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THE CHILD'S PERCEPTUAL AWARENESS OF HIS  
OWN SEGMENTED FACIAL PARTS

by

Gregory Carl Trevers

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Child Development

Approved:

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Major Professor

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Committee Member

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Committee Member

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Dean of Graduate Studies

UTAH STATE UNIVERSITY  
Logan, Utah

1973

## ACKNOWLEDGMENTS

The author wishes to express appreciation to the many people who have encouraged and helped him in the preparation of this thesis.

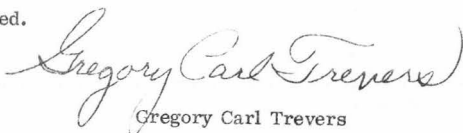
A sincere thank you is directed to Dr. Don C. Carter, Head of the Department of Family and Child Development, for his critical review of the thesis and his support and encouragement throughout its preparation.

Gratitude is also expressed to Dr. Carroll C. Lambert, Associate Professor of Family and Child Development and Dr. David R. Stone, Professor of Psychology, for their helpful suggestions and evaluation.

Others who assisted the author in this study include Dr. Jay D. Schvaneveldt, Associate Professor of Family and Child Development, and Jim Nelson, Photographer.

For their cooperation in making this study possible, the author wishes to thank the children of the Hillcrest Elementary School and the pre-school children of the U. S. U. Child Development Laboratory, Logan, Utah.

Finally, to my wife, Loretta, for her patience and support in fulfilling this project and for her typing assistance, I extend a husband's gratitude. To her this work is dedicated.

  
Gregory Carl Trevers

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ABSTRACT

The Child's Perceptual Awareness of His  
Own Segmented Facial Parts

by

Gregory Carl Trevers, Master of Science

Utah State University, 1973

Major Professor: Dr. Don C. Carter  
Department: Family and Child Development

The purpose of this paper is to demonstrate the developmental abilities of young middle-class, Caucasian children to perceptually discriminate their own segmented facial parts. The Segmented Facial Parts Test, which utilized a black and white, 8 inch by 10 inch photograph, was developed by the investigator as a part of the study. It was designed to explore degrees of developmental variance on facial awareness tasks. The SFPT was incorporated as the testing instrument.

Children ages 8 1/2, 6 1/2 and 4 1/2 years were examined on nine facial segment tasks. Sociological, psychological and psychiatric theories were employed in order to explain the possible interconnections between body awareness and self concept maturation and enhancement. "Whole-part" perception theory was also clarified and substantiated by this study.

Results indicated that mental and chronological maturity are significant variables affecting the amount of facial awareness occurring in young

children. Young males and females exhibit no substantial differences in their segmented facial parts awareness. According to this study, younger children adhere to a "wholistic" style of perceptual functioning. "Part" perception becomes more and more apparent as the child's age increases.

(97 pages)

## INTRODUCTION

The affective realm of interpersonal interaction is considered by many prominent psychologists and child development theorists to be one of the most important factors to consider when child welfare programs are discussed. One reason for this new, expanded emphasis on the emotional well-being of young children is a result of the fact that it has been more clearly realized by these experts in the field: the mental health of a future society depends largely on the emotional stability of each of its new constituent members. Young pre-school children represent the hope of tomorrow. A young person must learn to know and understand himself in order to begin to know and understand others. It is imperative then, that research shall be directed toward an attempt to discover the processes by which a stable and productive self concept might successfully emerge.

The domain of the construct self concept is indeed a broad one. Operationally defined it could mean the "organization of qualities, perceptions, attitudes and roles which an individual considers characteristic of himself" (Erickson, 1970, p. 5). From a more narrow and selective point of view, an individual's body awareness and his perceptions in this regard might constitute one aspect of the larger domain heretofore described. A child's perceptual awareness of his own body parts might be one of the many contributing factors necessary for adequate differentiation of the self. This particularization is

important. It is assumed that a child who is cognizant of himself can better understand his social situation and his own responsibility therein.

#### Statement of the Problem

The problem investigated in this study was: can young, middle class children perceptually discriminate their own segmented facial parts? Present knowledge about a child's "whole versus part" orientation and perceptual ability, as related to his emerging self concept, was also clarified by this study.

This problem was seen as important because it dealt indirectly with the ramifications of the necessary developmental process, self concept. Therefore, in order to understand more about the mechanisms, self esteem--self awareness, and the many implications of these broad areas on the well being of a child, it was determined that an appreciation of all aspects of the child's self concept involvement (at varying stages of development, including facial awareness) would be more clearly defined through investigation and research.

#### Purpose

The purpose of this study has been to describe the extent to which young children of the same socioeconomic class are perceptually aware of their own segmented facial parts. The variables, age and sex, were manipulated in relation to this task in order to differentiate degrees of developmental variance. The design was both exploratory and descriptive in nature.



Some examples of the inquiries that were answered as a result of this study were: Is there a specific age--somewhere between the ages of four and one-half years and eight and one-half years--where a more complete personal facial awareness takes place, or is there a gradual sequenced improvement across this age span? At what stage of the Segmented Facial Parts Test are the majority of the children most aware of themselves? Is there any differentiation due to age or sex factors?

#### Hypotheses

1. Older children will identify their own segmented facial parts more correctly and more often than younger children as measured by the Segmented Facial Parts Test.
2. Girls will identify their own segmented facial parts more correctly and more often than boys as measured by the Segmented Facial Parts Test.

## REVIEW OF LITERATURE

The main topic to be discussed in this literature review will center around the recent research findings in the area of perceptual awareness by the individual of his own body. Then as a basis for a more comprehensive understanding of the possible implications of this study, the peripheral topics, self concept and perception, will be briefly explored.

### Body Awareness Research and Theories

Is the problem of facial parts recognition and self identification psychologically sound and worth investigating? Allport (as quoted in Lindzey, Prince, and Wright, 1952) states that:

The rapid growth of the psychology of personality has led to the discovery that the province of physiognomy is richer than psychologists had suspected and well worth exploring. (p. 481)

It is substantiated in the literature that young children can generally accomplish tasks concerning human body perception. A recent study (Egbert, Ballif, and Hendrix, 1968) indicated that young middle class children were perceptually able to discriminate whole body pictures of themselves as seen at various angles. The subjects were able to recognize their own bodies by choosing their full length, clothed picture from among five other unidentified photographs. In a more specific study, Goldstein and Mackenberg (1966, p. 149) found that during segmented body recognition tasks "age is an important

variable in part-whole perception." They had asked young children to differentiate between isolated facial features of other children with whom the children were acquainted. From this procedure they substantiated that young children are capable of making fine perceptual discrimination, depending upon their age, when asked to recognize their own friends' faces from a black and white photograph.

Several other studies have also provided adequate data concerning the body image awareness capabilities of normal individuals. Arnhoff and Damianopoulos (1962) found that 100 percent of their twenty-one, college age subjects readily recognized their own bodies devoid of clothing and facial clues when presented with a series of seven photographs from which they were to choose their own picture. This finding had come as a surprise to these investigators, because on the basis of past literature concerning hand and face recognition, which they had cited in their study, there had been conflicting evidence about a person's perceptual abilities. Lerner and Gellert (1969) experimented with the concept of body build awareness and preference. Kindergarten children were shown three body build types (chubby, medium and thin), and were asked whom they thought they most resembled. Most of the subjects' scores on matching themselves correctly were statistically significant. However, it is interesting to note that they found females to be more adept than males at matching body builds. Gellert, 1968 (as cited in Lerner and Gellert, 1969) suggests the reason for this trend might be that: "North American

culture may place more emphasis upon paying attention to bodily appearance in socializing girls than in socializing boys" (p. 461).

Experimentation with the more specific subject matter of facial feature awareness has received some treatment in the literature. But according to the literature reviewed here, generally the basis for such investigations has been for reasons other than research about the subject of awareness of one's ownself as related to self concept.

Goldstein and Mackenberg (1966), as previously mentioned, confronted children ranging from four and one-half to ten and one-half years old with a problem concerning picture recognition of isolated facial features of the subjects' friends. Their results suggest, among other things, that certain upper portions of the face (namely the eyes and forehead seen together) are more helpful clues for identification than are the lower facial areas.

Nash (1969) completed several studies similar to the one undertaken by this investigator, and his research provides a substantial framework from which to compare. Several pictures of various facial regions were produced by photographing the subject's own face with black and white film and then cutting the picture into segments. These were re-photographed on one sheet, among several similar segments (twenty-six) of other persons' faces and displayed as an array of like features. The subject was required to choose his own segmented facial parts from among the several presented. The subjects were seventh and ninth grade boys. Nash (1969) found that the eyes and mouth were the most easily recognizable head regions, and that self recognitions

more numerous in the older subjects. Nash (1969) also found that "pre-  
sumable because of their greater exposure, expressiveness, and significance  
for interpersonal relations, face regions tended to be better recognized than  
other body regions" (p. 336). And, as a result of these several findings, Nash  
concluded that developmental factors such as age may be significant deter-  
minants of a person's perceptual ability to recognize themselves.

Other researchers have found similar results on comparable tasks. Gellert, 1964 (as cited in Nash, 1969) found that for both male and female subjects, age-related improvements in self-recognition tasks were apparent. Gellert tested male and female subjects who were six, eight, ten, and twelve years old on a task which required them to recognize themselves dressed only in bathing suits from front--, side--, and posterior views. For both sexes, the older children were more successful than the younger children on each recognition task. Nash (1969) believes that this finding cannot be attributable to a general improvement in intellect, which is thought to be concomitant with increasing age. He underlines the fact that Gellert's female subjects' recognition scores were in no way consistent in relationship to either their Stanford-Binet Vocabulary scores or their Goodenough Draw-A-Man scores.

Staffieri (1967) conducted a study wherein ninety male children between the ages six and ten years old were asked, among other things, to indicate the body-build-type (mesomorphic, etc.) they most resembled. The subjects were presented with silhouettes of five main body builds. They were to choose the silhouette example they felt looked most like themselves. It was found

that the ten-year-old subjects were more accurate in their self perceptions than the six-year-old subjects. Staffieri (1967) made an innovative proposal concerning why this age-related pattern emerged in his study. "If the younger boys do not perceive themselves accurately, there may not be sufficient motivation for them to report a preference to look differently . . . ." (p. 103)

In order to clarify this statement, Staffieri (1967) further argued that:

The point at which accuracy of self-perception becomes apparent (probably eight to nine years of age) may also be the beginning of dissatisfaction with one's body, and the degree of dissatisfaction may well be proportional to the extent one's body differs from the mesomorph image. (p. 104)

Self recognition on tasks similar to those reported above may be a function of familiarity. For example, it is well documented in the literature that when a subject's body region is reversed, the subject has a difficult time recognizing himself. In addition to reversibility factors, personal determinants may affect recognition of a subject's body parts. A person who believes (correctly or otherwise) that his ears are large and protruding may begin to realize, and become proficient in, distinguishing individual differences in the shape and size of the ear (Nash, 1969), whereas a subject without a strong awareness of a peculiar facial form may be denied a concrete facial schemata.

When facial parts are used as stimuli, the recognition task becomes important, not only as a means of dealing with the whole-part problem, but as a method of obtaining information about the development of response to human faces (Goldstein and Mackenberg, 1966). As a factor in infant

development research, Spitz and Wolf, 1946 (as cited in Nash, 1969) found that, ". . . The forehead-eyes-nose sector of the moving face is a privileged percept for the two-to-six month-old infant, eliciting social smiling to a far greater extent than other body regions" (p. 317). From a very early age facial parts awareness holds a dual role in human beings. The face or head is a perceptual object. Facial perceptions seem to affect personality development.

As a perceptual object, the human body is unique. Fisher and Cleveland have said the human body

. . . is simultaneously that which is perceived and also a part of the perceiver. . . . No other perceptual object ever occupies such a dual position or participates so intimately in the perceptual process. (1965, p. 49)

The human form becomes a reference against which all other perceptions are calculated (Dubnoff, 1970). Therefore, the trend toward body awareness research by a few investigators has become important because of the many implications that have emerged concerning perception, as well as self concept. An individual's body is one of the most constant and significant material objects in his psychological world, even though it transposes through momentary as well as long-term changes (Nash, 1969).

How does the body schema develop, and what area of the body does a human being consider characteristic of himself? Several researchers believe the head and face region to be one of the central positions in self concept development. Clapp (1972, p. 37) reports that ". . . the body schema develops

earlier on those areas more proximal to the body trunk than on those areas more distal to the body trunk." Dixon (1972), in discussing the "I" referent point externally or internally located within oneself, i.e., the point one considers as the location of oneself, indicates that most researchers have found the "head" region to be the first choice. It is possible that major testimony favors a head and face localization because sight and hearing provide our dominant cues for spatial localization (Dixon, 1972).

Body awareness parameters are attributable to several social functions and phenomena. The function of an individual's body configuration in social interchange is an important part of the total process of personality development. Social interactions have a profound effect on self concept maturation (Staffieri, 1967).

Social-class membership and ethnic origin may affect body concept articulation. Weller and Sharan (1971) found body differentiation to be affected by social factors. In two studies that they had completed in Israel, a higher level of body articulation in the figure drawings of children whose parents were born in Europe was found. This phenomenon was not visible in the children tested whose parents had immigrated to Israel from Middle-Eastern countries. Ethnic groups were also found by these investigators to produce varying effects on sex-differences in the articulation of the body concept. This finding is consistent with the theory of psychological differentiation proposed by Witkin, Goodenough, and Karp (1967). Weller and Sharan (1971) write:



. . . Children raised in a subculture stressing verbal-intellectual achievement with a concomitant neglect of body awareness for its male members would be likely to manifest greater sex differences in body articulation (i.e., Western Jews) than would offspring of a subculture lacking this emphasis (Iranian and Iraqi Jews). (p. 1558)

It is reasonable to assume that the social and ethnic differences concerning body awareness found in this Israeli study may in some manner be manifest in other groups of divergent peoples in America and Europe. Tests like the SFPT may help clarify this question.

Significant results not based on social or ethnic origins were found in an American study concerning sex differences in young children and young adults as related to body articulation (Faterson and Witkin, 1970). In a study of body articulation by means of a human figure drawing test, girls in the age categories--eight, ten, thirteen, fourteen, seventeen, and twenty-four years old--exceeded boys in their abilities to articulate body concept. Differences were significant in the eight, thirteen, and fourteen year-old categories at the .025 level. The data acquired by Faterson and Witkin (1970) also revealed age group differences. Faterson and Witkin (1970, p. 434) concluded that "articulation of body concepts . . . has been found to increase during the growth years. . . ."

In the past several techniques have been employed to delineate body awareness perceptions. A few of these procedures will be briefly reviewed here.

Since 1958 several body image tests have been used to study perception and self concept development. Gaier and White (1965) mention the Rorschach barrier score, The Drawing Completion Test, and the Thematic Apperception Test (TAT) as examples of these tests. Other methods and procedures that have been used for ascertaining body precepts are: word association, aniseikonic lenses, size estimation tasks, and tachistoscopically presented pictures of distorted bodies (Fisher and Cleveland, 1965).

Ozehosky and Clark (1971) have done research comparing verbal with non-verbal tests for the development of the self-concept. They found that non-verbal measures (of which the Segmented Facial Parts Test could be considered a part) were superior. "Verbal devices such as sentence-completion tests have little validity at the kindergarten level!" (Ozehosky and Clark, 1971, p. 195) Considering this, it seems that projective techniques and other pictorial and/or portrait methods are excellent for researching body awareness, especially for younger subjects.

#### Self Concept Research and Theories

An individual's self concept is continually evolving. It is a volatile concept to analyze, because personality development is contingent upon a conglomerate system of ongoing environmental adjustments and psychic innovations. Psychoanalytic models provide one method of defining the self concept construct. What one knows and understands about oneself, and from

time to time is most clearly aware, is explained by Sullivan (1954) as the personified self. The personified self is the vacillating point of self reference within the conscious mind. It is clearly reflected in the statements pertaining to the subject "I".

The mind's image of one's own body makes a strong contribution to his self concept. In a recent chapter of a book about the "body percept" by Fisher and Cleveland (1965) the point has been made:

With increasing study of body image phenomena we have learned that the normal individual's attitudes toward his body may mirror important aspects of his identity. An individual's feeling that his body is big or small, attractive or unattractive, strong or weak may tell us a good deal about his self concept or his typical manner of relating to other people. (p. 48)

A child's body image and the way his body functions becomes the nucleus of the self, and in turn, the ego (Dubnoff, 1971). Coopersmith (1967) says the early years are important for developing a common point of self reference. The body parts, the response of others to a person, and the objects a person receives contribute to his "self" development during this period.

The interactionist perspective developed by sociologists (Rubington and Weinberg, 1968; Blumer, 1969) explains how the environment created by "significant others" strongly impinges on our developing concept of self. Kinch (1963) relates a pertinent example of such a situation. Several male graduate students decided to change the behavior of the one unknowing female student in a social psychology seminar they were all attending. The girl was plain and unexciting. They each took this somewhat unattractive girl out on a

date and treated her as if she were very beautiful. Soon the girl began to respond by fitting the part. She restyled her hair and bought new clothes. The result was the girl perceived the actual responses of the others in her class in such a way as to require an adjustment in her self concept, which eventually changed her behavior. By the time the last fellow in the group asked the girl out, she refused, saying she had too many dates now with other men to be bothered with him.

#### Perception Research and Theories

Perceptual abilities and body awareness expertise are intimately bound together. A person's body awareness is contingent upon three basic growth patterns: bodily growth, cephal-caudal development; psychosocial growth, operant or affective development; and cognitive growth, epistemological brain development. Piaget and Inhelder (1969) and Sigel (1953), among others, set forth in their works the cognitive stages of growth and their effects on perception, which are parallel factors influencing body awareness.

Whole-part theory concerns itself, in part, with defining object perceptions at various growth stages. Work with instruments similar to the SFPT and the Rorschach provide evidence that there exists developmental differences between various human maturity levels.

Older children perceive objects in a manner that is similar but more detailed than the diffuse percepts of the young child. Goldstein and Mackenberg (1966, p. 149) feel that ". . . for correct identification, older children need

to see a smaller portion of a figure than do younger children . . . ." Ghent, 1961, has said (as cited by Brooks and Goldstein, 1963) only a portion of a figure is necessary for correct identification of a whole figure as a child progresses in age. Heinz Werner (1957) discusses this progression in ontogenic terms:

Perception is first global; whole-qualities are dominant. The next stage might be called analytic; perception is selectively directed toward parts [between the ages of six and eight years-old]. The final stage might be called synthetic; parts become integrated with respect to the whole. Initially perception is predominantly "physiognomic." The physiognomic quality of an object is experienced prior to any details. At this level, feeling and perceiving are little differentiated. (p. 48)

Work with the Rorschach and the Goodenough Draw-A-Man test has produced related evidence for inclusion in the whole-part theory. A great deal of literature concerning Goodenough's Draw-A-Man test has been written. Basically, most researchers have found that children draw more and more specific parts with increasing age when given this test.<sup>1</sup> The use of the Rorschach with children has also supported whole-part theory. The young child sees undifferentiated wholes rather than parts as revealed in this test. As the young child increasingly matures, he begins to see more and more differentiated parts until, as an adult, he perceives an object as an "organized whole." In other words, the adult comprehends that the whole he sees is also

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<sup>1</sup>Personal communication with Professor Arden N. Frandsen, Ph.D. at Utah State University, Logan, Utah, 1972.

composed of separate parts. The adult can recognize the whole and its constituent parts at the same time.<sup>1</sup>

One of the leading authorities, Herman A. Witkin, writing on the attributes of the theories of field-independence and dependence has provided the ground work necessary for other investigators to relate these theoretical phenomena to facial awareness abilities and cognitive styles. Field-dependence and independence, as defined by Witkin, Goodenough and Karp (1967), occurs as follows:

In a field-dependent mode of perceiving, perception is dominated by the overall organization of the field; there is relatively an inability to perceive parts of a field as discrete. . . . Conversely, a field-independent style of perceiving, in which parts of a field are experienced as discrete from organized background, rather than fused with it, is a relatively differentiated way of functioning. Persons whose field-dependent perception suggests limited differentiation in their experience of the world about them also show limited differentiation in their experience of their bodies. (p. 291)

Field-dependence and independence factors should, therefore, be realized in analyzing the data from any projective or pictorial examination of facial parts.

In studying the earlier theories on this subject proposed by Witkin and others, Messick and Damarin (1964) have hypothesized a counter-position. The field dependent person, who has a strong desire to satisfy social drives, may create a fund of interpretive skills that will enable him to distinguish among human faces. Messick and Damarin (1964) feel that ". . . Field-dependent

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<sup>1</sup>Personal communication with Professor Arden N. Frandsen, Ph.D. at Utah State University, Logan, Utah, 1972.

persons, being in need of support and guidance from others, are particularly attentive to facial characteristics and expressions . . ." (p. 313). These investigators also cite an unpublished study by De Varis that emphasizes this point: Boys were found to be significantly more accurate in selecting cutout photographs of their own noses, eyes, ears, etc., from among a set of similar photographs of the features of others, if they were field-dependent persons. Field-dependent persons, say Messick and Damarin (1964), have a tendency to characterize themselves and others in terms of "external" attributes.

#### Summary

The topic Body Awareness Research and Theories and the collateral topics of Self Concept Research and Theories and Perception Research and Theories were discussed in the literature review. The discussion of body awareness was necessary in order to establish some basic postulates from which to carry out this thesis research. The collateral subjects were reviewed in order to establish a link between the theoretical viewpoints they imply and the research hypotheses in the area of body awareness.

The literature concerning body awareness suggests, among other things, that there is agreement on several important points. It is documented in the review that generally people can recognize their friends and themselves in segmented picture test situations. The developmental factors, age and sex, seem to determine a person's success with such perceptual tasks. The young child of preschool age has been shown to function successfully on tests similar

to the Segmented Facial Parts Test. The work of Nash (1969), Goldstein and Mackenberg (1966), and others is indirectly related to the thesis described herein. Their insights provide background hypotheses to be referred to in the discussion sections to follow.

Facial awareness tests have produced the most definitive answers in body awareness research, although "total" body research has been more prevalent in the past.

Sociological factors were also discussed in the Body Awareness Research and Theories section. Ethnic origins, social class membership, and sex differences were found to significantly affect body articulation skills.

Several tests of body image and body awareness were briefly listed. The differences between verbal and nonverbal methods were described in more detail. Non-verbal devices were found to be superior techniques for ascertaining body awareness parameters.

Several hypotheses were discussed in the Self Concept Research and Theories section of the literature review. The following psychoanalytic and sociological theories of self concept development were explored: (1) Body image awareness is significantly related to self concept organization. (2) The "looking-glass self" phenomena, the "self-fulfilling prophecy" strongly affects man's psychic involvement, as well as his bodily behavior (Szasz, 1961; Cooley, 1962). Therefore, social interaction positively affects our body image.

In the Perception Research and Theories section three main points were discussed. The whole-part theory of perceptual development is definitely a



factor in the progressive perceptual abilities of young children. It is an important theory because the whole-part phenomena influences body awareness capabilities in young children as well as adults. The Rorschach and Good-enough Draw-A-Man tests were discussed as added evidence of the existence of the whole-part perception system. And, the theories of field dependence and independence, as related to facial awareness capabilities and self concept involvement, were found to be very important factors to realize when one is analyzing the results of tests like the SFPT. In relation to the topic of "field" effects, two opinions were reviewed. Has or has not the field dependent person the ability to recognize his own and other people's facial parts? The research evidence is split on this question.

## PROCEDURE

### Sample

A purposive sample of three age group populations of middle class socioeconomic status children from northern Utah was used in this study. The total number of subjects was sixty. Each sample contained twenty individual children. Two age group samples were taken from Hillcrest Elementary School, Logan City School District. Hillcrest Elementary serves Logan City's middle class socioeconomic families. It was assumed, therefore, that the children in attendance represented middle class children for the purpose of this study. The third age group sample was taken from the Utah State University Child Development Laboratory, Logan, Utah. The Child Development Lab has a usual clientele of Logan City children, college staff children, and children whose parents are attending Utah State University. It was assumed for the purpose of this study, that most of the children in attendance were representative of the middle class socioeconomic category.

### Method of sampling

The sample candidates (three age groups each for boys and girls), if they totaled more than ten persons in each group after meeting the four criteria set forth below, were numbered consecutively, the first candidate being number one. A table of random numbers was used to designate the final sample subjects

from this list. They were selected as sample members if the number they had been assigned was chosen in a methodical scan of the random number tables.

Ten boys and ten girls, age eight and one-half years old and ten boys and ten girls, age six and one-half years old (average ages) who met a pre-determined criteria were selected from the aforementioned Hillcrest Elementary School. Ten boys and ten girls, age four and one-half years old (average age) were also selected in the same manner from the aforementioned U. S. U. Child Development Laboratory, who met these same criteria.

These criteria were:

1. All children must be Caucasian.
2. All children will be free from wearing eyeglasses.
3. All children's ages must be within 3.5-5.0 years, 5.5-7.5 years, and 8.0-9.5 years.
4. All children must be free of any highly noticeable distinguishing marks that are visible on the face such as large moles, birth marks, and scars, etc.

These data (criteria 1-3 above) were ascertained from school officials and records prior to sampling. Criterion number 4 was reviewed according to the investigator's judgment.

Because of these limiting factors the four and one-half year old and the six and one-half year old populations reached sample size. Therefore, no random sample using the table of random numbers was undertaken, except in the case of the eight and one-half year old population.

### Description of Instrument

The newly constructed Segmented Facial Parts Test (SFPT) developed by the investigator was used. This instrument consists of an 8 inch x 10 inch black and white picture portrait of a human face covered by a masking device which will allow the investigator to reveal only the mouth and chin, the nose, the eyes, the forehead and hairline; or a combination of all four of these isolated regions of the face simultaneously, as well as the entire facial photograph. (See Appendix C, p. 93.) The actual facial dimensions were on the average 8.92 inches from the top of the head to the bottom of the chin and 6.75 inches measured from the end of ear to ear. The test's function was to delimit which portion or portions a person needs to see of his own segmented facial form in order to recognize himself.

The subject's own picture, photographed previously, was placed randomly among two other pictures of his own same sex classmates in the sample. The testing began by first revealing on all three pictures, segment one--the mouth and chin alone (extending from below the nose to above the neck), then continuing in sequence, the investigator revealed segments two to five as follows: segment two--the nose alone (extending from above the upper lip to below the eyes; i. e., the nose tip minus the uppermost portion of the nose bridge); segment three--the eyes alone (including the eyelids, lashes, eyebrows, and the top portion of the nose bridge); segment four--the forehead and hairline alone (extending vertically from above the eyebrows to an area

including approximately three-fourths inch of the subject's hair emerging above the hairline and extending horizontally to the temple region that is anterior to the hairline and superior to the level of the lateral tip of the eye-brow); and finally, segment five--the eyes and forehead, hairline alone (areas within the same dimensions as described above). The testing concluded by exhibiting in sequence a combination of the mouth, chin and nose--segment six; the mouth, chin, nose, and eyes--segment seven; the mouth, chin, nose, eyes, and forehead, hairline--segment eight; and, the entire face and head above the neck (including the ears or the area of the ears for those subjects with covering hairstyles)--segment nine. (See Appendix C, Overlays 1, 2, 3, 4, 5, p. 94.) The above description of "segments" in the sequence listed may hereafter be referred to in this thesis as segments one through nine.

Each portion or portions of the test was revealed for a maximum of fifteen seconds. The subject was timed with a stop watch. The subject was required to recognize his own picture or segment of it at each stage by pointing to it when asked to do so by the investigator within fifteen seconds. Whether or not the subject recognized the first segment or segments shown, all phases of the test were completed in the sequence described, in order to obtain a total score (main score). For each portion of the test, the subject's picture position was randomly shuffled.

A "main score" was calculated by adding correct responses at each segment to produce the total number of correct responses. A main score was an individual subject's summated segment scores. A right or wrong response,

designated as zero points or one point for each of the nine portions of the Segmented Facial Parts Test, equaled a "segment score." "Main recognition time" equaled the summation of segment times in seconds. Time in seconds taken at each of the nine portions of the Segmented Facial Parts Test equaled a "segment time." If the subject was fully aware of his own facial parts as measured by this instrument, his total main score would be nine and his total main time would be well under the one-hundred-thirty-five seconds allowed. The term "total score" used in this thesis refers to the summation of all the individual main scores in a particular category. For example, the "total score" of the eight and one-half year old boy group equals the summation of all the "main scores" within that category. "Total time" in seconds means the summation of all the "main times" in a particular category.

A score sheet for each subject contained, among other things, the subject's picture number, name, age (in years, months, and days), sex, hairstyle (bang or no bang, long or short, as determined by this investigator in agreement with one judge at the 80 percent level), and "scores" for each portion of the test. These scores were: score for each segment (segment score), time for each segment (segment time), total number of responses, list of parts correctly identified, total number of correct responses (main score), and total time in seconds (main time). Also included on an individual's separate score sheet were spaces for subject and/or investigator comments, a subject picture position number for each segment test, and a space for indicating the presence of "response set" or perseveration. (See Appendix D, p. 95 .)

Response set equaled, as defined by this investigator, a score pattern wherein four continuous segment tasks were chosen by an individual subject incorrectly, if the position of the choice was the same each time. If a pattern of four incorrect choices was broken by one or two correct choices, then a search for another consecutive group of four incorrect choices made at the same location had to be recognized, in order for an individual subject to be classed as a "response set" subject. A "response set" subject would be an individual whose scores were questionable due to the possible presence of perseveration.

A uniform dialogue of instructions and a similar testing situation were used. If at the end of the test the subject had not yet recognized his own full photograph the investigator pointed it out to him, allowing the subject to leave the test feeling more aware of himself despite his inability to recognize his own face. In this case, the subject received a main score of zero. In the research design it was also realized that some children may recognize their own forehead, for instance, but not respond correctly because they did not know what the word forehead meant. Therefore, the SFPT includes not only the examination of self recognition, but of body part names and locations as well.

#### Administration and Collection of Data

The subjects chosen in each age group sample were given the Segmented Facial Parts Test by the investigator during the 1972-73 school year at their

respective schools. Each subject had a black and white picture taken of his face by the investigator under identical filming conditions. The subject was filmed in an unsmiling, natural position from a head-on, 90 degree angle with the camera aimed directly at the front of the face. Later, each subject was shown segments of his own facial photograph placed randomly alongside two other facial photographs of the tested subject's classmates from the same sample, for each portion of the test. An identical solitary testing situation was incorporated for each subject. A green blind, 28 inches x 16 inches x 6 inches, was placed in front of the subject at each test stage in order for the investigator to secretly reshuffle the three picture positions and adjust the testing segment tasks. The subject was tested sitting across from the investigator at a large table in a well lighted room. The testing materials were placed at the appropriate times directly in front of the subject on top of the table. Dialogue and testing instructions remained as uniform as possible. The two "same sex" pictures to accompany the subject's picture in the test were selected randomly from among the entire age group sample using a table of random numbers. After two pictures were randomly selected from the sample pool, they were used in conjunction with the subject's picture for all portions of the test. Each picture position was shifted at every stage of the examination according to a predetermined, randomly selected numerical designation. This selection was also accomplished by using a table of random numbers. Position number one was at the tester's left.



It was assumed that each child had similar experience with a mirror in viewing his face. The photographs were adjusted in the developing process to resemble the mirror image as seen in a normal mirror, rather than a picture image seen in a normal photograph.

Data were gathered on the SFPT score sheet. Among other things, response time and picture number chosen were recorded.

Throughout this thesis the designation 3rd, 1st and P (third grade, first grade, and preschool) may be used to designate the age groups--eight and one-half, six and one-half, and four and one-half year old subjects, respectively.

### Pilot Study

#### Procedure

A pilot study similar to the complete procedure heretofore described was conducted by the investigator in July, 1972. The main difference between the final experimental procedure and the Pilot Study was the use of a "six segment" SFPT. Ten children taken from an age group sample of four-year-old children from the U. S. U. Child Development Laboratory were studied at their laboratory school.

There were four main purposes of the pilot study. Namely:

1. To discover if the SFPT produced any score variance.
2. To discover if black and white pictures provided at least the minimum amount of constant perceptual clue necessary for children to respond to the test.

3. To make a tape recording of spontaneous statements made by the subjects during the test, and to evaluate it (by the investigator) in regard to the validity of the instrument and the procedures used.

4. To use a sample instruction dialogue to test its appropriateness for eliciting proper responses to the test. The dialogue that was used was as follows: "Hello \_\_\_\_\_. Remember the picture I took of you? Well, today we are going to play a game with your picture called 'Find the Picture Game.' I need your help. Will you help me? (The first segment shown here.) Your picture is here among these three pictures. Find a picture of \_\_\_\_\_'s mouth? Point to it. (Next sequence.) Find a picture of \_\_\_\_\_'s nose. Point to it," and so on. When the segment problems eight and nine were reached the question read, "Find \_\_\_\_\_'s picture. Point to it." If it was necessary, instructions were repeated only once. If the subject did not respond in the time allowed after hearing the instructions twice, it was noted on the score sheet and the investigator proceeded to move to the next stage of the test.

#### Findings and discussion

Pilot study data. During the pilot research a six segment Segmented Facial Parts Test (SFPT) was used. The six segment SFPT consisted of basically the same format as the nine segment SFPT used in the final research testing. The entire instrumentation and testing procedure was duplicate except for the absence of three segment tests, and the several other minor changes

that were incorporated in the final research (as mentioned below). The pilot study SFPT lacked only the following segments: forehead and hairline alone; eyes and forehead, hairline; and mouth, chin, nose, eyes, and forehead, hairline (segments four, five and eight). But as a result of the pilot research, these "forehead" segments were included in the final research design.

The SFPT Pilot Study Score Sheet did not include space for scoring the results on segments four, five, and eight as mentioned above. With these segment score positions missing, the remainder of the segment tasks were numbered one through six consecutively, beginning with segment one--mouth and chin alone. The Pilot Study Score Sheet also did not have space designated for calculating "response set" (perseveration) or for noting "hairstyle."

The pilot study sample, chosen purposively from a preschool classroom of twenty children, consisted of five boys and five girls (a total sample of ten). The sample had a mean age of four and one-half years old. The subject's ages ranged from four years-two months to four years-eleven months.

The total main scores on the SFPT for the boys was 13 of a possible score of 30. In this same category the girls scored 12 of a possible 30. The total for the boys' main time in seconds was 347 of a possible 450 seconds. The girls' main time total was 225 of a possible 450 seconds.

The boys' percentages of correct responses on the six segment tasks were: segment one--40 percent; segment two--20 percent; segment three--20 percent; segment four--20 percent; segment five--60 percent; segment six--100 percent.

The girls' percentages of correct responses on the six segment tasks were: segment one--60 percent; segment two--40 percent; segment three--20 percent; segment four--0 percent; segment five--20 percent; segment six--100 percent.

As an age group (combining scores of both sexes) the pilot study subjects had a total score of 25 of a possible 60, and they took 572 seconds of a possible 900 seconds to complete the pilot SFPT.

Discussion of pilot data. It can be ascertained from the score results described above that no significant difference between pilot study boys' and girls' scores was found. But, the fact that boys as a group took 122 seconds longer than the girls to complete the pilot SFPT, while at the same time the boys only scored one point higher than the girls, is evidence of some sex differentiation.

The pilot study data also revealed that four and one-half year old children can accomplish the SFPT tasks--especially segment six (whole face)--at some degree of sophistication. The pilot study trends also substantiate the "whole-part" theories that are further discussed in this thesis. The children as a group attained 100 percent accuracy at segment six--whole face--whereas the boys only averaged 32 percent accuracy and the girls 28 percent accuracy on the other five partial segment tasks. Other segment task comparisons indicate that there is a score variance between pilot study boys and girls of approximately 20 percent at most segment levels, except segment six.

The fact that as an age group, the pilot study subjects scored less than half of the possible total score, while taking more than half the total time allotted to complete the SFPT, indicated that the test must be sufficiently difficult for younger children. Therefore, the SFPT warranted further comparative age group research.

Application of pilot study results to major research. The four main purposes of the pilot study were accomplished. Several corrections resulting from pilot study discoveries were incorporated in the final study as well.

Sufficient score variances were produced to justify further research. The black and white picture technique provided more than a minimum amount of perceptual clue. The tape recorded data indicated that the investigator was accidentally giving too many overt clues. This condition was remedied in the final testing situation. The dialogue was found to be satisfactory, and it was used intact throughout the main research program.

As a result of the pilot study testing procedure several other test refinements were incorporated. The subject's facial photograph was too large, and some distortion in the instrument was evident. The actual picture size was, therefore, reduced approximately one inch. The testing blind was not large enough to contribute to testing convenience. The blind was extended two inches in height and a more sturdy stand was attached. The timing regulations were not considered precise enough. Therefore, timing of the subject in the final research was to begin after the complete instructions were given and the picture of the first task was placed before the child. As the height of the

subject's chair was too low for him to be able to fully scan all three picture choices, the subject's chair was raised until the subject was able to look down at the testing materials. The need for more test segmentation at the upper end of the facial form necessitated the inclusion of the forehead, hairline and eyes-forehead segments in the final SFPT.

Because of these various changes, especially photograph size and the addition of three new segment tasks, no significant comparisons could be made beyond those that have been stated above between the pilot study and the final research results.

#### Analysis of Data

Data were at the ordinal level and were amenable to analysis by means of a Chi square technique at a  $P < .05$  level of significance. It was realized in the analysis that a one in three chance probability of correct guessing could have occurred in the testing situation. Also, the possibility of a hairstyle adjustment caused by unforeseen factors between the photographing session and the testing session was considered as an added uncontrolled error. The data recorded on the individual subject's SFPT Score Sheets were used for a compilation of group response statistics for comparison in several categories. These categories were: (1) comparison of the three age-group (boys and girls) total scores; (2) comparison of the three age-group total times; (3) comparison of the total segment scores (one--nine) between the three age-groups; (4) comparison of the total segment times (one--nine) between the three

age-groups; (5) comparison of the total scores and total times for all the boys in all age-group categories and all the girls in all age-group categories, as two separate sex groups (two comparisons); (6) comparison of the total segment scores (one--nine) between these same two main sex groups; (7) comparison of the total segment times (one--nine) between these same two main sex groups; (8) comparison of total scores and total times between boys and girls within each specific age-group (six comparisons); (9) comparison of total segment scores and total segment times between boys and girls within each specific age-group (fifty-four comparisons); (10) comparison of total scores and total times between boys only in all age-group categories; (11) comparison of the total scores and total times between girls only in all age-group categories; (12) comparison of the total segment scores and total segment times between the boys only in each age-group category (twenty-seven comparisons); and, (13) comparison of the total segment scores and total segment times between the girls only in each age-group category (twenty-seven comparisons). See Figures 1-10 in the Presentation and Discussion of Findings section, pages 39-52; and Figures 11-22 in the Appendixes; Appendix B, pages 80-92. Also, see Appendix A, Tables, pages 76-79, for a list of exact scores in all categories.

## RESULTS AND DISCUSSION

### Presentation and Discussion of Findings

#### Introduction

In this study, the Segmented Facial Parts Test was given to three different age groups of young boys and girls. All the children examined in the study were members of the same race and socioeconomic background. The test (SFPT) was designed to elicit different degrees of facial awareness in human subjects. Each individual child was asked to recognize isolated portions of his own facial photograph. The test resulted in the administration of nine different facial segment sub-tests.

The dependent variable was the child's awareness of his own facial parts. The independent variables were the child's ability to perceive his segmented facial self, the child's age, and the child's sex.

The results of this study seem to indicate, among other things, that young, middle-class children are able, at varying degrees of specificity, to perceptually discriminate their own segmented facial parts. Whole-part perception theories have been further substantiated by the results of this study. Older children are more aware of specific parts (of a face) than are younger children.

The sample age statistics of the children used in this study are as follows: (1) There were twenty third grade children: ten boys and ten girls.



The mean age of this age-group sample was 8 years, 4 months, and 17 days. The age range was from 8 years, 2 months, and 10 days to 9 years, 4 months, and 11 days. The mean age of the third grade boys was 8 years, 8 months, and 1 day. The boys' ages ranged from 8 years, 2 months, and 10 days to 9 years, 1 month, and 12 days. The mean age of the third grade girls was 8 years, 9 months, and 3 days. The girls' ages ranged from 8 years, 2 months, and 22 days to 9 years, 4 months, and 11 days. (2) There were twenty first grade children: ten boys and ten girls. The mean age of this age-group sample was 6 years, 8 months, and 21 days. The age range was from 5 years, 11 months, and 22 days to 7 years, 3 months, and 17 days. The mean age of the first grade boys was 6 years, 8 months, and 4 days. The boys' ages ranged from 5 years, 11 months, and 22 days to 7 years, 3 months and 17 days. The mean age of the first grade girls was 6 years, 9 months, and 8 days. The girls' ages ranged from 6 years, 3 months, and 1 day to 7 years, 1 month, and 9 days. (3) There were twenty preschool children: ten boys and ten girls. The mean age of this age-group sample was 4 years, 5 months, and 23 days. The age range was from 3 years, 6 months, and 14 days to 5 years, 0 months, and 18 days. The mean age of the preschool boys was 4 years, 6 months, and 10 days. The boys' ages ranged from 4 years, 0 months, and 26 days to 5 years, 0 months, and 17 days. The mean age of the preschool girls was 4 years, 4 months, and 13 days. The girls' ages ranged from 3 years, 6 months, and 14 days to 5 years, 0 months, and 18 days.

There was a total of sixty study participants. The ages listed above were calculated at the time of the SFPT administration.

#### Hypothesis 1

The results of this study indicate that older children are significantly more correct in identifying their own segmented facial parts than younger children. Age is a determinant of score on the SFPT. A chi-square analysis indicated this finding to be at the  $P < .05$  level. (See Table 1.) Therefore, Hypothesis 1, as stated in a positive direction, was substantiated.

Table 1. Chi-square analysis of all total age-group scores on the SFPT

Age	High scores	Low scores	Total
4 1/2	6	14	20
6 1/2	7	13	20
8 1/2	14	6	20
Total	27	33	60

Degrees of freedom = 2 Chi square = 7.69 ( $P < .05$ )

A two way chi-square analysis of total scores indicated the maturity effects on scoring patterns between the third grade and the preschool children to be at the  $P < .02$  level of significance. (See Table 2.)

Table 2. Chi-square analysis of the total age-group scores of third grade and preschool children on the SFPT

Age	High scores	Low scores	Total
4 1/2	6	14	20
8 1/2	14	6	20
	—	—	—
Total	20	20	40

Degrees of freedom = 1 Chi-square = 6.4 ( $P < .02$ )

The maturity effects on scoring patterns between the third grade and the first grade groups were at the  $P < .05$  level of significance. (See Table 3.)

Table 3. Chi-square analysis of the total age-group scores of third grade and first grade children on the SFPT

Age	High scores	Low scores	Total
6 1/2	7	13	20
8 1/2	14	6	20
	—	—	—
Total	21	19	40

Degrees of freedom = 1 Chi-square = 4.86 ( $P < .05$ )

A graphical summary of this age-related phenomena clearly illustrates these chi-square calculations. Figure 1 details the differences in age-group total scoring patterns on the SFPT for the third, first, and preschool grades. The third grade children obtained a total score of 153 of a possible score of 180. The first grade children obtained a total score of 116 of a possible 180. The preschool children obtained a total score of 101 of 180. (See Figure 1, p. 39.)

The concomitant age-group total times for completion of the SFPT are compared in Figure 2. Time taken to complete the SFPT does not correspond to the scoring pattern revealed in Figure 1. The first grade children consumed more time to complete the SFPT, showing a difference in scoring-time mode, as compared to the third and preschool children. First grade children took 1191 seconds of 2700 seconds. Third grade children took 1007 seconds of 2700 seconds. Preschool children took 945 seconds of 2700 seconds. (See Figure 2, p. 40.)

A breakdown of the total scoring pattern on each segment task (nine segments) for all three age-groups indicates that the basic scoring trend seen in Figure 1 is substantiated, except at segment one--the mouth and chin alone and segment six--the mouth, chin, and nose. The preschool children manifested an increase in total score at these segments as compared to the other two age-groups. On segment one, the third grade children scored 45 percent of the possible score. The first grade children scored 25 percent, while the preschool children scored 50 percent. At this segment test, the preschool

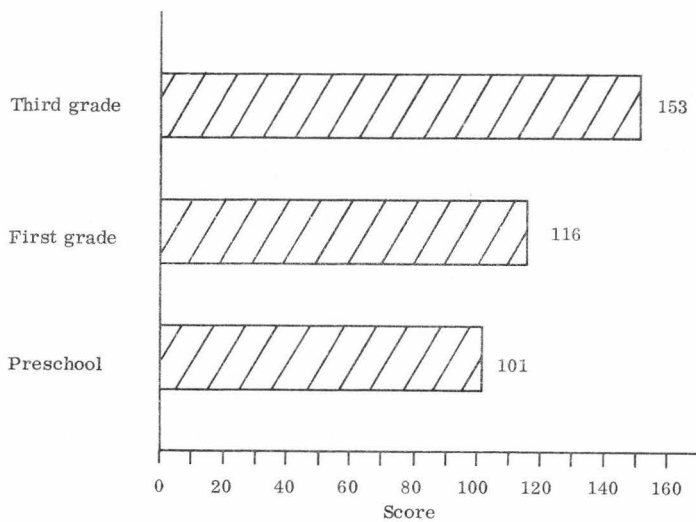


Figure 1. Age-group total scores on the SFPT.

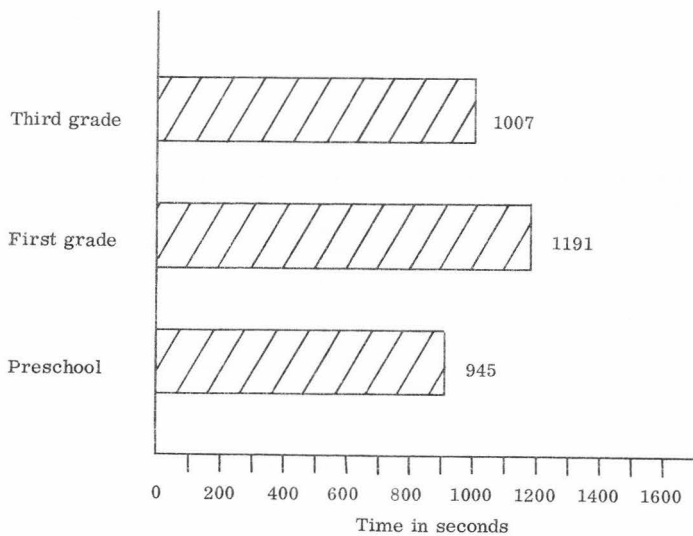


Figure 2. Age-group total times on the SFPT.

children indicate a reversal in Hypothesis 1. On segment six, the third grade children gained 75 percent of the total score. The first grade children acquired 40 percent, and the preschool children surpassed the first grade children by gaining 45 percent of the total score. (See Figure 3, page 42 for clarification of the above description.)

In Figure 4 the general trend seen in Figure 2 is further supplemented by a breakdown of the total time taken by each age-group into segment times. The first grade children took the most time to complete segments one through six. At segment seven--the mouth, chin, nose, and eyes--the preschool children's score was equal to the first grade children's score. On segments eight--mouth, chin, nose, eyes and forehead; and nine--the entire face and head--the preschool children exceeded the time taken by both the first and third grade children. The time taken on these two segments by the preschool children is the only instance where the data illustrated in Figure 2 is contradicted, and a more normally assumed pattern seems to emerge. On segments eight and nine, the first grade age-group took 21 percent and 24 percent of the time allotted. The third grade age-group took 16 percent on both segments. The preschool age-group took 35 percent and 34 percent of the total segment times possible. (See Figure 4, p. 43.)

### Hypothesis 2

The hypothesis, stated in the positive direction, that girls will identify their own segmented facial parts more correctly and more often than boys as

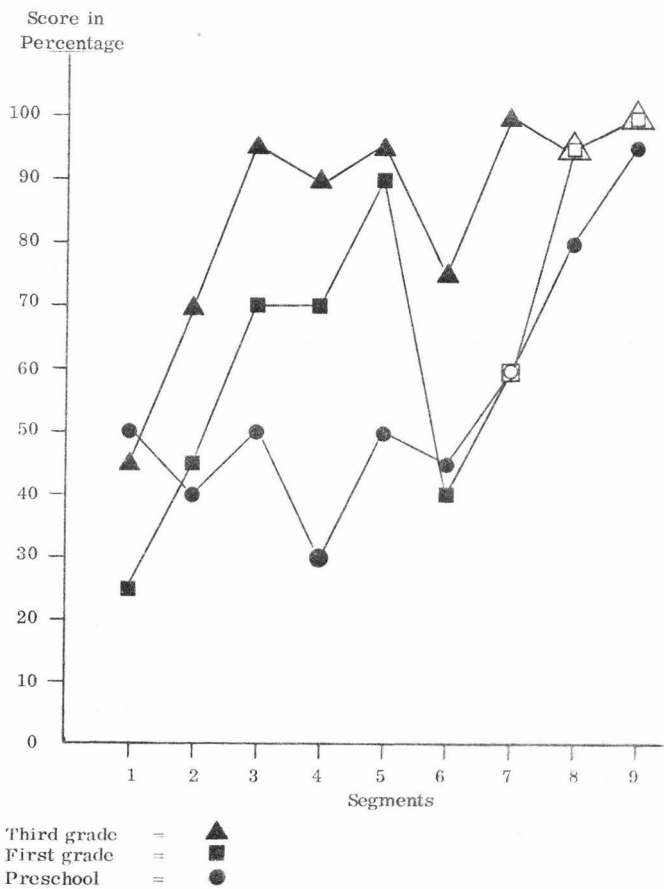


Figure 3. Age-group total scores on SFPT segments one--nine.



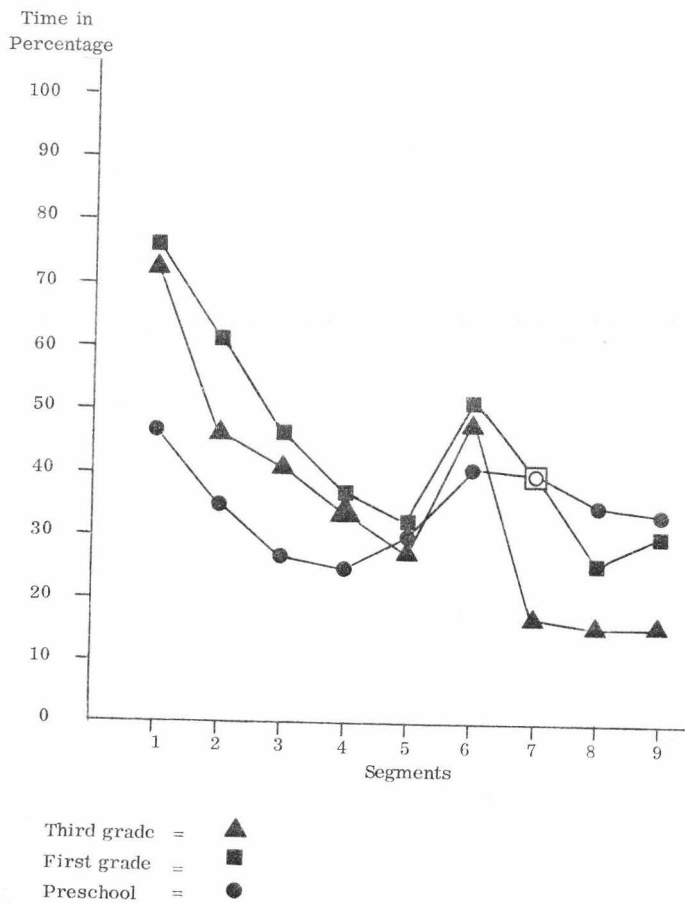


Figure 4. Age-group total times on SFPT segments one--nine.

measured by the Segmented Facial Parts Test, was not substantiated in this study. Chi-square analysis indicated no difference.

Graphical representations of all the boys from the three age-groups as a category and all the girls from the three age-groups as a category indicate no significant differences in either the total score or the total time taken by either sex-group. All the boys in this study as a category did slightly better than all the girls as a category on total scoring. The boys scored 186 of 270. The girls scored 184 of 270. (See Figure 5, p. 45.) The boys took slightly less time to complete the SFPT than the girls as separate categories. The boys took 1562 seconds. The girls took 1581 seconds. (See Figure 6, p. 46.)

The differences between all the boys as a category and all the girls as a category, concerning total scoring, indicated some differentiation that tends to further disprove, or make questionable, Hypothesis 2, when scores on segments one through nine are examined. The boys' score of 21 was significantly higher than the girls' score of 11 on segment number one--mouth and chin alone. A chi-square analysis revealed this difference to be significant at the  $P < .02$  level. (See Table 4.)

The boys also exceeded the girls in total scoring on the SFPT at segment five--the eyes and forehead, hairline alone. The boys scored 26 of 30, and the girls scored 21 of 30. Only on segments three, four, six, and nine did the girls' scores indicate that females may do better than males on segmented facial awareness tasks. The boys' and girls' scores are identical at

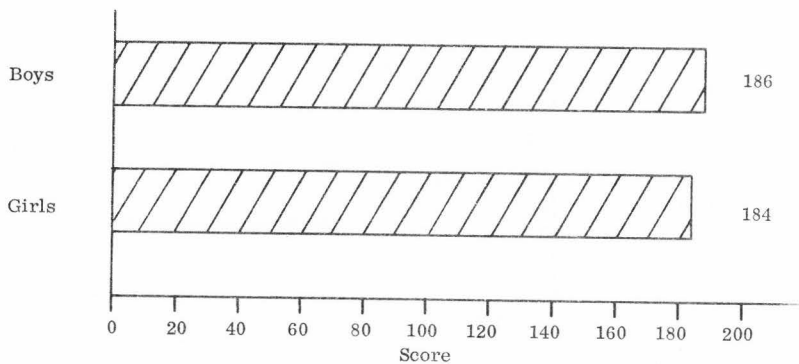


Figure 5. All boy category and all girl category total scores on the SFPT.

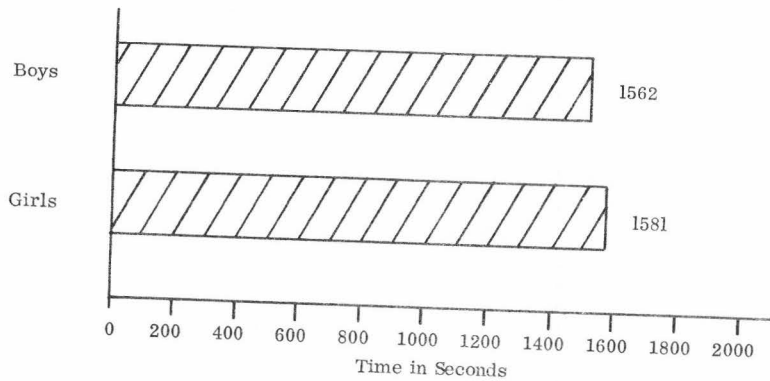


Figure 6. All boy category and all girl category total times on the SFPT.

Table 4. Chi-square analysis of all boy category and all girl category scores on segment one of the SFPT

Sex	Correct	Incorrect	Total
Boys	21	9	30
Girls	11	19	30
Total	32	28	60

Degrees of freedom = 1 Chi-square = 6.6 ( $P < .02$ )

segment seven and eight. (See Figure 7, page 48 for clarification of the above description.)

In Figure 8, total times taken by the all girl group and the all boy group on the nine segment (SFPT) tasks are seen as closely parallel, except at segment nine. But, a chi-square analysis of the data indicated no difference, even though the boys took 79 seconds longer as a group than the girls did as a group. Figure 8 also shows a general downward trend in time taken to complete the SFPT from segments one through nine for both boys and girls. This trend is clearly visible at every stage (excluding nine), except segment six where both the boys' and girls' time-taken-score increases sharply before declining again at segment seven. (See Figure 8, p. 49.)

If the score differences between boys and girls, in reference to Hypothesis 2, on the SFPT are examined within the three age-group categories, the boys' total scores and times and the girls' total scores and times still

Score in  
Percentage

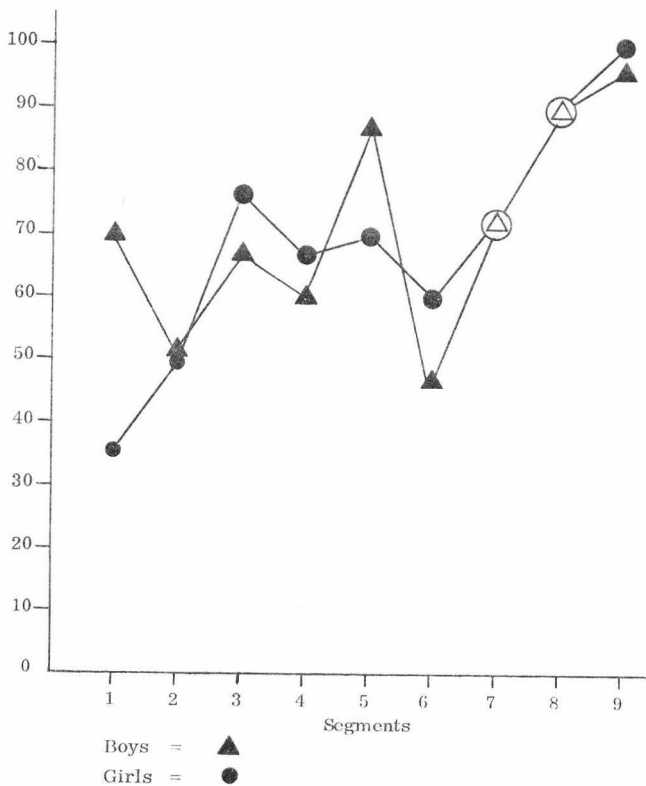


Figure 7. All boy category and all girl category total scores on SFPT segments one--nine.

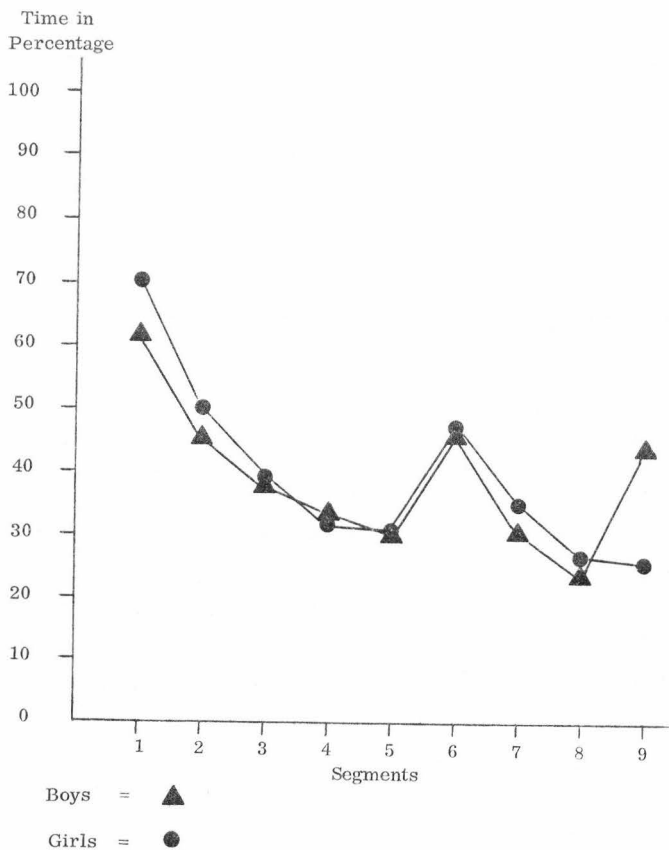


Figure 8. All boy category and all girl category total times on SFPT segments one--nine.

seem to indicate that the validity of the second hypothesis is doubtful. Figure 9 categorizes boy and girl scores on the SFPT within each age-group classification. The boys were superior to the girls on total scoring patterns in the third and preschool grades. Only in the first grade girls' scoring pattern is Hypothesis 2 seemingly confirmed in a positive direction. In the third grade, the boys scored 77 of 90 and the girls scored 76 of 90. In the first grade a scoring reversal appeared and the girls scored 61 and the boys scored 55. Although, in comparison of boys' and girls' scores within the first grade age-group chi-square analysis indicated that the score difference was not significant. The preschool boys scored 54 and the preschool girls scored 47. (See Figure 9, p. 51.)

Figure 10 illustrates that when a sex-group within an age-group category received a high score, they took less total time to complete the SFPT. A comparison between Figures 9 and 10 indicates an inverse relationship exists between score and time on the SFPT. A subject who receives a high score on the SFPT will usually take less time to complete the nine segment test than a subject who receives a low score. Figure 10 compliments the negative findings illustrated in Figure 9 concerning female superiority on tasks like the SFPT. The female in the age-group categories--third and preschool--took more time to complete the SFPT (and had lower scores). (See Figure 9, p. 51 and Figure 10, p. 52.)



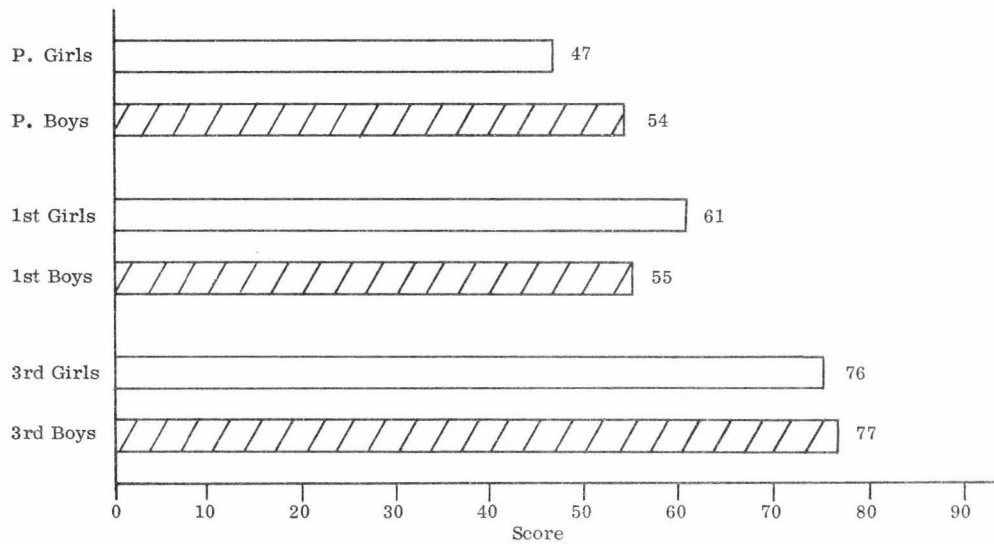


Figure 9. Age-group total scores for boys and girls on the SFPT.

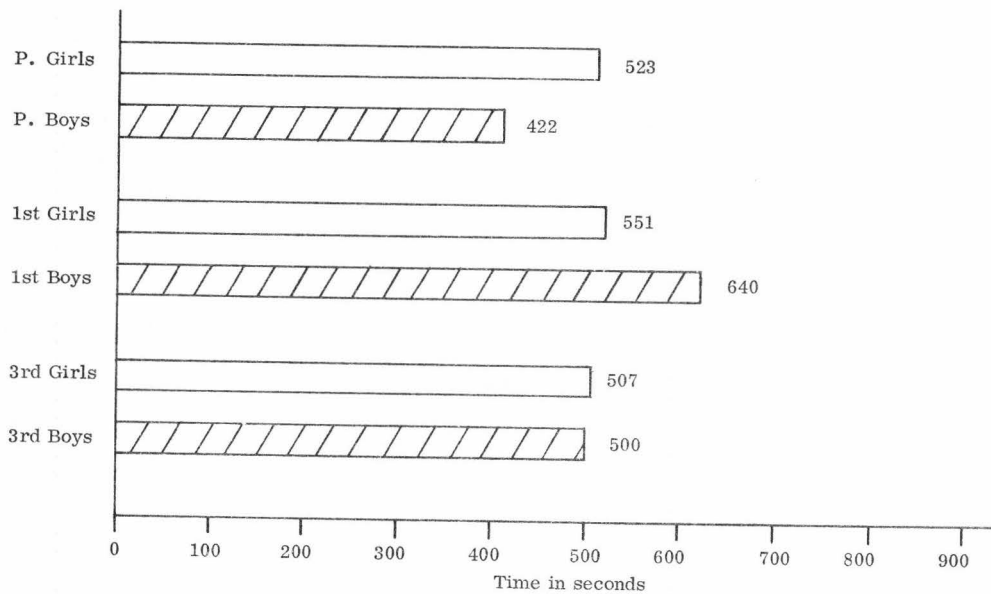


Figure 10. Age-group total times for boys and girls on the SFPT.

### Summary, basic findings

The results of this study indicate that older children were significantly better able to identify their own segmented facial parts than younger children.

Sex differences, concerning segmented facial parts perception, were not substantiated in this study. Neither boys nor girls were superior to one another in identifying their own facial parts.

### Other related findings

A further breakdown of the age-group, boy-girl statistics (Figures 11-16) reveals several inter-age-group score and time patterns which further support Hypothesis 1 (positively) and Hypothesis 2 (negatively). Other data as well, that have been reported in the several findings sections above, are also clarified by the graphical analyses in Figures 11-16.

Graphical representations of the all boy category comparisons and the all girl category comparisons in the areas of total score and time and total segment scores and total segment times further substantiate the nullification of Hypothesis 2. These graphs are Figures 19-22.

A few comments concerning some of these inter-age-group findings and all boy-girl category findings are briefly detailed in the Discussion of Related Findings section (Supplemental findings) of this thesis. See Appendix B, page 80 for a cluster of graphs, Figures 11, 12, 13, 14, 15, 16--inter-age-group; and Figures 17, 18, 19, 20, 21, 22--all boy, all girl categories. The titles of the figures are self explanatory.

Response set, as defined on page 25, indicates the presence of "perseveration" or habit guessing which is sometimes visible in the scoring pattern on tests like the SFPT. Response set is usually seen in younger subjects. The response set phenomena was affirmatively realized in the scoring patterns of this thesis study. The data in this study revealed that this type problem solving set was used primarily by the younger preschool subjects. Therefore, the datum obtained from the preschool children was somewhat clouded as to its exactness in those cases where response set was evident.

The number of children manifesting the response set scoring pattern was seen in this study as follows: (1) The third grade children as an age-group manifested no evidence of the response set. (2) The first grade children as an age-group had evidence of the response set in two cases, one boy and one girl. The first grade boy answered segments five--eight in this manner. The first grade girl answered segments one--seven in this manner. (3) The preschool children as an age-group had evidence of the response set in eight individual cases, five girls and three boys. The majority of these boys and girls manifested evidence of the response set on segment tasks four--six.

Tables of Complete Scores for the three age-groups (both sexes separately and as a group) and the scores for both sexes as a category on the Segmented Facial Parts Test used in this study is supplied in the Appendixes; Appendix A, page 76.

### Discussion of Related Findings

In this section a discussion of findings related to Hypothesis 1 and Hypothesis 2 is undertaken in two parts. Paragraphs deal to a great extent with the figure interpretations for Hypotheses 1 and 2 that have not already been reviewed in the Presentation and Discussion of Findings section. Clarifications concerning interpretation of some of the previously mentioned results are also included in these two parts. The figures are discussed in numerical order for comparative purposes.

A selective discussion of the cluster of graphs mentioned on page 53 is completed in the third part--supplemental findings.

#### Figure interpretations related to Hypothesis 1

Figure 2 (p. 40) indicates that first grade children take the greatest amount of time as an age-group to complete the SFPT. It might be postulated that the comparatively lower test time representation for the preschool children seen in this figure was a result of response set interference. Therefore, the data in Figure 2 and Figure 4 (pp. 40 and 43) does not completely reveal the true inverse relationship that is thought to exist between low scores and high test times. The preschool children generally scored the lowest in this study. This age-group should have obtained the highest test times. Figure 2 and Figure 4 indicate that this was not always the case.

The cause of a scoring decline for all age-groups (especially for the first grade children) seen in Figure 3 (p. 42), segment six--mouth, chin, and

nose--is unknown. It is possible that the undifferentiated nature of the immature nose affected the children's self perceptions, and thereby caused the confusion seen in this study at this segment stage, although this phenomenon did not occur at segment two (nose alone). Goldstein and Mackenberg, May 1966 (as cited in Nash, 1969) reported that the better recognizability of the upper head regions by children is overcome by adults. Perhaps the reason for this might be the vigorous maturation of the lower half of the head in later childhood and puberty. Nash believes (1969), as does this investigator, that it is not the immaturity of the children's noses that causes difficulty in recognition expertise. The head-on, frontal view discourages nose perception for all ages of subjects. The frontal view of the nose in a photograph is non-specific, as compared to a side view, regardless of the person's age. Nash's (1969) further studies, concerning adult reactions to perception tasks of their own segmented noses, verify this statement. Adults have as much difficulty recognizing their own nose from a 90 degree angle photograph as do young children (Nash, 1969).

Figure 3 also underlines one other important factor. All the age-group scores declined at segment six. This finding substantiated the fact that scores were not simply improving because of a practice factor over time. The peak for all groups in test time at segment six in Figure 4 also makes this assumption valid. Whatever the reason for the decline in scoring at segment six, subject reaction to segment six nullifies any "improvement over time" theory that might be applied to the Segmented Facial Parts Test.

For the preschool children (Figure 3), the interference caused by the possible presence of response set influenced their scores on segments two and four, whereas, their test time on these same segments remained low (Figure 4). The anti-inverse score--time relationship that the preschool children's scores on the SFPT tend to reveal can be postulated to be a result of response set disturbance.

Examination of the Segmented Facial Parts Test used in this study revealed that every age-group examined (third, first, and preschool) is able to recognize the "whole" portions of the test. This finding can be understood by observing the upward scoring trend visible in Figure 3. At the points, segments eight and nine for the preschool and first grade children, and segments seven, eight, and nine for the third grade children, the scores for each age-group approach or reach 100 percent accuracy. Segments seven, eight, and nine are portions of the SFPT which include most or all of the entire facial photograph.

It can also be seen in Figure 3 that the 8 1/2 year old children are more adept than the 6 1/2 and 4 1/2 year old children at recognizing segmented "parts." Segment three--eyes, segment four--forehead, and segment five--eyes and forehead are "part" tests, wherein the third grade children excel in comparison. The age contingent, whole-part theory is exemplified in these findings.

The preschool children scored correctly 50 percent of the time or less on every "part" segment administered to them, except segments seven, eight and nine, which are "whole" configurations. The preschool child is very dependent on wholes rather than parts for discrimination tasks. Therefore, the 4 1/2 year old child sees and recognizes his own face wholistically rather than as composed of characteristic parts. According to this study, if a preschool child did recognize a part, it would probably be a part that contained his own mouth or eyes (see segments one, three, and five; Figure 3). The preschool group obtained 50 percent of the score at these test regions. Spitz and Wolf, 1946 (Nash, 1969), as discussed on page 9, postulate that very young children are most fascinated by, and aware of, human eyes. Eyes could be more easily perceived by 4 1/2 year old children for this reason. Freud (1943) would probably postulate that mouths are seen as most recognizable by young children because the preschool child is still in the oral stage of psychosocial development to a great extent. Freud (1943) states: "Behind the sadistic-anal phase of the libido-development we obtain a glimpse of an even more primitive stage of development, in which the erotogenic mouth zone plays the chief part" (p. 288).

The data revealed in Figure 9 (p. 51) verifies a conclusion stated above about older children being significantly better scorers than younger children on the SFPT. When the scoring patterns of boys and girls within an age-group are compared to age-group scoring patterns (Figure 1, p. 39), the downward trend coupled to progressively younger boy-girl scoring (Figure 9) is similar to the downward trend coupled to progressively younger age-group scoring (Figure 1).



Figure interpretations related to Hypothesis 2

There exists an inverse relationship between boys and girls as separate categories on segments three--eyes alone and segment five--eyes and forehead (Figure 7, p. 48). Girls as a group seem to need only visualization of their own eyes alone to accomplish the recognition task. Boys as a group need, it seems, visualization of both the eyes and forehead in combination in order to score satisfactorily on the SFPT. At segment three, the girls scored 23, the boys 20; but, at segment five, the boys scored 26; whereas the girls scored 21. The boys' peak score at segment five may indicate an over concern and awareness of hairline by today's boys. This investigator feels hairline configuration is a factor in boys' facial recognitions because of current hair-style fads. There seems to be an effect on facial perception in boys caused by banglike, longer hairstyles.

Girls as a group recognize their whole face segment tasks sooner than boys. For example, at segment six--mouth, chin and nose--the girls' scores overcame the boys' by 4 points (Figure 7). From this point on the girls' scores equaled or excelled those of the boys'. This relationship is evidence in favor of Gellert's, 1968 (Lerner and Gellert, 1969), opinion. She felt the cultural effects in North America upon females may cause them to be more aware of their own body configurations. (See p. 5.) The results of this study show no significant differences between boys and girls on general self recognition tasks, although, at those stages where recognition ability is dependent upon

whole face perceptions, cultural effects may be the cause of some differentiation of ability in favor of females.

#### Supplemental findings

This study also produced results that are indirectly supportive of the two hypotheses. These results are mainly evident in the graphical representations to be described in this section. Findings that are not concerned with Hypotheses 1 and 2 are also briefly discussed here, because they are interesting component results in and of themselves.

The reversal phenomena, previously discussed in the figure interpretations related to the Hypothesis 2 section, is also visible in Figure 11. (See Appendix B, p. 81.) Apparently, it is the third grade children who contribute the most to the superior scoring abilities on segment three by the all girls category and the superior scoring abilities on segment five by the all boys category (Figure 7). The reason third grade girls excel at segment three--eyes alone is unknown at this time. The third grade boys' excellence at segment five--eyes and forehead--could possibly be a result of the effect of the boys' hairstyle and bang configurations, which gave them extra clues to their identity. In Figure 13 (Appendix B, p. 83), the first grade girls also score higher at segment three--20 percent higher. However, no differentiation is seen at segment five between boys' and girls' scores. The reverse is true in the preschool children's scoring patterns. Preschool boys and girls score similarly at segment three, whereas the boys score 40 percent higher than

the girls at segment five. (See Figure 15, Appendix B, p. 85) The hairline phenomena discussed above must be qualified in reference to age according to the breakdown of scoring patterns seen in Figures 11, 13, and 15. Age seems to affect the inverse relationship between boys and girls on eyes alone segment tasks and eyes and forehead segment tasks. Hairline fashions coupled with age variables seem to affect boy's scoring abilities on tasks like eye and forehead recognitions, rather than hairline fashion effects alone.

The previous discussion concerning preschool children's superior ability to perceive their own mouths is qualified in Figure 15. The preschool boys scored 20 percent higher than the girls at segment one--mouth and chin alone. From these results, it is possible to attribute mouth awareness in very young children to the lingering effects of the oral stage syndrome, which seemingly occurs with boys to a far greater extent than with girls.

Score and time results for age-groups can be better understood in terms of separate boy or girl contributions to the total (Figures 19-22; Appendix B; pp. 89-92). In Figure 19, it is graphically visible to observe that all age-group boys generally score parallel to the maturation pattern described in Hypothesis 1, except at segment one, where preschool boys score in contradiction to Hypothesis 1. In Figure 21, girls in the third grade score on segment three with 100 percent accuracy, as compared to the other two girl age-group scores. A large difference between third grade girls and preschool girls is also apparent on segments four and five.

The various empirical reasons for the phenomena seen in Figures 19 and 21 are unknown at this time, but these figures add depth to Figure 3, providing new data combination possibilities for further analysis.

#### Further Remarks and Conjectures

(1) The studies conducted by Goldstein and Mackenberg (1966) and Nash (1969) are confirmed in part by the data obtained from the Segmented Facial Parts Test. The eyes and forehead regions are very recognizable areas in perceptual tasks of facial awareness for young children. The 8 1/2 and 6 1/2 year old children obtained 70 percent--90 percent of the total score at these areas.

Nash (1969) also found the mouth region to be easily recognized by children in his studies. However, he admitted that his procedure for filming the mouth was not standardized. It is possible that in his studies, the sometimes open mouth revealed extra clues for identification. In this study, all the mouths were filmed in a closed, standardized position to deter from this effect.

Nash (1969) also found self recognition to be more numerous in older subjects. This finding was confirmed in this study.

(2) Past and future fads will probably change a child's body awareness capabilities for specific area perceptions. However, the data in this study concretely support past studies in the body awareness area. The general

whole-part theories and the possibility of superior mouth recognitions by pre-school children, as compared to older children, will no doubt remain the same, regardless of current fad effects.

(3) In general most graphs in this study show a similarity in sex comparisons, rather than differences. The differences that do exist between sexes are relatively minor.

(4) The reason that a child has more difficulty in recognizing his own mouth, chin, and nose in combination--segment six--in relationship to his ability to recognize himself at other segmented facial stages, may occur because one cannot focus on one's mouth and nose in single combination when looking in a mirror. The focal apex of one's eyes cannot encompass a mouth and nose combination without also including a larger portion of the face as part of the view. This is a possible physiological explanation as to why segment six caused difficulty for all age-groups in this study.

In addition to the above explanation and the discussion of segment six results on pages 55-56, two additional postulates concerning the cause of the scoring decline on this particular segment task, which was manifested to some degree by all the tested age-groups (except preschool girls), are detailed as follows:

Segment tasks on the SFPT, except segment six, required the subject to be cognizant of either one, two, four, or five facial features as part of the recognition assignment. Segment six had three facial feature details on which the tested subjects had to focus (the mouth, chin, and nose). The children in

this study had difficulty recognizing three features, as was evident in the total age-group scores on segment six. It is therefore possible that children have generally less difficulty with segmented facial part tasks that contain more or fewer factors than a configuration of three. These differences may have resulted from the lack of cognitive and perceptual abilities that are necessary in order to identify three feature tasks. It would seem, according to the results of this study, that 4 1/2, 6 1/2, and 8 1/2 year old children do not possess these prerequisite perceptual skills.

It must also be realized that segment six was the only multiple feature task (segments five-nine) wherein the individual's eyes were not part of the entire facial portrayal. It is well substantiated in the literature that eyes are generally the single most recognizable head regions for most examined individuals. Perhaps this trend exists because eyes are the most detailed and complex facial features in human beings, or that because eyes are movable objects, whereas noses are not. Eyes usually radiate clues to one's personality simply because of their tendency to fixate or vacillate during emotional situations. Eyes also perceptually captivate one's visual interest because they move at various, non-specific speeds. The eyes, therefore, may have been extra perceptual clues which affected scores on all the multiple segment tasks that included eyes (except segment six).

(5) It must be realized that even though black and white photographs were utilized in the SFPT, hair pigmentation is nevertheless a fairly observable clue. Hair coloring of extreme contrasts may have helped some children

recognize their forehead, hairline region. A more exact declaration of some of the proposals in this study may be accomplished by instrument and technique refinement.

(6) Improvement in facial part awareness progressed as the child's age increased. Some of the mechanisms that contributed to this phenomenon are familiarity and whole-part, cognitive-perceptual maturation. It may be assumed from the results of this study that facial awareness, if it is in fact a factor in self concept development, must become an influential force only as a child progressively matures. In turn, it may also be assumed that self concepts of younger children are based on factors other than knowledge and awareness of specific facial parts. According to the results of this study, young children are provided with only a synoptic visualization of their own faces. Therefore, researchers, when categorizing self concept developmental factors, must consider this maturational condition.

#### Questions and Procedural Anomalies

Does the Segmented Facial Parts Test examine anything other than the ability to follow directions, visual acuity, listening ability, and attention span? It may be that facial awareness expertise is in part contingent upon these factors; and in turn, a portion of self concept development is, in some manner, contingent upon facial awareness.

Does the SFPT test memory? Is a good or bad memory of one's own facial features correlated with a good or bad self concept? In this thesis it

was assumed that a stable, superior memory played a part in self perception ability. Whether or not a good facial memory is related to a good self concept is conjecture at this stage of investigation.

Social interactionists believe that if a person is made aware of his own body as a unique and superlative object, his behavior will accommodate these perceptions in a positive manner. Will administration of the SFPT in a positive social situation enhance a young child's self concept? If the SFPT is used negatively; for example, when a child with an awkward nose is shown his picture in a comparison with two beautiful noses, will he leave the testing situation convinced of his ugliness, and thereby proceed to act accordingly?

Another possible danger that may result from using the SFPT emerges from the effects of distortion. Sometimes isolated facial features which are shown separately, without the balance effects of the surrounding facial background, can look grotesque. A person may not choose his own nose on the SFPT for this reason; and, if he does realize that the grotesque nose is his, he may change his self concept needlessly.

It must be realized that photography is not the best technique for capturing a person's true self. A camera produces some distortion, and it only captures a given mood and expression. Nash (1969, p. 324) wrote, "if the portrait is posed, the act of posing may further affect the representativeness of the subject's mood and expression."

In addition to photographic anomalies, our basic self awareness gained by looking in mirrors may be inadequate. The mirrored image provides



individuals with data that is neither adequate nor exact. MacDonald Critchely (1950) explains:

Self-scrutiny in a looking-glass imposes a certain artificiality, and one is apt to lose the natural animation, the mimic play, and even the tic-like grimacing which may be so obvious to others. The optical component of the body-image is therefore a distorted schema in which the hands are predominant, with the face occupying a secondary and subordinate role. (p. 335)

It must also be realized that the instrument itself and the testing situation may provide some testing distortion which will affect the outcome of the test results. Some instrument and environmental effects that may exist are:

- (1) the feeling of being tested, and therefore trying to make a good impression,
- (2) the stimulation effects in the tool itself which may cause a person to see himself differently than he is,
- (3) the influence of the examiner on the testing atmosphere (overt or covert),
- (4) the influence of the testing environment (the type testing room, the temperature, etc.).

## CONCLUSIONS

### Summary of Conclusions

The Segmented Facial Parts Test can be used to explore perceptual ability in young children to establish a relationship between individuality and self awareness. Maturity variables can also be recognized in groups of children by using this instrument. Older children can visualize themselves, while examined on this test of facial awareness, as being a separate individual in terms of specific personal parts. Younger children can only visualize themselves wholistically or as a structure of generalities.

Young male-female differences in facial awareness capabilities are not in obtuse relationship. Feminine and masculine variations in young children between the ages of 8 1/2 and 4 1/2 years old are not molar in self recognitions and conceptualizations.

### Discussion

The resultant self concepts of different mentally and physically aged persons must, it would seem, be of endless variety, while at the same time be contingent upon psychological and physiological growth. This study revealed differences in facial awareness for three children's age-groups. How these differences affect personality development is questionable at this stage of SFPT exploration, even though it is obvious that some differentiation must exist.

Nevertheless, this study affirmatively states that young, middle-class children can perceptually discriminate their own segmented facial parts to some degree. Further exploration and experimentation with the SFPT will hopefully answer the many new questions that emerge from the findings of this study.

After the Segmented Facial Parts Test has been further scrutinized, in order to prove that it is a valid and reliable instrument for categorizing levels of personal self concept development which are contingent upon facial perceptions, new uses for it may emerge. The SFPT may then be used complementarily in conjunction with a battery of self concept tools which test other domains. It is felt that a combination of tests (the SFPT being included) will better facilitate a more complete understanding of a person's self concept.

#### Recommendations for Further Research and Study

The results of this study indicate the necessity for continued research and evaluation of facial part perceptions in individuals. Use the Segmented Facial Parts Test to make comparisons between the several different variables listed below. Further explore the SFPT in order to establish scales of validity and reliability and to widen the scope of knowledge and understanding in the area of facial awareness, as it relates to self concept development:

- (1) Compare different races inside and outside of the United States of America. Differences between Mongolian and Caucasian skin pigmentation is scarcely perceptible in black and white photographs; whereas, Negro verses non-Negro pigmentation is quite recognizable (Nash, 1969).

(2) Compare different socioeconomic classes inside and outside of the United States of America.

(3) Compare age groups other than 8 1/2, 6 1/2 and 4 1/2 year old children.

(4) Compare mentally-ill subjects to normal subjects in different age groups, race and ethnic groups, socio-economic groups, and sex groups.

(5) Compare subjects who are seemingly more aware of their own and others' heads (i.e., actors, hairdressers, barbers) to normal subjects.

(6) Compare subjects who wear glasses, both among peers who also wear them and among those who do not, to determine what extra clues spectacle wearing might provide a subject for facial recognition.

(7) Compare fraternal and identical twins.

(8) Compare subjects who have distinguishing facial marks, both among peers who also have them and peers who do not.

(9) Examine a subject of one sex by revealing his picture among two other pictures of a different sex in order to ascertain sex effects on facial perceptions.

(10) Measure a subject's intellect, activity level, and emotional makeup against SFPT scores in order to ascertain possible personality correlations.

(11) Compare superior and inferior SFPT scores to superior and inferior self-concept test scores for young children in order to ascertain any correlation between these two testing techniques. Some of the tests that might be used in comparison are the: Walker Readiness Test for Disadvantaged Preschool

Children; Early Student Personality Questionnaire by Cattell; Projective techniques--Rorschach, Bender-Gestalt, Draw-A-Man test, Blacky; The measurement of Self Concept in Kindergarten Children by Levin and Lafferty; Preschool Self-Concept Picture Test by Woolner; and, Brown-IDS Self Concept Referents Test.

(12) Examine a subject of one age group by revealing his picture among two other pictures of different maturity levels in order to ascertain the effects of growth clues and age conceptions upon the subject.

(13) Compare the differences in results when the SFPT is constructed with peers who are the subject's friends verses a SFPT constructed with peers who are unknown to the subject.

(14) Use the SFPT to examine the ramifications in perceptual abilities inherent in field-dependent verses field-independent subjects.

(15) Construct personal facial part puzzles to be used as learning toys to determine if a subject is able to increase his score on the SFPT, and then compare this child (and his fellow SFPT participants) with non-users of the procedure.

(16) Construct an additional forehead, eyes, and nose segment task (which may be designated segment 5a) and incorporate it into the SFPT sequence design. The additional problem should deal with this three feature segment in order to ascertain if a similar, but opposite three feature task will produce the same effect caused by segment six in this study.

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## APPENDICES

Appendix ATables of Complete Scoring Results

Table of complete age-group scoring results for sex groups

Age-group	Total boys' score <sup>a</sup>	Total girls' score	Total boys' time <sup>b</sup>	Total girls' time
Third	77	76	500 sec.	507 sec.
First	55	61	640 sec.	551 sec.
Preschool	54	47	422 sec.	523 sec.

Score on segments <sup>c</sup>	Third		First		Preschool	
	Boys	Girls	Boys	Girls	Boys	Girls
One	4	5	3	2	6	4
Two	8	6	3	6	5	3
Three	9	10	6	8	5	5
Four	9	9	6	8	3	3
Five	10	9	9	9	7	3
Six	7	8	3	5	4	5
Seven	10	10	6	6	6	6
Eight	10	9	9	10	8	8
Nine	10	10	10	10	9	10

Time in seconds on segments <sup>d</sup>	Third		First		Preschool	
	Boys	Girls	Boys	Girls	Boys	Girls
One	100	120	118	112	61	81
Two	70	70	65	100	47	54
Three	59	65	69	69	45	35
Four	54	56	65	48	33	42
Five	39	48	61	36	37	57
Six	67	81	79	73	62	62
Seven	23	32	74	46	43	78
Eight	15	33	47	32	48	58
Nine	24	25	51	36	46	56

<sup>a</sup> Maximum score possible = 90.

<sup>b</sup> Maximum time possible = 1350 seconds.

<sup>c</sup> Number of children who answered correctly of ten.

<sup>d</sup> Time taken by ten member sex groups.

Table of complete age-group scoring results

Age group	Total scores <sup>a</sup>		Total times <sup>b</sup>
Third	153		1007 sec.
First	116		1191 sec.
Preschool	101		945 sec.

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Score on segments <sup>c</sup>	Third	First	Preschool
One	9	5	10
Two	14	9	8
Three	19	14	10
Four	18	14	6
Five	19	18	10
Six	15	8	9
Seven	20	12	12
Eight	19	19	16
Nine	20	20	19

---

Time in seconds on segments <sup>d</sup>	Third	First	Preschool
One	220	230	142
Two	140	185	101
Three	124	138	80
Four	110	113	75
Five	87	97	94
Six	148	152	124
Seven	55	120	121
Eight	48	79	106
Nine	49	87	102

<sup>a</sup> Maximum score possible = 180.

<sup>b</sup> Maximum time possible = 2700 seconds.

<sup>c</sup> Number of children who answered correctly of twenty.

<sup>d</sup> Time taken by twenty member age-groups.

Table of complete scoring results for all boy and all girl categories

Sex	Score <sup>a</sup>	Time <sup>b</sup>
Boys	186	1562 sec.
Girls	184	1581 sec.
-----		
Score on segments <sup>c</sup>	All boys	All girls
-----		
One	21	11
Two	16	15
Three	20	23
Four	18	20
Five	26	21
Six	14	18
Seven	22	22
Eight	27	27
Nine	29	30
-----		
Time in seconds on segments <sup>d</sup>	All boys	All girls
-----		
One	279	313
Two	202	224
Three	173	169
Four	152	146
Five	137	141
Six	208	216
Seven	140	156
Eight	110	123
Nine	196	117

<sup>a</sup>Maximum possible score = 270.

<sup>b</sup>Maximum possible time = 4050 seconds.

<sup>c</sup>Number of children who answered correctly of thirty.

<sup>d</sup>Time taken by thirty member groups.

Appendix B

Figures 11-22

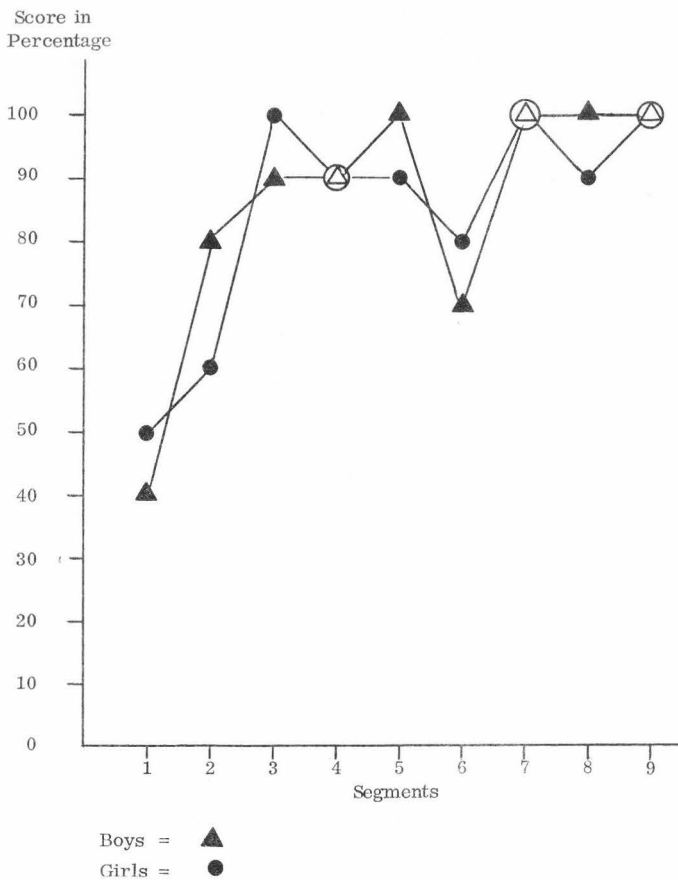


Figure 11. Third grade boy-girl total scores on SFPT segments one-nine.

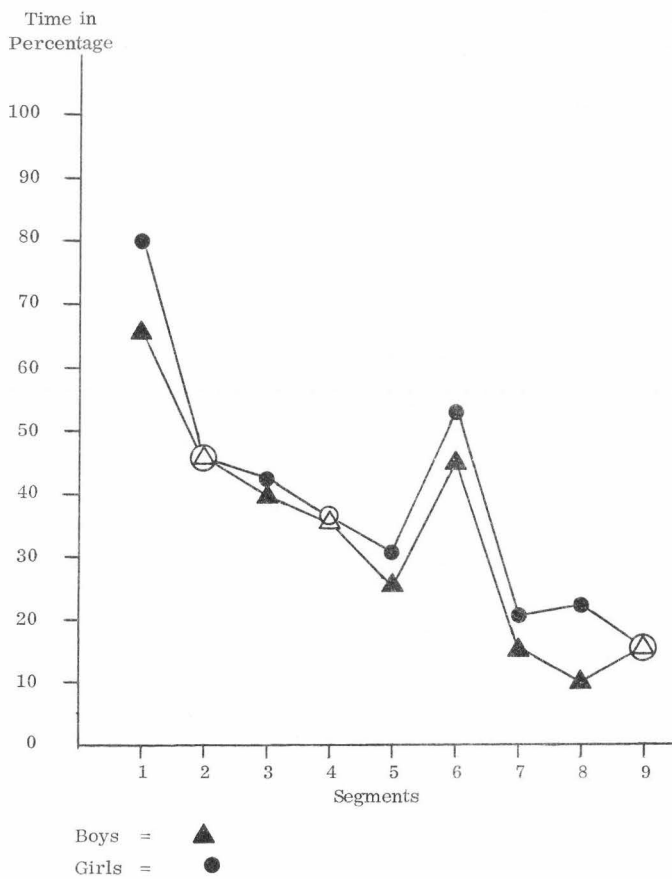


Figure 12. Third grade boy-girl total times on SFPT segments one-nine.



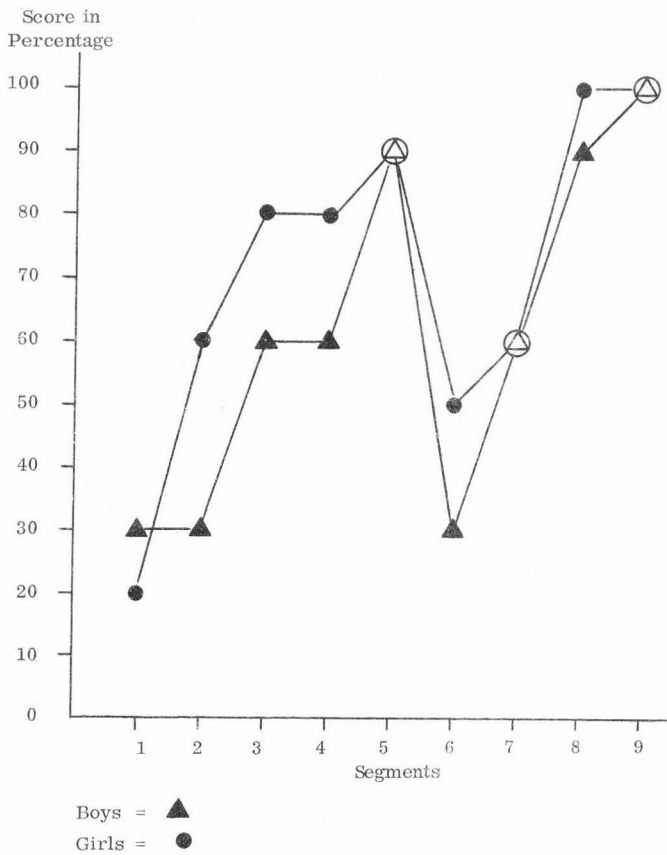


Figure 13. First grade boy-girl total scores on SFPT segments one-nine.

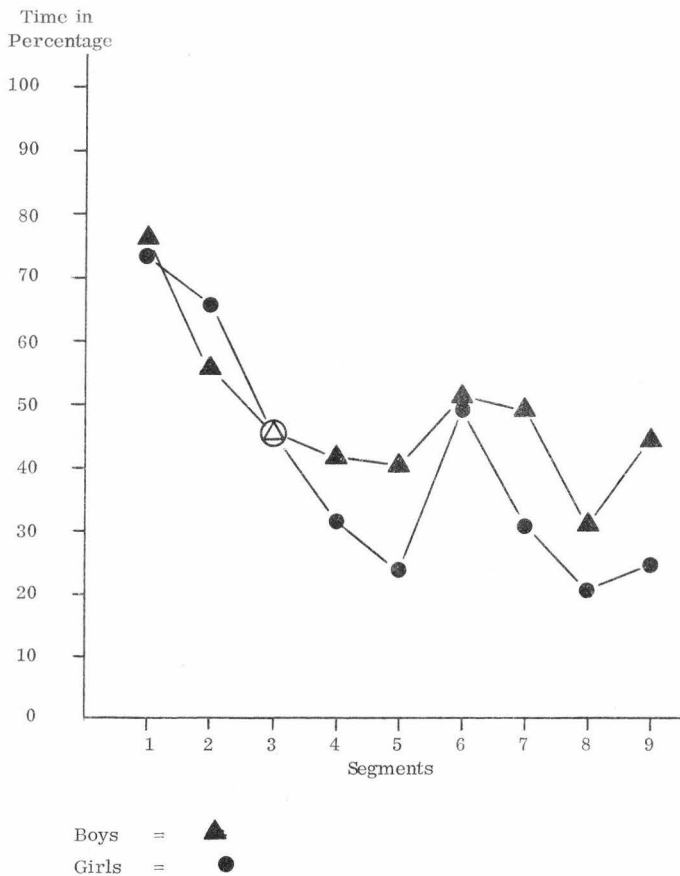


Figure 14. First grade boy-girl total times on SFPT segments one-nine.

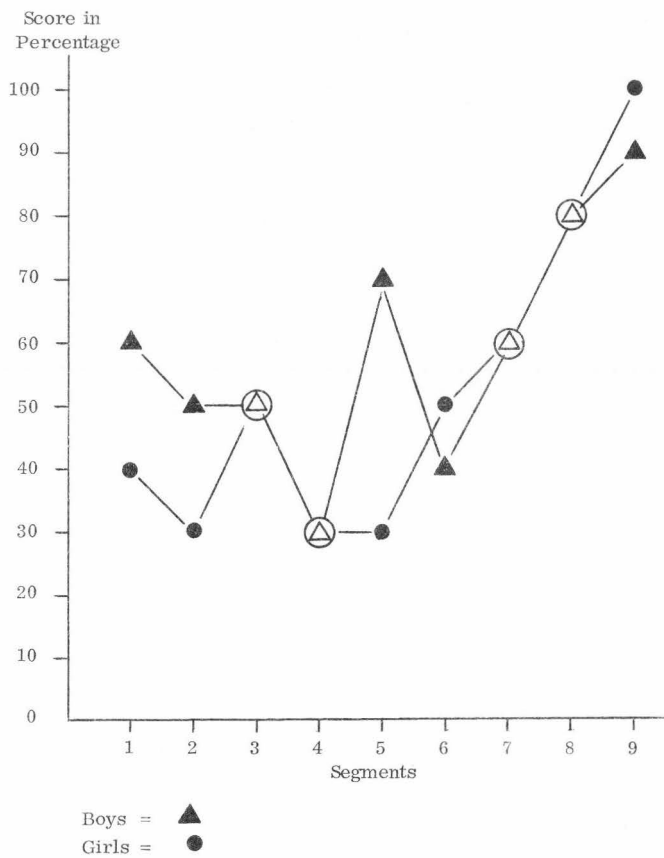


Figure 15. Preschool boy-girl total scores on SFPT segments one-nine.

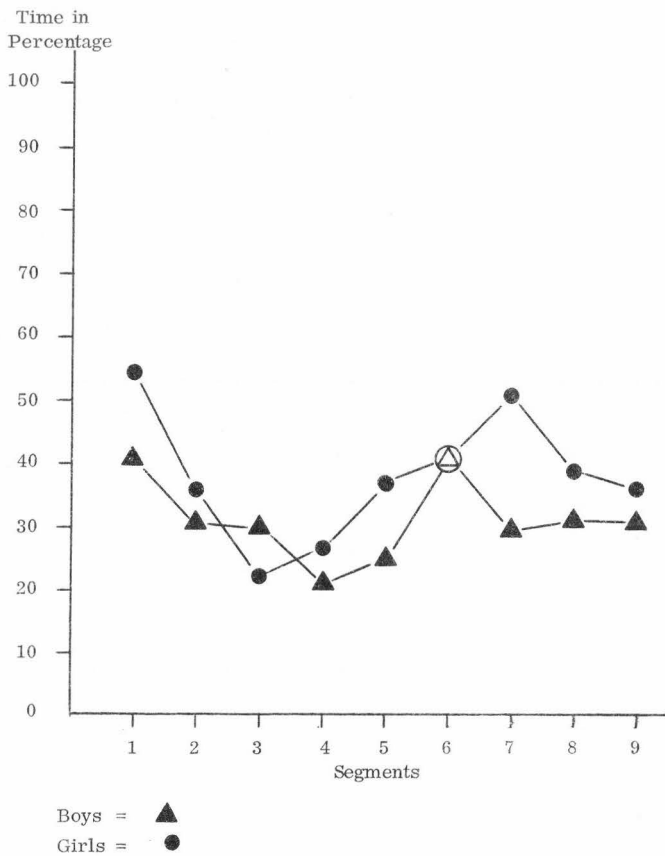


Figure 16. Preschool boy-girl total times on SFPT segments one-nine.

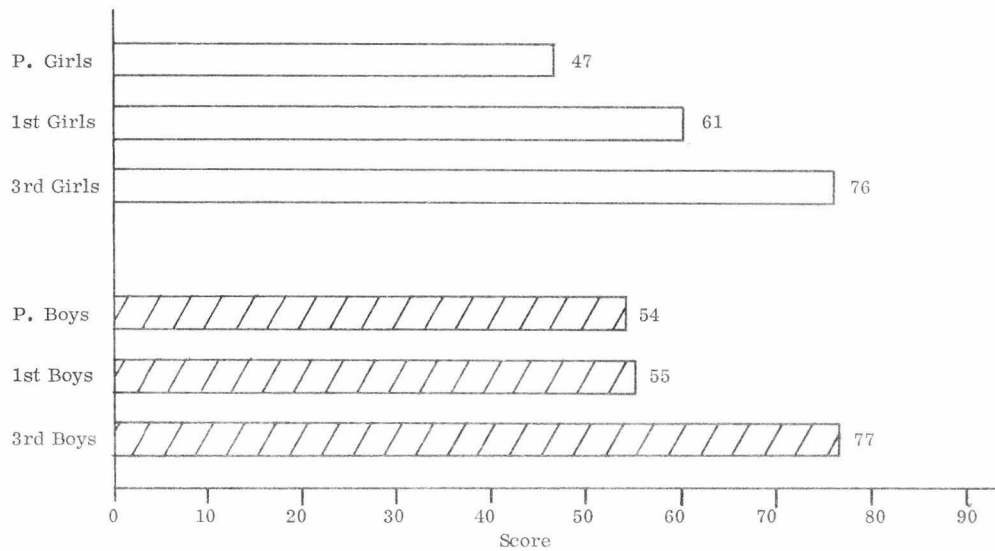


Figure 17. Boys' total scores within age-groups compared and girls' total scores within age-groups compared.

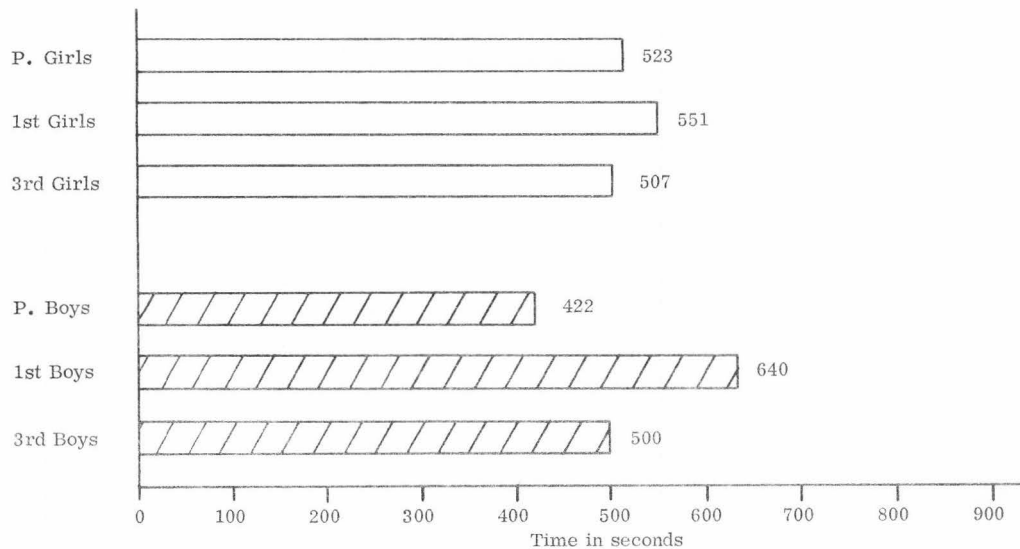


Figure 18. Boys' total times within age-groups compared and girls' total times within age-groups compared.

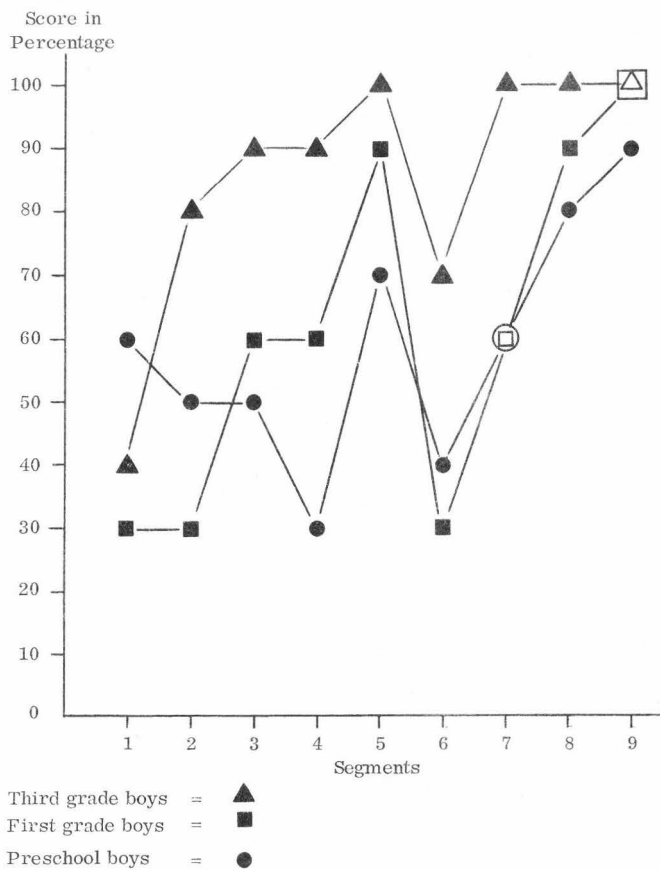


Figure 19. All boy category total scores on SFPT segments one-nine.

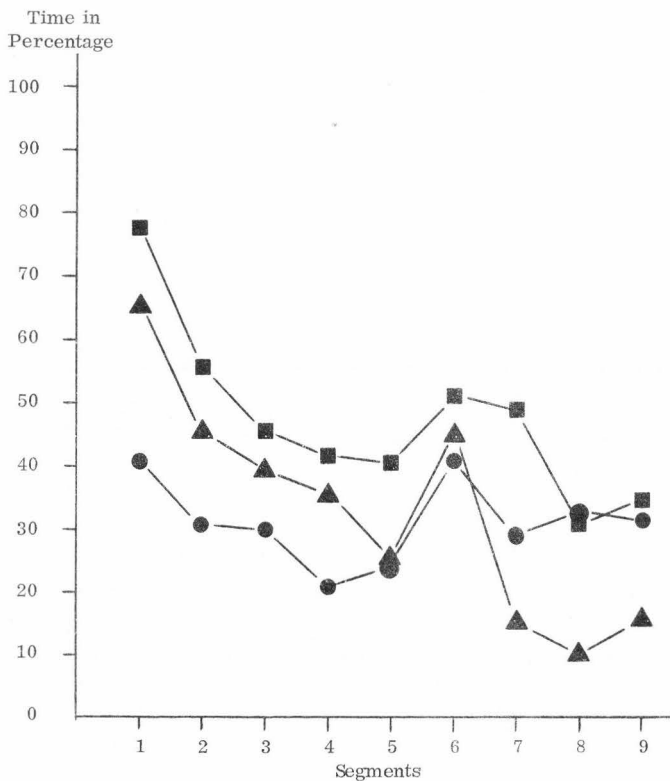
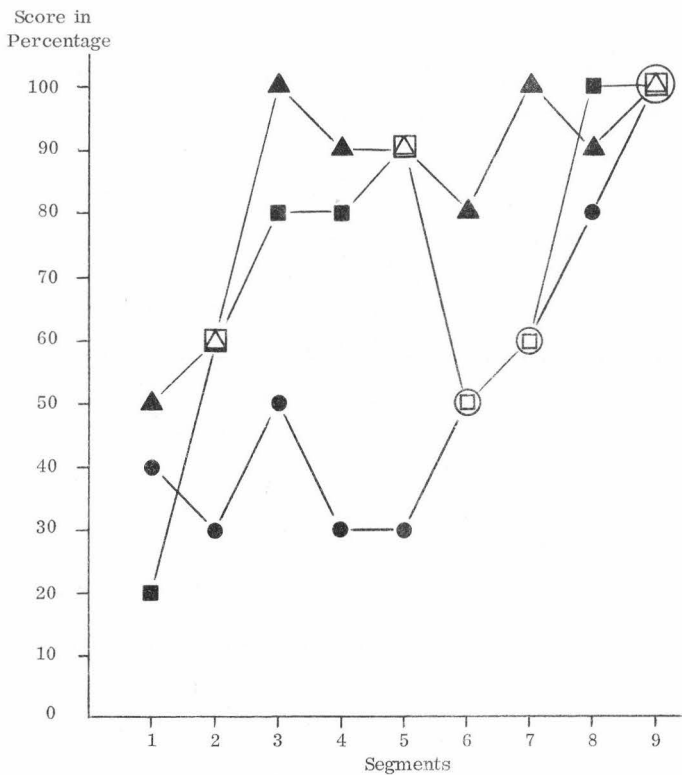


Figure 20. All boy category total times on SFPT segments one-nine.





Third grade girls = ▲  
 First grade girls = ■  
 Preschool girls = ●

Figure 21. All girl category total scores on SFPT segments one-nine.

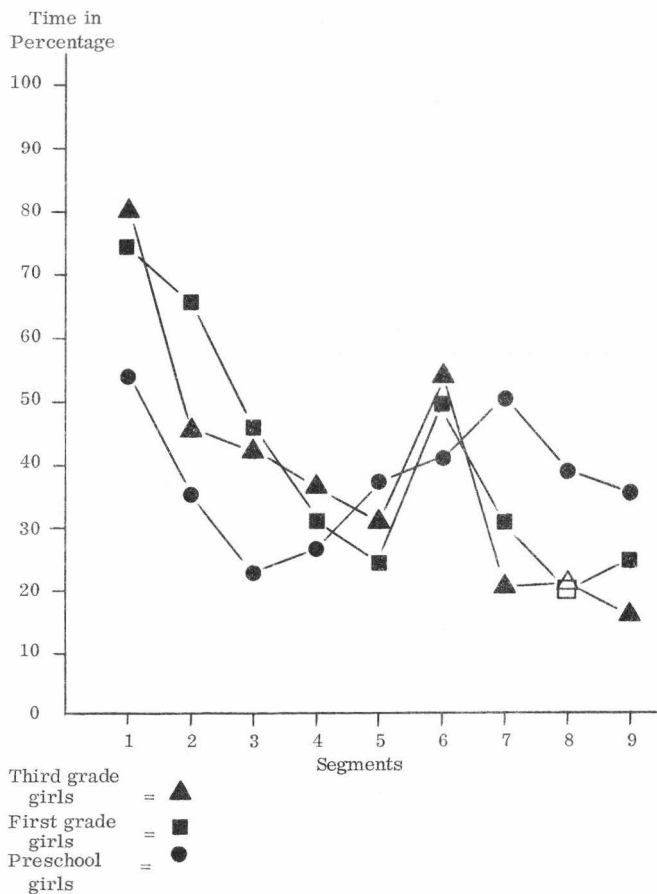


Figure 22. All girl category total times on SFPT segments one-nine.

Appendix C

Segmented Facial Parts Test Instrument

(See over)

Appendix D

Segmented Facial Parts Test Score Sheet

## SFPT SCORE SHEET

Number	Name	Age	Sex	With picture Nos.	
Segment	Picture No. Chosen	Position	Time in Seconds	Check if Correct	Random Position
1. Mouth and chin.					
2. Nose alone.					
3. Eyes alone.					
4. Forehead alone.					
5. Eyes and forehead.					
6. Mouth, chin, nose.					
7. Mouth, chin, nose, eyes.					
8. Mouth, chin, nose, eyes, forehead.					
9. Whole face.					
Total chosen . . . . .					Hairstyle _____
Response set . . . . .					Bang _____
Total seconds					No Bang _____
"Main time" . . . . .					Long _____
Total correct					Short _____
"Main score" . . . . .					Comments: _____
Parts correctly identified . . . . .					_____

## VITA

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Candidate for the Degree of

Master of Science

Thesis: The Child's Perceptual Awareness of His Own Segmented Facial Parts

Major Field: Family and Child Development

## Biographical Information:

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Education: Attended elementary school in Salt Lake City, Utah; graduated from Highland High School in 1965; received the Bachelor of Science degree from Utah State University, with two majors, psychology and child development, in 1972; did graduate work in family and child development and completed requirements for the Master of Science degree, at Utah State University in 1973.

Professional Experience: 1972 to 1973, graduate teaching assistant as a head teacher in the Child Development Laboratory, Utah State University; 1966, assistant counselor at the Salt Lake County Detention Center, Utah; 1965, volunteer remedial reading teacher in elementary schools, Salt Lake City, Utah (sponsored by the University of Utah).