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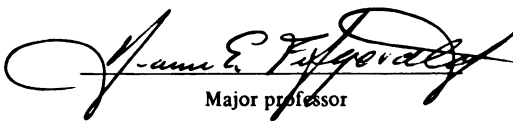
OF INFANT SEX AND PHYSICAL ATTRACTIVENESS

presented by

Olga Nita Hernández

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A CROSS-CULTURAL COMPARISON OF ADULTS' PERCEPTIONS  
OF INFANT SEX AND PHYSICAL ATTRACTIVENESS

By

Olga Nita Hernández

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## ABSTRACT

### A CROSS-CULTURAL COMPARISON OF ADULTS' PERCEPTIONS OF INFANT SEX AND PHYSICAL ATTRACTIVENESS

By

Olga Nita Hernández

Previous research has attempted to assess the relative influence of variations in physical attractiveness. The present study was designed to make a cross-cultural comparison of adults' perceptions of infant sex and physical attractiveness. Four hundred eighty subjects equally divided by culture and sex participated in this study. Two sets of 14 photographs of infants faces equally divided by culture, sex, age, and differential cuteness ratings were used as the stimuli. Reactions to the photographs were measured using a 5-point Likert scale for physical attractiveness and a 5-point dimension scale for perceived sex.

The sample was recruited from Michigan State University and the University of Puerto Rico - Mayagüez Campus and was divided into four equal sized groups: American and Puerto Rican subjects rating American infants; American and Puerto Rican subjects rating Puerto Rican infants. Within each group, half of the subjects viewed each slide for 8 seconds while the remaining half viewed each slide for 15 seconds. Stimulus presentation varied randomly. Testing was conducted in regular classrooms using mixed sex groups.

Repeated measures ANOVA revealed that Puerto Rican raters gave higher cuteness ratings to U.S. infants than U.S. raters did. Nine-month-old P.R.

infants received higher cuteness ratings than 9-month-old U.S. infants did. A significant effect was found for infants' differential cuteness, indicating that high-cute infants received higher cuteness ratings than low-cute infants did. A significant interaction between exposure time and raters' culture indicated that P.R. raters gave higher cuteness ratings with 15 seconds exposure time than U.S. raters did. Analysis of perceived sex revealed that when infants were divided by sex, raters of both cultures were fairly accurate in guessing the infants' sex. The results are compared with those of other studies of adult attraction to infants.

A MIS PADRES

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## CHAPTER 1

### INTRODUCTION

Currently, there is an expanding literature concerning factors that influence adults' attributions of infant attractiveness. To date, however, few studies have involved samples other than those with American infants and adults. Therefore, the purpose of the present study was to conduct a cross-cultural comparison of adult's perceptions of infant perceived sex and physical attractiveness. Samples of college students from Michigan State University and the University of Puerto Rico judged the cuteness and perceived sex of photographs of both Puerto Rican and American infants. To provide the rationale and background of the study the following topics will be considered: the importance of physical attractiveness for social interactions, most relevant research studies for this investigation, and the issues to be addressed as well as the need for the study.

The importance of studying the effects of physical attractiveness on social interactions has been well documented (Adams, 1977; Berman, 1980; Berscheid & Walster, 1974; Hildebrandt, in press). An examination of reported findings supports the notion of the presence of a physical attractiveness stereotype summarized by the expression, "what is beautiful is good" (Dion, Berscheid & Walster, 1972). In general, research on the physical attractiveness stereotype suggests that physical appearance affects several types of evaluations in adults and children. Recently, developmental psychologists have concentrated on adults' reactions to infants' physical attractiveness (Hildebrandt & Fitzgerald, 1977, 1978, 1979a, 1979b).

In spite of the recency of this field of research there already is considerable diversity in the approaches taken by researchers for studying the impact of physical attractiveness in adult-infant interaction. Most experimental studies have used photographs of infants as stimuli (e.g. Hildebrandt & Fitzgerald, 1979a, 1979b), few studies have used live infants (Hildebrandt, 1980).

The interest in infants physical attractiveness and its possible influence on adult-infant relations led Hildebrandt and Fitzgerald (1977, 1978, 1979a, 1979b) to develop a series of studies designed to determine the parameters of perceived infant cuteness and to assess individual differences in adults' reactions to infant physical attractiveness. Their findings have shown that there are specific physical features which identify a baby as cute and also that behaviors such as looking and smiling are related differentially to the perceived cuteness of the infant. Moreover, adults' cuteness ratings of infants have been found to be related to the infants' facial features, facial expression, birth order, age, and sex, as well as the mode of presentation of the stimuli (i.e. either live or in photographs). Some of these relationships are weak, with variation occurring from study to study. For example, in one study no sex differences were found in average cuteness ratings, although women used the ends of the cuteness scale more than men did (Hildebrandt & Fitzgerald, 1979a).

In light of the increasing work done on the effects of infants' physical attractiveness and the possible implications for adult-infant and caregiver-infant interaction, it is necessary to examine the topic in more detail. For example, most investigations in this area have been limited to one culture and one racial-ethnic group (i.e. American). Therefore, generalization to other cultures is constrained. In addition,



past studies have focused parametric manipulations on aspects of the physiognomy of the infant's facial features with little attention to other aspects of the stimulus situation such as stimulus frequency or exposure duration.

The present study was designed to expand research on infant physical attractiveness in two ways. First, this study examined the effects of culture specificity on adults' reactions to infant physical attractiveness and perceived sex. Second, the study was designed to permit examination of the effects of stimulus exposure time on ratings of physical attractiveness and perceived sex. The specific hypotheses to be tested in this study are presented in chapter 2.

## CHAPTER 2

### REVIEW OF LITERATURE

#### Physical Attractiveness Research

Since Berscheid and Walster (1974) pointed out the importance of physical appearance for interpersonal attraction, numerous investigators have demonstrated the impact of physical attractiveness in a wide variety of settings. For example, there is accumulating evidence that the physical attractiveness stereotype in adults can be generalized across differing samples, contexts, and settings (Adams, 1977). Studies with adults have reported that physical attractiveness influences person perception (Sigall & Landy, 1973), heterosexual liking (Berscheid, Dion & Walster & Walster, 1971), and attribution of personal characteristics (Miller, 1970).

#### The Physical Attractiveness Stereotype

The vast majority of studies in this topic have verified the existence of a "physical attractiveness stereotype" (i.e. the idea that physically attractive individuals are attributed more positive traits than unattractive individuals) in both adults and children (Dion, 1972, 1973; Dion & Berscheid, 1974). Collectively, research findings are consistent with those of Dion, Berscheid and Walster (1972) who found that the physical attractiveness stereotype operates along the lines of "what is beautiful is good".

### Adults' Perceptions and Behaviors toward Children Varying in Attractiveness

In the past, the effects of children's perceived attractiveness on adult-child interactions was not of great concern to developmental psychologists. Only recently have studies been directed to the possibility that adults might perceive and treat children differently as a function of perceived attractiveness (Hildebrandt, in press). In these investigations, the typical methodology involves showing a photograph of a child who is either high or low in physical attractiveness, to an adult who is asked to rate the child on a variety of characteristics such as cuteness, gender, race, IQ, home background, and school performance.

Two studies by Dion (1972, 1974) provide support for the assumption that physical attractiveness of the child may influence adults' behavior. Using a photograph of a child (previously judged to be attractive or unattractive) attached to a behavioral description of a mild or severe transgression by the child, Dion (1972) found that attractive children were rated as less deviant when the transgression was severe, whereas the unattractive children were judged as antisocial and more dishonest. However, in this study there were no differences in the punishment advocated by female college students for the offenses committed by these children. In contrast, a subsequent study by Dion (1974) reported a cross-sex effect in that adult females were more punitive toward attractive girls and unattractive boys than toward attractive boys; the effect did not appear for adult males. Dion's explanation of these results was based on the assumption that women and men differ in their degree of task orientation. She proposed that men may be more task oriented while women may be more interpersonally oriented. Therefore, women may be more influenced than men by such social cues as sex and attractiveness.

A number of studies have found that teachers' expectations about a child's performance are related to the child's degree of perceived attractiveness. In general, these investigations have shown that teachers consistently rate attractive children more favorably, although in some cases perceived attractiveness interacted with other child characteristics (Adams, 1978; Adams & Cohen 1976a, 1976b; Adams & Crane, 1980; Clifford, 1975; Keble, Bramble & Mason, 1974). For example, several studies have indicated that such variables as child behavior, may reduce the effects of physical attractiveness on teacher's expectations (Adams & Cohen, 1976b; Adams & La Voie, 1974a, 1974b; La Voie & Adams, 1974).

While evidence is accumulating to suggest that adults are likely to develop an evaluative tendency toward children based on a physical attractiveness stereotype, little research has been conducted to determine if parents are influenced by the attractiveness stereotype when interacting with their own children. Since parents are a major influence in child socialization, it seems reasonable to suggest that early development of the "beauty is good" stereotype will affect their interactions with their children. Adams and La Voie (1975) reported that children's physical attractiveness influenced parents predictions of the child's personal-social success. More recently, Adams and Crane (1980) found that parents' expectations of their children's behavior were consistent with a "beauty is good" stereotype in both social attribution and social preference measures.

Not all studies have demonstrated that attractive children are perceived and treated differently by adults than are unattractive children. For instance, La Voie and Adams (1974) found that attractiveness appeared to exert little influence on teachers' ratings of a child after teachers'

were given information about the child's general behavior. In another study no attractiveness effect was found when teachers rated a child's personality after having read the child's essay (Keble et al., 1974). Moreover, Dion (1972, 1974) found no effects for physical attractiveness on adult's ratings of children who committed mild transgressions compared to those who had not transgressed.

In addition, results from a few studies suggest that physically attractive children are treated exactly opposite to expectations derived from a physically attractive stereotype. For example in one study teachers rated the transgressions of attractive children as more severe than the transgressions of unattractive children (Marwit, Marwit & Walker, 1978). In another study teachers rated the work habits of highly attractive children lower than those of moderate or low attractiveness (Adams & La Voie, 1974). These results suggest that there may be other characteristics (e.g. personality trait differences, level of education) which may override any effects due to perceived attractiveness.

In summary, literature reviewed up to this point supports the physical attractiveness stereotype in adult-child relationships, although several studies point out that the effect may be reduced by giving more concrete information about the child's behavior, performance, or personality.

#### Children's Perceptions and Behaviors Toward Peers Varying in Attractiveness

Studies of peer relations suggest that children's perceptions of unfamiliar peers also are influenced by physical attractiveness. Both Dion (1973) and Dion and Berscheid (1974) have demonstrated that children's preferences for each other are affected by the physical attractiveness stereotype, with attractive children liked better than unattractive ones.

Langlois and Stephan (1977) found that children rated attractive peers as smarter, friendlier, nicer and less mean than their less attractive peers. Attractive children are expected to behave more prosocially and are more likely to be chosen as potential friends than are unattractive children (Dion, 1973; Langlois & Stephan, 1977; Styczynski & Langlois, 1977). Particularly interesting is a study conducted by Trnavsky and Bakeman (1976) who attempted to test individual differences in the strength of the physical attractiveness stereotype in children. They found that more attractive children held the attractiveness stereotype more strongly than less attractive children.

Although there is little direct observational research concerning children's differential treatment of attractive or unattractive peers several studies have reported that more attractive children have more friends and receive more social acceptance (Cavior & Dokecki, 1973; Cavior, Miller & Cohen, 1975; Dion & Berscheid, 1974; Kleck et al., 1974; Lerner & Lerner, 1977; Salvia, Sheare & Algonzine, 1975). Styczynski and Langlois (1977) demonstrated that acquaintance has a significant effect on preschool childrens' popularity ratings and behavioral expectations in relation to gender as well as attractiveness. They interpreted their results as suggesting that when the effects of physical attractiveness are examined within real social situations, attractiveness may indeed be a social disadvantage, especially with boys. Results of this study showed that unacquainted boys rated attractive children as more popular than unattractive children, although the reverse was true for acquainted boys (i.e. they selected unattractive children as more popular). These investigators suggested that boys may be negatively influenced by attractiveness when they are rating familiar peers, since the attractive child

may be allowed special privileges and may behave more antisocially thus reducing the child's popularity with male peers.

#### Adult's Responsiveness to Infants

The ethologist Lorenz (1943) proposed a detailed hypothesis dealing with adult's responsiveness to the young. Lorenz suggested that certain specific and typical babyish features of infants elicit caregiving and approach behavior from human adults. This hypothesis, which emphasized the physiognomic features of the infant, stimulated much contemporary research concerning specific facial characteristics that define "babyishness".

In recent years considerable attention has been directed to the study of adult's responses to infants (Berman, Cooper, Mansfield, Shields, & Abplanalp, 1975; Fullard & Reiling, 1976; Hess & Polt, 1960). As suggested by Feldman and Nash (1978, 1979a, 1979b), responsiveness to infants is an important psychological phenomenon that has cultural significance because a society must nurture its young to maturity in order to survive. Since the prevailing assumption has been that child-bearing responsibilities are linked primarily to females, few attempts have been made to study behaviors in males that may be influential in regulating male-infant interactions (Bem, 1974; Bem, Martyna & Watson, 1976).

Berman's (1980) critical review of studies which have examined adults responsiveness to infants, suggest that the literature fails to resolve the question of whether males and females differ in their responsiveness to infants. Furthermore, she points out that such contemporary research depends upon pictorial representation of infants, possibly because of

Lorenz' emphasis on the physical features of infants. In contrast, very little work examines adult's responses to a live baby.

Adults' responses to infants have been measured in a number of ways. The majority of studies equate interest in infants with adult's self reports such as statements of preference or ratings of attractiveness. Others have used behavioral measures such as observer's records or ratings of participant's overt behaviors. Finally, the least frequent studies are those which have employed physiological measures such as skin conductance, heart rate, pupillary response, and blood pressure. Collectively, the findings reported from numerous studies do not provide straightforward support for sex differences in adults' responsiveness to infants.

As emphasized by Berman (1980), studies employing different measures have produced conflicting results. For example, studies using ratings of attractiveness and/or behavioral measures have reported (1) that females are more reactive (Berman, 1976; Frodi, Lamb, Leavitt, Donovan, Neff & Sherry, 1978; Fullard & Reiling, 1976) (2) that males show more interest in babies (Sternglanz, Gray & Murakami, 1977) and (3) that both sexes are equally responsive (Berman, Ablanab, Cooper, Mansfield, & Shields, 1975). Conversely, studies which have measured physiological responses have reported different findings, for instance, Frodi et al. (1978) did not find sex differences in heart rate and galvanic skin response. In contrast, Hess and Polt (1960) reported that females are more reactive than males when viewing pictures of babies, although in this study the dependent variable was pupillary dilatation.

A problem in comparing and interpreting these contradictory findings stems from the fact that one cannot assume that the measures are equivalent. As Berman (1980) has noted, the type of stimuli presented in the studies



may contribute significantly to the differences found between studies. In general the most typical methodology for self-report studies involves the presentation of infant pictures which limits the subject to respond only to the infant's physical features and expression. On the contrary, behavioral studies have employed live infants which present the participant with a variety of stimuli such as clothing and behavior. Berman further suggests that adult's responses to infants vary depending on the response required from the participant (i.e. self-report, behavioral and/or physiological), the subjects experiential or prior rule relationship to infants (e.g. mothers vs. fathers), as well as physical and social qualities of the situation (e.g. laboratory vs. natural setting and individual vs. group).

Although the collective data on adult's responses to infants fails to demonstrate sex differences in responsiveness, the majority of self-report studies consistently support findings indicating that adults prefer pictures of infants, and that these tendencies may be stronger in females than in males (e.g. Berman, 1976; Cann, 1953; Feldman & Nash, 1978; Fullard & Reiling, 1976; Sternglanz, Gray & Murakami, 1977). For instance, Fullard and Reiling (1976) demonstrated that women show stronger verbal preferences for infants than men do. In addition, Cann (1953) reported that regardless of their marital or parental status women preferred infant pictures more often than men did. However, men who are fathers or whose wives are pregnant prefer baby pictures more often than other men do. These particular findings support the ethological hypothesis that babyishness elicits positive responses from adults.

In keeping with the earlier concern regarding the infant's stimulus characteristics, several studies have investigated the parameters of infant physical features which adults define as babyish, attractive, or

cute. Considerable attention has been given to facial features which distinguish infants from adults. Thus, for example, Gardner and Wallach (1965) and Hess (1970) found that infantile facial features include a high and protruding forehead, large eyes placed in the middle of the face, a small nose and fat cheeks. Interestingly enough, most infants are babyish in their physical appearance. However, there are individual differences among infants in those characteristics which define babyishness. Consequently an assumption derived from ethological theory is that infants whose features are more infantile or "babyish" should be preferred and might elicit more positive responses from adults than infants whose features are less "babyish" (Sternglanz, Gray & Murakami, 1977).

It seems that infants' facial feature variations influence adults' responses to infant attractiveness. Using line drawings of infants, and varying eye position, Brooks and Hochberg (1960) reported that eyes positioned in the center of the face received higher cuteness ratings than eyes positioned higher or lower than the center. Another study of facial feature variations which manipulated several features such as eye width, eye height, and iris size, indicated that college students rated as more attractive the faces which had relatively large eyes and a relatively large forehead (Sternglanz, et al., 1977).

However, as suggested by Hildebrandt and Fitzgerald (1978) interpretation of Sternglanz et al. (1977) findings requires consideration of the fact that drawings of infant faces were used and also that the range of feature variation was larger than one might anticipate in a group of real infants. Besides, this study failed to consider the inter-relationship among features which one might expect to be very important when judging a real infant's physical attractiveness.

In an attempt to determine which facial features college students considered important in their judgments of infant cuteness, Hildebrandt (1976) asked subjects to mention which aspects of the photographs were most important in helping them to decide which photographs were cuter. Facial expression, eyes, hair, fatness, facial proportions, and ears were the features most frequently mentioned.

A subsequent study was conducted to investigate if cuteness ratings could be predicted from objectively measurable facial features (Hildebrandt & Fitzgerald, 1979b). In contrast to previous studies which used drawings of infants in order to study how facial feature variation might influence adult behavior, this study used actual infant photographs. Using a multiple correlational approach it was found that facial feature combinations were predictive of infant's perceived cuteness. It was reported that a cute infant is likely to have a large forehead, large eyes and pupils and to have short and narrow features. The results of Hildebrandt and Fitzgerald's study served to support Lorenz' hypothesis that there are a number of characteristics identified as babyish which might evoke positive responses from adults.

#### Effects of Infants' Physical Attractiveness on Adult Responses

There are theoretical and empirical reasons for hypothesizing that adults apply a physical attractiveness stereotype to infants. Theoretically, Lorenz (1943) was the first to suggest that particular babyish facial features elicit approach behavior from human adults. Although there is a widespread interest in adults' responses to infants, the amount of available evidence concerning the effects of physical attractiveness is rather limited. Moreover, the importance of an infant's

physical attractiveness on adult's responses and behaviors has been questioned by several investigators (Hildebrandt & Fitzgerald 1977, 1978, 1979a, 1979b, 1981; Power, Hildebrandt & Fitzgerald, in press).

Nevertheless, a series of studies has been conducted over the past years which have examined the role of infant's physical appearance in eliciting behaviors and attitudes from adults (Hildebrandt & Fitzgerald 1977, 1978, 1979a, 1979b, 1981). The majority of these investigations have employed infant's facial photographs selected from a set of 60 chromatic slides as the stimuli. These photographs were taken by a professional photographer under controlled conditions when the infants' facial expressions were judged to be relatively neutral. A grey cape covered the infants' shoulders in order to remove clothing cues. In only one study did participants rate live infants (Hildebrandt, 1980).

Typically the response required from subjects in most of these studies are ratings of infant cuteness using a 5-point scale in which a 1 = not very cute, 2 = less cute than average, 3 = average cuteness, 4 = more cute than average and 5 = very cute. Also in some cases, participants have been asked to guess the sex of each infant or to rank order subsets of the photographs. In general, variation in cuteness ratings has been linked to particular characteristics of the infants being rated and to the characteristic of the adults doing the rating.

One particularly interesting study investigated the relationship between infant's physical sex and adult's perceptions of infants' physical attractiveness (Hildebrandt & Fitzgerald, 1979a). Five experiments were conducted with college students who rated the cuteness and/or sex of female and male infants ranging in age from 3 to 13 months. In all experiments 60 photographs were projected one at a time via slides while participants marked their ratings of cuteness and/or sex on computer

answer sheets. In four of the experiments slides were presented for 8 seconds each while in the remaining experiment slides were presented for 15 seconds each. The results of these studies indicated that subjects had little difficulty assigning a gender label to infants although in some cases the assigned label was incorrect. Moreover, it was found that both age and perceived sex of the infant were related to the cuteness ratings. Specifically, it was demonstrated that older infants received higher cuteness ratings than younger infants, showing that cuteness ratings increased with age, reaching a peak at 11 months. However, infant sex interacted with age indicating that female infants received their highest ratings at 11 months whereas male infants received their highest ratings at 13 months. The authors interpreted this difference as being due to the developmental maturity of female infants in comparison to same age male infants.

Perhaps two of the most interesting findings in these studies were that when sex was unknown female infants received slightly higher ratings than males and cuter infants were more likely to be guessed as female than were the less cute infants. On the other hand, when the sex was known (i.e. experimenter told subjects either correct or incorrect sex), labeled males received higher ratings than labeled females. Interestingly enough, this finding was interpreted as supporting the hypothesis that adults seem to have a sex stereotype regarding infant cuteness which suggests that female infants are expected to be cuter than male infants. For example, subjects are more likely to attribute a female sex to a cute infant, but if they are told that a particular infant is female rather than male, they judge it less cute because they have higher standards for females.

Furthermore, results also revealed that there were no sex differences

in the average ratings. Nevertheless, the cuteness ratings given by female subjects differentiated among the infants more than males did. This difference was interpreted as possibly being due to the differential use of the cuteness ratings scale. Specifically it was found that female subjects used the ends of the rating scale (1 and 5) more than male subjects and used the middle of scale (3) less than male subjects.

To summarize, results clearly support the proposition that adults expect females to be more physically attractive than males. As previously indicated, this effect was evident in both perceived and actual sex of the infants although the difference in cuteness ratings between perceived males and perceived females was larger than the difference between actual males and females. The effects obtained, however, were not simple ones, since they occasionally varied from experiment to experiment and also with sex of the adult subject. For instance, the results indicating that female infants are expected to be more physically attractive than are male infants, suggested a relationship between perceived sex and perceived cuteness. Given that the difference was larger when comparing by perceived infant sex than when comparing by actual infant sex, this particular result supports the conclusion that there is a relationship between infant's sex and adults' perceptions of an infant's physical attractiveness.

However, these results should be viewed with some caution since findings regarding the direction of the impact of infant's sex on perceived attractiveness have not been straightforward. For example, although the Hildebrandt & Fitzgerald (1979a) findings suggest that cuter infants are more likely to be perceived as female, there also were a number of highly cute infants who were perceived as male, as well as a number of less cute infants who were perceived as female. As suggested by Hildebrandt

and Fitzgerald, probably perceived cuteness most strongly affects perceived sex when insufficient information (e.g. lack of hair in an infant) is provided to make a sex attribution. On the other hand, knowing the sex of the infant does not substantially change the cuteness ratings an infant receives. Indeed, high cute infants were similarly rated when sex was both known and unknown. The authors note that actual or perceived sex of an infant is an influential but not absolute determinant of its perceived cuteness.

Subsequent investigations by these researchers have tried to determine what other factors may influence adult's perceptions of infant's cuteness. In one study, Power, Hildebrandt and Fitzgerald (in press) used photographs of smiling and crying infants in order to investigate how infant's affective expression may influence adult's judgments of infant's physical attractiveness. According to their findings, cuteness ratings are also influenced by facial expression with smiling infants receiving higher ratings than crying infants. However, facial expression neither substantially increases the cuteness ratings of an unattractive infant nor substantially lowers the rating of a highly attractive infant. Thus, these results seem to suggest that facial expression alone does not make an infant attractive. Although these results cannot be generalized to other populations without further study, this investigation served to amplify Hildebrandt's and Fitzgerald's conclusion that cuteness ratings of infants might be influenced by a wide variety of factors.

As it has been pointed out previously, most of the studies by Hildebrandt and Fitzgerald have investigated the effects of several variables on adult's responses to variations in static infant physical attractiveness. Recently, Hildebrandt (1980) conducted a study in which both students and

parents rated live 3 month old infants rather than photographs of infants. In contrast to previous studies using photographs, college students gave higher ratings to live infants. This difference may be explained by the fact that the photographs of the infants had no clothing cues since a grey cape covered all infants' shoulders and that facial expression, overt behavior as well as vocalization which may have influenced the ratings of the subjects.

One surprising result of this study was that birth order was found to influence the ratings of both parents and college students. The findings revealed that first born infants received higher cuteness ratings from their parents and also from college students who did not know the infants' birth order when rating them. As suggested by Hildebrandt, first born infants tend to be better dressed and groomed than later born infants which may be a possible explanation for this particular finding.

Taken together, findings from the previous series of studies by Hildebrandt and Fitzgerald have demonstrated that characteristics of the stimuli such as the infant's age, sex (both actual and perceived) facial features, facial expression and birth order, as well as the mode of presentation (either a photograph or live) are related to the cuteness ratings given to a particular infant.

However, research employing college student samples have indicated few relationships between rater characteristics and their responses to infant's physical attractiveness. In general, no sex differences have been shown in the average ratings, although women use the ends of the cuteness rating scale more than men do (Hildebrandt & Fitzgerald, 1979a). In addition, characteristics such as prior contact with infants, marital



status, and occupation have not been found to be related to average ratings.

Moreover, results also have demonstrated that not all subjects agree on the cuteness of a particular infant. Further attempts have been made to investigate the correlates of individual differences in ratings of infants. Two investigations have indicated that parents give higher ratings to their own infants than college students do (Hildebrandt, 1980; Hildebrandt & Fitzgerald, 1981). The interpretation given to these findings suggests that the increase in parents' ratings may be related to repeated exposure or familiarity to their infants. For instance, similar findings were reported in a study by Corter, Trubub, Boukydis, Ford, Celhaffer and Minde (1978) who found that a sample of nurses gave higher ratings to infants with whom they had had more contact.

Nonetheless, it seems that a common definition of attractiveness can be identified as suggested by the fact that ratings of mothers and college students are moderately correlated (Hildebrandt, 1980). Across different groups of college students, a high correlation has been found between ratings of infant's photographs ranging from 3 to 13 months and the rank ordering of infant's photographs of 4 and 8 months old infants (Hildebrandt & Fitzgerald, 1978, 1979a). In addition, it has been reported that a substantial agreement exists among college students; judgments of 3-month-old infants (Hildebrandt, 1978).

Despite the fact that a common definition of attractiveness may be suggested by the previous findings, further research is needed to determine why some adults rate a particular infant as high in cuteness whereas other adults rate the same infant as low in cuteness. Indeed, to a large extent, attractiveness is in the eye of the beholder. In addition, research by

Hildebrandt and Fitzgerald points to several additional factors to be taken into consideration when investigating adult's judgments of an infant's physical attractiveness.

One factor not considered by previous investigators concerns the extent to which cultural background may affect judgments of infants' perceived attractiveness. Specifically in the area of adult's responses to infant attractiveness, research studies have focused only in one culture of both rater (adult) and ratee (infant). According to Werner (1979) cross-cultural studies contribute a comparative perspective to development and extend the range of our knowledge and understanding. Furthermore, she suggests that this type of study best illustrates the universal sequences of human behavior that we share as a species as well as the diversity of behavior that is adaptive in a wide range of environments.

Several reasons may be cited to justify a cross-cultural comparison in this area of research. First, as emphasized recently by Leiderman, Tulkin and Rosenfeld (1977) a major rationale for conducting a cross-cultural study is its value as an "eye opener" since it is a way of sharpening perceptions and suggesting new ideas and hypotheses. Second, as pointed out by Rohner (1977) one of the main reasons for conducting cross-cultural work is to "test for the level of generality of a theory or proposition". Based on the assumption that the primary goal of cross-cultural research is the testing of and addition to theory, it is necessary that we attempt to determine the limits within which explanatory concepts and theories are applicable as well as the kind of modifications that have to be made in order to make them universal. Therefore, conducting a cross-cultural study is a way of testing how previous findings may be generalized to other cultural groups and, thereby, to the species in general.

Given that few studies have examined adult's responses to infant's attractiveness using a cross-cultural approach, it seems necessary to briefly summarize some of the findings of cross-cultural research which have examined childrens' responses to infants. As emphasized by Berman, (1980) two cross-cultural studies have been conducted regarding childrens' responsiveness to infants. In one study Konner (1975) reported that in the !Kung San culture older sisters engaged more in face to face interaction with their siblings than brothers did. In another study Whiting and Whiting (1975) examined childrens' responsiveness to infants in several cultures. According to their findings, the proportion of childrens' responses to infants varied widely for different cultures.

Although the data in this area remains inconclusive, the few cross-cultural studies cited above have illustrated that there are both similarities and differences one might expect when conducting a cross-cultural study. One major approach in the field of cross-cultural psychology had been testing specific hypotheses drawn from the general body of psychological knowledge in order to elucidate the applicability of various generalizations. As suggested by Brislin, Lonner and Thorndike (1973) cross-cultural psychology is the empirical study of members of various culture groups who have had different experiences that lead to predictable and significant differences in behavior.

Based on Lorenz' theory which emphasizes species typical reactions to "babyishness" features, one would predict no significant differences in cuteness ratings as a function of rater culture. Obviously this prediction requires empirical confirmation or rejection. Nevertheless, my own experiences -- however subjective they may be-- suggest that differences in cuteness attributions and perceived sex ratings will be found

between Puerto Rican and American raters. One reason for this expected differences is that in Puerto Rico white skin type generally is considered more physically attractive than medium or darker skin type. Moreover, in Puerto Rican culture there is a tendency to use earrings, bright color clothing, and hair bows to identify female infants. Therefore, using a grey cape which predominantly is not a "female infant" color and removing earrings (pierced ears) and other female infant's clothing cues may affect the ratings of Puerto Rican female infants by Puerto Rican raters more than it affects American raters. Finally, cultural differences in sex role orientation is another factor that may contribute to cultural differences in physical attractiveness attributions. Generally in Puerto Rico the role of motherhood is greatly emphasized to woman and childrearing is considered to be the female's responsibility. Therefore Puerto Rican women may be more attracted to infants than are Puerto Rican men and consequently one might expect that Puerto Rican female raters will rate infants differently than men will.

Based on the previous discussion, and being aware that a series of studies by Hildebrandt and Fitzgerald have been conducted only in one culture, it is the main purpose of this study to extend their research using culture of both adult and infant as a variable in addition to several factors which they have investigated. Therefore, the influence of an infant's culture, sex, age and differential cuteness, as well as the adult's sex and culture were assessed on adult's perceptions of infant perceived sex and physical attractiveness. Comparisons were made across cultures of raters and of infants in order to determine if there were cultural differences among the groups. Furthermore, comparisons also were performed within culture of both raters and ratee in order to

determine whether there were significant differences within groups.

Finally, a second purpose of this study was to determine whether duration of stimulus exposure significantly affects adult's ratings of infants. Previous research by Hildebrandt and Fitzgerald (1979) used exposure durations of 8 or 15 seconds. It was the aim of this study to add this new variable (i.e. time of exposure) in order to determine if manipulation of exposure time influenced adult's perceptions of infant's perceived sex and physical attractiveness.

According to Zajonc (1968) attitudes may change in a positive direction by increasing the amount of exposure to a stimulus. Several investigations have supported this "mere exposure" hypothesis (Christensen, 1970; Litvak, 1969; and Saegert, Swamp, & Zajonc, 1973).

Harrison and Zajonc (1970) presented 12 novel stimuli (Chinese ideographs) to 66 subjects with varying frequencies of zero to 25 exposures. Half of the stimuli were shown for 10 seconds per exposure and half for 2 seconds per exposure. Their findings revealed that response competition decreases with increasing frequency of exposure, while affective ratings increased. On the other hand, response competition also was found to be reduced by an extended duration of exposure but duration did not have an entirely clear effect upon affective ratings.

In another study, Marcus and Hakmiller (1975) used three conditions in which they manipulated the total duration of exposure, frequency, and duration of study trial to determine which of these factors affect emotional judgments in college students. Results indicated that when total duration of exposure was held constant, there were no differences between the attractiveness ratings of the slides of female nudes when the other two factors were manipulated. On the other hand, when the total duration

increased as a function of frequency of exposure, the female subjects showed an increase in liking for the slides. In addition, when the total duration increased as a function of duration of study trial, males showed a change in affective judgments in a positive direction. In conclusion, these researchers indicate that if total duration of exposure increases and duration of study trial or frequency increases concurrently, increases in judgments of attractiveness will occur.

Two different conditions were used in the present study to determine whether a "mere" exposure effect was exhibited by adult subjects in the perception of infant's physical attractiveness. The conditions varied the total duration of stimulus exposure in which half of the subjects saw each slide for 8 seconds while the remaining half saw each for 13 seconds. Based on the assumption that an increased exposure time should provide the subjects with a better opportunity to single out distinctive characteristics of the infant, it was expected that significant differences could be found in the infants' ratings as a function of exposure time.

#### Summary of Purpose and Hypotheses

The literature investigating adults' perceptions of infants' physical attractiveness and perceived sex is sparse and inconclusive. Based on the literature reviewed, there are important research questions that remain unanswered. For example, do people of different cultural backgrounds give infants similar or different ratings of physical attractiveness and perceived sex? Do infants of different cultural backgrounds receive similar or different ratings from adult raters? Does exposure time significantly affect the ratings of infants? The present study was designed to investigate these questions. Specifically this study has attempted

to test the following hypotheses:

Hypothesis I

There will be significant differences between U.S. and P.R. raters with respect to cuteness ratings as a function of infants' culture.

Hypothesis II

There will be significant differences between U.S. and P.R. infants with respect to cuteness ratings as a function of infants' sex and infants' age.

Hypothesis III

There will be significant differences between low and high cute infant groups (ratings determined by previous research) with respect to cuteness ratings.

Hypothesis IV

There will be significant differences between 8 seconds and 15 seconds exposure time groups with respect to cuteness ratings.

Hypothesis V

There will be significant differences between U.S. and P.R. raters with respect to perceived sex ratings as a function of infants' sex.

Hypothesis VI

There will be significant differences between U.S. and P.R. raters with respect to perceived sex ratings as a function of infants' culture.

## CHAPTER 3

### METHOD

#### Subjects

A total of 480 college students equally divided by sex and culture participated in this study. Table 1 shows a summary of the sample size for each group according to the sex and culture of raters as well as culture of infants.

Table 1  
Sample Size of Raters' Sex and Culture  
by Infant's Culture

Group	Males	Females	Total
1. U.S. raters - U.S. infants	60	60	120
2. U.S. raters - P.R. infants	60	60	120
3. P.R. raters - U.S. infants	60	60	120
4. P.R. raters - P.R. infants	60	60	120
Total N =			480

Subjects were recruited from introductory psychology courses at Michigan State University and at the University of Puerto Rico - Mayagüez Campus. Table 2 presents mean ages and standard deviations of raters' sex by infants' culture.



Table 2  
Mean Ages and Standard Deviations of  
Raters Sex by Infants' Culture

Group	Raters' Sex	
	Males	Females
U.S. raters - U.S. infants	20.20 (3.95)	19.92 (1.23)
U.S. raters - P.R. infants	20.45 (5.29)	20.18 (1.19)
P.R. raters - U.S. infants	20.96 (1.59)	20.46 (3.29)
P.R. raters - P.R. infants	20.80 (1.01)	19.70 (2.38)

#### Stimuli

Color photographs of infant faces were used in the study. There were two sets of 12 photographs equally divided by sex, age and differential cuteness of infant for each culture (See Table 3).

Using a Kodak Carousel slide projector, photographs were presented via slides to mixed sex groups.

Table 3  
Culture, Sex, Differential Cuteness, and Age  
Split of Infant's Photographs

Age (mo.)	Culture							
	U.S.				P.R.			
	Male		Female		Male		Female	
	Low	High	Low	High	Low	High	Low	High
3								
9								
13								

nj = one per cell

U.S. infant photographs. One set of 12 photographs (6 male, 6 female) was selected from a larger collection of infant photographs on the basis of differential cuteness ratings (i.e. low cute - high cute) obtained in previous studies (Hildebrandt & Fitzgerald, 1977, 1978). An infant with a rating below the mean (i.e. 2.75) was considered a low-cute infant while an infant with a rating above the mean was considered as high cute. Table 4 shows the overall mean of the cuteness rating for each infant as well as its differential cuteness rating.

Table 4  
Overall Cuteness Mean Ratings and  
Differential Cuteness Ratings of American Infants

Infant #	Infant Age and Sex	Overall Cuteness Mean Rating	Differential Cuteness Rating
1	3 M	2.990	H
3	3 M	2.515	L
4	3 F	3.199	H
2	3 F	2.429	L
6	9 F	3.577	H
8	9 F	2.184	L
7	9 M	3.102	H
5	9 M	2.112	L
12	13 F	3.663	H
10	13 F	2.301	L
9	13 M	2.791	H
11	13 M	2.571	L

These pictures were taken by a professional photographer under controlled conditions when the infants' facial expression was judged to be relatively neutral. Also to eliminate clothing cues the shoulders of the infants were covered with a grey cape.

P.R. infant photographs. In order to obtain the set of 12 photographs of Puerto Rican infants and to match the photographs for physical attractiveness across sex and nationality; a procedure similar to that used by Hildebrandt and Fitzgerald (1978) was used to select infants.

(Refer to Appendix A for information on how stimuli for this study were developed).

#### Dependent Variables

The selection of cuteness and perceived sex ratings for the dependent measures was based primarily upon the work of Hildebrandt and Fitzgerald (1976, 1977, 1978, 1979a).

Cuteness rating scale. Students rated infant physical attractiveness according to a five point, Likert-type scale in which: 1 = not very cute, 2 = less cute than average, 3 = average cuteness, 4 = more cute than average and 5 = very cute.

Sex rating scale. Subjects rated perceived sex of infants along a dimension ranging from 1 (male) to 5 (female).

#### Design of the study

The study was designed to test certain assumptions about the differences and similarities in cuteness and perceived sex ratings of infants between subjects from Puerto Rico and United States. Tables 5 and 6 show the variable coding used for the data analysis and the design of the study, respectively.

In summary, 480 subjects equally divided by cultures participated in this investigation. One half of the total sample (120 U.S., 120 P.R. raters) were asked to judge the physical attractiveness and to guess the sex of U.S. infants while the remaining half rated P.R. infants. In all experiments half of the subjects equally divided by sex viewed the infant's slides for 8 seconds while the other half viewed it for 15 seconds.

This procedure yielded a 2 x 2 x 2 x 2 x 2 x 2 x 3 factorial design. The design over subjects was a 2 (culture of rater) x 2 (sex of rater) x 2 (culture of infant) x 2 (time of exposure), whereas the design over measures was a 2 (sex of infant) x 2 (previous cuteness) x 3 (age of infant).

Table 5  
Variable Codes

Stimuli	Levels	Code
Infant's Culture (B)	2 U.S.	1
	P.R.	2
Infant's Sex (E)	2 male	1
	female	2
Infant's Age (F)	3 3 months	1
	9 months	2
	13 months	3
Differential Cuteness (G)	2 low	1
	high	2
Subjects		
Raters' Culture (A)	2 U.S.	1
	P.R.	2
Exposure Time (C)	2 8 seconds	1
	15 seconds	2
Raters' Sex (D)	2 male	1
	female	2
Dependent Variables		
Cuteness ratings		1 - 5
Perceived Sex ratings		1 - 5

Table 6

Design

		Table 6													
		Design													
Raters' Culture	Infants' Culture	Time Exposure	Raters' Sex	Male Infants						Female Infants					
				Ages						Ages					
				3		9		13		3		9		13	
				Cuteness						Cuteness					
				L	H	L	H	L	H	L	H	L	H		
U.S.	8	30													
		M													
		30													
	15	F													
		30													
		M													
P.R.	8	30													
		M													
		30													
	15	F													
		30													
		M													
U.S.	8	30													
		M													
		30													
	15	F													
		30													
		M													
P.R.	8	30													
		M													
		30													
	15	F													
		30													
		M													

Design over subjects:  $2 \times 2 \times 2 \times 2 = 16$ Design over measures:  $2 \times 3 \times 2 = 12$ 

N = 480

## Procedure

The experimental procedure was first explained to the subjects, questions were answered, and signatures were obtained using the appropriate version (i.e. English or Spanish) of the standard Department of Psychology Research Consent Form (Refer to Appendix B). All the materials needed for the Spanish speaking samples were translated from the English version using the back translation method (Brislin, 1970).

The general procedure for all the experiments was the following:

Each participant observed 28 infant photographs each for 8 or 15 seconds, in blocks of 14 with a 5 second interslide interval and a 20 second blank slide interval between blocks. Slides were shown two times in the same random ordered group of 12 with 2 filler slides inserted at the beginning to make a total of 28. The purpose of presenting 2 filler slides at the beginning was to familiarize subjects with the type of stimuli to be used in the study. The slides were projected on a screen for mixed-sex groups after the following instructions were given;

You will be seeing 24 photographs of infant faces. The infants range in age from 3 to 13 months. In part I each slide will be on screen for 8 (15) seconds. During the time they are on rate each one according to the following scale:

- 5 very cute
- 4 more cute than average
- 3 average cuteness
- 2 less cute than average
- 1 not very cute

There will be 2 seconds between slides.

In part II you will be seeing 12 photographs for 8 seconds each and this time you will judge whether the infant is male or female according to the following scale:

- 1 male
- 2
- 3
- 4
- 5 female

Do not write your name or student number on the computer answer sheet. Participation in this experiment is strictly voluntary. Your responses will be anonymous and you may withdraw from the experiment at any time. Each slide will be on screen for 8 (15) seconds. You should not rate the first two pictures, they are just to show you what the infants look like and how much they vary in cuteness. Please be as quiet as possible during the experiment so you don't influence the ratings of your neighbors. Do you have any questions?. Remember, do not rate the first two pictures you see. I will tell you when to begin. If you sign the informed consent forms and hand them to the front we will get ready to begin (Refer to Appendix B for Spanish version).



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## CHAPTER 4

### RESULTS

Pearson correlation analysis indicated that cuteness ratings and perceived sex ratings were not significantly correlated ( $r = .0019$ ). Therefore, the data for each dependent variable was analyzed by means of a seven-way analysis of variance with repeated measures (BALANOVA). Comparisons of mean differences were conducted for significant two- and three-way interactions using simple effects tests with  $p$  set at  $<.05$ . Only those ANOVA components that reached the  $p <.05$  level of significance are reported separately for each dependent variable. Due to the complexity of the design and the large number of main effects and interactions only the most meaningful features of the data are reported. As can be seen in Tables C-1 and C-2 (Appendix C) several four-, five-, and six-way interactions reached statistical significance. However, attempts to explain four-, five-, or six-way interactions not only would be tedious, but also would be spurious and lack meaning. For example, it is axiomatic that statistical significance is not necessarily correspondent with scientific meaningfulness (O'Brien & Shapiro, 1968). Therefore only the most salient features of the data are emphasized in order to formulate the most coherent and lucid presentation of these data. The most salient results are those directly related to hypothesis and selected others insofar as they reflect on cross-cultural comparisons.

The results are presented in several sections. A summary of the Analysis of Variance for each dependent measure is presented in Tables

C-1 and C-2. A posteriori mean comparisons were conducted for both significant main effects and interaction effects. A least significant difference test was performed on all significant main effects with  $p$  set at  $<.01$ . Table 7 illustrates the significant main effects mean comparisons for both dependent measures. Means for significant two- and three-way interactions are presented in Tables C-3 to C-44 (Appendix C). The majority of simple main effects for three-way interactions were significant at the .05 level.

Table 7  
Significant Main Effects  
on Cuteness Rating and Perceived Sex Rating

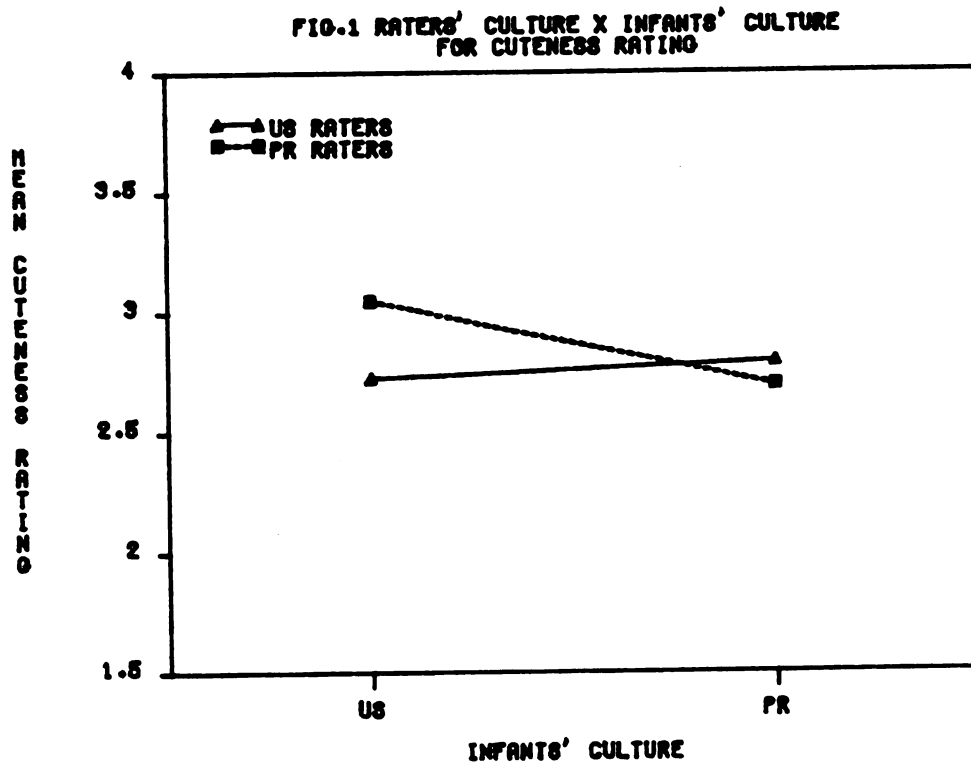
Variables		Cuteness		Perceived Sex		
Raters' Culture (A)		U.S.	P.R.	U.S.	P.R.	
		2.77*	2.82*	2.40*	2.45*	
Infants' Culture (B)		U.S.	P.R.	U.S.	P.R.	
		2.89*	2.75*	2.14*	2.71*	
Raters Sex (D)		Males	Females	Males	Females	
		2.75*	2.90*	2.54*	2.31*	
Infants' Sex (E)		Males	Females	Males	Females	
		2.89*	2.76*	2.06*	2.79*	
Infants' Age (F)	3 mo.	9 mo.	13 mo.	3 mo.	9 mo.	13 mo.
	2.72*	2.83*	2.91*	2.30*	2.22*	2.76*
Infants' Differential Cuteness (G)	Low-Cute	High-Cute	Low-Cute	High-Cute		
	2.73*	2.91*	2.45*	2.40*		

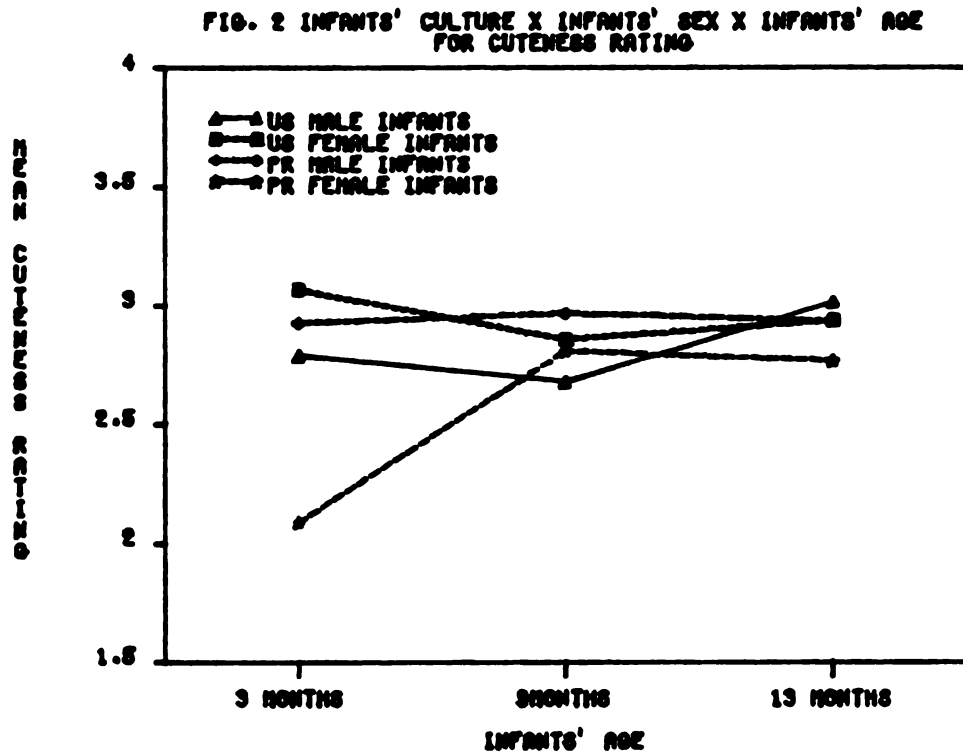
Note: Those horizontal mean comparisons which are asterisked in each of the variable categories were significant at the .01 level.

### Cuteness

The first hypothesis to be tested predicted differences between U.S. and P.R. raters as a function of infant culture. Support for this hypothesis was indicated by a significant raters' culture x infants' culture interaction,  $F(1, 464) = 19.56, p < .0005$ . Simple effects tests for all comparisons depicted in Figure 1 revealed that subjects from Puerto Rico gave higher ratings to U.S. infants [ $F(1, 464) = 20.49, p < .01$ ] and lower ratings to P.R. infants than did subjects from the U.S.

The second hypothesis tested predicted differences in cuteness ratings for U.S. and P.R. infants as a function of their sex and age. A significant three-way interaction [ $F(2, 928) = 42.87, p < .0005$ ] provided support for this hypothesis (see Figure 2).





The simple effects analysis for this interaction showed that all mean comparisons were significant except for comparisons across infant' age for Puerto Rican male infants and between sexes for U.S. 13 month-old-infants. In addition, there were no significant differences in how U.S. and Puerto Rican male infants were rated at either 9 months or 13 months.

As can be seen in Figure 2, both U.S. male and female 9-month-old were rated lower than were infants at the other two age groups. Overall, 9-month-old U.S. female infants were given higher cuteness ratings than 9-month-old U.S. male infants. In contrast, both male and female P.R. infants received higher cuteness ratings at 9 months than at other ages. Interestingly enough, P.R. males were perceived as cuter than P.R. female infants at all ages.

To summarize the interaction depicted in Figure 2, U.S. female

infants were seen as cuter at 3 months whereas U.S. male infants were seen as cuter at 13 months. On the other hand, P.R. male and female infants were seen as cuter at 9 months.

There was support for the hypothesized relationship between infants' differential cuteness and cuteness ratings,  $F(1, 464) = 36.777, p < .0005$ . An a posteriori least significance test was performed for these means indicating that high-cute infants received overall higher cuteness ratings than low-cute infants.

Finally, there was no support for the hypothesized effect due to exposure time,  $F(1, 464) = .726, p < .395$ . Relevant means compared in the ANOVA were 2.80 for 8 seconds and 2.75 for 15 seconds.

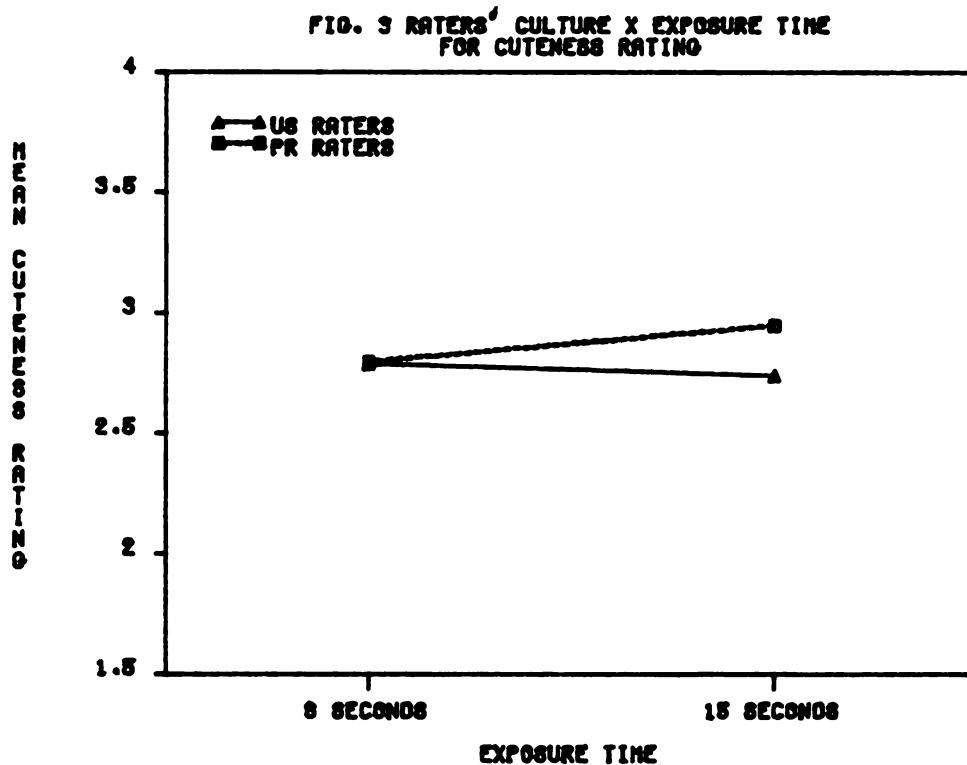
Other significant findings: Several main effects of interest also are reflected in Table 7. A main effect was found for raters' culture,  $F(1, 464) = 4.892, p < .027$  as well as for infants' culture,  $F(1, 464) = 7.932, p < .0005$ . Inspection of cell means indicated that P.R. raters gave the highest ratings and U.S. infants received higher ratings.

Moreover, overall sex differences were found for raters' sex,  $F(1, 464) = 8.806, p < .003$  and for infants' sex,  $F(1, 464) = 28.998, p < .0005$ . As indicated by the cell means in Table 7, female raters gave infants higher ratings whereas male infants received the highest ratings.

There also was a significant main effect for infants' age,  $F(2, 298) = 23.101, p < .0005$ , revealing that 13-month-old infants were rated higher than 3 or 9-month-old infants.

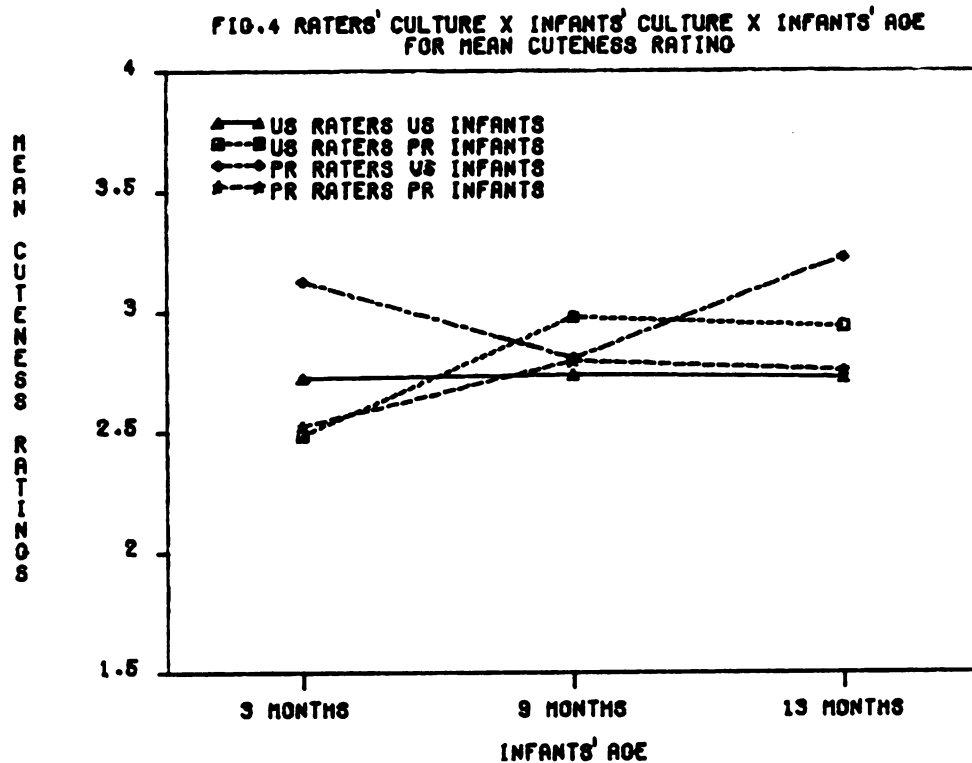
Although an exposure time main effect was not confirmed, a raters' culture by time-of-exposure interaction was significant,  $F(1, 464) = 4.023, p < .045$ . Simple effects tests for mean comparisons depicted in Figure 3

showed that P.R. raters judged infants to be higher in cuteness,  $F(1, 464) = 8.89, p < .01$  during 15-seconds exposure times than during 8-second exposure times. No such effects were found for U.S. raters.



An interesting triple interaction of raters' culture by infants' culture by infants' age was significant (shown graphically in Figure 4),  $F(2, 928) = 7.768, p < .0005$ . Simple main effects tests revealed that all except four mean comparisons were significant. The exceptions were tests for (a) raters' culture and 3-month-old P.R. infants; (b) raters' culture and 9-month-old U.S. infants; (c) U.S. raters by U.S. infants across the three age groups, and (d) P.R. raters' by 9-month-old P.R. and U.S. infants. The interaction depicted in Figure 4 primarily reflects a significant difference in how U.S. and P.R. raters evaluated the cuteness of 3- and

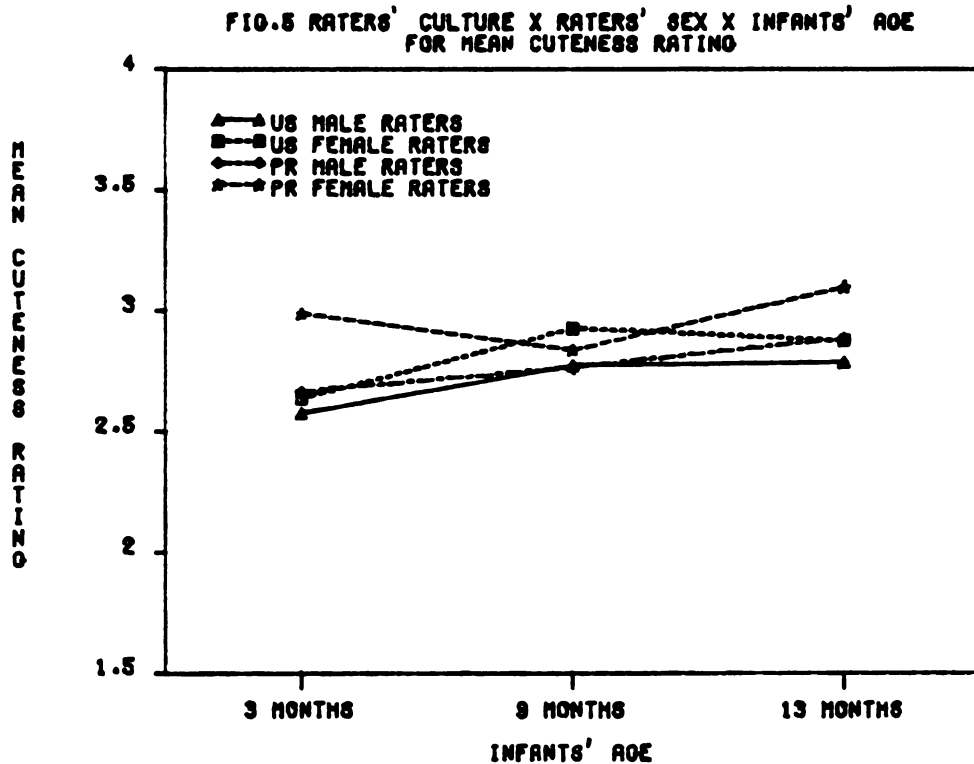
13-month-old U.S. infants, [ $F(1, 464) = 21.57, p < .01$ ;  $F(1, 464) = 34.35, p < .01$ , respectively]. Inspection of the cell means (Table C-14) revealed that P.R. raters gave higher cuteness ratings at both ages. Moreover, a significant difference was found for Puerto Rican ratings of both U.S. and P.R. 3-month-old infants,  $F(1, 464) = 48.04, p < .01$  (See Figure 4).



Another interesting triple interaction was found between raters' culture as a function of raters' sex and infants' age,  $F(2, 928) = 4.0007, p < .019$ . Analysis for simple simple main effects depicted in Figure 5 indicated that all possible mean comparisons were significant except for (a) raters' culture for both 3 and 9-month-olds, for male raters, (b) for raters' sex of U.S. raters with 3 and 9-month-old infants, and (c) for



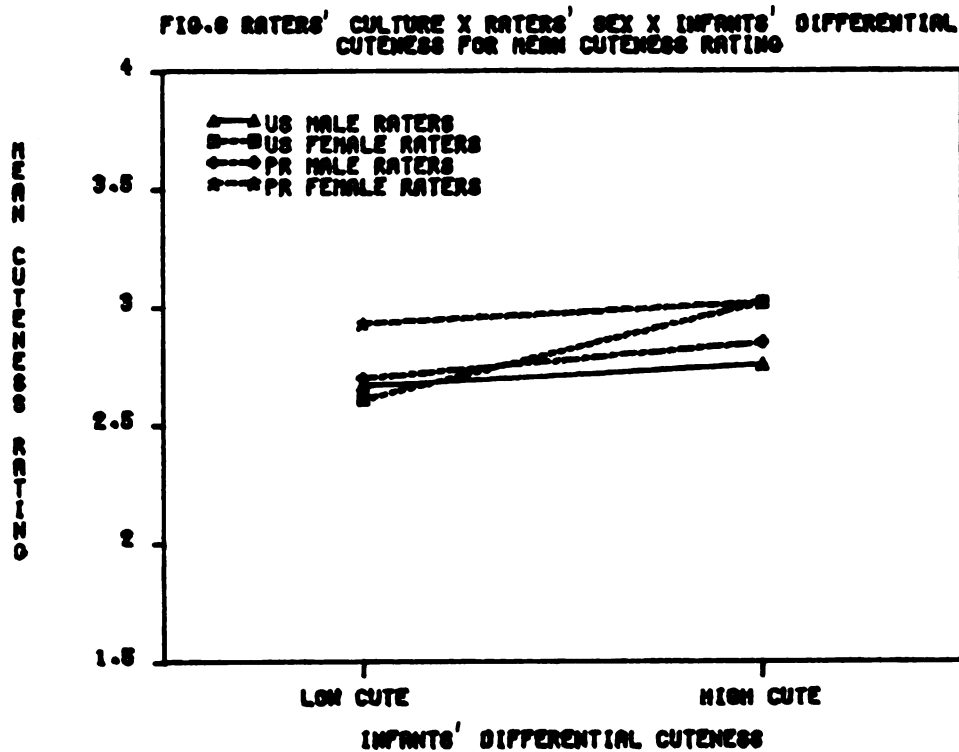
raters' sex of P.R. raters with 9-month-old infants.



As shown in Figure 5, this interaction primarily was accounted for by Puerto Rican female raters who gave higher ratings to 3-month-old infants and also by U.S. female ratings of infants at all ages.

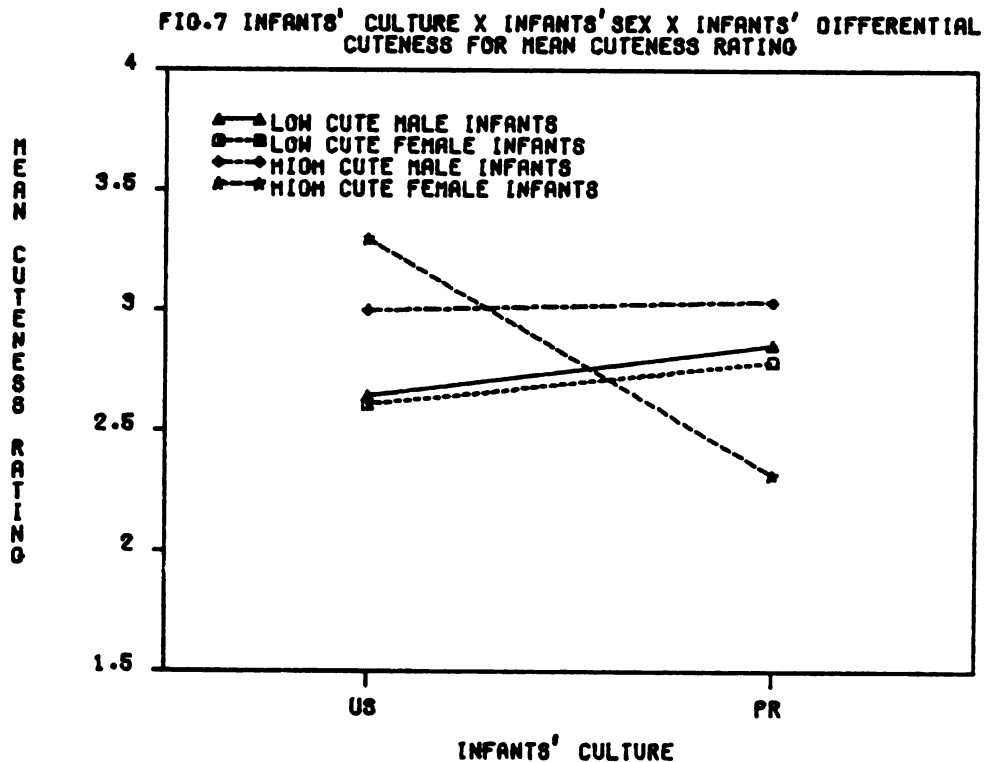
A significant triple interaction also was found for raters' culture by raters' sex by infants' differential cuteness,  $F(1, 464) = 9.473$ ,  $p < .002$ . Simple effects tests showed that one major component of the interaction was the difference in ratings given to low and high cute infants by U.S. female raters [ $F(1, 464) = 45.55$ ,  $p < .01$ ] and between P.R. male ratings of low and high cute infants [ $F(1, 464) = 5.17$ ,  $p < .01$ ]. As can be seen in Figure 6, female and male raters of both cultures gave higher ratings to high cute infants. However, there is a discrepancy in

the perception of low-cute infants since P.R. females gave higher ratings to low-cute infants than U.S. female raters. Moreover, a similarity in ratings for high-cute infants is observed for both culture group females.



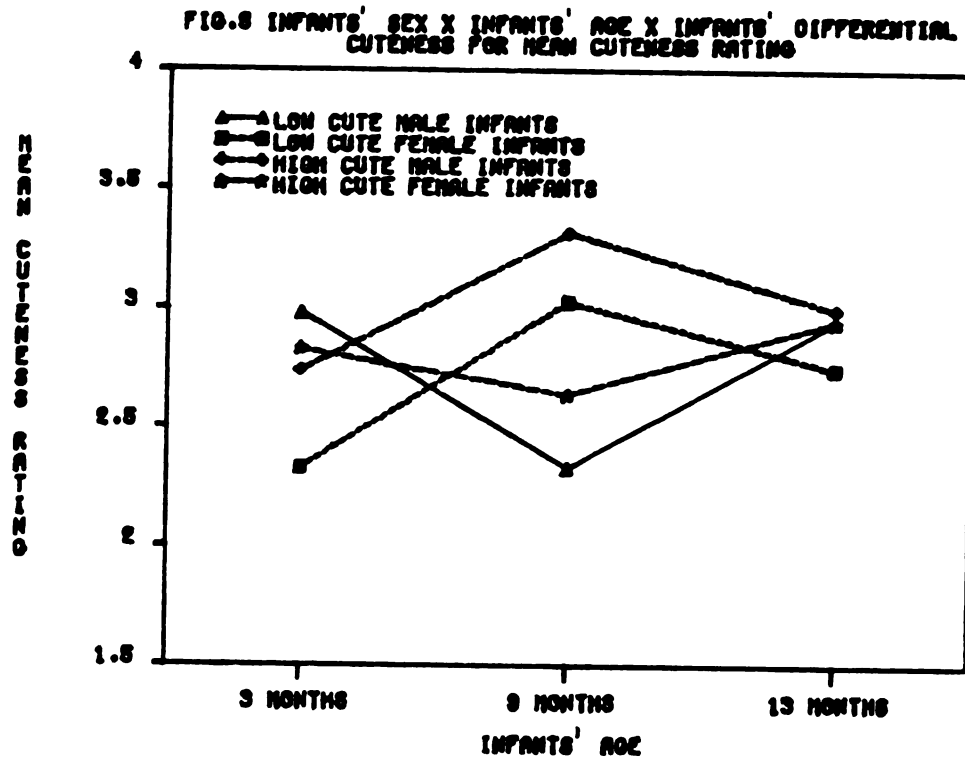
Another significant triple interaction was found for infants' culture by infants' sex by infant differential cuteness,  $F(1, 464) = 115.371$ ,  $p < .0005$ . Simple effects tests revealed that there were significant differences among the ratings of high-cute female infants between infants' culture. Conversely, no significant sex differences were found in the ratings given to P.R. and U.S. low-cute infants. Interestingly enough, this interaction was primarily accounted for by the infant sex effect for high cute P.R. female infants and for the infants' culture effect for high-cute female infants. As can be seen in Figure 7 the high-cute P.R.

female infants were rated significantly lower than high-cute P.R. male infants and also significantly lower than high-cute U.S. female infants.



Finally, an interesting interaction between infants' sex by infants' age by infants' differential cuteness was found,  $F(2, 928) = 170.69$ ,  $p < .0005$ . Simple effects tests were significant for most of the mean comparisons except the following: for infants' sex of 3- and 13-month-old high-cute infants, and for differential cuteness of 13-month-old male infants. As represented in Figure 8 a significant pattern emerged for male and female infants across age groups for low and high cute infants. For both low-cute female infants and high-cute male infants, ratings reached a peak at 9 months. In contrast, for low-cute male infants and high-cute female infants ratings were the lowest at 9 months. The comparisons of high-cute male and female infants as well as the comparison

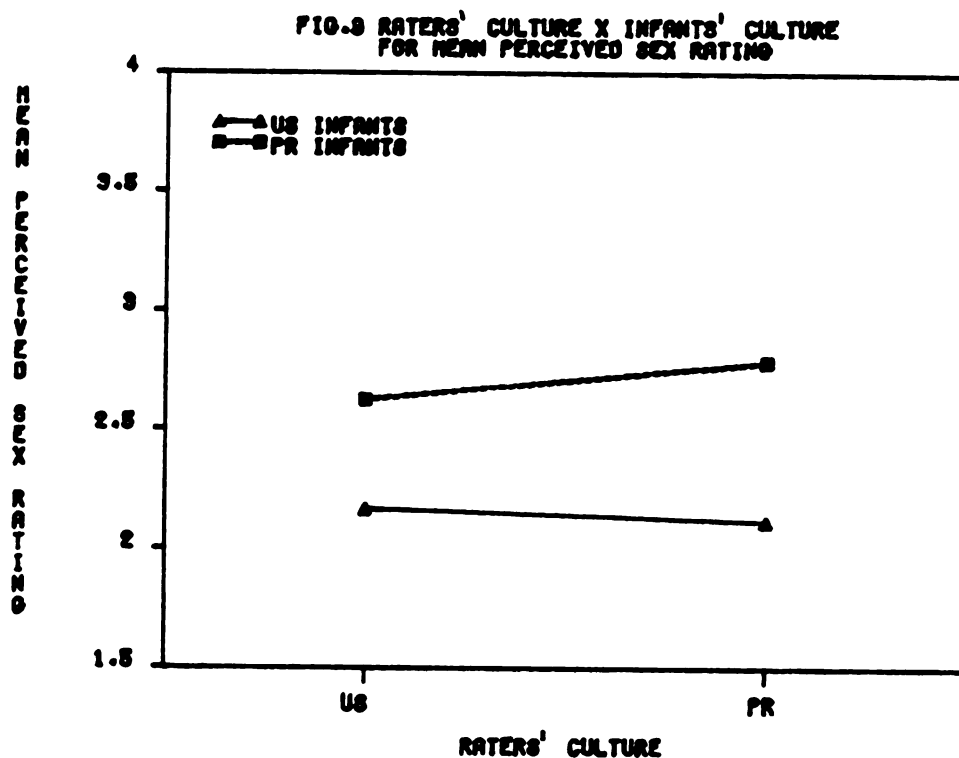
of low-cute male and female infants was significant in the 9 month infants' age group. Moreover, a significant difference was found between ratings of 3-month-old low-cute infants wherein low-cute male infants received higher ratings than female low-cute infants.



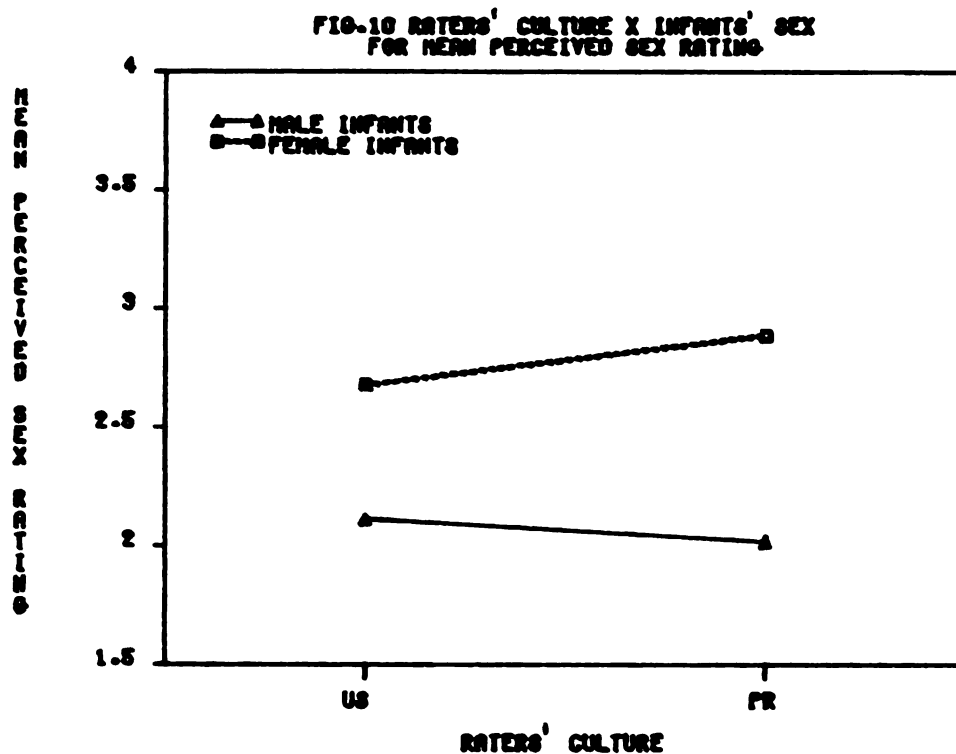
#### Perceived Sex

A significant rater's culture by infants' culture interaction was significant for perceived sex rating,  $F(1, 464) = 4.366, p < .037$ , providing support for the hypothesized difference between U.S. and P.R. raters in regard to perceived sex ratings. Simple effects tests revealed that except for raters' culture by U.S. infant, all the other comparisons were found significant. Cell means for this interaction are shown in Table C-23 and as seen in Figure 9, U.S. infants were perceived as being more male by both raters' cultures. On the other hand, P.R. infants

were perceived by both raters' culture as being more female. Within raters' culture it can be observed that U.S. raters considered their own culture infants as being more male while P.R. infants were rated as more female. On the other hand P.R. raters considered their own culture infants as being more female while the U.S. infants were considered more male.



Hypothesis six was supported by a significant effect for raters' culture by infants' sex,  $F(1, 464) = 11.385, p < .0001$ . Simple effects tests indicated that except for the differences between raters' culture for male infants all possible comparisons were found significant. As Figure 10 illustrates there is a similarity between both cultures when guessing the sex of the infants since actual females are seen as more female and actual males are perceived as more male. However, P.R. raters were more accurate in general in their attributions of infant's sex.



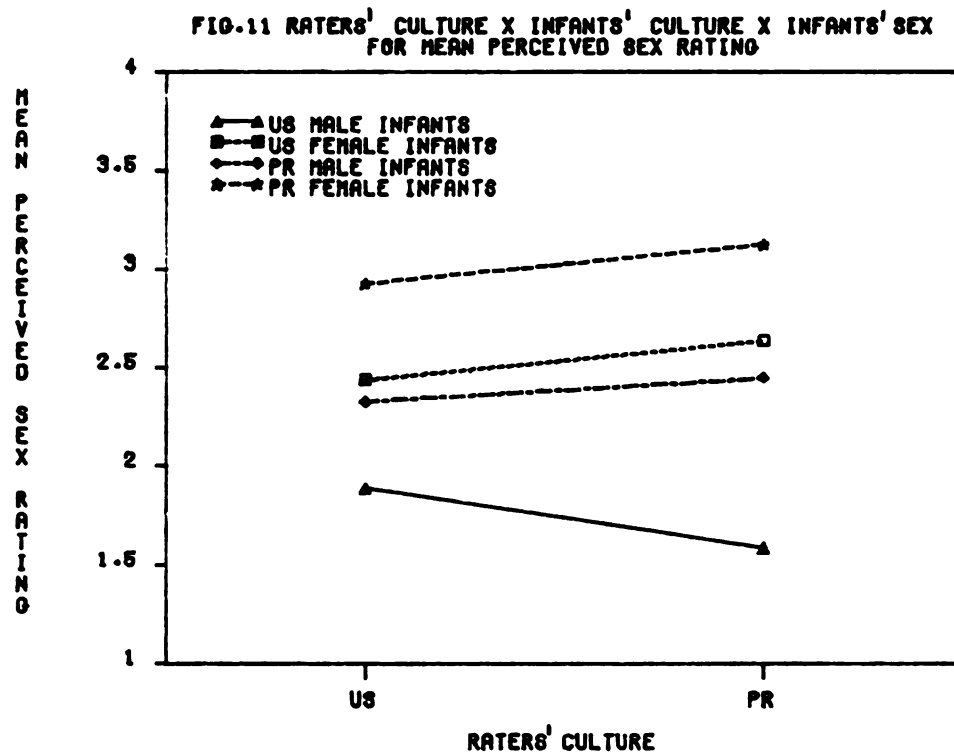
Other significant findings- Once again significant main effects were found for infants' culture, [ $F(1, 464) = 121.045, p < .0005$ ] revealing that U.S. infants were perceived as being more male and P.R. infants as being more female. (Refer to Table 7 for means relevant to main effects). In addition, an overall difference was found for raters' sex,  $F(1, 464) = 19.618, p < .0005$ . This overall sex difference indicates that male raters perceived infants to be more male and female raters perceived infants as being more female. Significant main effects also were found for infants' sex,  $F(1, 464) = 281.912, p < .0005$ , and for infants' age,  $F(2, 928) = 98.110, p < .0005$ .

Looking at the means for infants' sex one can observe that male infants were rated as being more male and that female infants were perceived as being more female. Concerning the means for infants' age

overall, younger infants (i.e. 3 and 9 months) were rated as being more male while older infants were perceived as being more female.

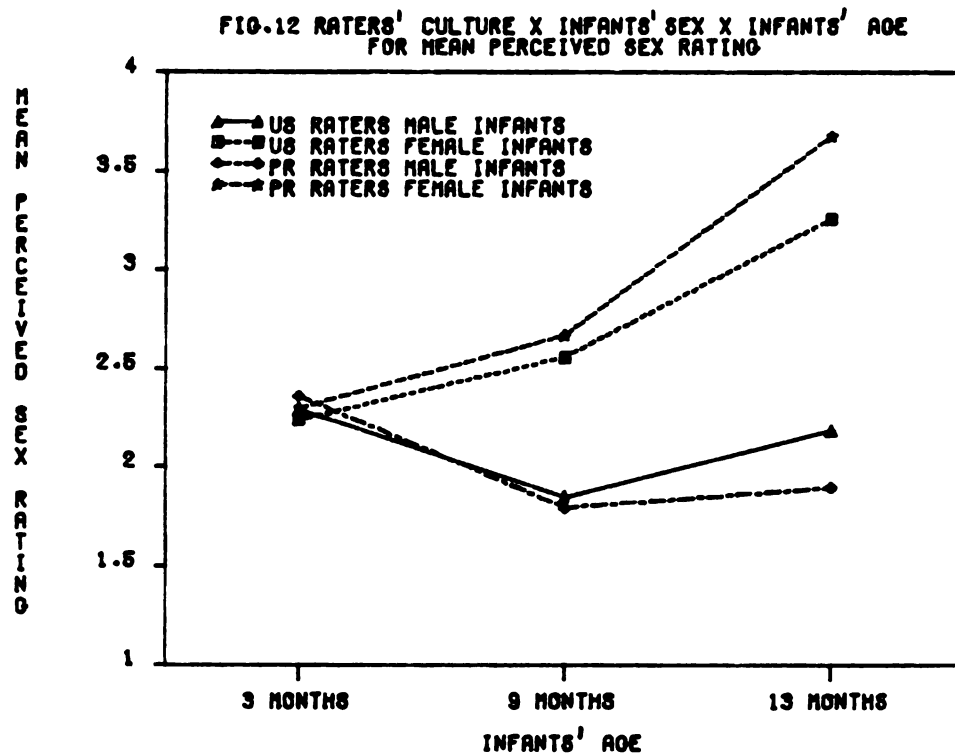
The triple interaction of raters' culture, by infants' culture by infants' sex was significant,  $F(1, 464) = 6.011$ , that all possible comparisons were significant except for U.S. and P.R. raters by U.S. male infants.

As illustrated in Figure 11 U.S. male infants as well as P.R. female infants were more accurately identified.



Finally, the interaction among raters' culture, infants' sex and infants' age also was significant,  $F(2, 928) = 8.294$ ,  $p < .0005$ . (Relevant means for this interaction are shown in Table C-38, Appendix C.). As shown in Figure 12 simple simple main effects revealed that the following points were not significantly different. Within raters' cultures at 3 months, male and female infants were perceived similarly; 9-month-old

females and males were perceived similarly by raters from each culture. Summarizing the results of this interaction it seems that older infants are more accurately labeled than 3-month-old infants by raters from each culture.



#### Summary of Results

##### Findings:

1. Puerto Rican raters gave higher cuteness ratings to U.S. infants.
2. Puerto Rican infants received higher cuteness ratings at 9 months than U.S. infants did.
3. High- cute infants received higher cuteness ratings than low-cute infants did.



4. There was no overall significant difference in cuteness ratings as a function of stimulus exposure time, however an interaction was found for raters' culture and exposure time revealing that Puerto Rican raters gave higher cuteness ratings in the 15 seconds exposure time than U.S. raters.
5. In general, U.S. infants were perceived as more male by raters from each culture whereas P.R. infants were rated as being more female. However, when infants were divided by sex, raters of both cultures were fairly accurate in guessing the infants' sex.

Additional Findings:

6. U.S. female infants were seen cuter at 3 months while U.S. male infants were seen cuter at 13 months by both U.S. and Puerto Rican raters.
7. Puerto Rican male infants received higher cuteness ratings than Puerto Rican female infants did.
8. Female raters gave higher cuteness ratings than male raters.
9. Male infants received the highest cuteness ratings.
10. Puerto Rican female raters gave higher cuteness ratings to low-cute infants than U.S. female raters did.
11. Puerto Rican raters gave higher cuteness ratings to 3- and 13-month-old U.S. infants than to 9-month-old U.S. infants while U.S. raters gave higher cuteness ratings to 9-month-old Puerto Rican infants.
12. High-cute Puerto Rican female infants were rated lower than the U.S. high-cute infants and both high-cute culture groups male infants.

13. Low-cute female infants and high-cute male infants were rated higher at 9 months while low-cute male infants and high-cute female infants received lower scores at 9 months.
14. U.S. male infants and Puerto Rican female infants were more accurately labeled than U.S. female and Puerto Rican male infants.
15. Three-month-old male and female infants were perceived as being more male by raters from each culture.

## CHAPTER 5

### DISCUSSION

The purpose of this study was to make a cross-cultural comparison of adults' perceptions of infant sex and physical attractiveness. Five of the six major hypotheses were supported by the data. A review of the results related to the original hypotheses are summarized and the status of the hypotheses discussed. Additional findings which had not been predicted also are presented as are directions for future research.

As was stated earlier few research studies have examined cross-cultural factors on adults' perceptions of infants' physical attractiveness. As a result, it was difficult to use the literature to make educated guesses concerning the differential outcomes of this investigation. Consequently, many explanations will be speculative. Nevertheless, an underlying goal of this investigation was to establish initial cross-cultural findings in this area of research.

#### Tests of Hypotheses

Hypothesis 1 The data did support hypothesis 1, which predicted that differences in cuteness ratings would be a function of both raters' culture and infants' culture. The fact that Puerto Rican raters gave higher cuteness ratings to U.S. infants can be interpreted in at least two ways. First, as mentioned earlier, one possible explanation of this finding, is that for Puerto Ricans white skin type generally is considered more physically attractive than medium or darker skin type. This finding

seems to suggest that Puerto Rican have a cultural stereotype in which physical attractiveness may depend on skin color as one important component. Although previous studies were not found in this particular area of research, several studies have found racial stereotyping in both adults and young children. Extrapolating these studies and in support of the previous explanation, Green and Gerard (1975) found that Black, Anglo, and Mexican-American children ranked Anglos highest on measures of kindness, happiness and school grades. Moreover, Kurokawa (1971) found that a positive stereotype of Anglos was exhibited by Black, Anglo and Japanese American children and adults.

As shown by Taylor and Thompson (1955) childrens' and adults' preferences for facial proportions (length of nose, width of mouth, etc.) develop presumably on the basis of the physiognomy of the prevailing mode in the immediate culture. Moreover, these investigators suggest that preferences for facial proportions probably reflect the effect of verbal transmission of culture (e.g. "a large nose means honesty"). According to these authors transmission of such stereotypes might conceivably influence attitudes toward facial preferences. Whether such preferences were important influences in the present study cannot be determined. However, the possibility that a stereotypic ideal consisting of "blue eyes, white skin and blond hair" may have biased cuteness ratings in favor of U.S. babies should be examined in future research.

Moreover, it is certainly possible that clothing of the infants may have affected negatively P.R. infants' ratings by Puerto Rican raters. As pointed out earlier in Puerto Rico infants are dressed with bright colors therefore using grey may have lowered their ratings. In any event, this particular interaction, as other higher order interactions of raters'

culture to infants' culture, seems to suggest that cultural factors may may be important determinants of infants' perceived physical attractiveness.

Hypothesis II The hypothesized relationship between infants' culture with infants' sex and age was confirmed. U.S. male infants were rated lower at 9 months and cuter at 13 months whereas U.S. female infants were rated higher at 3 months. Conversely, Puerto Rican 9-month-old male and female infants were given higher cuteness ratings. These findings partially support those of Hildebrandt and Fitzgerald (1979) who found that males reached a peak in attractiveness at 11 months while U.S. females reached a peak at 9 months. In general, the present results failed to replicate Hildebrandt and Fitzgerald's (1979) findings for U.S. infants although U.S. male infants were rated higher at 13 months. Moreover, female P.R. infants reached the "peak" of attractiveness at 9 months similarly to Hildebrandt and Fitzgerald's findings. Hildebrandt and Fitzgerald argue that females are developmentally advanced relative to males and this may account for their reaching the "peak" of cuteness earlier than males. Interestingly enough, male P.R. infants also received higher ratings at 9 months. One possible interpretation of this finding may be that P.R. male infants are perceived as older therefore ratings reach a peak earlier than U.S. males.

Hypothesis III As predicted, there was a significant relationship between infants' differential cuteness and cuteness ratings. Overall, high-cute infants received higher cuteness ratings than low-cute infants. As addressed earlier, infants were previously chosen for differential cuteness (i.e. low-cute and high-cute) in both cultures. Interestingly enough, an agreement on perceived attractiveness was found across cultures

in their ratings of high-cute infants. This interpretation seems to suggest that there may be a similar standard of physical attractiveness that is commonly applied between the two cultures.

Hypothesis IV Data did not support the prediction that cuteness ratings would vary as a function of exposure time. Previous studies in adults' perceptions of infants' cuteness have used 8 or 15 seconds but none of these studies have compared exposure times (Hildebrandt & Fitzgerald, 1977, 1978, 1979a, 1979b). The failure to replicate the "mere" exposure effect reported by Zajonc (1968) was probably the result of several factors. The first plausible explanation is a methodological one. Since the response required in the study was a rating which subjects wrote on a computer answer sheet, there was no control in the study for how long the raters actually looked at the infants' photograph. Although clear instructions were given to the subjects concerning the length of exposure time, only the rater decided how long he or she looked at the photograph before judging the infants' cuteness. Observations of subjects in the experimental sessions suggested that they tended to look at the slide and almost immediately write their response. Given that this may have significantly affected this particular comparison it would be necessary to further study how exposure times may affect cuteness ratings. A study in a laboratory setting where raters' responses can be measured more accurately should be conducted in order to test this hypothesis.

Despite the fact that an exposure time effect was not found, interpretation of this main effect should be done with caution since an exposure time x raters' culture interaction was significant for cuteness ratings. As was mentioned earlier, Puerto Rican raters gave higher cuteness ratings to infants in the longer exposure time. This particular

finding may suggest that exposure time was an important factor for Puerto Rican perceptions of infants' physical attractiveness. One speculative explanation of this interaction is that in Puerto Rico, the time required for a decision is directly proportional to its importance. Given that research studies are not frequently conducted at the University of Puerto Rico as they are at Michigan State, it is possible that Puerto Rican subjects followed more carefully the instructions in terms of looking for a longer period of time at the photographs.

Hypothesis V The results of this study confirmed the hypothesized relationship between raters' culture with respect to perceived sex ratings as a function of infants' sex. As mentioned earlier U.S. infants were perceived as males while P.R. infants were perceived as more female. A possible interpretation of this finding is the difference in the physical features of infants from both cultures. Since U.S. infants generally had no hair, but almost all P.R. infants had a lot of hair, subjects may have been differentially affected by hair differences. This interpretation suggests that infants with little hair will tend to be perceived as more male, whereas infants with much hair will tend to be perceived as more female.

Hypothesis VI The results of this study confirmed that differences in perceived sex ratings of U.S. and P.R. raters emerged as a result of the infants' actual sex. Interestingly enough, both Puerto Rican and U.S. raters perceived accurately the sex of the infants. Male infants were rated as more male and female infants as more female. These results are consistent with those reported by Hildebrandt and Fitzgerald (1977) who found that adults are fairly accurate in identifying the sex of the

infants. However, when the infants' sex was mislabeled there was a tendency to attribute a male gender to the infants. Although there are procedure differences between both studies a similar effect occurred in the present study. An inspection of the raw data revealed that the majority of subjects when incorrect, were more inclined to attribute a male gender. This finding provides support for Hildebrandt and Fitzgerald's (1977) contention that adults' are biased to attribute a male gender to infants.

Additional findings:

The results revealed that several main effects were found significant for cuteness ratings. However, due to the high order interaction effects interpretations must be made with caution. As addressed earlier significant main effects were found for raters' culture and infants' culture. Also a significant sex effect was found for raters indicating that female raters gave higher cuteness ratings. This finding is consistent with those of Cross and Cross (1971) who found that female judges of various ages gave higher ratings to both 7 and 17 year-old faces than males did.

It is also congruent with Hildebrandt's and Fitzgerald's (1979a) report that female subjects gave different cuteness ratings to both male and female infants while male subjects gave them essentially the same ratings.

A noteworthy finding, as shown by the significant main effect for infants' sex, was that contrary to what may ordinarily be expected, males received the highest cuteness ratings. This finding does not support previous findings which have indicated that female infants received higher cuteness ratings (Hildebrandt & Fitzgerald, 1979a). However, one



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point to keep in mind is that these previous findings are based in U.S. infant stimuli and that the present results involve infants from two cultures. Interpretation of this finding is not attempted since higher order interactions involving this particular effect will be considered.

Moreover, an age effect was significant for cuteness ratings indicating that older infants were rated higher than younger infants. This age effect is consistent with the findings of Hildebrandt and Fitzgerald (1979a) who found that older infants received higher cuteness ratings than younger infants.

Several three-way interactions were found significant for cuteness ratings. First, raters' culture interacted with infants' culture and infants' age revealing significant similarities and differences within and between cultures of raters and infants. Again, P.R. raters gave higher cuteness ratings to 3- and 13- month-old U.S. infants, whereas U.S. raters gave similar ratings across all ages. On the other hand, a similarity in ratings for P.R. infants by the two culture raters revealed that cuteness ratings reached a peak at 9 months while a decline in ratings was shown at 13 months. The same pattern was found by Hildebrandt and Fitzgerald (1979a) who indicated that infants are rated lower at 3 months, higher at 9 or 11 months and lower at 13 months. As suggested by Hildebrandt and Fitzgerald the drop in cuteness ratings at 13 months probably reflects the tendency of these infants to resemble young children and consequently their attractiveness may not fit the definition of cuteness developed by raters as they viewed infants across the three age groups.

An examination of a raters' culture x raters' sex x infants' age revealed that Puerto Rican female raters gave higher ratings to 3-month-old

infants than U.S. females did. Besides, there was a significant difference between how U.S. females perceived infants at all ages. In sum, a clear pattern emerges for females within each culture: P.R. females considered infants at 3 months to be cuter while U.S. females considered infants to be cuter at 9 months. It is interesting to note that the criteria of cuteness varied for female raters in both cultures. This cultural difference may reflect the fact that since the sex role orientations for women generally are different between the two cultures, P.R. females rated higher 3-month-old infants since they are the more "babyish" in the sample of infants. On the other hand, U.S. females raters found 9-month-old infants to be cuter. This finding is similar to Hildebrandt and Fitzgerald (1979a) who reported that female infants were considered cuter at 9 months. Similar to these previous findings the interaction involving raters' culture x raters' sex x infants differential cuteness revealed a similar pattern for P.R. female raters since 3-month-old low-cute infants were rated higher. This finding once again demonstrates that P.R. females rate younger infants cuter than U.S. female raters do.

Two interesting findings occurred when looking at the next interaction which compared infants' culture x infants' sex x infants' differential cuteness. First, P.R. high-cute female infants were rated lower than low-cute infants. A possible explanation for this finding is that specific facial features such as hair may have intervened between the infants' sex and the cuteness perceptions of this particular group of infants since low-cute P.R. female infants tend to have more hair than high-cute P.R. female infants. One noteworthy finding in this interaction also was that P.R. high-cute male infants were rated higher than the P.R. high-cute females. In a study by Hildebrandt and Fitzgerald (1979a) a somewhat

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similar finding was reported where perceived males received higher ratings than perceived females. Hildebrandt and Fitzgerald reported that a physical attractiveness sex stereotype operates when the sex of the infant is known, wherein females are expected to be cuter than males. Therefore when an "average" infant is labeled male, it is perceived as cuter than the average male and when it is labeled female, it is perceived as less cute than the average female. Although in Hildebrandt and Fitzgerald's study the sex of the infant was told to the subjects, in the present study subjects were fairly accurate identifying the sex of the infants as demonstrated by the means for this interaction for perceived sex rating. Consequently, this seems to suggest that higher ratings were given to males than to female infants indicating that subjects may have adjusted their cuteness evaluation according to their expectations of what a cute female or male infant should be (Hildebrandt & Fitzgerald, 1979a).

Perhaps the most unexpected finding was the ambiguity of the relation between infants' sex x infants' age x infants' differential cuteness for cuteness ratings since for both low-cute female infants and high-cute male infants, cuteness revealed a peak at 9 months, whereas for low-cute male infants and high-cute female infants, ratings were lower in this same age group.

One possible explanation for these differences may be related to the infants' facial features. As suggested by Hildebrandt (1976) the facial features more commonly used by college students to identify a cute infant were eyes, hair, fatness, facial proportions and ears. Moreover, Hildebrandt and Fitzgerald (1979b) indicate that "cuter" infants are more likely to have short and narrow features, large eyes and pupils, and a large forehead. Comparing both sets of photographs for this age group

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it was observed that high-cute male infants and low-cute female infants possessed some or all of the characteristics above in contrast to the other two groups of infants.

Main effects also were found for perceived sex. U.S. infants were more likely to be perceived as male. As mentioned previously, facial features such as hair may have influenced this particular rating. Besides, overall sex differences were found for raters' sex indicating that male raters tended to perceive infants to be female rather than male. These findings are not consistent with those of Hildebrandt and Fitzgerald (1979a) who reported that there were no sex differences in adults perception of infants' sex. Also no sex differences were found in Rubin, Provenzano, and Luria's (1974) study of parents' perceptions of sex of newborns. The sex difference found in the present study seems to suggest that perhaps raters' culture contributes to this main effect.

In addition, an age main effect was found for perceived sex ratings. However, given that an interaction between raters' culture x infants' sex and infants' age was found significant no further attempts were made to explain the main effect. This particular interaction showed that older infants are more accurately identified by raters from each culture. This finding is congruent with those of Hildebrandt and Fitzgerald (1977) who found that older infants were more accurately identified than younger infants. It is apparent that the older infants' features are more clearly defined than the younger infants and this may be the main reason why 13-month-olds are labeled more accurately.

Finally, the significant interactions involving raters' culture x infants' culture x infants' sex provided evidence that U.S. male infants as well as P.R. female infants were more accurately identified. Once

again the possible explanation for these results are the facial features of both groups of infants.

In summary, results from this investigation demonstrated that cultural factors influence adults' perceptions of infants' physical attractiveness and perceived sex. Both similarities and differences with previous studies were found.

#### Conclusions and implications for future research

The results of this study do suggest that there is a relationship between cultural factors and adults' perceptions of infants' sex and physical attractiveness. The findings provide an indication of the extent to which U.S. and P.R. differ but not necessarily the exact manner in which they differ. In addition although in a real life setting many variables such as the ones used in this study are taken into account when judging an infant's perceived sex and physical attractiveness, trying to include as many of them may create a very complex design which may constrain the interpretation of the findings. Therefore it will be very useful to conduct further experimental studies which systematically vary the factors included in this study.

The relevance of this knowledge to real life situations can only be answered through further studies isolating the cause of cross-cultural differences. Further a longitudinal study might also be conducted in order to study how infants vary in physical attractiveness during their first year of life using the same children across ages. This would be a complex and difficult study to execute, however, it may add knowledge to the body of literature in this research area and furthermore it may explore if infants are differentially perceived across ages.



## APPENDICES

## APPENDIX A

## Pilot Study

### Introduction

The aim of the present study was to obtain a set of 12 photographs of Puerto Rican infants varying in rated physical attractiveness for use in subsequent studies.

According to Lorenz (1943) there are certain specific and typical babyish facial features of infants that elicit caregiving and approach behavior from human adults. In a recent review, Berman (1980) demonstrated that numerous studies had investigated adult's preferences to infants pictures. In sum, these studies have supported the notion that infants elicit approach and positive behavior from others, however role expectations and situational factors may modify these responses.

It seems that facial feature variation of infants influence adults' responses to attractiveness in infants. Several studies had presented drawings of infant faces and results have indicated that there are specific facial features which distinguish an infant from an adult and also that identifies an infant as attractive (Gardner & Wallach, 1965; Hess, 1970).

On the other hand, an extension of the ethological theory proposes that infants whose characteristics are more "babyish" should be preferred over infants whose features are less babyish. These studies have employed infant drawings with a systematic manipulation of the infant facial features. In a study conducted by Sternglanz, Gray and Murakami (1974) a relationship was found between infant facial characteristics and adults ratings of attractiveness where the two most highly rated features were large eyes and high forehead.

Along this same line Hildebrandt and Fitzgerald (1979a) investigated the infant's facial characteristics that influence adults perceived infant attractiveness. In contrast to previous studies, this investigation was conducted using actual infant facial photographs instead of drawings. Their findings supported the ethological hypothesis of babyishness as an eliciting mechanism of adults' behavior defined in their investigation as a preferred responsivity (i.e. cuteness ratings).

Furthermore, in an attempt to provide empirical evidence for the foregoing hypothesis, Hildebrandt and Fitzgerald have conducted a series of investigations which have reported that variation in cuteness ratings is related to the characteristics of the rater (i.e. adults) and to the characteristics of the ratee (i.e. infants).

Unfortunately, these investigations have been limited only to samples in the United States using white American infants. Consequently, although there is a widespread interest in adults' perceptions of infant's physical attractiveness, the amount of evidence available is rather limited. Therefore, it was the purpose of this pilot study to obtain a set of Spanish-American infant photographs (i.e. Puerto Rican infants) in order to use it in subsequent studies which will explore the culture variable in both the rater and the ratee. Besides the present study may be viewed as an attempt to provide an initial set of stimuli which will help to expand the foregoing literature on how adults perceive infants' physical attractiveness.

#### Method.

**Subjects.** Participants were 30 male and 30 female college students recruited from introductory psychology classes at the University of Puerto

Rico - Mayagüez Campus. The average age of the males was 21.60 years (SD = 1.65 years) and of the females was 20.05 years (SD = 2.43 years).

Stimuli. Contacts were made through pediatrician offices in Mayagüez and Rincón, Puerto Rico in order to facilitate the recruitment of infants for the photographs. A letter which explained the purpose of taking the infant's photographs was given to the parents. After parents read the letter and questions were answered, an informed consent was signed by the parents who gave permission for their infant to be photographed. The informed consent explained the purpose of using the photographs in subsequent studies and guaranteed the confidentiality of the parents and infants identity (See Appendix B).

Color photographs of infants faces were taken by a professional photographer under controlled conditions, at a moment when their facial expression was judged to be relatively neutral. Similarly as in the American set of infant photographs, a grey cape was used to cover the infants shoulders to avoid clothing cues. In contrast to the American female infants, the vast majority of Puerto Rican female infants use earrings. Therefore, it was necessary to ask the parents to remove the earrings during the time that the photographs were taken to avoid clothing cues. Each infant was photographed at least twice.

Twenty photographs were chosen to serve as stimuli and each photograph was independently rated on each of the following characteristics: a) sex (male = 1, female = 2) b) age (3 months = 1, 9 months = 2, 13 months = 3). These pictures were chosen from a larger collection of infant photographs using photographic quality and neutrality of expression as the main selection criteria. Slides were presented to mixed sex groups in one random order.

## Procedure

The experimenter instructed students what the study involved, questions were answered and signatures were obtained on the standard Department of Psychology Research Consent Forms (i.e. Spanish version refer to Appendix B).

Each subject observed 20 infant photographs for 10 seconds each with a 2 second interslide interval. The slides were presented via slides using a Kodak Carousel slides projector, rear projected on a screen set.

Subjects were asked to rate each infant cuteness and mark their judgments on computer answer sheet. The following scale was used to judge the infant's physical attractiveness:

- 9 muy atractivo (i.e. very attractive)
- 8
- 7
- 6
- 5 promedio en atractivo físico (i.e. average in physical attractiveness)
- 4
- 3
- 2
- 1 poco atractivo (not attractive)

## Dependent Measure

Infants were rated on a 9-point Likert style rating scale for cuteness. The rationale for using this 9-point scale was that it allows a wider spread of scores. Specifically, this scale was used in the pilot study in order to obtain the set of 12 photographs with differential cuteness ratings similar to the set of American photographs.

## Results

The results of the cuteness ratings are summarized in Table A-1.

Table A-1

## Overall Mean of Cuteness Ratings

Infant #	Age and Sex	Overall Mean	Infant #	Age and Sex	Overall Mean
1	3 M	4.900	11	9 M	5.417
2	3 M	2.800	12	13 M	3.567
3	3 M	3.567	13	9 M	3.433
4	3 F	4.667	14	9 F	4.417
5	3 F	4.133	15	13 F	3.200
6	3 F	2.600	16	13 F	5.350
7	3 F	3.033	17	13 F	6.533
8	9 F	3.950	18	13 M	5.450
9	9 F	5.817	19	13 F	3.983
10	9 F	4.583	20	13 M	5.600

## Selection of Stimulus Material for Subsequent Studies

A total of 12 photographs, four photographs from each of the ages; 3, 9 and 13 months equally divided by sex and differential cuteness ratings were chosen for use in a subsequent study. The criteria for choosing the 12 photographs were:

- a) actual sex.- There were six photographs of each sex.
- b) age.- Within each sex there were two photographs of each age level (i.e. 3, 9, 13 months).
- c) cuteness.- Within each age and sex there was one low-cute and one high-cute infant. An average of 4.6 or more identified the high cute baby while an average rating of 4.5 or lower identified a low-cute infant.

The four photographs chosen for each age group, overall mean rating and differential cuteness rating (taken from Table A-1) are shown in Table A-2.

Table A-2

Cuteness Ratings of Photographs Chosen  
for Use in Subsequent Study

Infant #	Age and Sex	Overall Cuteness	Differential Cuteness
1	3 M	4.900	H
2	3 M	2.800	L
4	3 F	4.667	H
6	3 F	2.600	L
9	9 F	5.817	H
10	9 F	4.503	L
11	9 M	5.417	H
13	9 M	3.433	L
17	13 F	6.533	H
19	13 F	3.983	L
20	13 M	5.600	H
12	13 M	3.567	L

### Discussion

A set of 12 photographs was selected in this study and was used in a subsequent study involving both Puerto Ricans and American raters. This set of photographs will enable to expand research in adults' responses to infants' perceived sex and physical attractiveness by introducing a new variable: infants' culture. Moreover, there are important research questions that remain unanswered. For example: 1) Do people of different cultural background give similar or different cuteness ratings to infants? 2) Do infants of different cultural backgrounds evoke similar or different



responses from adults? 3) Is there any interaction between raters' culture and infants' culture?. These questions were investigated in a subsequent study.

## APPENDIX B

September 8, 1980.

Dear Parents:

This letter is to inform you about a research project I wish to conduct as part of the requirements for my dissertation.

Recently a series of investigations have been conducted in the United States that had examined adult's and children's perceptions to infant photographs. However, these studies have been carried out mainly in the United States using photographs of white American infants. It is my opinion that these investigations have focused only in one culture and I am interested in studying this behavior in two cultures (Michigan - Puerto Rico) using also Puerto Rican infant photographs.

It is the purpose of my study to explore how different cultures perceive infants and how different cultural orientations may affect these perceptions. Therefore, it is for this reason that I need to obtain a set of Puerto Rican infant photographs.

Respectfully, I wish to ask your permission to photograph your infant. I want to remind you that your identity as well as the identity of your infant will be kept anonymous and that no names will be associated with the photographs. The information requested in the inform consent will be kept in a confidential file. Also I want to inform you that the photographs will only be used in scientific studies and professional meetings in order to demonstrate the general results of the investigation.

Finally, I will like to give thanks for your time and cooperation.

Cordially,

Olga N. Hernández  
PhD candidate  
Developmental Psychology  
Michigan State University

Instructor  
University of P.R. -  
Mayagüez

8 de septiembre de 1980.

Estimados Padres:

La presente es para informarles acerca de un estudio que deseo realizar para el trabajo de investigación requerido para mi tesis doctoral.

Recientemente en Estados Unidos, se han llevado acabo varios estudios que han examinado las reacciones de adultos y niños hacia los infantes. Estos estudios primordialmente se han conducido en Estados Unidos, utilizando fotograffas de bebés norteamericanos. En mi opinión estos estudios están parcializados hacia una sola cultura y es mi interés estudiar este comportamiento en Puerto Rico y en Michigan utilizando fotograffas de bebés puertorriqueños.

El propósito de mi estudio es explorar como diferentes culturas perciven a los infantes y tratar de investigar si las diferentes orientaciones culturales hacia la infancia afectan las reacciones de adultos hacia los infantes. Es por tal motivo que necesito tener fotograffas de bebés puertorriqueños de ambos sexos y de varias edades.

Respetuosamente deseo solicitar su permiso para tomarle dos fotograffas a su bebé. Deseo recordarles que las fotograffas de los bebés se mantendrán anónimas y que no se asociará ningún nombre a las mismas. Esto es, su identidad y la de su bebé se mantendrán anónimas y la información solicitada en el permiso se mantendrán en un archivo confidencial. Tambien deseo informarles que las fotograffas se utilizarán exclusivamente en los estudios y en reuniones profesionales para demostrar los resultados generales de la investigación.

Finalmente quisiera darles mis mas expresivas gracias por su tiempo y cooperación.

Cordialmente,

Olga N. Hernández  
Candidata a PhD en  
Psicología del Desarrollo  
Universidad del Estado de  
Michigan

Instructor de la Universidad  
de Puerto Rico  
Recinto Universitario de  
Mayaguez

Michigan State University

Department of Psychology

Departmental Research Consent Form

1. I have freely consented to take part in a scientific study being conducted by: Olga N. Hernández under the supervision of Dr. Hiram E. Fitzgerald.
2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.
3. I understand that I am free to discontinue my participation in the study at any time without penalty.
4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.
5. I understand that my participation in the study does not guarantee any beneficial results to me.
6. I understand that, at my request, I can receive additional explanation of the study after my participation is completed.

Signed \_\_\_\_\_

Date \_\_\_\_\_

Universidad del Estado de Michigan  
Departamento de Psicología

Formulario de Consentimiento

1. Yo he accedido libremente a participar en el estudio científico conducido por Olga N. Hernández bajo la supervisión del Dr. Hiram E. Fitzgerald.
2. El estudio me ha sido explicado y entiendo lo que mi participación envuelve.
3. Entiendo que soy libre de discontinuar mi participación en el experimento en cualquier momento sin ninguna penalidad.
4. Entiendo que los resultados del estudio se mantendrán en estricta confidencia en relación a la identidad de los participantes.
5. Entiendo que mi participación en el estudio no garantiza ningún resultado beneficioso para mí.
6. Entiendo que puedo recibir explicación adicional del estudio después de terminada mi participación.

Firma \_\_\_\_\_

Fecha \_\_\_\_\_

## Research Consent Form

## Parents

1. I have freely consented to take part in, and to allow my child to take part in, a scientific study being conducted by Olga N. Hernández under the supervision of Dr. Hiram E. Fitzgerald.
2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.
3. I understand that my participation only involves to consent that my child will be photographed.
4. I understand that my child's photograph will only be used in scientific studies and professional meetings.
5. I understand that the results of the study will be treated in strict confidence and that my child and I will remain anonymous. Within these restrictions, results of the study will be made available to me.
6. I understand that our participation of the study does not guarantee any beneficial results to us.
7. I understand that at my request, I can receive additional explanation of the study after our participation is completed.

Signed \_\_\_\_\_

Date \_\_\_\_\_

Universidad del Estado de Michigan  
Departamento de Psicología

Autorización para participar en estudio

Padres

1. Yo, he accedido libremente a tomar parte en el estudio científico conducido por Olga N. Hernández bajo la supervisión del Dr. Hiram E. Fitzgerald.
2. El estudio me ha sido explicado y entiendo la explicación que me han dado y lo que mi participación envuelve.
3. Entiendo que mi participación en el estudio sólo envuelve el acceder que mi bebé sea fotografiado.
4. Entiendo que el uso de la fotografía será exclusivamente para estudios científicos y que mi identidad (al igual que la de mi bebé) será anónima.
5. Entiendo que los resultados del estudio se mantendrán en estricta confidencia en relación a mi identidad o a la de mi infante.
6. Entiendo que mi participación en el estudio no garantiza ningún resultado beneficioso para mí ( o para mi infante).
7. Entiendo que puedo recibir explicación adicional del estudio después de terminada mi participación.

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Firma del padre o de la madre

---

Fecha



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Instructions  
Spanish Version

Ustedes verán 24 fotografías de rostros de infantes. Los infantes varían en edad desde los 3 a los 13 meses. En la primera parte del experimento cada diapositiva se proyectará en la pantalla por 8 (15) segundos y durante este tiempo ustedes juzgarán cada fotografía de acuerdo a la siguiente escala:

- 5 muy atractivo
- 4 mas atractivo que el promedio
- 3 promedio en atractivo físico
- 2 menos atractivo que el promedio
- 1 poco atractivo

Habrán 2 segundos entre cada diapositiva.

En la segunda parte del estudio ustedes verán 12 fotografías por 8 (15) segundos cada una y esta vez ustedes juzgarán si el infante es masculino o femenino de acuerdo a la siguiente escala:

- 1 masculino
- 2
- 3
- 4
- 5 femenino

No escriban su nombre ni su número de estudiante en la hoja de computadora. La participación en este experimento es estrictamente voluntaria. Sus respuestas serán anónimas y pueden dejar de participar en el experimento en cualquier momento si así lo desean.

Cada diapositiva se proyectará en la pantalla por 8 (15) segundos. No deben evaluar las primeras 2 fotografías, éstas son solamente para enseñarles como son los infantes y como varían en atractivo físico. Por favor durante el experimento deben permanecer en silencio para así evitar influir en el juicio de los demás participantes. ¿Tienen alguna pregunta? Recuerden, no evalúen las primeras 2 fotografías, yo les diré cuando deben comenzar.

Por favor, firmen el formulario de consentimiento, pásenlo hacia el frente y estaremos listos para comenzar.

## APPENDIX C

Table C-1  
Analysis of Variance  
Cuteness Rating

Source	df	MS	F	p
A	1	1.80	4.892	.027
B	1	2.92	7.932	.005
D	1	3.24	8.806	.003
AB	1	6.46	17.558	.0005
AC	1	1.48	4.023	.045
Error	464	3.68		
E	1	2.51	28.998	.0005
BE	1	9.92	114.773	.0005
Error	464	.87		
F	2	1.85	23.101	.0005
AF	2	9.86	12.299	.0005
BF	2	3.48	43.336	.0005
ABF	2	6.23	7.768	.0005
ADF	2	3.21	4.007	.019
ABCF	2	2.71	3.381	.034
Error	928	.80		
G	1	4.91	36.777	.0005
AG	1	6.14	4.593	.033
BG	1	1.60	119.757	.0005
DG	1	6.27	4.691	.031
ADG	1	1.27	9.473	.002
Error	464	1.34		
EF	2	1.01	12.255	.0005
BEF	2	3.53	42.876	.0005
ADEF	2	3.45	4.197	.015
BDEF	2	4.18	5.071	.006
ABDEF	2	3.26	3.963	.019
Error	928	.82		
EG	1	8.56	11.029	.001
BEG	1	2.10	115.371	.0005
ABEG	1	8.95	27.415	.0005
BDEG	1	3.40	4.386	.037
Error	464	.78		
FG	2	4.97	6.861	.001
AFG	2	5.04	6.951	.001
BFG	2	5.31	7.335	.001
ABFG	2	1.13	15.602	.0005
BCFG	2	2.19	3.028	.049
DFG	2	3.59	4.958	.007
Error	928	.73		
EFG	2	1.43	170.691	.0005
AEFG	2	1.18	14.132	.0005
BEFG	2	1.77	211.367	.0005
DEFG	2	6.71	8.015	.0005
ABEFG	2	2.69	32.098	.0005
ABDEFG	2	1.19	14.218	.0005
Error	928	.84		

Table C-2  
Analysis of Variance  
Perceived Sex Rating

Source	df	MS	F	p
B	1	4.60	121.045	.0005
D	1	7.45	19.618	.0005
AB	1	1.66	4.366	.037
BC	1	3.14	8.259	.004
Error	464	3.80		
E	1	7.48	281.912	.0005
AE	1	3.02	11.385	.001
CE	1	1.64	6.171	.013
DE	1	4.79	18.047	.0005
ABE	1	1.59	6.011	.015
ACE	1	2.63	9.908	.002
BDE	1	3.72	14.036	.0005
ABDE	1	2.82	10.634	.0001
ACDE	1	1.49	5.621	.018
Error	464	2.65		
F	2	1.60	78.110	.0005
BF	2	4.85	23.643	.0005
Error	928	2.05		
BG	1	1.46	69.653	.0005
DG	1	2.76	13.187	.0005
BDG	1	2.29	10.915	.001
Error	464	2.10		
EF	2	2.68	135.058	.0005
AEF	2	1.65	8.294	.0005
BEF	2	1.09	54.873	.0005
DEF	2	1.70	8.548	.0005
BDEF	2	1.51	7.612	.0001
ABDEF	2	2.02	10.163	.0005
Error	928	1.98		
EG	1	3.56	18.111	.0005
AEG	1	2.16	10.998	.001
BEG	1	1.82	92.725	.0005
BCEG	1	1.95	9.905	.002
ACDEG	1	1.29	6.578	.011
Error	464	1.97		
FG	2	9.37	44.677	.0005
AFG	2	2.26	10.765	.0005
BFG	2	1.32	62.840	.0005
ABFG	2	1.05	4.991	.007
ADFG	2	9.53	4.543	.011
Error	928	2.10		
EFG	2	9.77	51.845	.0005
AEFG	2	2.10	11.134	.0005
BEFG	2	1.44	7.656	.001
DEFG	2	6.86	3.637	.027
BDEFG	2	6.65	3.528	.030
ACDEFG	2	1.21	6.410	.002
Error	928	1.88		

Table C-3  
Means for ANOVA  
Raters' Culture x Infants' Culture  
Cuteness Rating

	U.S. Infants	P.R. Infants
U.S. Raters	2.73	2.80
P.R. Raters	3.05	2.70

Table C-4  
Means for ANOVA  
Raters' Culture x Exposure Time  
Cuteness Rating

	8 seconds	15 seconds
U.S. Raters	2.79	2.74
P.R. Raters	2.80	2.95

Table C-5  
Means for ANOVA  
Infants' Culture x Infants' Sex  
Cuteness Rating

	Male Infants	Female Infants
U.S. Infants	2.83	2.96
P.R. Infants	2.95	2.55

Table C-6  
Means for ANOVA  
Raters' Culture x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
U.S. Raters	2.61	2.86	2.83
P.R. Raters	2.83	2.81	3.00

Table C -7  
Means for ANOVA  
Infants' Culture x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
U.S. Infants	2.93	2.77	2.98
P.R. Infants	2.51	2.89	2.85

Table C -8  
Means for ANOVA  
Raters' Culture x Infants' Differential Cuteness  
Cuteness Rating

	Low-Cute	High-Cute
U.S. Raters	2.64	2.89
P.R. Raters	2.82	2.94

Table C -9  
Means for ANOVA  
Infants' Culture x Infants' Differential Cuteness  
Cuteness Rating

	Low-Cute	High-Cute
U.S. Infants	2.63	3.15
P.R. Infants	2.82	2.68

Table C -10  
Means for ANOVA  
Raters' Sex x Infants' Differential Cuteness  
Cuteness Rating

	Low-Cute	High-Cute
Male Raters	2.69	2.81
Female Raters	2.77	3.02

Table C-11  
Means for ANOVA  
Infants' Sex x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
Male Infants	2.86	2.83	2.98
Female Infants	2.58	2.83	2.85

Table C-12  
Means for ANOVA  
Infants' Sex x Infants' Differential Cuteness  
Cuteness Rating

	Low-Cute	High-Cute
Male Infants	2.76	3.02
Female Infants	2.70	2.81

Table C-13  
Means for ANOVA  
Infants' Age x Infants' Differential Cuteness  
Cuteness Rating

	Low-Cute	High Cute
3 months	2.65	2.78
9 months	2.68	2.98
13 months	2.85	2.98



Table C-14  
Means for ANOVA  
Raters' Culture x Infants' Culture x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
U.S. Infants			
U.S. Raters	2.73	2.74	2.73
P.R. Raters	3.13	2.81	3.23
P.R. Infants			
U.S. Raters	2.49	2.98	2.94
P.R. Raters	2.53	2.80	2.76

Table C-15  
Means for ANOVA  
Raters' Culture x Raters' Sex x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
Male Raters			
U.S. Raters	2.58	2.78	2.79
P.R. Raters	2.67	2.77	2.89
Female Raters			
U.S. Raters	2.64	2.93	2.88
P.R. Raters	2.99	2.84	3.10

Table C-16  
Means for ANOVA  
Raters' Culture x Raters' Sex x Infants' Differential Cuteness  
Cuteness Rating

	Male Raters	Female Raters
Low-Cute		
U.S. Raters	2.67	2.61
P.R. Raters	2.70	2.93
High-Cute		
U.S. Raters	2.76	3.02
P.R. Raters	2.85	3.02

Table C-17  
Means for ANOVA  
Infants' Culture x Infants' Sex x Infants' Age  
Cuteness Rating

	3 months	9 months	13 months
Male-Infants			
U.S. Infants	2.79	2.68	3.02
P.R. Infants	2.93	2.97	2.94
Female-Infants			
U.S. Infants	3.07	2.86	2.94
P.R. Infants	2.09	2.81	2.77

Table C-18  
Means for ANOVA  
Infants' Culture x Infants' Sex x Infants' Differential Cuteness  
Cuteness Rating

	Male Infants	Female Infants
Low- Cute		
U.S. Infants	2.65	2.61
P.R. Infants	2.86	2.79
High-Cute		
U.S. Infants	3.00	3.30
P.R. Infants	3.04	2.32

Table C-19  
Means for ANOVA  
Raters' Culture x Infants' Age x Infants' Differential Cuteness  
Cuteness Rating

	3 months	9 months	13 months
Low-Cute			
U.S. Raters	2.56	2.67	2.69
P.R. Raters	2.74	2.69	3.02
High-Cute			
U.S. Raters	2.65	3.04	2.98
P.R. Raters	2.92	2.92	2.98

Table C-20  
Means for ANOVA  
Infants' Culture x Infants' Age x Infants' Differential Cuteness  
Cuteness Rating

	3 months	9 months	13 months
Low-Cute			
U.S. Infants	2.64	2.51	2.75
P.R. Infants	2.66	2.85	2.96
High-Cute			
U.S. Infants	3.21	3.04	3.21
P.R. Infants	2.36	2.93	2.74

Table C -21  
Means for ANOVA  
Raters' Sex x Infants' Age x Infants' Differential Cuteness  
Cuteness Rating

	3 months	9 months	13 months
Low-Cute			
Male Raters	2.55	2.70	2.81
Female Raters	2.76	2.66	2.90
High-Cute			
Male Raters	2.70	2.85	2.87
Female Raters	2.87	3.11	3.08

Table C -22  
Means for ANOVA  
Infants' Sex x Infants' Age x Infants' Differential Cuteness  
Cuteness Rating

	3 months	9 months	13 months
Low-Cute			
Male Infants	2.98	2.33	2.95
Female Infants	2.33	3.03	2.75
High-Cute			
Male Infants	2.74	3.32	3.00
Female Infants	2.83	2.64	2.95

Table C -23  
Means for ANOVA  
Raters' Culture x Infants' Culture  
Perceived Sex Rating

	U.S. Infants	P.R. Infants
U.S. Raters	2.17	2.63
P.R. Raters	2.12	2.79

Table C-24  
Means for ANOVA  
Infants' Culture x Exposure Time  
Perceived Sex Rating

	8 seconds	15 seconds
U.S. Infants	2.23	2.06
P.R. Infants	2.64	2.77

Table C-25  
Means for ANOVA  
Raters' Culture x Infants Sex  
Perceived Sex Rating

	Male Infants	Female Infants
U.S. Raters	2.11	2.68
P.R. Raters	2.02	2.89

Table C-26  
Means for ANOVA  
Exposure Time x Infants' Sex  
Perceived Sex Rating

	Male Infants	Female Infants
8 seconds	2.02	2.85
15 seconds	2.11	2.72

Table C -27  
Means for ANOVA  
Raters' Sex x Infants' Sex  
Perceived Sex Rating

	Male Infants	Female Infants
Male Raters	2.27	2.81
Female Raters	1.86	2.76

Table C-28  
Means for ANOVA  
Infants' Culture x Infants' Age  
Perceived Sex Rating

	3 months	9 months	13 months
U.S. Infants	1.90	1.87	2.65
P.R. Infants	2.70	2.57	2.86

Table C-29  
Means for ANOVA  
Infants' Culture x Infants' Differential Cuteness  
Perceived Sex Rating

	Low-Cute	High-Cute
U.S. Infants	2.01	2.28
P.R. Infants	2.89	2.52

Table C -30  
Means for ANOVA  
Raters' Sex x Infants' Differential Cuteness  
Perceived Sex Rating

	Low-Cute	High-Cute
Male Raters	2.50	2.58
Female Raters	2.41	2.22

Table C-31  
Means for ANOVA  
Infants' Sex x Infants' Age  
Perceived Sex Rating

	3 months	9 months	13 months
Male Infants	2.33	1.83	2.04
Female Infants	2.27	2.61	3.47

Table C-32  
Means for ANOVA  
Infants' Sex x Infants' Differential Cuteness  
Perceived Sex Rating

	Low-Cute	High-Cute
Male Infants	2.01	2.12
Female Infants	2.89	2.68

Table C-33  
Means for ANOVA  
Infants' Age x Infants Differential Cuteness  
Perceived Sex Rating

	Low-Cute	High-Cute
3 months	2.56	2.04
9 months	2.04	2.40
13 months	2.75	2.76



Table C -34  
Means for ANOVA  
Raters' Culture x Infants' Culture X Infants' Sex  
Perceived Sex Rating

	U.S. Infants	P.R. Infants
Male Infants		
U.S. Raters	1.89	2.33
P.R. Raters	1.59	2.45
Female Infants		
U.S. Raters	2.44	2.93
P.R. Raters	2.64	3.13

Table C-35  
Means for ANOVA  
Raters' Culture x Exposure Time x Infants' Sex  
Perceived Sex Rating

	8 seconds	15 seconds
Male Infants		
U.S. Raters	2.12	2.10
P.R. Raters	1.93	2.11
Female Infants		
U.S. Raters	2.66	2.71
P.R. Raters	3.03	2.74

Table C -36  
Means for ANOVA  
Infants' Culture x Raters' Sex x Infants' Sex  
Perceived Sex Rating

	Male Raters	Female Raters
Male Infants		
U.S. Infants	2.00	1.48
P.R. Infants	2.53	2.24
Female Infants		
U.S. Infants	2.46	2.62
P.R. Infants	3.15	2.90

Table C-37  
Means for ANOVA  
Infants' Culture x Raters' Sex x Infants' Differential Cuteness  
Perceived Sex Rating

	Male Raters	Female Raters
Low-Cute		
U.S. Infants	2.09	1.93
P.R. Infants	2.90	2.89
High-Cute		
U.S. Infants	2.37	2.18
P.R. Infants	2.79	2.25

Table C-38  
Means for ANOVA  
Raters' Culture x Infants' Sex x Infants' Age  
Perceived Sex Rating

	3 months	9 months	13 months
<b>Male Infants</b>			
U.S. Raters	2.29	1.85	2.18
P.R. Raters	2.36	1.80	1.90
<b>Female Infants</b>			
U.S. Raters	2.24	2.56	3.26
P.R. Raters	2.30	2.67	3/68

Table C-39  
Means for ANOVA  
Infants' Culture x Infants' Sex x Infants' Age  
Perceived Sex Rating

	3 months	9 months	13 months
<b>Male Infants</b>			
U.S. Infants	1.73	1.71	1.79
P.R. Infants	2.93	1.94	2.29
<b>Female Infants</b>			
U.S. Infants	2.07	2.03	3.52
P.R. Infants	2.47	3.20	3.42

Table C -40  
Means for ANOVA  
Raters' Sex x Infants' Sex x Infants' Age  
Perceived Sex Rating

	3 months	9 months	13 months
<b>Male Infants</b>			
Male Raters	2.50	1.98	2.33
Female Raters	2.15	1.67	1.75
<b>Female Infants</b>			
Male Raters	2.35	2.71	3.36
Female Raters	2.19	2.51	3.58

Table C -41  
Means for ANOVA  
Raters' Culture x Infants' Sex x Infants' Differential Cuteness  
Perceived Sex Rating

	Male Infants	Female Infants
<b>Low-Cute</b>		
U.S. Raters	1.97	2.83
P.R. Raters	2.05	2.95
<b>High-Cute</b>		
U.S. Raters	2.24	2.54
P.R. Raters	1.99	2.82

Table C-42  
Means for ANOVA  
Raters' Culture x Infants' Age x Infants' Differential Cuteness  
Perceived Sex Rating

	3 months	9 months	13 months
Low-Cute			
U.S. Raters	2.62	1.91	2.67
P.R. Raters	2.50	2.18	2.83
High-Cute			
U.S. Raters	1.91	2.50	2.77
P.R. Raters	2.17	2.30	2.75

Table C-43  
Means for ANOVA  
Infants' Culture x Infants' Sex x Infants' Differential Cuteness  
Perceived Sex Rating

	Male Infants	Female Infants
Low-Cute		
U.S. Infants	1.71	2.31
P.R. Infants	2.32	3.47
High-Cute		
U.S. Infants	1.78	2.78
P.R. Infants	2.46	2.59

Table C-44  
Means for ANOVA  
Infants' Sex x Infants' Age x Infants' Differential Cuteness  
Perceived Sex Rating

	3 months	9 months	13 months
Low-Cute			
Male Infants	2.31	1.53	2.20
Female Infants	2.81	2.56	3.30
High-Cute			
Male Infants	2.35	2.13	1.88
Female Infants	1.73	2.67	3.64

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