Decoding and Encoding Facial Expressions in Preschool-Age Children

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ABSTRACT: Preschool-age children drew, decoded, and encoded facial expressions depicting five different emotions. Each child was rated by two teachers on measures of school adjustment. Facial expressions encoded by the children were decoded by college undergraduates and the children's parents. Results were as follows: (1) accuracy of drawing, decoding and encoding each of the five emotions was consistent across the three tasks; (2) decoding ability was correlated with drawing ability among female subjects, but neither of these abilities was correlated with encoding ability; (3) decoding ability increased with age, while encoding ability increased with age among females and slightly decreased among males; (4) parents decoded facial expressions of their own children better than facial expressions of other children, and female parents were better decoders than male parents; (5) children's adjustment to school was related to their encoding and decoding skills and to their mothers' decoding skills; (6) children with better decoding skills were rated as being better adjusted by their parents.

Nonverbal skills consist of the abilities to encode (transmit) and decode (receive) information by means of nonverbal cues. This study investigated the accuracy and correlates of the ability to encode and decode facial expressions in preschool children aged 2½ to 5 years. The decoding abilities of the children's parents were also examined. The facial expressions that were either encoded or decoded were elicited by means of posing.

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An investigation of encoding and decoding in the preschool-age group relies on the assumption that such abilities develop early in life. Research on encoding (Bridges, 1932; Charlesworth, 1966; Peiper, 1963; Spitz, 1963; Valentine, 1930; Watson, 1919) indicated that expressions of happiness and sadness appear as early as 2 months, anger and fear at about 6 months, and surprise during the second half of the first year (for a review, see Charlesworth & Kreutzer, 1973). This order of appearance corresponds only roughly to accuracy with which emotions are encoded at a later age. In a study of 5- to 6-year-old children, Buck (1975) reported that happiness was more appropriately expressed than fear and anger; encoding of sadness and surprise was not significantly different from encoding of either happiness or fear and anger.

Studies of decoding (Ahrens, 1954; Spitz & Wolf, 1946; Wilcox & Clayton, 1968; Kreutzer & Charlesworth, Note 1) indicated that infants below 12 months of age are able to understand and respond appropriately to various characteristics of facial expressions (see also Charlesworth & Kreutzer, 1973, p. 122; Izard, 1971, p. 320). There seems to be no data concerning decoding ability of infants between the ages of 1 and 2. Studies of children older than 2 years of age (Dashiell, 1927; Gates, 1923; Honkavaara, 1961; Izard, 1971) showed that accuracy of decoding facial expression was above chance level and increased with age. For example, Gates found that laughter is understood by 50% of more of children above 3 years of age; pain is recognized by 50% or more of those above 6 years of age; using the same criteria, Gates found that anger was understood at age 7, fear at age 10, and surprise at age 11. Scorn was identified correctly by only 43% of the 11-year-old children (Gates, 1923, p. 324).

A limited number of studies investigated correlates of children's nonverbal skills. Encoding ability was examined in relation to sex, age, and various personality ratings. Male and female children were not found to differ in encoding ability (Buck, 1975, 1977), although adult females tend to be better encoders than adult males (Hall, Note 2). The question of the relationship between encoding ability and age is more complicated. Research has indicated that encoding ability, as measured by voluntary expression (Fulcher, 1942; Odom & Lemond, 1972) or mimicking (Kwint, 1934) increases with age. However, Buck (1977) reported that accuracy of spontaneous encoding was negatively correlated with age among preschool boys but not girls. These data suggest that while the ability to pose emotions increases with age, accuracy of spontaneous sending decreases or stays the same.