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A CROSS-CULTURAL COMPARISON OF THE DEVELOPMENT OF
SELF-CONCEPT IN INDIAN AND WHITE CHILDREN

BY

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Abstract

The present research was designed to investigate the differences between Indian and white children on: (A) the dimensions and attributes comprising self-concept; and (B) the developmental changes in self-concept. In this study, 71 Indian and 149 white children between the ages of 8 and 13 years were tested on three measures of self-concept: (1) the "Twenty Statements" Test (Kuhn & McPartland, 1954); (2) Mohr's (1978) transformation tasks; and (3) a modified version of the Piers-Harris Children's Self-Concept Scale (Piers, 1969). In this investigation, a distinction was made between two aspects of self-concept: (1) figurative - which referred to the specific dimensions and attributes that comprise self-concept; and (2) operative - which referred to the underlying organization and structure of the dimensions and attributes that are influenced by development.

In the present investigation, a number of figurative differences were found between the self-concept of Indian and white children on the modified version of the Piers-Harris and on the "Twenty Statements" Test. The self-descriptions of Indian children contained a greater number of references made to: independence; family ties; emotion; sharing; and respect for traditional customs and beliefs, than white children. In addition, Indian children were less positive in their attitude toward formal education than white children. Furthermore, the

self-description of Indian males contained fewer references made to possessions, while the self-descriptions of Indian females contained a greater number of references made to their relationship with nature.

There were a number of changes with age in the operative aspect of self-concept. First, self-concept was found to become less externally orientated and more internally orientated. This trend was shown for both Indian and white children; however, based on the results from the transformation tasks, the progression from external orientation to internal orientation was developmentally delayed in Indian children. Finally, there was an increased emphasis on group membership for males only.

Introduction

A number of prominent authors consider self-concept to be a central component of psychological functioning and experience (Coopersmith, 1967; Maccoby, 1980; Mussen, Conger & Kagan, 1979; Perry & Bussey, 1984; Rogers, 1951; Samuels, 1977; Wylie, 1974). Carl Rogers (1951) writes that people view themselves as objects in their own phenomenal field. He states that self-concept is:

...an organized configuration of perceptions of the self which are admissible to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities which are perceived as associated with experiences and objects; and goals and ideals which are perceived as having positive or negative valence. (pp. 136-137)

Therefore, self-concept may be defined as an organized cognitive structure which contains the judgments and attitudes an individual holds of himself, the attributes and dimensions that he believes are in his possession, as well as his perceptions of his roles and relationships in society.

The Problem

Researchers in child development have investigated changes in what may be referred to as the "composition" of children's self-concept. Specifically, they have attempted to determine the differences in self-concept

between children of various ages, in terms of the dimensions and attributes which comprise self-concept, as well as the cognitive organization and structure of these dimensions and attributes. Support for "composition" changes in self-concept has been provided by a number of studies (Guardo & Bohan, 1971; Livesley & Bromley, 1973; Mohr, 1978; Montemayor & Eisen, 1971; Rotenberg, 1982).

The majority of research that has investigated differences between the self-concept of Indian and white children has relied on what may be called "evaluative" measures (e.g., Lefley, 1975, 1976). In this "evaluative" research, children are presented with a set of dimensions evaluate themselves on each, with a scale which ranges from positive to negative. This raises several important issues. Researchers have largely ignored the question of whether there are differences in the composition of self-concept between Indian and white children. In other words, investigators in this area have not assessed whether the salient dimensions and attributes, as well as their organization, are the same in the self-concept of Indian and white children. Furthermore, no attempt has been made to address the related question of whether Indian and white children show the same changes in self-concept with age.

The present research investigated the development of self-concept in Indian and white children between 8 and 13 years of age. The purpose of this research was to

determine whether there were differences between Indian and white children on: (a) the dimensions and attributes that comprise self-concept; and (b) the developmental changes in the organization and structure of self-concept.

Research on the Development of Self-Concept

Self-concept is an important facet of social development (Maccoby, 1980; Kinch, 1963; Perry & Bussey, 1984). Kinch (1963) states that "(An)...individual's conception of himself emerges from social interaction (which), in turn, guides or influences the behavior of that individual" (p. 481). Perry and Bussey (1984) proposed a four step theory of self-concept development which parallels Piaget's (1958, 1968) Cognitive Developmental Theory. This theory was guided by the notion that children's development of self-concept (or self-schema) should parallel their cognitive development since cognitive structures constitute the foundation upon which children construct their notions of self.

The first step in Perry and Bussey's (1984) theory of self-concept development is called "recognizing the physical self" (0-18 months of age). This step roughly parallels Piaget's (1968) sensorimotor stage of development. It refers to the period during which infants begin to realize that they coexist with the environment, as separate and distinct entities. During this period, Perry and Bussey propose that the infant forms an internal

image of his face and body. These authors cite research by Bertenthal and Fischer (1978) and by Lewis and Brooks (1974) which suggest that infants have formed an internal image of their face by 18 months of age.

According to Perry and Bussey's theory, the second step of self-concept development is called "perceiving the self in terms of surface attributes". This step begins with the period of language acquisition and lasts until the child is 8 or 9 years of age. It tends to parallel Piaget's (1968) preoperational and early concrete operational stages of cognitive development. During this step, children tend to use observable or physical qualities such as appearance, possessions, home, family, friends, favorite activities, etc. to describe themselves. Although children in this stage may refer to simple likes and dislikes in their self-descriptions, no reference is made to internal or psychological factors.

"The emergence of the psychological self" is the third step in Perry and Bussey's theory. This step commences at the age of 8 or 9 years. During this step children begin to use more internal factors such as thoughts and feelings as well as stable personality dispositions in their self-descriptions. Children also start to organize their personalities more in terms of underlying psychological dimensions. The third step of Perry and Bussey's theory roughly parallels the later concrete operational and the early formal operational stages of cognitive development in Piaget's (1968) theory. Support for this step may be drawn

from Livesley and Bromley's (1973) research, which found that 7-year olds' self-description included few enduring personality traits, while the self-description of 9-year olds' contained many enduring personality traits.

The final step in Perry and Bussey's theory is called "the emergence of the 'social self'". Perry and Bussey believe that the social self develops along with other aspects of self-concept. Therefore the fourth step is a separate dimension of self-concept that develops at the same time as the first three steps of self-concept formation. During this phase, there is an increase in the tendency of children to include membership in social groups in their self-descriptions (Maccoby, 1980). While the first three steps in this theory focus on children's development of a sense distinctiveness from others, the fourth step focuses on children's development of a sense of commonness with others. In this stage, children learn to develop social roles which fulfill the expectations of others. Perry and Bussey postulate that a sign of social maturity may be indicated by the children's ability to assume a variety of roles, while simultaneously adhering to their central values and beliefs that exist within their private selves.

The focus of the present research is on the second, third, and fourth steps of Perry and Bussey's (1984) theory, particularly between the ages of 8 and 13 years. This theory, as well as the developmental research, suggests that during this 5-year span children begin to

perceive themselves less externally i.e., in terms of physical qualities, possessions, etc., and more internally i.e., in terms of psychological traits. Furthermore, it has been suggested that children begin to include their membership in social groups in their self descriptions (Guardo & Bohan, 1971; Livesley & Bromley, 1973; Mohr, 1978; Montemayor & Eisen, 1977; Rotenberg, 1982). Researchers have used different testing procedures, and have somewhat different perspectives with respect to the exact nature and timing of self-concept acquisition during this period of development. Two methods have been used to investigate self-concept in the above research: (a) open-ended self-description techniques such as the "Twenty Statements" Test (Kuhn & McPartland, 1954); and (b) more structured techniques such as transformation tasks (Mohr, 1978).

The "Twenty Statements" Test was developed by Kuhn and McPartland (1954). In this measure of self-concept, subjects are requested to provide 20 answers to the question "Who am I?".

Montemayor and Eisen (1977) used the "Twenty Statements" Test to investigate the development of self-concept of children aged 10, 12, 14, 16, 18 years. They found that there were significant increases between childhood and adolescence in the use of the following categories: "Occupation Roles"; "Existential, Individuating"; "Ideological and Belief References"; "The Sense of Self-Determination"; "The Sense of Unity";

"Interpersonal Style"; and "Psychic Style, Personality". Adolescents tended to employ terms which were more internally orientated, specifically: more futuristic, abstract, interpersonal, and psychological in their self-descriptions than children. These researchers found that there were significant decreases between childhood and adolescence in the use of categories depicting a more concrete, externally orientated discription such as: "Territoriality, Citizenship"; "Possessions, Resources"; and "Physical Self, Body Image". They also found curvilinear changes from childhood to adolescence in the use of the following categories: "Sex"; "Name"; and "Kinship Roles", which reached a peak in usage by age 12, declined at age 14, then from age 16 to 18 steadily increased in usage. A curvilinear pattern was also found for the categories of "Membership in an Abstract Category" and "Judgments, Tastes, Likes", which peaked in usage by age 14, and then declined from age 16 to 18. There were no sex differences reported. Montemayor and Eisen proposed that as children grow older they begin to conceive of themselves quite differently; earlier externally orientated notions of self are either dropped or integrated into a larger, more complex internally orientated self-image.

Livesley and Bromley (1973) also used the "Twenty Statements" Test to investigate the development of self-concept in British children from kindergarten to the 4th grade. These researchers found that the frequency with which children use trait labels and enduring psychological

dispositions increased with age.

The techniques which employ self-description may have some limitations. Rotenberg (1982) suggests that one weakness posed by these techniques is that the age differences found in self-descriptive statements are confounded with the children's level of language sophistication. Specifically, younger children may be less advanced in their linguistic expression than older children, and as a result, show less mature self-concepts. Furthermore, Rotenberg proposed that the conclusions drawn from self-descriptive data may be largely dependent upon the researcher's interpretation of what the children mean by their answers. For example, a child may not have reached the stage in his self-concept development at which he understands the notion of enduring personality dispositions, and still provide statements in his self-description that may be interpreted by a researcher as displaying this understanding.

Transformations are another technique used to investigate the development of self-concept across age. In this procedure, children are asked whether they can assume an identity different from their own, such as another person, and yet maintain their own identity. One assumption of this technique is that unless a child has a sense of identity, he cannot comprehend the dilemma posed by the transformation.

Transformations were used by Guardo and Bohan (1971) to investigate the development of "personality" in children

between 6 and 9 years of age. "Personality" was defined as a child's perception of himself as a person with a unique identity. These researchers used four critical dimensions of "personality": (1) humanity - the awareness that one possesses distinctly human potential and experiences; (2) sexuality - a sense of one's own sexuality and its behavioral implications; (3) individuality - the awareness of being a distinct individual with a separate and unique identity; and (4) continuity - the experience of one's present self as being continuous from what one has been in the past as well as what one will become in the future. Guardo and Bohan found that a child's sense of personality increases with age. Younger children (6 to 8 years of age) tended to rely on behavioral and physical phenomena, while older children (9 years of age) relied on more specific personal dimensions. In contrast with the finding of no sex differences reported by Montemayor and Eisen (1977), Guardo and Bohan found that "personality" was more frequent and evident in the responses of older females than older males. Furthermore, these researchers emphasized that both "personality" and the Piagetian (1965) notion of conservation require the understanding of underlying enduring properties. These authors proposed that "personality" was the result of conservation ability and thus occurs during the concrete operational stage of development.

Transformations were also used by Mohr (1978) to explore the development of personal identity in children

from grades 1, 3, and 6. This researcher conducted individual interviews with each of the children. The questions asked were based on three transformations: (1) self-other - "What would you have to change about yourself to become your best friend?"; (2) personal continuity-future - "What will/will not change about you when you grow up?"; and (3) personal continuity-past - "What has/has not changed about you since you were a baby?". Mohr classified the children's responses into three categories: (a) external - if any reference was made to physical characteristics; (b) behavioral - if any reference was made to behavioral regularities; or (c) internal - if any reference was made to feelings, thoughts, and emotions. Mohr found that the category of responses for subjects in the 1st grade was largely external; subjects in the the 3rd grade made an equal amount of responses in the external and behavioral categories; and subjects in the 6th grade made practically no references to the external category and tended to answer largely in the behavioral category and to a lesser extent, the internal category. Mohr concluded that a child's development of self-identity follows a sequential progression from a reliance on external categories to behavioral categories, and eventually to internal categories.

In an investigation of the development of character constancy in self and in other, Rotenberg (1982) used transformations to test children from kindergarten to grade

3. Character constancy was defined as the child's belief that the social attribution of personality characteristics remains the same over time and despite changes in appearance. Rotenberg emphasized the similarity between conservation, which involved an understanding of enduring properties, and character constancy, which involved an understanding of the enduring properties of people's personalities. Rotenberg investigated self-concept using two measures of trait reference (open-ended questions and sentence completion questions) and three measures of character constancy (identity, stability, and consistency). In the character constancy measure each child was asked how kind he was (identity), across one day and seven days (stability), and with a change of clothes and then a change in facial expression (consistency). Rotenberg found that character constancy of self was acquired with age in a stage like pattern of identity, stability, and consistency. Furthermore, he found that this pattern correlates with acquisition of the Piagetian (1965) concepts of number and mass. Rotenberg's research supports the notion that cognitive ability underlies children's understanding of personality traits.

Figurative and Operative Self-Concept

Differences in the composition of self-concept may be divided into figurative and operative components. Piaget (1965) classified intelligence into figurative and operative distinctions. According to Piaget, figurative

intelligence refers to the knowledge of specific objects and events in the world, while operative intelligence is the understanding of the general principles which govern these objects and events. The figurative component of self-concept may be defined as the specific dimensions and attributes that are included in a subject's self-description. For example, a child may describe herself as a person who helps others, enjoys sharing with others, and cheers up others when they are sad. These three qualities would constitute the figurative component of her self-concept. The operative component of self-concept may be considered as the underlying organization of the attributes and dimensions, within self-concept. An example of the operative component of self-concept would be a child's acquisition of character constancy by which the child understands that she has personality traits that are stable across time. The reviewed research has primarily investigated the operative component of self-concept and its change with development (Guardo & Bohan, 1971; Livesley & Bromley, 1973; Mohr, 1978; Montemayor & Eisen, 1977; Rotenberg, 1982).

Figurative and operative distinctions within the composition of self-concept are important in cross-cultural research, such as the present investigation, in which Indian and white cultures are being examined. Figurative differences may occur between Indian and white children; for example, Indian children may frequently identify a close relationship with nature as part of their

self-concept (Means, 1981) while white children may not. Operative differences may also occur between the self-concept of Indian and white children; for example, with age white children may show an increased reliance on internal personality traits in their self-concepts (Montemayor & Eisen, 1977) while Indian children may not show the same pattern.

Piaget (1973) suggested that the impact of different cultures can affect the basic framework of cognitive development. Piaget (1977) argued that the universality of the stages of cognitive development has been supported by the replication of both the stages and their order in diverse cultural settings. However, Piaget (1973) noted that in cross-cultural investigations of cognitive development, both figurative and operative differences often occur. It has been suggested by Piaget (1974) that there are figurative differences between cultures which may be the result of differences in language, customs, values, beliefs, and environmental exposure. Piaget (1977) also proposed that there may be operative differences between cultures which may be shown in developmental delays called "decalages". Specifically, the same operative stages may occur in different cultures, however, the acquisition of these operative stages may emerge developmentally earlier or later depending upon the cultures compared. Piaget (1974) argued that "decalages" may be due to cultural differences in language, education, and social interaction patterns. If cognitive ability constitutes the basis of

self-concept development, a form of "decalage" may be evident in the development of self-concept in Indian children. Specifically, Indian children may show the same developmental changes in self-concept as white children; however, relative to white children, Indian children may experience delays in their progression through the stages of self-concept development.

Research on the Differences Between the Self-Concept of Indian and White Children

"Evaluative" measures have been used in the vast majority of research which has compared the self-concept of Indian and white children (Bienvenue, 1977; Church, 1977, 1978; Clifton, 1975; Dinges & Hollenbeck, 1978; Edeburn & Gipp, 1978; Halpin, Halpin & Whiddon, 1980, 1981; Harms, 1977; Howell, 1978; Lawitzke, 1975; Lefley, 1975, 1976; McCluskey, 1976; Moses, 1979; Senior, 1974; Wicker, 1977; Withycombe, 1973). As previously stated, with "evaluative measures" the researcher provides his subjects with a list of dimensions and attributes known to relate to self-concept and requests that they evaluate themselves on each, with a scale which ranges from positive to negative. This type of measure tends to be interpreted as self-esteem because it yields a measure of the relative "highness" or "lowness" of self-concept.

Lefley (1975) used "evaluative" measures to examine the effects of language and examiner's race on the

self-concept of Mikasuki and Seminole Indian school children between 7 and 11 years of age. The scales she used to measure self-concept were: (1) the Piers-Harris Children's Self-Concept Scale (Piers, 1969); (2) a modified version of the Word Rating Scales; and (3) the Coopersmith Behavior Rating Form (Coopersmith, 1967). Lefley found that on the Word Rating Scales, Indian children scored a significantly higher personal self-concept and a significantly lower ethnic self-concept in their own language than in English. On the Piers-Harris Children's Self-Concept Scale, Indian children scored a significantly lower self-concept than the scale's normative population; however, less variability was found in this Indian sample than was recorded for the normative population. Lefley, aware of the limitations of evaluative measures, questioned whether some of the anglo indicators of self-concept found in these measures were salient for Indian children.

Evaluative measures such as the Piers-Harris Children's Self-Concept Scale (Piers, 1969) and the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) have been criticized by McGuire and Padawer-Singer (1976) for the limited information they provide about self-concept and the over-emphasis they place on the subject's evaluation of self.

...researchers (have) measured the self-concept almost exclusively by information losing "reactive methods", that is by studying subjects' reactions to a dimension chosen a priori by the researcher. Subjects are reduced to

saying how they would think of themselves with respect to the given dimensions if they happened to think of it at all, without furnishing any information on the more important question of how salient the dimension is to them.

...this research chosen dimension is almost always self-evaluative or self-esteem, as if thoughts about ourselves are concerned almost entirely with how good we are...the study we report here suggests that when people are allowed more freedom in describing themselves, fewer than 10% of their thoughts deal with self-evaluation. (p. 743)

McGuire and Padawer-Singer (1976) questioned whether the dimensions and attributes posed by evaluative tests were "salient" to their subject's self-concept.

Cress and O'Donnell (1975) attempted to determine whether the fundamental components of the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) were relevant to the self-esteem of the Oglala Sioux. In Coopersmith's Self Theory (Coopersmith, 1967), self-esteem is based on power, significance, competence, and virtue. In the anglo culture these factors have been found to correlate with academic success, and peer group popularity, and therefore have been considered as salient dimensions of self-concept, critical to self-esteem. In the Oglala Sioux culture the traditional value system is based on bravery, generosity, and individual autonomy. To investigate this issue Cress and O'Donnell administered the Coopersmith Self-Esteem Inventory and the Thinking About Yourself Inventory to 104 Oglala Sioux high school students. The Coopersmith Behavior Rating Form was completed for each of the students by their teachers. Cress and O'Donnell obtained a measure

of peer-rated popularity for each student, as well as their grade-point average, to serve as criteria of success. The correlations between the self-esteem inventories and the criteria of success were not significant. Since the validity of the Coopersmith Self-Esteem Inventory is based upon its relationship with the aforementioned criteria of success, Cress and O'Donnell concluded that this inventory was not an accurate measure for the Oglala Sioux. They recommended that the assessment of self-concept for Indian populations must take into account dimensions and attributes of self-concept that may be different from white Americans.

Projective techniques have also been used by researchers to measure Indian and white self-concept. This research has yielded information on both the composition of Indian self-concept (Bromberg & Hutchison, 1974; and Schuster, 1978); and the evaluative differences between Indian and white self-concept (Corenblum & Wilson, 1982; Hunsberger, 1978; and Rosenthal, 1974).

Bromberg and Hutchison (1974) used the projective technique of human figure drawings to compare the self-concept of Peyote Indians and whites. These researchers concluded that one distinguishing factor between Peyote Indians and whites was that the Peyote regarded their inner selves as an individualistic guide to life, which was very personal and private. Furthermore, the Peyote tended to recognize the body as the unit of social exchange and therefore preferred to be taken at

"body value" without undue invasion of their inner thoughts.

Hunsberger (1978) also used projective techniques to compare the self-concept of Indian and white children. He administered the Clark and Clark technique of doll choice and a human figure drawing of the child and his family to each of his subjects. Hunsberger established that selection of the doll resembling the child's own race in response to positive questions (e.g., Which doll looks nicer?) and the doll resembling the opposite race in response to negative questions (e.g., Which doll looks worse [bad]?), would indicate high self-concept. On the human figure drawings he used the size of the figures to indicate the level of self-concept. Hunsberger found that Indian children chose the doll of their own race in response to negative questions more frequent than white children. He also found that Indian children drew smaller figures than white children. Therefore Hunsberger concluded that Indian children have a lower self-concept than white children.

While "projective" research is of some interest, there are a number of methodological and psychometric limitations to this approach. Projective techniques have been criticized by Anastasi (1976) as being inadequately standardized with respect to administration, scoring, and normative data. She added that projective techniques have very poor reliability and validity.

Projective techniques are used in cross-cultural

research because they are assumed to be less culturally specific than structured tests. However, Dinges and Hollenbeck (1978) have suggested that the assessment of self-concept with non-verbal measures may serve to further confound the translation problem. They proposed that sources of error in the responses elicited by these techniques may be impossible to detect due to the difficulty in establishing the cultural equivalence of projective measures. One reason they cited for this was that the stimuli used in these procedures were too unstructured. These researchers also argued that subjects may not approach projective tasks seriously because they may not perceive them as tests.

Some researchers have used the "Twenty Statements" Test to investigate differences in self-concept between Indian and white children. George and Hoppe (1979) used this measure and a picture preference test to investigate the relationship between racial identification, preference, and self-concept in Indian and white school children. These children attended grades 2, 4, and 6 of segregated and integrated schools. George and Hoppe found that Indian children who attended segregated schools, and Indian males in general, scored higher self-esteem (wrote more statements depicting achievement) than Indian children attending integrated schools, and Indian females. Although racial awareness increased with grade level for both cultures, "Indianness" was not found to be a strong enough dimension of self to be mentioned on the "Twenty

Statements" Test by the Indian children. Racial preference was positively related to higher self-esteem for younger Indian children (grades 2 and 4); however, this relationship was not found for older Indian children (grade 6). George and Hoppe suggested that older Indian children may rely upon dimensions other than race for positive self-regard.

The major limitation of George and Hoppe's research is in its rather superficial analysis of the differences between the responses made by Indian and white children on the "Twenty Statements" Test. This research tended to focus almost exclusively on self-esteem. A number of potential attributes and dimensions, such as: ascribed characteristics; roles and memberships; abstract identifications; interests and activities; etc., were not considered in their analysis. Furthermore, these researchers did not investigate developmental differences in self-concept between Indian and white children.

Research on the Indian Culture

Indian culture has largely been a subject of anthropological and sociological investigations. The problem posed by this line of research is that terms such as self-concept are poorly operationalized and are poorly tested, if tested at all. Despite the limitations of these investigations, they are used in the present study to provide some information about the differences that may

be found in the composition of self-concept between Indian and white children.

Means (1981) wrote that in the Lakota culture, life is viewed as spiritual and that maintaining a harmonious relationship with nature is a fundamental belief. According to Means, Lakota Indians frown upon the acquisition of material goods, which is considered as an attempt to gain false status within the tribe. In the Lakota culture tribal status is based in part upon what one gives away, not on what one owns.

Aspects of the Ojibwa self were investigated by Hallowell (1955) and later by Hay (1977). Both researchers concluded that the Ojibwa self contains the following core characteristics: (1) strong emotional restraint, especially for the expression of anger, (2) a tendency to become angry with the slightest provocation, although this anger is repressed, and (3) a dependency on supernatural beings, the "pawaganak" or dream visitors, which are believed to control destiny.

The literature on Indian psychosocial adjustment was reviewed by Slaslow and Harrover (1968). They noted that between the 4th and 7th grade, academic achievement in Indian youth declines. These reviewers suggested that this trend in Indian students was found to be accompanied by feelings of powerlessness, normlessness, meaninglessness, social isolation, self-estrangement, a lack of self-control and industriousness, hopelessness, frustration, low self-worth, and hostility toward the white

society.

Katz (1979) observed Saulteaux-Ojibwa youths from 7 to 10 years of age. He found that these children were given more authority over their lives, (e.g., chose whether they would go to school, where they lived, etc.) and thus displayed greater independence than white children. Katz noted that Saulteaux-Ojibwa children tended to prefer immediate over delayed gratification. He also commented that this culture places a stronger emphasis on sharing and family loyalty than the dominant culture.

The impact of acculturation on Indian self-concept has been widely investigated. Acculturation refers to the abandonment of a minority's traditional ethnic customs, values, and beliefs for those of the dominant culture. In the acculturation research on the Indian culture, this variable has been measured demographically and behaviorally and is generally expressed in relative terms or in degrees. Criteria used to measure the extent of acculturation in Indian communities include: proximity and access to the white society (e.g., mass media including television, radio, and newspapers); language spoken; religion; occupation; education; adherence to cultural roles, values and beliefs; preference for "western" food and clothing; hospitalization; modernization; etc. Acculturation research has been conducted primarily on Cree, Ojibwa, and Saulteaux-Ojibwa Indians. For the most part, the findings suggest that acculturation has a detrimental effect on Indian identity causing identity

confusion and acculturative stress (Boggs, 1958; James, 1961; Katz, 1979; Saslow & Harrover, 1968; Winthrob & Diamen, 1974). In contrast, research conducted by Chance (1965) on the Barter Island Eskimo revealed few signs of acculturative stress in this culture, which he described as successfully adjusting to the rapid social changes caused by their sudden exposure to the white society.

The relationship between acculturative stress and cultural differentiation was investigated by Berry and Annis (1974). These researchers obtained two samples which differed in anglo contact from three tribes: Cree, Carrier, and Tsimshian. They found that acculturative stress varied across tribes. The greatest amount of acculturative stress was found in the Cree, who were low on the food accumulating dimension. The least amount of acculturative stress was found in the Tsimshian who were traditionally sedentary. Berry and Annis proposed that a relationship may exist between high acculturative stress and a low desire to maintain positive ties with the dominant culture.

Barger (1977) investigated the effect of acculturation on the psychosocial adjustment of the Cree and Inuit in a northern settlement. He found that the Inuit, who attempted to become integrated with the white society, suffered far less psychosocial stress than the Cree, who tried to remain segregated. Barger concluded that the relationship between change and psychosocial adjustment depended on the interaction of the situation and the

ethnic orientation of the culture.

The research on Indian culture indicates that Indian children may differ from white children on a number of attributes and dimensions. Indian children may place a greater emphasis on: nature, independence, sharing, emotion, and family loyalty than white children. Indian children may place a lesser emphasis on possessions and have a more negative attitude towards formal education than white children. However, the extent of these differences may depend upon the degree of acculturation experienced by the Indian children.

The Present Study

The present research was designed to investigate the self-concept of Indian and white elementary school children between the ages of 8 and 13 years. The focus of this research was on the differences between Indian and white children on: (1) the figurative dimensions and attributes comprising self-concept; and (2) the developmental changes in the structure and organization of the operative component of self-concept.

In this investigation self-concept was assessed on group-administered measures. Children were tested in their home room by their regular teachers. Since the Indian students were attending a school staffed primarily by Indian teachers, these students were often being assessed by familiar adults who were of the same race. Research has

shown that optimal performance on measures of self-concept is achieved by Indian children when these conditions are met (Corenblum & Wilson, 1982; Lefley, 1975).

The use of group-administered tests to assess self-concept made it necessary to measure children who were somewhat older than initially desired, specifically children attending grades 3 to 6. It was reasoned that by the third grade, children would have the necessary language, self-control, and test-taking skills that would enable them to take group-administered tests. One outcome of this methodology was a reduction in the sensitivity of the study to developmental changes because of the limited age span. Consequently, two of the three measures chosen for this study have shown developmental changes across this age span in previous research conducted by Montemayor and Eisen (1977), and Mohr (1978). Findings from both of these investigations have shown what is defined in the present study as the operative components of self-concept, specifically, the change from external orientation to internal orientation with age.

In the present study, 3 measures of self-concept were administered:

(1) The "Twenty Statements" Test (Kuhn & McPartland, 1954) was primarily used to collect figurative data on the children's self-concept. However, this scale was also used to collect operative data on the children's self-concept, specifically, the progression with age from external

orientation to internal orientation, and the development in the use of social roles.

(2) Mohr's (1978) transformation tasks were employed to measure the operative component of the children's self-concept.

(3) The modified Piers-Harris Children's Self-Concept Scale (Piers, 1969) was an exploratory measure that was used as a pilot scale to assess the figurative component of the children's self-concept.

The "Twenty Statements" Test is an unstructured test that was used to measure children's spontaneous self-concept. In this scale the children were asked to formulate up to 20 statements that described themselves. This test was considered to give an advantage to the older children of this study because of their advanced verbal fluency. Therefore, the modified version of the Piers-Harris was designed to compensate for the verbal disadvantage of younger children by providing a list from which children chose the dimensions and attributes that they would include in their self-descriptions.

Research on Indian culture, although somewhat limited in terms of its methodology, indicated that Indian children may be different than white children on a number of dimensions and attributes of their figurative self-concept. These dimensions and attributes would be detected by changes on specific items of the modified

Piers-Harris (referred to in this section as the MPH), and on specific categories of the "Twenty Statements" Test (referred to in this section as the TST). The hypothesized figurative differences between the self-concept of Indian and white children include: (1) Indian children would place a greater emphasis on nature than white children e.g., Indian children would agree more often than white children to the item "How much I like the outdoors." on the MPH (Means, 1981); (2) Indian children would place a greater emphasis on independence than white children e.g., Indian children would agree more often than white children to the item "How well I can do things on my own." on the MPH, and would make more statements that were coded in the "Sense of Competence" category than white children on the TST (Katz, 1979); (3) Indian children would place a greater emphasis on family ties than white children e.g., Indian children would agree more often than white children to the item "How much I feel a part of my family." on the MPH, and would make more statements that were coded in the "Kinship Role" category than white children on the TST (Katz, 1979); (4) Indian children would place a greater emphasis on emotion than white children e.g., Indian children would agree more often than white children to the item "How happy or sad I am." on the MPH (Hallowell, 1958; Hay, 1977); (5) Indian children would place a lesser emphasis on possessions than white children e.g., Indian children would agree less often than white children to the item "The things that I own." on the MPH, and would make fewer

statements that were coded in the "Possessions, Resources" category than white children on the TST (Means, 1981); (6) Indian children would place a greater emphasis on sharing than white children e.g., Indian children would agree more often than white children to the item "How much I share with others." on the MPH (Means, 1981; Katz, 1979); (7) Indian children would have a greater respect for traditional customs and beliefs than white children e.g., Indian children would agree more often than white children to the items "Whether I know about the things that my elders or grandparents did.", "The church I go to.", and "How trustworthy I am." on the MPH, and would make more statements that were coded in the "Moral Worth" category than white children on the TST (Means, 1981); and (8) Indian children would be less positive in their attitude toward formal education than white children e.g., Indian children would agree less often than white children to the item "How much I like school." on the MPH and would make fewer statements that were coded in the categories of "Student Role" and "Intellectual Concerns" than white children on the TST (Slaslow & Harrover, 1968). The research on Indian culture also indicated that the extent to which Indian children differ from white children on these dimensions and attributes may depend on the degree of acculturation in the present Indian sample (Barger, 1977; Berry & Annis, 1974)

On the basis of the research on the development of self-concept, it was hypothesized that with age, the

operative self-concept of white children would become: (1) less external orientated, (Guardo & Bohan, 1971; Livesley & Bromley, 1973; Montemayor & Eisen, 1977); and (2) more internal orientated (Guardo & Bohan, 1971; Mohr, 1978; Montemayor & Eisen, 1977; Perry & Bussey, 1984). It was also hypothesized that with age there would be a greater emphasis on group membership in the self-concept of white children (Maccoby, 1981; Montemayor & Eisen, 1977; Perry & Bussey, 1984). Since the research on the development of self-concept was conducted exclusively on white children, it was unclear whether the operative self-concept of Indian children would show the same developmental patterns. These operative hypotheses were to be tested on the "Twenty Statements" Test and on Mohr's transformation tasks.

Method

Subjects

A total of 220 children were surveyed. The sample contained 71 Indian and 149 white children who attended grades 3 to 6 of schools located in the same geographic region.

The Indian sample consisted of 41 males (M age = 11.28 years) and 30 females, (M age = 11.22 years). These children were from the Cowesses, Ochapowace, Kahkewestahan, Sikimay and White Bear bands, and attended a segregated Indian school situated on an Indian reserve about 200 Kilometers from Brandon, Manitoba.

The white sample consisted of 82 males (M age = 10.45 years), and 67 females (M age = 10.60). These children attended public school in Brandon, Manitoba.

Testing Materials

The survey (Appendix A) consisted of a demographic data sheet and three measures of self-concept: The "Twenty Statements" Test (Kuhn & McPartland, 1954); transformation tasks (Mohr, 1978); and a modified version of the Piers-Harris Children's Self-Concept Scale (Piers, 1969).

On the demographic sheet (Appendix A, p.103), subjects were requested to indicate their sex, grade, date of birth, the date of the survey, and their age.

For the "Twenty Statements" Test (Appendix A, p.104), subjects were handed a piece of paper with the question "Who am I?" printed at the top and the following instructions:

There are 20 numbered spaces on the paper in front of you. I want you to tell me about yourself by writing 20 answers to the question "Who am I?". Answer as if you were giving the answers to yourself, not to someone else. Write the answers down in the order that they come to you. Go quickly because time is limited.

This was accompanied by 20 numbered spaces. Approximately 12 minutes were required to complete this measure.

For the second scale (Appendix A, p.105), subjects were asked a series of questions that were based on three transformations: (1) self-other - "What would have to change about yourself to become your same-sexed best friend?"; (2) personal continuity-future - "What will/will not change about you when you grow up?"; (3) personal continuity-past - "What has/has not changed about you since you were a baby?". Approximately 20 minutes were required to complete this measure.

The third test was a modified version of the Piers-Harris Children's Self-Concept Scale (Appendix A, pp.107-108). Subjects were given a list of 30 dimensions and attributes from Piers's (1969) scale and were requested to indicate the ones which they would include in their self-descriptions by circling "yes", and the ones which they would not include in their self-concepts by circling "no". Approximately 13 minutes were required to complete

this scale.

Procedure

All testing materials were prepared in advance and mailed to the schools that agreed to conduct the surveys. Care was taken to insure that each school received a sufficient supply of test booklets (Appendix A) and instruction packages (Appendix B). All the booklets were pre-numbered to prevent misidentification (Booklets 1-100 were sent to the Indian school and Booklets 101-280 were sent to the white school). The prenumbering system also was used as a means of insuring anonymity. This system replaced the use of the children's name in the identification of test booklets.

Teachers were trained to conduct the assessments by first attending seminars that were coordinated by their principals. They also received a set of detailed instructions on survey administration (Appendix B). In addition, the instructions for each test were printed in the subjects' test booklets (Appendix A).

Subjects were tested on a group basis by class. The surveys were conducted in the subjects' regular classroom during normal school hours. Each subject received a test booklet. Students were informed that all answers were to be written in their test booklets. For each measure, teachers read the instructions out loud while subjects read them silently. Subjects were not allowed to go ahead

or remain behind on the survey. The survey required approximately 45 minutes to complete.

Results

Coding

Responses to the "Twenty Statements" Test (Kuhn & McPartland, 1952) were coded on Gordon's (1968) configurations of content, which is a classification system that consists of 30 categories depicting different dimensions and attributes of self-concept (see Appendix C). Coding was completed by two independent raters who were naive to the objectives of the investigation. The transformation tasks were scored on the three-category system outlined by Mohr (1978), in which: (1) External - referred to "...physical characteristics, name, age, possessions, etc." (p. 428); (2) Behavioral - referred to "...regularity in behavior, or if a trait name was expressed in behavioral terms." (p. 428); and (3) Internal - "...if [the answer] included any reference to feelings, thoughts, knowledge..." (p. 428), as well as personality characteristics. Responses to the modified Piers-Harris Self-Concept Scale were analyzed directly from the raw data.

Inter-rater Reliability

Inter-rater reliability was based on 20 randomly selected surveys that were coded by both raters. Inter-rater reliability was calculated for each of Gordon's

(1968) 30 categories, and on Mohr's (1978) three-category classification scheme for each of the five transformations using the following formula:

TOTAL AGREEMENTS

TOTAL AGREEMENTS + TOTAL DISAGREEMENTS

Inter-rater reliability for the "Twenty Statements" Test ranged from 50% to 100%, with a mean inter-rater agreement of 94% across all categories (see Table 1). Inter-rater reliability for Mohr's Transformations ranged from 85% to 100%, with a mean inter-rater agreement of 96% across the five transformations (see Table 2).

Insert Tables 1 and 2 about here

Age Analysis

One concern in the present study was whether Indian and white children were the same age in each of the four grades. In order to assess for potential age differences, the children's ages were subjected to a 2(race) x 2(sex) x 4(grade) ANOVA. Effects yielded by the analysis were subsequently tested on a Newman Keuls post hoc analysis.

TABLE 1

Inter-rater Reliability for Gordon's (1968) Categories of Content

Category	r_{xx}^a
1. Sex	1.00
2. Age	1.00
3. Name	1.00
4. Racial or National Heritage	1.00
5. Religious Categorization	1.00
6. Kinship Role	1.00
7. Occupation Role	1.00
8. Student Role	.95
9. Political Affiliation	1.00
10. Social Status	1.00
11. Territoriality, Citizenship	.66*
12. Membership in Actual Interacting Group	.94
13. Existential, Individuating	1.00
14. Membership in an Abstract Category	.83*
15. Ideological and Belief References	1.00
16. Judgments, Tastes, Likes	.97
17. Intellectual Concerns	.92
18. Artistic Activities	.82*
19. Other Activities	.96
20. Possessions, Resources	1.00
21. Physical Self, Body Image	.98
22. The Sense of Moral Worth	.97
23. The Sense of Self-determination	1.00
24. The Sense of Unity	1.00
25. The Sense of Competence	.86
26. Interpersonal Style	.96
27. Psychic Style, Personality	1.00
28. Judgments, Imputed to Others	.50*
29. Situational References	1.00
30. Uncodable Responses	.89
Mean Agreement	.94

Note: Inter-rater reliability coefficients marked with a "*" are low due to infrequent usage of the category.

^ainter-rater reliability coefficient.

TABLE 2
Inter-rater Reliability for Mohr's (1978) Transformations

Transformation	r_{xx}^a
1. What would you have to change about yourself so that you could become your best friend? (same sexed)	1.00
2. What has changed about you since you were a baby?	1.00
3. What has <u>not</u> changed about you since you were a baby?	.85
4. What will change about you when you grow up?	.95
5. What will <u>not</u> change about you when you grow up?	1.00
Mean Agreement	.96

Note: ^aInter-rater reliability coefficient.

This analysis yielded five patterns of significance (as shown in Table D-1). There were three main effects: race $F(1,204) = 41.983, p < .01$; sex $F(1,204) = 5.935, p < .05$; and grade $F(3,204) = 228.545, p < .01$; which were qualified by two interactions (the means for the two interactions are shown in Tables 3 and 4). First there was a race x grade interaction, $F(3,204) = 14.238, p < .01$, in which Indian children were older than white children in all four grades, however, this trend was particularly evident in the fifth grade (see Table 3). There was also a race x sex interaction, $F(1,204) = 7.860, p < .01$, in which Indian males and females were found to be older than white males and females, (see Table 4).

Insert Tables 3 and 4 about here

The effects of grade and sex on age were controlled by abandoning the grade variable and replacing it with a new variable by recoding age. The sample was divided into three age groups using 1.5 year intervals. These three age groups were: (1) younger (\bar{M} age = 9.4 years); (2) middle aged (\bar{M} age = 10.7 years); and (3) older (\bar{M} age = 12.2 years). As a result of recoding by age, eight older Indian males and three older Indian females were excluded from the analysis (the mean age and number of subjects per cell for the breakdown of the population sample using

TABLE 3
Mean Ages for the Race x Grade Interaction

Race	Grade			
	3	4	5	6
Indian	9.66 (16)	10.50 (22)	12.34 (16)	12.71 (17)
White	9.23 (49)	10.31 (35)	11.12 (30)	12.00 (35)

Note: The number of subjects is shown in brackets.

TABLE 4
Mean Ages for the Race x Sex Interaction

Race	Sex	
	Male	Female
Indian	11.28 (41)	11.22 (30)
White	10.45 (82)	10.60 (67)

Note: The number of subjects is shown in brackets.

grade are shown in Table 5, and using the recoded age variable, in Table 6). The children's age was then subjected to a 2(race) x 2(sex) x 3(age group) ANOVA (shown in Table D-2). As expected this analysis yielded an effect of age, $F(2,197) = 724.663, p < .01$. A Newman Keuls post hoc analysis revealed that age was significantly different between each age group. No other effects or interactions were significant in this analysis. Therefore, recoding was successful in eliminating the differences of in age between Indian and white children as well as between males and females of each age group.

Insert Tables 5 and 6 about here

The "Twenty Statements" Test

There was some concern that statement productivity may have been a confounding variable. Specifically, there was a possibility that younger children might have made fewer statements than older children. In order to assess for differences in statement productivity, the number of statements the subjects made were subjected to a 2(race) x 2(sex) x 3(age) ANOVA. The effects yielded by this ANOVA were subjected to a Newman Keuls post hoc analysis. The ANOVA detected four patterns of significance (this analysis is shown in Table D-3). There were main effects

TABLE 5
Mean Age and Number of Subjects Using the Grade Variable

Race	Sex	Grade			
		3	4	5	6
Indian	Male	9.83 (12)	10.68 (14)	13.00 (8)	13.00 (7)
	Female	9.13 (4)	10.19 (8)	11.69 (8)	12.50 (10)
White	Male	9.23 (28)	10.31 (21)	11.24 (17)	11.91 (16)
	Female	9.24 (21)	10.32 (14)	10.96 (13)	12.08 (19)

Note: The number of subjects is shown in brackets.

TABLE 6
Mean Age and Number of Subjects Using the Age Variable

Race	Sex	Age		
		Younger	Middle	Older
Indian	Male	9.50 (10)	10.61 (13)	12.16 (10)
	Female	9.37 (7)	10.88 (10)	12.31 (10)
White	Male	9.34 (34)	10.72 (28)	12.08 (20)
	Female	9.32 (24)	10.62 (21)	12.13 (22)

Note: The number of subjects is shown in brackets.

of race, $F(1,197) = 58.452$, $p < .01$ and sex, $F(1,197) = 14.646$, $p < .01$, which were qualified by two interactions (the means for these interactions are shown in Tables 7 and 8). First there was a race x sex interaction, $F(1,197) = 6.223$, $p < .05$, in which Indian males made fewer statements than all other cells, and Indian females made fewer statements than white females (see Table 7). There was also a race x age interaction, $F(2,197) = 8.292$, $p < .01$, in which younger and middle aged Indian children made fewer statements than all other cells (see Table 8). In the following analysis differences in statement productivity were controlled by expressing the categories for each subject as a proportion of the number of statements the subject made.

Insert Tables 7 and 8 about here

The responses made by subjects to the "Twenty Statements" Test were analyzed to determine the differences between the figurative self-concept of Indian and white children. First these responses were coded on Gordon's (1968) classification system (Appendix C). Three of Gordon's categories were excluded from the analysis because of infrequent usage. The remaining 27 categories were converted to proportions and then were subjected to a 2(race) x 2(sex) x 3(age) MANOVA analysis. The analysis

TABLE 7
Mean Number of Statements Made for the
Race x Sex Interaction on the 'Twenty Statements' Test

Race	Sex	
	Male	Female
Indian	10.82 (33)	15.81 (27)
White	17.49 (82)	18.79 (67)

Note: The number of subjects is shown in brackets.

TABLE 8
Mean Number of Statements Made for the
Race x Age Interaction on the 'Twenty Statements' Test

Race	Age		
	Younger	Middle	Older
Indian	11.18 (17)	11.30 (23)	16.70 (20)
White	18.43 (58)	17.98 (49)	17.69 (42)

Note: The number of subjects is shown in brackets.

yielded both main effects and interactions. First the higher order interactions were considered. Corresponding univariate analyses were carried out on the 27 categories. The means of the categories detected by the univariate analyses were subjected to a Newman Keuls post hoc analysis. This procedure was repeated for the main effects, however, only the categories that were not qualified by higher order interactions were considered for further analysis.

The MANOVA analysis yielded five patterns of significance (this analysis is shown in Table D-4). There were two significant interactions. First there was a race x sex x age interaction, Wilk's $F(27,171) = 1.787$, $p < .01$. Univariate analyses indicated that this interaction was evident in the following categories (the univariate analyses are shown in Table D-5 and the means for the categories are shown in Table 9). The category of "1. Sex", $F(2,197) = 6.546$, $p < .01$, was higher for younger female as well as younger and middle aged male Indian children than for all other cells. The category of "3. Name", $F(2,197) = 4.773$, $p < .01$, was higher for younger female Indian children than for younger male Indian and older female white children. The category of "4. Racial or National Heritage", $F(2,197) = 5.381$, $p < .01$, was higher for middle aged male Indian children than for all other cells. Some support was yielded for the hypothesis that Indian children would show a less positive attitude toward school than white children on the "8. Student Role"

category, $F(2,197) = 5.132$, $p < .01$, which was higher for older female white and was unexpectedly higher for middle aged female Indian children than for older female and middle aged male Indian children.

Insert Table 9 about here

There was also a race x age interaction, Wilk's $F(54,342) = 1.880$, $p < .01$. Univariate analyses indicated that this interaction was evident in the following categories (the univariate analyses are shown in Table D-6 and the means for the categories are shown in Table 10). The category of "2. Age", $F(2,197) = 8.538$, $p < .01$, was higher for younger and middle aged Indian children than for all other cells. The "19. Other Activities" category, $F(2,197) = 4.976$, $p < .01$, was lower for younger Indian children than for all other cells. Partial support for the hypothesis that Indian children would place a greater emphasis on independence was yielded by the "22. Sense of Competence" category, $F(2,197) = 11.728$, $p < .01$, which was higher for older Indian children than for all other cells, but was lower for younger Indian children than for all other cells.

TABLE 9
Mean Proportions of Gordon's (1968) Categories
for the Race x Age x Sex Interaction

Race	Sex	Age	Category			
			1	3	4	8
Indian	Male	Younger	.30	.00	.04	.04
		Middle	.34	.05	.09	.02
		Older	.08	.01	.01	.05
	Female	Younger	.39	.07	.02	.08
		Middle	.18	.03	.00	.10
		Older	.12	.03	.03	.03
White	Male	Younger	.10	.03	.00	.04
		Middle	.06	.02	.01	.04
		Older	.08	.01	.01	.06
	Female	Younger	.10	.02	.00	.05
		Middle	.04	.01	.00	.04
		Older	.04	.00	.00	.10

Insert Table 10 about here

The MANOVA yielded three significant main effects. First there was an effect of race, Wilk's $F(27,171) = 5.584$, $p < .01$. Univariate analyses indicated that this effect was evident in the following categories (the univariate analyses are shown in Table D-7 and the means for the categories are shown in Table 11). Consistent with the hypothesis that the Indian children would place a greater emphasis on family ties than white children, the category of "6. Kinship Role", $F(1,197) = 7.107$, $p < .01$, was higher for Indian children than for white children. Support for the hypothesis that Indian children would have a greater respect for traditional customs and beliefs was yielded by the "25. Sense of Moral Worth" category, $F(1,197) = 19.157$, $p < .01$, which was also higher for Indian children than for white children. Furthermore, the effect of race was evident in the categories of "27. Psychic Style, Personality", $F(1,197) = 26.442$, $p < .01$, and "30. Uncodable", $F(1,197) = 6.994$, $p < .01$, which were higher for Indian children than for white children. The categories of "16. Judgments, Tastes, Likes", $F(1,197) = 21.727$, $p < .01$, and "18. Artistic Activities", $F(1,197) = 10.031$, $p < .01$, were lower for Indian children than for white children. The hypothesis that Indian children would be less positive in their attitudes toward formal education than white

TABLE 10
Mean Proportions of Gordon's (1968) Categories
for the Race x Age Interaction

Race	Age	Category		
		2	19	22
Indian	Younger	.34	.06	.01
	Middle	.27	.16	.11
	Older	.10	.29	.33
White	Younger	.10	.22	.17
	Middle	.05	.23	.15
	Older	.06	.23	.11

children was supported by the "17. Intellectual Concerns" category, $F(1,197) = 8.024$, $p < .01$, which was lower for Indian children than for white children.

Insert Table 11 about here

There was an effect of age, Wilk's $F(54,342) = 1.802$, $p < .01$. Univariate analysis indicated that this effect was evident in the following category (the univariate analyses are shown in Table D-8 and the means for the category are shown in Table 12). There was an increase with age in the category of "16. Judgments, Tastes, Likes", $F(2,197) = 5.396$, $p < .01$, in which older children scored higher than younger children.

Insert Table 12 about here

There was an effect of sex. Although the Eigenvalues failed to converge in the MANOVA analysis, the univariate analyses indicated that this effect was evident in the following categories (the univariate analyses are shown in Table D-9 and the means for the categories are shown in Table 13). In this effect, females were higher than males in the following categories: "6. Kinship Role", $F(1,197)$

TABLE 11
Mean Proportions of Gordon's (1968) Categories
for the Effect of Race

Race	Category						
	6	16	17	18	25	27	30
Indian	.04	.14	.02	.02	.04	.06	.03
White	.02	.30	.05	.05	.01	.01	.01

TABLE 12
Mean Proportions of Gordon's (1968) Categories
for the Effect of Age

	Category
Age	16
Younger	.20
Middle	.26
Older	.32

= 12.068, $p < .01$, and "21. Physical Self, Body Image", $F(1,197) = 13.908$, $p < .01$.

Insert Table 13 about here

Differences between the operative self-concept of Indian and white children were assessed by analyzing three scales derived from Gordon's (1968) classification scheme. The three scales were: (1) external orientation - which consisted of the categories "1. sex", "2. Age", and "20. Possessions, Resources"; (2) internal orientation - which consisted of the categories "26. Interpersonal Style" and "27. Psychic Style, Personality"; (3) social roles - which consisted of the categories "6. Kinship Role", "7. Occupation Role", "8. Student Role", "11. Territoriality, Citizenship", and "12. Actual Group Membership". The average score of each scale was calculated, based on the number of categories from which the scale was composed. The average scale scores were subjected to a 2(race) x 2(sex) x 3(age) x 3(scales) ANOVA with repeated measures on the last variable. The patterns of significance yielded were tested for linearity and were subjected to Tukey post hoc analyses. The main concern in this study was to examine the changes with age in these scales. Comparisons between the scales were not performed

TABLE 13
Mean Proportions of Gordon's (1968) Categories
for the Effect of Sex

Sex	Category	
	6	21
Male	.01	.08
Female	.04	.15

because: (a) the scales were conceptually different; and (b) the scales were comprised of a different number of categories.

The ANOVA performed on the three scales yielded eight patterns of significance (this analysis is shown in Table D-10). There were three main effects: race, $F(1,197) = 48.684, p < .01$; age, $F(2,197) = 5.060, p < .01$; and scales, and five interactions: $F(2,394) = 41.552, p < .01$; and race x age, $F(2,197) = 7.026, p < .01$; race x scales, $F(1,394) = 13.543, p < .01$; and age x scales, $F(1,394) = 5.40, p < .01$, which were all qualified two remaining interactions. First there was a race x age x scales interaction, $F(4,394) = 4.899, p < .01$ (the means for this interaction are shown in Table 14). A test for linearity indicated that consistent with the hypothesis, with age there was a decrease in external orientation. Moreover this trend was shown for both Indian children (linear $F(1,57) = 28.90, p < .01$) and white children (linear $F(1,146) = 13.53, p < .01$). The Tukey post hoc analysis indicated that younger and middle aged Indian children scored higher on the external orientation scale than younger and middle aged white children. The hypothesis that with age children's operative self-concept would become more internally orientated was not supported on the internal orientation scale. However, on the internal orientation scale there was a curvilinear pattern shown for Indian children (linear $F(1,57) = 4.534, p < .05$), in which internal orientation decreased for middle aged Indian children and increased for older Indian children.

This pattern was not shown for white children. Tukey post hoc analysis indicated that internal orientation was higher for younger and older Indian children than for younger and older white children.

Insert Table 14 about here

There was also a sex x age x scales interaction, $F(4,394) = 4.165, p < .01$, (the means for this interaction are shown in Table 15). Tests for linearity indicated that consistent with the hypothesis, as age increased, external orientation decreased for both males (linear $F(1,112) = 19.95, p < .01$) and females (linear $F(1,91) = 15.83, p < .01$). The Tukey post hoc analysis indicated that middle aged males scored higher on the external orientation scale than middle aged females. On the internal orientation scale, the hypothesis that internal orientation would increase with age was supported for females only. Internal orientation increased for females (linear $F(1,91) = 7.40, p < .01$) but decreased for males (linear $F(1,112) = 14.61, p < .01$). The Tukey post hoc analysis indicated that older females scored higher on the internal orientation scale than older males. The hypothesis that with age there would be a greater emphasis on group membership in the self-concept of white children was supported for males only. Tests for linearity indicated that the social roles

TABLE 14

Mean Scale Scores for the Race x Age x Scales
Interaction on the 'Twenty Statements' Test

Race	Age	Scales		
		External	Internal	Social Roles
Indian	Younger	.180	.108	.037
	Middle Age	.142	.057	.019
	Older	.054	.097	.026
White	Younger	.069	.053	.020
	Middle Age	.046	.057	.022
	Older	.045	.055	.031

scale increased for males (linear $F(1,119) = 55.85$, $p < .01$). In addition, the Tukey post hoc analyses indicated that older males scored higher on the social roles scale than older females.

Insert Table 15 about here

Transformations

It was hypothesized that with age the operative self-concept of white children would become: (1) less externally orientated; and (2) more internally orientated. It was unclear as to whether the operative self-concept of Indian children would show the same developmental patterns. In order to test this age-related progression from externality to internality, subject's responses on the transformation tasks (Mohr, 1978) were coded: (1) external; (2) behavioral; and (3) internal. According to the hypothesis, it was expected that with age white children would make fewer externally-coded statements and more internally-coded statements.

The method of coding utilized yielded data that could be treated as both means and frequencies. Therefore a dual analysis was performed on the data. This procedure allowed a cross-validation of the findings between the two analyses to be made. In the first analysis, the mean

TABLE 15

Mean Scale Scores for the Sex x Age x Scales
Interaction on the 'Twenty Statements' Test

Sex	Age	Scale		
		External	Internal	Social Roles
Males	Younger	.088	.075	.025
	Middle Age	.094	.052	.014
	Older	.053	.046	.164
Females	Younger	.104	.051	.031
	Middle Age	.054	.064	.030
	Older	.042	.090	.034

response of Mohr's three categories were subjected to a 2(race) x 2(sex) x 3(age) x 5(Transformation) ANOVA with repeated measures on the last variable. In the second analysis, the response frequencies of Mohr's three categories were subjected to a 2(race) x 2(sex) x 3(age) x 5(transformation) loglinear analysis (Knoke & Burke, 1980). The ANOVA yielded six patterns of significance which were further subjected to a Tukey post hoc analysis, (this analysis is shown in Table D-11). The loglinear analysis yielded four patterns of significance (this analysis is shown in Table D-12). The following methodology was used to interpret the results of these two analyses. First the hypothesized main effects and interactions that were detected by both analyses were considered. Then the main effect and interaction that were yielded by just the ANOVA were considered.

First there was an effect of age ($F(2,197) = 17.975$, $p < .01$; $\chi^2(4, N = 209) = 46.99$, $p < .01$). The means and frequency for this effect are shown in Table 16. Consistent with the hypothesis that with age children's operative self-concept would become less externally orientated and more internally orientated, younger children scored lower mean transformation scores than older children. Specifically, younger children tended to provide answers that were coded more frequently in the external category (which were scored as 1) while older children tended to provide answers that were coded more frequently in the internal category (which were scored as

3). There was very little difference between younger and older children on the behavioral category (which was scored as 2). In addition, tests for linearity showed that this trend was evident for both Indian children (linear $F(1,57) = 301.259, p < .01$) and white children (linear $F(1,146) = 20.368, p < .01$).

Insert Table 16 about here

There was an effect of race ($F(1,197) = 14.336, p < .01$; $\chi^2(2, N = 209) = 13.79, p < .01$) which was further qualified by a race x sex interaction (described later). The means and frequencies for this effect are shown in Table 17. A Tukey post hoc analysis indicated that Indian children scored a lower mean transformation score than white children. Specifically, Indian children tended to make answers that were coded more frequently in the external category, while white children tended to make answers that were coded more frequently in the internal category. There was little difference between Indian and white children in the behavioral category.

Insert Table 17 about here

TABLE 16

Mean Transformation Scores and Frequency of
Transformation Categories for the Effect of Age

Category	Age		
	Younger	Middle	Older
External	58.0	52.9	31.6
Behavioral	23.5	21.1	24.5
Internal	18.5	26.0	43.9
Mean	1.528	1.592	2.012

Note: The frequencies are expressed as percentages.

TABLE 17
Mean Transformation Scores and Frequency of
 Transformation Categories for the Effect of Race

Category	Race	
	Indian	White
External	56.6	45.3
Behavioral	19.6	24.3
Internal	23.8	30.4
Mean	1.476	1.782

Note: The frequencies are expressed as percentages.

There was an effect of transformation ($F(4,788) = 7.497, p < .01$; $\chi^2(8, N = 209) = 37.45, p < .01$) which was further qualified by a sex by transformation interaction (described later). The means and frequencies for this effect are shown in Table 18. In this effect the third transformation, which requested "What has not changed about you since you were a baby?", received a lower mean score than all of the other transformations. A Tukey post hoc analysis indicated that the third transformation was lower than the first transformation, which requested "What would have to change about you to become your best friend?", as well as the second transformation, which requested "What has changed about you since you were a baby?". A greater number of internal responses were elicited by the first transformation than by the second, third, fourth, and fifth transformations. This pattern may have occurred because of temporal differences between the first and the remaining four transformations. Specifically, the first transformation asked a question that concerned change in the present, while transformations posed questions that concerned change from infancy to the present (transformations 2 & 3), and from the present to adulthood (transformations 4 & 5). This pattern also may have been due to the differences in the target of the first transformation in relation to the targets of the other four transformations. For example, the target of the first transformation was an actual person (the child's best friend) while the targets of the other four transformations

were hypothetical persons (e.g., in transformations 2 & 3 the targets were the child as an infant in the past). Furthermore, a greater number of internal responses were elicited by the transformations that requested "What has changed..." and "What will change..." (transformations 2 & 4 respectively) than by the ones that requested "What has not changed..." and "What will not change..." (transformations 3 & 5 respectively).

Insert Table 18 about here

There was a race x sex interaction ($F(1,19) = 6.455$, $p < .05$; $\chi^2(2, N = 209) = 6.12$, $p < .05$). The means and frequencies for this interaction are shown in Table 19. A Tukey post hoc analysis indicated that Indian males scored lower mean transformation scores than all other cells. Specifically, Indian males made more answers that were coded as external and less answers that were coded as internal.

Insert Table 19 about here

There were two patterns of significance that were detected by the ANOVA analysis only. There was a main

TABLE 18

Mean Transformation Scores and Frequency of
Transformation Categories for the Effect of Transformation

Category of Response	Transformation				
	1	2	3	4	5
External	31.6	40.4	62.9	49.2	57.6
Behavioral	29.5	30.0	17.0	19.8	15.7
Internal	38.9	26.6	20.1	31.0	26.7
Mean	1.89	1.81	1.46	1.71	1.60

Note: The frequencies are expressed as percentages.

TABLE 19
Mean Transformation Scores and Frequency of
Transformation Categories for the Race x Sex Interaction

Race	Category	Sex	
		Male	Female
Indian	External	63.4	49.6
	Behavioral	17.9	21.4
	Internal	18.7	29.0
	Mean	1.260	1.740
White	External	43.6	47.4
	Behavioral	29.2	18.3
	Internal	27.2	34.3
	Mean	1.746	1.824

Note: The frequencies are expressed as percentages.

effect of sex, $F(1,197) = 4.498$, $p < .05$, which was qualified by a sex x transformation interaction, $F(4,788) = 3.475$, $p < .01$, (the means and frequencies for this interaction are shown in Table 20). Males received higher mean scores on transformation 1, which requested "What would you have to change about yourself to become your best friend?" and transformation 2, which requested "What has changed about you since you were a baby?", than on the third, fourth, and fifth transformations. Females scored higher on transformations 1, 2, and 4, which requested "What will change about you when you grow up?", than on the third and fifth transformations. A Tukey post hoc analysis indicated that males scored higher than females on the third transformation, which requested "What has not changed about you since you were a baby?", while females scored higher than males on the first and fourth transformations.

Insert Table 20 about here

Modified Piers-Harris

The modified Piers-Harris self-concept scale was used to measure the figurative component of self-concept. It consisted of a list containing 30 dimensions and attributes from which subjects chose the ones that they would include

TABLE 20
Mean Transformation Scores and Frequency of
Transformation Categories for the Sex x Transformation Interaction

Sex	Category	Transformation				
		1	2	3	4	5
Male	External	35.0	38.5	57.7	53.8	57.4
	Behavioral	31.0	38.5	20.2	24.5	17.6
	Internal	34.0	23.0	22.1	21.7	25.0
	Mean	1.990	1.844	1.644	1.679	1.675
Female	External	28.0	42.6	68.9	44.0	57.8
	Behavioral	28.0	26.6	13.3	14.3	13.3
	Internal	44.0	30.8	17.8	41.7	28.9
	Mean	2.161	1.883	1.489	1.978	1.711

Note: The frequencies are expressed as percentages.

in their self-concepts by circling "yes", and the ones that they would not include by circling "no". A number of hypotheses were formulated on the figurative differences that were expected between Indian and white children. In order to test these hypotheses, the inclusion frequencies for each of the thirty items of the modified Piers-Harris were subjected to separate 2(race) x 2(sex) x 3(age) loglinear analyses (Knoke & Burke, 1980). These analyses yielded six general patterns of significance, in the form of three main effects and three interactions (these analyses are summarized in Table D-13).

There was a race x age interaction (the frequencies for this interaction are shown in Table 21). Partially consistent with the hypothesis that Indian children would place a greater emphasis on emotion, the Item "1. How happy or sad I am.", $\chi^2(2, N = 209) = 16.30, p < .01$, was higher for middle aged and older Indian as well as younger white children than for middle aged and older white children, and was higher for older Indian children than for younger Indian and white children.

The race x age interaction was also evident in the following items. Item "3. How much I am liked by other children in my class or neighborhood.", $\chi^2(2, N = 209) = 7.94, p < .05$, was higher for older Indian children than for all other cells and was lower for younger Indian children than for all other cells. Item "9. How important my friends are to me.", $\chi^2(2, N = 209) = 10.70, p < .01$, was lower for younger Indian children than for all other cells

except for older white children, and was higher for middle aged and older Indian and younger white children than for middle aged and older white children. Item "10. How well I can help my parents, teachers, or friends.", $\chi^2(2, N = 209) = 7.98, p < .05$, and was higher for middle aged and older Indian and younger white children than for middle aged and older white children. This item was also greater for middle aged and older Indian children than for younger Indian children.

Partial support was yielded for the hypothesis that Indian children would place a greater emphasis on independence than white children. This was shown by the following items. Item "11. How well I can do things myself.", $\chi^2(2, N = 209) = 12.76, p < .01$, was higher for middle aged and older Indian children and also was unexpectedly higher for younger white children than for younger Indian as well as middle aged and older white children.

Consistent with the hypothesis that Indian children would place a greater emphasis on sharing than white children, item "12. How much I share things with others.", $\chi^2(2, N = 209) = 7.35, p < .05$, Indian children were higher than older white children.

The race x age interaction was also evident in the following items. Item "14. Whether I like music.", $\chi^2(2, N = 209) = 6.70, p < .05$, was higher for older Indian children than for all other cells and was lower for younger Indian children than for all other cells. Item "17. The ways

which I am different from others.", $\chi^2(2, N = 209) = 7.52$, $p < .05$, was lower for younger Indian children than for all other cells, and was higher for younger white children than for middle aged white children. Item "18. How smart I am.", $\chi^2(2, N = 209) = 6.85$, $p < .05$, was higher for middle aged Indian and younger white children than for younger Indian and older white children, and was higher for younger white children than for older Indian and middle aged white children. Item "20. Whether I can lead others.", $\chi^2(2, N = 209) = 6.5$, $p < .05$, was higher for middle aged and older Indian as well as younger white children than for younger Indian and older white children.

The hypothesis that indian children would show greater respect for traditional customs and beliefs was supported in the race x age interaction by the following three items. First item "21. How trustworthy I am.", $\chi^2(2, N = 209) = 17.26$, $p < .01$, was lower for younger Indian and older white children than for all other cells and was higher for older Indian and younger white children than for middle aged white children. This item was also higher for older Indian children than for middle aged Indian children. Secondly, item "25. The church I go to.", $\chi^2(2, N = 209) = 10.29$, $p < .01$, was higher for middle aged and older Indian as well as younger white children than for younger Indian as well as middle aged and older white children. This item was also was greater for older Indian children than for younger white children. Finally, item "27. Whether I know about the things that my grandparents or elders did.",

TABLE 21
Frequency of Inclusion for the Race x Age
Interaction on the Modified Piers-Harris

Race	Age	Item																	
		1	3	9	10	11	12	14	17	18	20	21	23	25	27	29			
Indian	Younger	53	35	53	59	41	65	29	29	41	12	35	53	24	24	35			
	Middle	87	52	87	74	83	65	52	57	65	39	61	74	57	57	70			
	Older	95	85	85	80	80	75	85	65	55	35	80	75	60	70	75			
White	Younger	79	64	86	71	78	74	57	66	72	35	67	81	45	64	72			
	Middle	51	59	69	51	55	67	57	51	53	23	57	65	27	31	61			
	Older	45	60	67	43	55	36	62	52	50	20	29	57	14	17	62			

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

χ^2 (2, N = 209) = 23.86, $p < .01$, was higher for middle aged and older Indian children and was unexpectedly higher for younger white children than for younger Indian as well as middle aged and older white children.

Further items detected in the race x age interaction include "23. How good I feel about being myself.", χ^2 (2, N = 209) = 6.21, $p < .05$, which was higher for middle aged and older Indian as well as younger white children than for younger Indian and older white children. This item was also higher for younger white children than for middle aged white children. Lastly item "29. How I feel about the children in my class or neighborhood.", χ^2 (2, N = 209) = 8.69, $p < .05$, was lower for younger Indian children than for all other cells.

Insert Table 21 about here

The analysis also yielded a race x sex interaction (the means and frequencies for this interaction are shown in Table 22). In this interaction, support was yielded for the hypothesis that Indian children would place a greater emphasis on independence than white children, on the item "11. How well I can do things myself.", χ^2 (2, N = 209) = 5.83, $p < .05$, which was higher for Indian females than for all other cells. The items "15. How often I do as I am

told.", $\chi^2(2, N = 209) = 6.44, p < .05$, and "28. Where I live." $\chi^2(2, N = 209) = 4.39, p < .05$, were higher for Indian females than for all other cells. Item "13. How well I do things with my hands.", $\chi^2(2, N = 209) = 7.22, p < .01$, was higher for Indian female and white male children than for Indian male and white female children. The hypothesis that Indian children would place less emphasis on possessions was supported for males only. On the item "24. The things I own." $\chi^2(2, N = 209) = 6.17, p < .05$, Indian males were lower than all other cells, while Indian females were higher than all other cells. Lastly, the hypothesis that Indian children would place a greater emphasis on nature than white children, was supported for females only. In item "26. How much I like the outdoors.", $\chi^2(2, N = 209) = 5.59, p < .05$, Indian females were higher than all other cells; however this item was higher for white males than for Indian males.

Insert Table 22 about here

Finally there was a sex x age interaction (the means and frequencies for this interaction are shown in Table 23). In this interaction item "30. My hobbies and other interests.", $\chi^2(2, N = 209) = 9.48, p < .01$, was lower for younger female children than for all other groups except older male children and was higher for middle aged and

TABLE 22
Frequency of Inclusion for the
Race x Sex Interaction on the Modified Piers-Harris

Race	Sex	Item					
		11	13	15	24	26	28
Indian	Male	53	38	41	44	50	50
	Female	89	57	82	86	86	86
White	Male	65	68	49	62	68	60
	Female	62	44	47	62	62	62

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

older female children than for older male children. This item was also higher for older female children than for middle aged male children.

Insert Table 23 about here

The loglinear analysis yielded three main effects. First there was an effect of race (the means and frequencies for this effect are shown in Table 24). In this effect the item "30. My hobbies and other interests.", $\chi^2(1, N = 209) = 8.56, p < .01$, was greater for white children than for Indian children. There was an effect of age (the means and frequencies for this effect are shown in Table 25). In this effect, item "5. How well I do at sports.", $\chi^2(2, N = 209) = 12.94, p < .01$, was higher for middle aged and older children than for younger children. Finally there was an effect of sex (the means and frequencies for this effect are shown in Table 26). In this effect female children scored higher than male children on the following items: "4. How well I do at school.", $\chi^2(1, N = 209) = 4.20, p < .05$; "8. How I look.", $\chi^2(1, N = 209) = 4.90, p < .05$; "9. How important my friends are to me.", $\chi^2(1, N = 209) = 5.21, p < .05$; "14. Whether I like music.", $\chi^2(1, N = 209) = 6.75, p < .01$; and "25. The church I go to.", $\chi^2(1, N = 209) = 9.23, p < .01$.

Insert Tables 24, 25, and 26 about here

TABLE 23
Frequency of Inclusion for the
Sex x Age Interaction on the Modified Piers-Harris

Sex	Age	Item
Male	Younger	80
	Middle	76
	Older	70
Female	Younger	55
	Middle	90
	Older	91

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

TABLE 24
Frequency of Inclusion for the
Effect of Race on the Modified Piers-Harris

	Item
Race	30
Indian	67
White	84

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

TABLE 25
Frequency of Inclusion for the
Effect of Age on the Modified Piers-Harris

	Item
Age	5
Younger	45
Middle	65
Older	68

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

TABLE 26
Frequency of Inclusion for the
Effect of Sex on the Modified Piers-Harris

Sex	Item				
	4	8	9	14	25
Male	66	61	70	48	27
Female	79	75	83	70	46

Note: The frequencies are expressed as percentages of the items subjects indicated that they would include in their self-concepts.

Discussion

The available research on Indian culture has indicated that Indian children may be different than white children on a number of the figurative dimensions and attributes of self-concept (Hallowell, 1958; Harms, 1977; Katz, 1979; Means, 1981; Slaslow & Harrover, 1968). However, the majority of this literature may best be described as anthropological observations, as very few of these studies have employed scientific methodology. In order to examine the figurative differences in self-concept between Indian and white children, eight hypotheses were formulated based on this research. These hypotheses were tested on a modified version of the Piers-Harris Children's Self-Concept Scale (Piers, 1968) and on Gordon's (1968) categories used to code the "Twenty Statements" Test (Kuhn & McPartland, 1954).

One issue that arose during this study concerned the appropriateness of the modified Piers-Harris Scale for children in the younger age group (M age = 9.7 years). This measure was incorporated on an exploratory basis to examine figurative differences in self-concept. This scale was also used to compensate for inequalities in the capacity for verbal expression across age. It was found that younger Indian children tended to achieve extremely low scores while younger white children tended to achieve very high scores. One explanation for this pattern is that younger Indian children may have utilized a negative

response set, while younger white children may have employed an acquiescent response set. Since this pattern was consistent in over three quarters of the items that yielded differences between Indian and white children, there was some concern about the accuracy of the modified Piers-Harris Scale for children in the younger age group. Therefore, further discussion of this scale is focused largely on middle aged and older children.

The present investigation yielded support for the following hypotheses: the second hypothesis, that Indian children would show greater independence than white children (Katz, 1979); the third hypothesis, that Indian children would show a greater emphasis on family ties than white children (Katz, 1979); the fourth hypothesis, that Indian children would be more emotional than white children (Hallowell, 1958; Hay, 1977); the sixth hypothesis, that Indian children would place a greater emphasis on sharing than white children (Katz, 1979; Means 1981); and finally, the seventh hypothesis, that Indian children would have a greater respect for traditional customs and beliefs than white children (Means, 1981).

In this study, partial support was yielded for the following hypotheses. The first hypothesis was that Indian children would show a closer relationship with nature than white children (Means, 1981). This hypothesis was supported for females only. On the modified Piers-Harris, the item "How much I like the outdoors." was higher for Indian females than for any other cell, but was higher for

white males than for Indian males. The fifth hypothesis was that Indian children would place less emphasis on possessions than white children (Means, 1981). This hypothesis was supported for males only. The item "The things I own." on the modified Piers-Harris was lower for Indian males than for any other cell, but was higher for Indian females than for any other cell. Lastly, the eighth hypothesis, that Indian children would be less positive in their attitude toward formal education (Slaslow & Harrover, 1968), received partial support. There were no differences on the item "How much I like school." on the modified Piers-Harris. However, this hypothesis gained some support from Gordon's category of "Student Role" on the "Twenty Statements" Test, which was lower for older female and middle aged male Indian children than for middle aged female Indian and older male and female white children.

There were a number of additional figurative differences between Indian and white children on the "Twenty Statements" Test and on the modified Piers-Harris. Interpretations of these differences must await a more extensive evaluation of the Indian culture and of the socialization of children in that culture.

Three hypotheses were formulated to examine the operative development of self-concept. These operative hypotheses were based on the research in self-concept development, which found that with age children show a number of changes in their operative self-concept. This research was conducted exclusively on white children, and

therefore it was unclear as to whether Indian children would show the same developmental patterns.

The first two hypotheses were that with age, children's operative self-concept would become: (1) less externally orientated; and (2) more internally orientated (Guardo & Bohan, 1971; Livesley & Bromely, 1973; Mohr, 1978; Montemayor & Eisen, 1977; Perry & Bussey, 1984). These hypotheses were tested on the scales derived from the "Twenty Statements" Test and on Mohr's transformation tasks.

In the present study, three scales were created from Gordon's 30-category system used to code the "Twenty Statements" Test. Two of these scales measured external and internal orientation of self-concept. An analysis of these two scales indicated that consistent with the first hypothesis, external orientation decreased with age for both Indian and white children. However, on the internal orientation scale there was a curvilinear pattern shown with age for Indian children only. In this pattern, internal orientation decreased for middle aged Indian children, then increased for older Indian children. Indian children also displayed a greater shift from external orientation to internal orientation in their operative self-concept than white children. Consistent with the sex differences reported by Guardo and Bohan (1971), older females were found to be more internally orientated than older males. Specifically, there was an increase with age in internal orientation for females and a corresponding

decrease for males.

Mohr's transformation tasks also yielded support for the first two operative hypotheses. On these tasks higher mean transformation scores indicated more internally orientated responses. As hypothesized, older children achieved higher mean transformation scores than younger and middle aged children. Furthermore, this pattern was shown for both Indian and white children. However, Indian children, particularly Indian males, achieved lower mean transformation scores than white children.

There was some inconsistency between the results of the internal scale, composed from the "Twenty Statements" Test and Mohr's transformation tasks. There are two explanations for this inconsistency. One explanation is based on the differences between the two measures. The "Twenty Statements" Test is merely an open-ended measure that subjects spontaneously answer; however, Mohr's transformation tasks have a problem-solving component embedded into each task, in which children must make either social or temporal comparisons. The second explanation involves the difference in scoring precision between these two measures. The "Twenty Statements" Test may be subject to error in scoring (Rotenberg, 1982). For example, a child's responses may be rated at a higher level of operative development than the one at which the child is actually functioning. The transformation tasks, however, have a more precise method of scoring that is less subject to error in the measurement of the child's level of

operative self-concept. Therefore Mohr's transformation tasks were considered to be much more sensitive in the detection of the operative level of self-concept than the scales composed from the "Twenty Statements" Test.

One pattern detected by Mohr's transformation tasks involved the differences between Indian and white children's operative development of self-concept. Specifically, white children tended to progress through the developmental changes in operative self-concept at relatively younger ages than Indian children. This pattern may be explained as a form of "decalage" (Piaget, 1974) in the operative development of Indian children's self-concept. In other words, Indian children progress through the same operative changes in self-concept as white children, however, do so at a slower rate.

The third hypothesis was that with age, white children would define themselves more in terms of group membership (Maccoby, 1980; Montemayor & Eisen, 1977; Perry & Bussey, 1984). This hypothesis was tested on the social roles scale, which was the third scale composed from the "Twenty Statements" Test. This hypothesis was supported for males only. Specifically, the social roles scale increased with age for males, while females scored consistently across age on this scale. However, younger and middle aged females received higher scores on the social roles scale than younger and middle aged males. Furthermore, on the modified Piers-Harris, females were found to score higher than males on the item "How important my friends are to

me.". Therefore, it may be suggested that with age there is an increase in social orientation in the self-concept of males, while for females, social orientation may be more of a stable component of their self-concept.

A number of additional findings were yielded in this investigation. First, Indian children, particularly middle aged Indian males, scored higher on Gordon's category of "Racial or National Heritage" on the "Twenty Statements" Test than white children. This finding was inconsistent with previous research conducted by George and Hoppe (1979). These researchers commented that "Indianness" was not a strong enough dimension in the self-concept of their Indian sample to be mentioned significantly on the "Twenty Statements" Test. This inconsistency may have occurred because of differences in acculturation between the samples of Indian children in the present investigation and in George and Hoppe's research. For example, the Indian children in George and Hoppe's research may have been more highly acculturated than the Indian children in the present investigation.

There were a number of sex differences found in the figurative component of self-concept on the modified Piers-Harris Self-Concept Scale and on the "Twenty Statements" Test. First, on the modified Piers-Harris, females scored higher than males on the items: "How well I do at school." ; "How I look."; "How important my friends are to me."; "Whether I like music."; and "The church I go to.". On the "Twenty Statements" Test females scored

higher than males on the categories of "Kinship Role", and "Physical Self, Body Image". These differences, with the exception of "The church I go to.", have been documented by Maccoby (1966). Research reviewed by Maccoby offers one explanation for the difference between males and females on the item "The church I go to.". According to this research, females may tend to adopt the societal code of morality that is offered by organized religions, while males may tend to develop their own private sense of morality which may be independent of religious doctrines.

There were effects of age on one of the items of the modified Piers-Harris and on one of Gordon's categories. On the modified Piers-Harris, middle aged and older children scored higher than younger children on the item "How good I am at sports.". This item may reflect the increased importance of sports as children get older and become more involved in organized athletics. Consistent with previous research conducted by Montemayor and Eisen (1977), on the "Twenty Statements" Test the category of "Judgments, Tastes, Likes" was higher for older children than for younger and middle aged children. One explanation for this finding, offered by Montemayor and Eisen, is that as children grow older they may integrate their tastes and preferences into their self-concept.

Lastly, one difference noted in this investigation was that Indian children were found to be older than white children in all grades, particularly in grade 5, and that Indian males and females were found to be older than white

males and females. Many of the previous investigations in this area did not explore for age differences between their Indian and white samples (eg. Halpin, Halpin & Whiddon, 1981). Although age may present a possible confound with race in the studies that compare self-concept or self-esteem between Indian and white children, it is a crucial consideration when, as in the present research, developmental patterns are being compared. The primary concern in this study was to control for operative knowledge (Piaget, 1965), which is associated with age. In the present investigation, the grade variable was replaced by a new variable, that was made by recoding age. This procedure insured that Indian and white children were the same age in each of the three groups. By eliminating the age differences between the Indian and white samples, greater confidence may be placed in the differences that were detected in the dimensions and attributes of the figurative component of self-concept, and more importantly, in the developmental differences that were found in the operative component of self-concept.

Directions for Future Research

Two directions for future research are suggested from this investigation. First, the modified Piers-Harris was employed in an attempt to control for statement productivity. While this measure was of some use in achieving this end, there were other problems;

specifically, there were acquiescent and negative response sets found in the answers of younger children (8.5 to 10 years of age). Future researchers may be advised to employ measures that require a more rigorous methodology, such as measures in which children perform specific tasks that measure operative self-concept. Secondly, in the coding system used for the "Twenty Statements" Test, there were a significantly greater number of "Uncodable" responses made by Indian children than by white children, although the "Uncodable" category represented a very small proportion of the Indian children's responses. Future investigations may analyze the responses coded in this category in order to determine whether these responses represent any uniquely "Indian" categories.

One of the major findings in this investigation was that Indian children displayed a cultural "decalage" in the development of their operative self-concept. Future investigations could explore operative self-concept development across different tribes to determine whether this "decalage" is replicated. Given the use of Mohr's transformation tasks in identifying this "decalage", future investigations may focus on the use of social comparisons (in the self-other transformation) and the notion of time (in the personal-continuity past/future transformations) in a number of tribes to determine whether there are uniquely Indian conceptions and perspectives that can be generalized across tribes. Lastly, a broader age range of Indian children could be investigated in order to determine the

exact nature and extent of this cultural "decalage".

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APPENDIX A

Survey on Self-Concept Sent to the Schools

Pre-numbering System

139

1

Please answer:

Sex: Boy Girl (circle one)

Grade: _____

Date of Birth: _____
Day Month Year

Today's Date: _____
Day Month Year

Age: _____

Questionnaire A

There are 20 numbered spaces on the paper in front of you. I want you to tell me about yourself by writing twenty answers to the question "Who am I?". Answer as if you were giving the answers to yourself - not someone else. Write the answers in the order that they come to you. Go as quickly as you can because time is limited.

"Who Am I?"

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Questionnaire B

Listed below are a number of questions. After reading each question stop and think about it before answering.

Question 1

Many children have best friends who are the same as themselves. For example boys have best friends who are boys and girls have best friends who are girls. Write the first name of your best friend who is the same sex as you _____ . On the lines below, write what you would have to change about yourself so that you could become your best friend.

Question 2

A. As time passes we all grow older. You and I were once babies and all children grow up to be adults. On the lines below, write what has changed about you since you were a baby.

B. Now write what has not changed about you since you were a baby.

C. Write below what will change about you when you grow up.

D. Write below what will not change about you when you grow up.

Questionnaire C

Part I

Most of us have ideas about who we are and what we are like. These ideas make up the way we view ourselves. You likely have ideas about who you are and what you are like. Take a moment to think of these ideas, close your eyes if you like.

....

Now turn to the next page.

Questionnaire C

Part 2

Listed below are a number of statements that you could use to describe yourself. Think over the ideas you have about who you are and what you are like. Decide whether or not you have used any of the statements listed below in your descriptions of the ideas you have about yourself.

Pretend that "How fast I can run" is one of the statements listed. If "How fast I can run" is one way that you describe the ideas you have about yourself, circle "yes".

e.g. How fast I can run. yes no

If "How fast I can run" is not one of the ways you use to describe the ideas you have of yourself, circle "no".

e.g. How fast I can run. yes no

Answer "yes" or "no" for all of the statements listed below. There are no right or wrong answers, just whether or not you have used any of these statements listed below in your description of the ideas you have about yourself.

- | | | |
|---|-----|----|
| 1. How happy or sad I am. | Yes | No |
| 2. How much I feel I am part of my family. | Yes | No |
| 3. How much I am liked by other children in my class, or neighbourhood. | Yes | No |
| 4. How well I do at school. | Yes | No |
| 5. How well I do at sports. | Yes | No |
| 6. How shy or bold I am. | Yes | No |
| 7. How nervous or calm I am. | Yes | No |
| 8. How I look. | Yes | No |
| 9. How important my friends are to me. | Yes | No |
| 10. How well I can help my parents, teachers or friends. | Yes | No |
| 11. How well I can do things myself. | Yes | No |
| 12. How much I share things with others. | Yes | No |

13. How well I do things with my hands (e.g. draw).	Yes	No
14. Whether I like music.	Yes	No
15. How often I do as I am told.	Yes	No
16. How lucky I am.	Yes	No
17. The ways which I am different from others.	Yes	No
18. How smart I am.	Yes	No
19. How angry or mad I can get.	Yes	No
20. Whether I can lead others.	Yes	No
21. How trustworthy I am.	Yes	No
22. The groups I belong to.	Yes	No
23. How good I feel about being myself.	Yes	No
24. The things I own.	Yes	No
25. The church I go to.	Yes	No
26. How much I like the outdoors.	Yes	No
27. Whether I know about the things that my grandparents or elders did.	Yes	No
28. Where I live.	Yes	No
29. How I feel about children in my class or neighbourhood.	Yes	No
30. My hobbies and other interests.	Yes	No

APPENDIX B

Instructions for the Survey on Self-Concept
Sent to the Principals and Teachers



DEPARTMENT OF PSYCHOLOGY

May 16, 1984

Dear Teacher:

Please find the surveys which you have been respectfully requested to administer.

In each booklet there are 3 questionnaires (A, B, and C). Each booklet has been pre-numbered so that the children do not have to sign their names anywhere on the survey.

Children should not be allowed to look through the survey because information contained in the later questionnaires may contaminate answers given in the earlier questionnaires. In order to prevent this:

1. The class is to complete this survey together. Do not allow anyone to go ahead, or lag behind.
2. When the surveys are handed out.
 - i. have the children remove the questionnaire they are completing i.e. questionnaire A first then B, and finally C.
 - ii. Place the remainder of the booklet face-down on the upper right hand corner of their desks.
 - iii. Hand in each questionnaire upon its completion. Since all questionnaires are pre-numbered, they may be sorted out afterwards.

There are some basic guide lines I would like you to follow when administering the surveys.

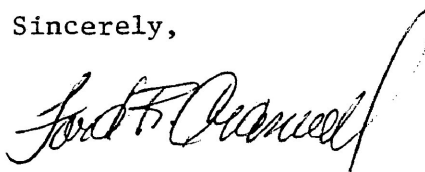
1. Read all instructions aloud to your class. Have your pupils follow them with you.
2. Keep the class together, so that each child answers the same questionnaire at the same time.
3. Time limits are provided for each of the questionnaires and corresponding questions. These limits are not rigid. If a number of students cannot complete the question in the time

-2-

allotted, you can provide some more time. Also, if all the students have completed the questionnaire question prior to the time limit let the class go on. Use your own discretion in allotting more or less time.

Individual instructions involving the aforementioned points are attached for each questionnaire. Thank you for your cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ford R. Cranwell". The signature is written in black ink and is positioned to the right of the typed name.

Ford R. Cranwell
M. A. Candidate

FRC/ml
Encl.

INSTRUCTIONS FOR THE FIRST PAGE

(All students should be handed booklets)

1. Have each child remove the first page (page 1) of the booklet (containing: sex, grade, date of birth, today's date, and age).
2. Have the children place the remainder of the booklets face down on the upper right hand corner of their desks.
3. Make sure that each child has completed all the information on this sheet.
4. Have the children hand in this sheet when they are finished.

PLEASE NOTE: Children should not be allowed to look through the rest of the survey.

Please answer:

Sex: Boy Girl (circle one)

Grade: _____

Date of Birth: _____
Day Month Year

Today's Date: _____
Day Month Year

Age: _____

Instructions for Questionnaire A

1. Have the children take the booklets from the upper right hand corner of their desks and remove Questionnaire A (page 2), then immediately after this return the remainder of their booklets face-down on the right-hand corner of their desks.
2. Read the instructions of questionnaire A to the class. Ask the students to follow the instructions along with you. Ask if there are any questions about the instructions, if there are repeat the instructions.
3. Each student should include as many answers as he or she can. Allow about 12 minutes for this questionnaire. If students are still writing after this time, allow some more time as required using your own discretion. The object of this questionnaire is to get as many answers to the question "Who am I?" as the child can readily generate.
4. Have the children hand in this questionnaire when they are finished.

Please note: Children as not to look through the remainder of the survey.

Questionnaire A

There are 20 numbered spaces on the paper in front of you. I want you to tell me about yourself by writing twenty answers to the question "Who am I?". Answer as if you were giving the answers to yourself - not someone else. Write the answers in the order that they come to you. Go as quickly as you can because time is limited.

"Who Am I?"

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Instructions for Questionnaire B

1. Have the children take their booklets and remove Questionnaire B (page 3). Then return the remainder of the booklet face-down on the upper right hand corner of their desks.
2. Read the instructions aloud to the class. Have the pupils follow along with you. Make sure that they understand what is requested of them. If some students do not you may repeat the instructions.

Certain parts of the questions in Questionnaire B will be repeated (see your copy of Questionnaire B on the next page).

3.
 - i. Make sure the children realize that they are to write the name of thier same sexed best friend on the line provided.
 - ii. Make sure all children provide some answer to the questions.
 - iii. Each question should take approximately 3 to 4 minutes to complete. However, some more time may be given if necessary.
4. When everyone is finished, have the children hand in their completed questionnaires.

Please note: Make sure that the children do not look at the final measure.

Questionnaire B

Listed below are a number of questions. After reading each question stop and think about it before answering.

Question 1

Many children have best friends who are the same as themselves. For example boys have best friends who are boys and girls have best friends who are girls. Write the first name of your best friend who is the same sex as you _____ . On the lines below, write what you would have to change about yourself so that you could become your best friend.

Question 2

A. As time passes we all grow older. You and I were once babies and all children grow up to be adults. On the lines below, write what has changed about you since you were a baby.

B. Now write what has not changed about you since you were a baby.

C. Write below what will change about you when you grow up.

D. Write below what will not change about you when you grow up.

Instructions for Questionnaire C

1. Have the children turn over the final questionnaire. (the rest of the booklet). Do not allow the children to look ahead on this questionnaire. Information presented later will contaminate their performance in the earlier part of the questionnaire.
2. Read the instructions aloud to the class. Have your pupils follow the instructions along with you.

Part 1 (page 4)

Allow the children 3 or 4 minutes to think about all the ideas they may have about themselves. After everyone has had enough time to complete this task, turn to part B (page 5 & 6).

Part 2

Make sure the students understand what is requested of them. If they do not re-read the instructions. Part B should require 10 minutes to complete. Make sure that everyone answers all of the statements. If everyone finishes before 10 minutes are up, have the class hand in Part B (pages 5 & 6).

(Thank you for your cooperation)

Questionnaire C

Part I

Most of us have ideas about who we are and what we are like. These ideas make up the way we view ourselves. You likely have ideas about who you are and what you are like. Take a moment to think of these ideas, close your eyes if you like.

....

Now turn to the next page.

Questionnaire C

Part 2

Listed below are a number of statements that you could use to describe yourself. Think over the ideas you have about who you are and what you are like. Decide whether or not you have used any of the statements listed below in your descriptions of the ideas you have about yourself.

Pretend that "How fast I can run" is one of the statements listed. If "How fast I can run" is one way that you describe the ideas you have about yourself, circle "yes".

e.g. How fast I can run. yes no

If "How fast I can run" is not one of the ways you use to describe the ideas you have of yourself, circle "no".

e.g. How fast I can run. yes no

Answer "yes" or "no" for all of the statements listed below. There are no right or wrong answers, just whether or not you have used any of these statements listed below in your description of the ideas you have about yourself.

- | | | |
|---|-----|----|
| 1. How happy or sad I am. | Yes | No |
| 2. How much I feel I am part of my family. | Yes | No |
| 3. How much I am liked by other children in my class, or neighbourhood. | Yes | No |
| 4. How well I do at school. | Yes | No |
| 5. How well I do at sports. | Yes | No |
| 6. How shy or bold I am. | Yes | No |
| 7. How nervous or calm I am. | Yes | No |
| 8. How I look. | Yes | No |
| 9. How important my friends are to me. | Yes | No |
| 10. How well I can help my parents, teachers or friends. | Yes | No |
| 11. How well I can do things myself. | Yes | No |
| 12. How much I share things with others. | Yes | No |

13. How well I do things with my hands (e.g. draw).	Yes	No
14. Whether I like music.	Yes	No
15. How often I do as I am told.	Yes	No
16. How lucky I am.	Yes	No
17. The ways which I am different from others.	Yes	No
18. How smart I am.	Yes	No
19. How angry or mad I can get.	Yes	No
20. Whether I can lead others.	Yes	No
21. How trustworthy I am.	Yes	No
22. The groups I belong to.	Yes	No
23. How good I feel about being myself.	Yes	No
24. The things I own.	Yes	No
25. The church I go to.	Yes	No
26. How much I like the outdoors.	Yes	No
27. Whether I know about the things that my grandparents or elders did.	Yes	No
28. Where I live.	Yes	No
29. How I feel about children in my class or neighbourhood.	Yes	No
30. My hobbies and other interests.	Yes	No

APPENDIX C

Gordon's (1968) Configurations of Content

SELF CONCEPTIONS: CONFIGURATIONS OF CONTENT

Taken from Gordon (1968) pp.124-131.

1. Sex: a man, a boy, a son, clear name, etc.
2. Age: 15 years old, a boy, young, a teenager, a freshman, etc.
3. Name: John Jones, Clarie M., etc.
4. Racial or National Heritage: a negro, white; a Chinese; (meaning ancestry or race, not current citizenship); of Italian, Irish ancestry, an immigrant, etc.
5. Religious Categorization: a Catholic, Protestant, Methodist; Jewish, etc. (not just "christian," "Athiest," etc., must be definite religious group).
6. Kinship Role: a son, mother, sister, aunt, housewife, etc. (also coded as sex references), engaged, going steady, married, etc.
7. Occupational Role: specific occupation, employed, working part-time, hoping to become a doctor, etc.
8. Student Role: a student, at South Boston High, getting bad grades, going to Harvard, taking 4 courses, trying to get into a good college, etc.
9. Political Affiliation: a Democrat, an Independent, other clear party.
10. Social Status: from a poor family, an elite neighborhood, middle class, an aristocrat, of an old-line family, etc.
11. Territoriality, Citizenship: now a Cambridge

resident, living on Oak St., a Bostonian, from Alabama, an American, a German, (current citizenship not "heritage"), a foreign student, etc.

12. Membership in Actual Interacting Group: on the football team, in the science club, at a specific school, a friend, in a clique or fraternity, member of a certain family, etc.
13. Existential, Individuating: me, an individual, an existing being, myself, nothing, unique, undefinable, etc. (generally the denial of categories).
14. Membership in an Abstract Category: a person, a human, a voter, a teenager (also an age reference), a speck in the cosmos, etc.
15. Ideological and Belief References: a liberal, a conservative, a Christian, very religious, a Marxist, against the war in Viet Nam, a pacifist, not prejudiced, etc.
16. Judgments, Tastes, Likes: one who likes abstract art, hates rock'n'roll, a jazz fan, loves Bach, etc.
17. Intellectual Concerns: interested in literature, trying to understand modern theatre, a reader, getting an education, a thinker, an intellectual, etc.
18. Artistic Activities: a dancer, painter, poet, musician, singer, cello player, etc.
19. Other Activities: a football player, a hiker, a stamp collector, a moviegoer, one who dates a lot, a good swimmer, etc.
20. Possessions, Resources: a car owner, one who has

- pretty clothes, hoping for a secure future, one who never has enough money, etc.
21. Physical Self, Body Image: good-looking, pretty, strong, tall, 5'10", too thin, blonde, healthy, ugly, 112 lbs., etc.
 22. Sense of Competence: Intelligent, talented, creative, skillful, low in ability, good at many things, always making mistakes, etc.
 23. The Sense of Self-Determination: trying to get ahead, deciding things for myself, ambitious, hardworking, not my own boss, a self-starter, etc.
 24. The Sense of Unity: in harmony, mixed up, ambivalent, a whole person, straightened out now, etc.
 25. The Sense of Moral Worth: self-respecting, a sinner, bad, good, honest, reliable, trustworthy, responsible, evil, a thief, etc.
 26. Interpersonal Style (how I typically act): friendly, fair, nice, shy, introverted, hard to get along with, affable, quiet, demanding, good with children, affectionate, cool, etc.
 27. Psychic Style, Personality (how I typically think and feel): happy, sad, moody, a daydreamer, in love, depressed, confident, "crazy", lonely, curious, calm, searching for love, mature, objective, optimistic, etc.
 28. Judgments Imputed to Others: popular, respected, well-liked, well thought of, loved, etc.
 29. Situational References: tired, hungry, bored, filling

out this questionnaire, going on a date tonight, late for dinner, finished, etc.

30. Uncodable Responses: superman, President of the U.S., a flower, the sea, a shell on the beach, etc.

APPENDIX D

Tables of Analyses

TABLE D-1
Summary Table for the
2 (Race) x 2 (Sex) x 4 (Grade) ANOVA on Age

Source	df	Sum of Squares	Mean Square	F
Main Effects	5	299.490		
Race	1	16.715	16.715	41.983**
Sex	1	2.363	2.363	5.935*
Grade	3	272.970	90.990	228.545**
2-Way Interactions	7	15.618		
Race by Sex	1	5.669	5.669	14.238**
Race by Grade	3	9.387	3.129	7.860**
Sex by Grade	3	2.257	.752	1.890
3-Way Interactions	3	.140		
Race by Sex by Grade	3	.419	.140	.351
Explained	15	315.527	21.035	
Error	204	81.218	.398	
TOTAL	219	396.745		

** p < .01

* p < .05

TABLE D-2
Summary Table for the
2 (Race) x 2 (Sex) x 3 (Age) ANOVA on Age

Source	df	Sum of Squares	Mean Square	F
Main Effects	4	264.154		
Race	1	.383	.383	2.152
Sex	1	.010	.010	0.056
Age Group	2	259.979	128.990	724.663**
2-Way Interactions	5	.380		
Race by Sex	1	.201	.201	1.129
Race by Age Group	2	.047	.023	.129
Sex by Age Group	2	.997	.050	.281
3-Way Interactions		.427		
Race by Sex by Age Category	2	.427	.213	1.197
Explained	11	264.961	24.087	
Error	197	35.141	.178	
TOTAL	208	300.102		

** p < .01

TABLE D-3

Summary Table for the 2 (Race) x 2 (Sex) x 3 (Age) ANOVA on
the Number of Statements Made on the 'Twenty Statements' Test

Source	df	Sum of Squares	Mean Square	F
Main Effects	4	1421.821		
Race	1	1068.327	1068.327	58.452**
Sex	1	267.683	267.683	14.646**
Age	2	60.414	30.207	1.653
2-Way Interactions	5	451.190		
Race by Sex	1	113.746	113.746	6.223*
Race by Age	2	303.098	151.549	8.292**
Sex by Age	2	2.504	1.252	0.068
3-Way Interactions	2	4.782		
Race by Sex by Age	2	4.782	2.391	0.131
Explained	11	1877.793	170.708	
Error	197	3600.572	18.277	
TOTAL	208	5478.365		

* $p < .05$

** $p < .01$

TABLE D-4

Summary Table for the 2 (Race) x 2 (Sex) x 3 (Age) MANOVA
on 27 Categories of Gordon's (1968) Classification System

Source	Value	Hypoth df	Error df	Approx. F
Constant	.015	27	171	404.722
Race	.532	27	171	5.584**
Age	.606	54	342	1.802**
Sex	Eigenvalue problem failed to converge			
2-Way Interactions				
Race by Age	.595	54	342	1.880**
Race by Sex	.829	27	171	1.308
Age by Sex	.694	54	342	1.271
3-Way Interactions				
Race by Age by Sex	.608	54	342	1.787**

**p < .01

TABLE D-5

Univariate F-Tests (2,197) on 27 Categories of
Gordon's (1968) Classification Scheme for the
Race x Sex x Age Interaction

Category	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F
1	.237	3.564	.118	.018	6.546**
2	.117	3.641	.058	.018	3.157
3	.018	.374	.009	.002	4.773**
4	.016	.296	.008	.002	5.381**
6	.018	.639	.009	.003	2.799
7	.000	.022	.000	.000	.103
8	.038	.733	.019	.003	5.132**
11	.003	.152	.001	.001	1.607
12	.001	.475	.001	.002	.187
13	.001	.105	.000	.001	.579
14	.062	2.814	.031	.014	2.157
15	.000	.031	.000	.000	.128
16	.017	10.936	.008	.056	.152
17	.005	.797	.003	.004	.624
18	.008	.659	.004	.003	1.185
19	.144	6.580	.072	.033	2.157
20	.008	3.114	.004	.016	.259
21	.001	3.012	.001	.015	.034
22	.131	8.584	.066	.044	1.506
23	.001	.111	.001	.001	1.078
24	.000	.009	.000	.000	2.491
25	.005	.396	.002	.002	1.154
26	.023	3.480	.012	.018	.663
27	.016	.760	.008	.004	2.111
28	.000	.023	.000	.000	.908
29	.001	.311	.001	.002	.448
30	.006	.447	.003	.002	1.295

** p < .01

TABLE D-6

Univariate F-Tests (2,197) on 27 Categories of
Gordon's (1968) Classification Scheme for
the Race x Age Interaction

Category	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F
1	.202	3.564	.101	.018	5.579**
2	.316	3.641	.158	.019	8.538**
3	.002	.374	.001	.002	.582
4	.005	.296	.003	.002	1.741
6	.008	.639	.004	.003	1.172
7	.000	.022	.000	.000	.519
8	.025	.733	.013	.004	3.364
11	.005	.152	.003	.001	3.336
12	.010	.475	.005	.002	2.151
13	.001	.105	.000	.001	.505
14	.076	2.814	.038	.014	2.671
15	.000	.031	.000	.000	.014
16	.255	10.936	.128	.056	2.298
17	.005	.797	.002	.004	.561
18	.023	.659	.012	.003	3.461
19	.332	6.580	.166	.033	4.976**
20	.095	3.114	.047	.016	2.995
21	.002	3.012	.001	.015	.055
22	1.022	8.584	.511	.044	11.728**
23	.003	.111	.001	.001	2.200
24	.000	.009	.000	.000	1.849
25	.002	.396	.001	.002	.488
26	.077	3.480	.039	.018	2.189
27	.008	.760	.004	.004	1.062
28	.000	.023	.000	.000	1.056
29	.002	.311	.001	.002	.660
30	.008	.447	.004	.002	1.763

** p < .01

TABLE D-7

Univariate F-Tests (1,197) on 27 Categories of
Gordon's (1968) Classification Scheme for the Effect of Race

Category	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F
1	1.132	3.564	1.132	.018	62.549**
2	1.067	3.641	1.067	.019	57.732**
3	.010	.374	.010	.002	5.485
4	.037	.296	.037	.002	24.593**
6	.023	.639	.023	.003	7.107**
7	.000	.021	.000	.000	3.697
8	.001	.733	.001	.004	.192
11	.000	.152	.000	.001	.138
12	.000	.475	.000	.002	.004
13	.000	.105	.001	.001	1.486
14	.049	2.814	.049	.014	3.407
15	.001	.031	.001	.000	3.807
16	1.206	10.936	1.206	.056	21.727**
17	.033	.797	.033	.004	8.024**
18	.034	.659	.034	.003	10.031**
19	.106	6.560	.106	.033	3.164
20	.046	3.114	.046	.016	2.889
21	.099	3.012	.099	.015	6.483
22	.003	8.584	.003	.044	.075
23	.002	.111	.002	.001	4.319
24	.000	.009	.000	.000	.248
25	.039	.396	.039	.002	19.157**
26	.006	3.480	.006	.018	.310
27	.102	.760	.102	.004	26.442**
28	.000	.023	.000	.000	.399
29	.000	.311	.000	.002	.137
30	.016	.447	.016	.002	6.994**

** p < .01

TABLE D-8

Univariate F-Tests (2,197) on 27 Categories of
Gordon's (1968) Classification Scheme for the Effect of Age

Category	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F
1	.256	3.564	.128	.018	7.068*
2	.316	3.641	.158	.018	8.541**
3	.011	.374	.005	.002	2.799
4	.005	.296	.003	.002	1.668
6	.008	.639	.004	.003	1.235
.7	.000	.022	.000	.000	1.108
8	.022	.733	.011	.004	2.954
11	.001	.152	.000	.000	.518
12	.003	.475	.002	.002	.651
13	.001	.105	.000	.001	.450
14	.045	2.814	.022	.014	1.558
15	.000	.031	.000	.000	.035
16	.599	10.936	.300	.056	5.396**
17	.003	.797	.001	.004	.342
18	.012	.659	.006	.003	1.809
19	.195	6.580	.097	.033	2.914
20	.080	3.114	.038	.016	2.516
21	.100	3.012	.050	.015	3.260
22	.081	8.584	.040	.044	.925
23	.002	.111	.001	.001	1.383
24	.000	.009	.000	.000	.729
25	.003	.396	.001	.002	.614
26	.015	3.480	.008	.018	.436
27	.009	.760	.004	.004	1.114
28	.000	.023	.000	.000	1.849
29	.008	.311	.004	.002	2.462
30	.007	.447	.004	.002	1.522

** p < .01

TABLE D-9

Univariate F-Tests (1,197) on the 27 Categories of
Gordon's (1968) Classification Scheme for the Effect of Sex

Category	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F
1	.005	3.564	.005	.018	.258
2	.016	3.641	.016	.018	.847
3	.000	.374	.000	.002	.013
4	.010	.296	.010	.002	6.718**
6	.039	.639	.039	.003	12.068**
7	0.000	.022	0.000	.000	.000
8	.016	.733	.016	.004	4.251
11	.001	.152	.001	.001	.882
12	.012	.475	.012	.002	5.072
13	.000	.105	.000	.001	.111
14	.006	2.814	.006	.014	.432
15	.000	.031	.000	.000	.254
16	.041	10.936	.041	.056	.733
17	.002	.797	.002	.004	.468
18	.000	.659	.000	.003	.071
19	.105	6.580	.105	.033	3.151
20	.012	3.114	.012	.016	.732
21	.213	3.012	.213	.015	13.908**
22	.064	8.584	.064	.044	1.458
23	.000	.111	.000	.001	.223
24	.000	.009	.000	.000	4.142
25	.000	.396	.000	.002	.006
26	.033	3.480	.033	.018	1.881
27	.002	.760	.002	.004	.618
28	.000	.023	.000	.000	2.355
29	.000	.311	.000	.002	.004
30	.008	.447	.008	.002	3.469

** p < .01

TABLE D-10

Summary Table for the 2 (Race) x 2 (Sex) x 3 (Age) x 3 (Scales) ANOVA
on the Scales Composed from Gordon's (1968) Categories

Source	df	Sum of Squares	Mean Square	F
Between	197	.596	.003	
Constant	1	1.835	1.835	607.073
Race	1	.147	.147	48.684**
Age	2	.031	.015	5.060**
Sex	1	.002	.002	.699
Race by Age	2	.043	.021	7.026**
Race by Sex	1	.000	.000	.007
Sex by Age	2	.009	.004	1.445
Race by Age by Sex	2	.003	.001	.438
Within Cells	394	1.366	.004	
Scales	2	.288	.144	41.552**
Race by Scales	2	.094	.047	13.543**
Age by Scales	4	.075	.019	5.406**
Sex by Scales	2	.017	.009	2.465
Race by Age by Scales	4	.068	.017	4.899**
Race by Sex by Scales	2	.004	.002	.580
Sex by Age by Scales	4	.058	.015	4.166**
Race by Age by Sex by Scales	4	.021	.005	1.537

* $p < .05$

** $p < .01$

TABLE D-11

Summary Table for the
2 (Race) x 2 (Sex) x 3 (Age) x 5 (Transformation)
ANOVA on the Transformation Scores

Source	df	Sum of Squares	Mean Square	F
Between	197	272.587	1.384	
Constant	1	2997.990	2997.990	2166.665
Race	1	19.836	19.835	14.336**
Age	2	49.744	24.872	17.975**
Sex	1	6.224	6.224	4.498*
Race by Sex	1	8.932	8.932	6.455*
Race by Age	2	1.264	.632	.457
Age by Sex	2	2.954	1.479	1.067
Race by Sex by Age	2	.070	.035	.025
Within	788	491.704	.624	
Transformation	4	23.703	5.926	9.497**
Race by Transformation	4	2.016	.504	.808
Age by Transformation	8	6.813	.852	1.365
Sex by Transformation	4	8.673	2.168	3.475**
Race by Sex by Transformation	4	.392	.098	.157
Race by Age by Transformation	8	2.113	.264	.423
Age by Sex by Transformation	8	9.266	1.158	1.856
Race by Sex by Age by Transformation	8	3.720	.465	.745

* p < .05

** p < .01

TABLE D-12

Summary Table for the 2 (Race) x 2 (Sex) x 3 (Age) x 5 (Transformation)
Loglinear Analysis Performed on the Transformation Frequencies

Source	df	Chi-square
Intercept	2	74.46**
Race	2	13.79**
Sex	2	2.97
Age	4	46.99**
Transformation	8	37.45**
Race by Sex	2	6.12*
Race by Age	4	1.17
Race by Transformation	8	3.54
Sex by Age	4	3.19
Sex by Transformation	8	6.30
Age by Transformation	16	13.51
Race by Sex by Age	4	3.50
Sex by Age by Transformation	16	10.48
Race by Age by Transformation	16	9.58
Race by Sex by Transformation	8	1.65
Race by Sex by Age by Transformation	16	6.56
Residual	0	

* $p < .05$

** $p < .01$

TABLE D-13

Summary Table for the 2 (Race) x 2 (Sex) x 3 (Age)
 Loglinear Analyses Performed on the Modified Piers-Harris
 Inclusion Frequencies

Variable	Intercept	Race	Sex	Age	Race by Sex	Race by Age	Sex by Age	Race by Age by Sex
df	χ^2	$\chi^2(1)$	$\chi^2(1)$	$\chi^2(2)$	$\chi^2(1)$	$\chi^2(2)$	$\chi^2(2)$	$\chi^2(2)$
1	20.07	7.04**	1.43	0.44	0.83	16.30**	0.62	0.01
2	14.06	0.14	0.36	4.96	1.03	3.74	2.13	0.24
3	5.91	0.00	0.19	5.67	1.61	7.94*	0.09	4.25
4	28.69	0.18	4.20*	0.20	0.14	0.91	4.24	0.09
5	9.82	1.08	0.54	12.94**	0.00	0.22	3.57	1.96
6	20.26	1.78	0.79	2.15	2.30	3.18	1.40	2.34
7	3.92	2.28	1.03	5.19	0.04	4.81	1.94	0.00
8	15.59	0.96	4.90*	1.37	0.57	0.34	1.95	2.31
9	30.36	0.21	5.21*	0.90	0.90	10.70**	3.05	0.83
10	10.89	4.73*	1.41	0.06	0.56	7.98*	3.93	2.90
11	14.16	1.39	5.48*	0.90	5.83*	12.76**	0.62	0.61
12	12.56	1.82	0.15	1.26	0.95	7.35*	0.47	3.05
13	0.05	1.05	0.03	0.18	7.22**	5.98	.73	1.12
14	4.63	0.00	6.75**	8.82*	0.06	6.70*	1.90	1.96
15	1.03	4.48*	7.31**	5.35	6.44*	4.89	0.77	2.21
16	2.22	0.07	3.08	3.39	1.40	3.84	0.07	0.51
17	0.81	0.29	0.22	1.60	0.11	7.52*	0.89	2.81
18	2.37	0.33	0.34	0.78	0.27	6.85*	2.34	2.15
19	0.02	0.17	0.04	0.07	2.18	1.31	0.61	4.95
20	32.98	0.42	0.61	0.54	0.29	6.57*	0.61	2.41
21	0.80	1.15	0.04	1.45	0.04	17.26**	4.59	5.75
22	0.52	0.18	1.99	5.78	2.16	1.66	2.39	.39
23	21.29	0.08	1.83	0.44	1.35	6.21*	1.38	2.43
24	10.20	0.95	7.98**	0.08	6.17*	5.94	1.28	1.02
25	8.79	3.74	9.23**	1.15	2.12	10.29**	2.21	0.83
26	14.78	0.64	3.50	3.61	5.59*	2.31	2.07	2.29
27	1.85	3.75	0.36	0.01	0.94	23.86**	1.23	4.96
28	12.58	1.84	6.65**	1.57	4.39*	4.18	0.88	1.06
29	11.07	0.22	0.91	1.99	0.04	8.69*	0.30	2.57
30	30.23	8.56**	1.72	7.68*	3.21	2.74	9.48**	0.35

* p < .05

** p < .01