, however, to explicate the exact nature of the differences among activity and sex-stereotyped behaviors as a function of attractiveness. Moreover, investigation of children's awareness of their own physical attractiveness as well as the relationship between this awareness and their overt behavior is warranted. Caution needs to be exercised when generalizing from children's behavioral attributions to actual overt behavior since social-situational factors such as setting and physical attractiveness of a child's playmate may well have differential effects on behaviors emitted by attractive and unattractive children.

## References

- Berscheid, E., & Walster, E. Physical attractiveness. In Berkowitz, L. (Ed.) Advances in experimental social psychology. New York: Academic Press, 1973.
- Clifford, M. M., & Walster, E. The effects of physical attractiveness on teacher expectations. Sociology of Education, 1973, 46, 248-258.
- Dion, K. Physical attractiveness and evaluations of children's transgression. Journal of Personality and Social Psychology, 1972, 24, 207-213.
- Dion, K. Young children's stereotyping of facial attractiveness. Developmental Psychology, 1973, 9, 183-188.
- Dion, K., & Berscheid, E. Physical attractiveness and peer perception. Sociometry, 1974, 37, 1-12.
- Dion, K., Berscheid, E., & Walster, E. What is beautiful is good. Journal of Personality and Social Psychology, 1972, 24, 285-290.
- Fagot, B. I., & Patterson, G. R. An in vivo analysis of reinforcing contingencies for sex-role behaviors in the preschool child. Developmental Psychology, 1969, 1, 563-568.
- Gottfried, N. W., & Sazy, B. An observational technique for preschool children. The Journal of Genetic Psychology, 1973, 122, 263-268.
- Halverson, C. F., & Waldrop, M. F. Relations between preschool activity and aspects of intellectual and social behavior at age 7½. Developmental Psychology, 1976, 12, 107-112.
- LaVoie, J. C., & Andrews, R. Facial attractiveness, physique, and sex role identity in young children. Developmental Psychology, 1976, 12, 550-551.

- Mischel, W. Sex typing and socialization. In P. H. Mussen (Ed.) Carmichael's manual of child psychology, Vol. II. New York: John Wiley & Sons, 1970.
- Styczynski, L. E., & Langlois, J. H. The effects of familiarity on behavioral stereotypes associated with physical attractiveness in young children. Child Development, in press.
- Waldrop, M. F., & Halverson, C. F. Minor physical anomalies and hyperactive behavior in young children. In J. Hellmuth (Ed.), Exceptional infant, Vol. 2. New York: Brunner/Mazel, 1971, 343-380.
- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1971.

## Footnotes

<sup>1</sup>A manipulation check was performed to ensure that the children agreed with the attractiveness judgments of the adult raters. The photographs were presented to each child in random pairs. Each pair contained one attractive and one unattractive child of the same sex. Each child was asked to indicate the more attractive member of the pair. This paired comparison task provided a procedure simple enough so that all children would attend and respond to all stimuli in front of them. A t-test was performed to test agreement between the paired-comparison choices made by the children and the rankings of the adults. The number of times the children agreed with adult raters was compared to the number of times they would have agreed by chance. Children and adults agreed beyond a chance level,  $t = 2.00$ ,  $p < .05$ .

<sup>2</sup>Scores for each member of the dyad were entered into these analyses. Thus, the analyses of variance included data which do not meet the assumption of independence since the behavior of one member of the dyad might be expected to influence the behavior of the other member. Two subsequent analyses in which the data do not violate the assumption of independence were executed in order to confirm the results of the original analysis. In the first reanalysis, scores for both subjects in the dyad were combined and dyad scores were entered into the analysis. For the second reanalysis, the sample was divided into two halves such that one dyad member was randomly chosen for Half I and his or her partner was placed in Half II. Separate analyses of variance were then performed on the two halves. The results from both subsequent analyses closely parallel the results of the original analyses. Therefore, results from the original analyses are reported since

this type of analysis yields the most useful information concerning effects due to both subject and peer attractiveness. Any significant main effects or interaction obtained in the original analysis, but not obtained in the subsequent analyses are not reported.

<sup>3</sup>It might be argued that if stereotypes are "carried around in the head", observers could not record without bias the behaviors exhibited by attractive and unattractive children. However, this argument does not seem to apply to our findings for a number of reasons. First, if observers were biased, substantial differences should have shown up between attractive and unattractive children in categories indexing positive social behaviors. Indeed, this is where one would most expect to find differences based on past research. Second, the completely unexpected finding of activity level differences suggests that observers were not biased. There are no data suggesting that differential expectations exist with respect to activity. Finally, sex and age differences consistent with many previous studies were found even though observers were not familiar with these findings. Thus, our results are inconsistent with the systematic bias interpretation and indicate that observers were making accurate and reliable observations.

Table 1  
Behavior Categories

Category	Description	Reliability Coefficient
<u>Positive Social Behaviors</u>		
Proximity	Being within 2-feet (.61 m.) of peer.	.90
Touch	Make physical contact with peer.	.92
Approach	Movement from beyond to within 2-feet (.61 m.) of peer.	.86
Withdrawal	Movement from within to beyond 2-feet (.61 m.) of peer.	.79
Smile	Smile or laugh directed toward peer.	.84
Visual Inspection	Open eyes directed toward peer.	.85
Verbalize	Word or word approximation directed toward peer.	.94
<u>Aggressive Behaviors</u>		
Hit another child	Hit, bite, kick, push, or scratch peer with part of body.	.74
Hit with object	Hit, push, or throw at peer with object.	.94
<u>Activity and Object-directed Behaviors</u>		
Stand	Standing with erect posture.	.94
Walk/run	Erect movement of 2-feet (.61 m.) or more.	.87
Crawl	Movement of 2-feet (.61 m.) or more on all four limbs.	.87
Sit	Rest haunches on object or floor.	.99
Manipulate	Object must be in contact with hand; some part of hand must move.	.79-.99 <sup>a</sup>

Table 1 (cont'd.)

Category	Description	Reliability Coefficient
Transport	Movement of body and object through a distance of 2-feet (.61 m.) or more.	.74
Throw	Throw or otherwise propel object.	.97
Groom	Fine-finger manipulation of own body or clothing.	.87

Objects

Puzzles	Three wooden puzzles designed for ages 3-5.
Ball	A soft, medium size ball.
Blocks	A set of blocks of various shapes and colors.
Dolls	Two stuffed dolls.
Riding Truck	A large truck 36 x 16 x 8 inches (.91 x .41 x .20 m.)
Other Objects	Nonstandard small objects of various types contributed by subjects: keys, handkerchief, etc.

<sup>a</sup>Reliability ranged from .79 to .99 depending on the object manipulated.

Table 2

Cell Means for Each Factor<sup>1</sup>

		3-Year-Olds		5-Year-Olds	
		Males	Females	Males	Females
<u>Factor 1</u>					
Social	AA	115.25	60.00	116.00	132.00
Signaling	AU	67.25	39.25	137.50	100.75
and	UA	60.75	53.25	128.75	105.25
Communication	UU	65.25	83.75	153.00	133.75
<u>Factor 2</u>					
Proximity	AA	44.75	65.25	68.25	65.25
and	AU	73.50	35.25	58.00	56.50
Touch	UA	70.75	42.75	73.25	54.75
	UU	64.75	54.50	81.25	82.50
<u>Factor 3</u>					
	AA	34.50	2.50	14.25	22.25
Approach-	AU	29.50	5.50	34.75	28.75
Withdraw	UA	14.25	30.50	47.75	31.25
	UU	21.75	23.25	33.00	34.00

<sup>1</sup>Note: AA = Attractive S, attractive peer; AU = Attractive S, unattractive peer

UA = Unattractive S, attractive peer; UU = Unattractive S, unattractive peer

Table 2 (cont'd.)

		3-Year-Olds		5-Year-Olds	
		Males	Females	Males	Females
<u>Factor 4</u>					
	AA	6.75	.25	1.00	5.25
Hit	AU	5.50	1.50	17.25	1.25
	UA	2.50	2.75	18.00	1.50
	UU	7.00	1.50	12.75	12.00
<u>Factor 5</u>					
High	AA	167.75	13.25	29.00	56.75
Activity	AU	77.25	37.75	120.00	42.25
Level	UA	59.50	76.25	63.60	47.50
Play	UU	70.25	85.50	87.00	72.50
<u>Factor 6</u>					
Low	AA	34.25	110.50	117.00	93.25
Activity	AU	79.00	73.00	51.25	62.75
Level	UA	61.75	54.75	30.25	93.00
Play	UU	52.75	89.00	56.00	47.75

Note: AA = Attractive S, attractive peer; AU = Attractive S, unattractive peer

UA = Unattractive S, attractive peer; UU = Unattractive S, unattractive peer

Table 2 (cont'd.)

		3-Year-Olds		5-Year-Olds	
		Males	Females	Males	Females
<u>Factor 7</u>					
Doll	AA	6.25	33.75	9.25	29.00
Play	AU	12.50	14.50	6.00	8.00
and	UA	4.75	8.25	7.00	14.75
Grooming	UU	7.50	17.50	8.50	7.25
<u>Factor 8</u>					
Riding	AA	35.75	5.50	26.00	26.25
Truck	AU	36.50	12.25	42.25	49.25
Play	UA	38.75	62.25	66.75	33.75
	UU	42.00	14.50	56.25	46.00

Note: AA = Attractive S, attractive peer; AU = Attractive S, unattractive peer

UA = Unattractive S, attractive peer; UU = Unattractive S, unattractive peer