

DECENTERING AND THE THEORY OF SOCIAL DEVELOPMENT

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The concept of decentering originated with Piaget, who defined decentering as a feature of operational thought, the ability to conceptualize multiple perspectives simultaneously. Feffer applied Piaget's concept of decentering to the cognitive maturity of social content. This study used Feffer's Interpersonal Decentering scoring system for stories told about TAT pictures to investigate the developmental hierarchy of decentering for children and adolescents. The participants originated from the Berkeley Guidance Study, a longitudinal sample of more than 200 individuals followed for more than 60 years by the Institute of Human Development at the University of California, Berkeley. The hypotheses tested were: (1) chronological age will be positively related to Decentering as reflected in Feffer's Interpersonal Decentering scores obtained annually between ages 10 and 13 and at 18; (2) children born into higher class homes would have higher Age 12 Decentering scores; (3) children born later in birth order will have higher Age 12 Decentering scores; (4) children whose parents were observed to have closer bonds with their children at age 21 months will have higher Age 12 Decentering scores; (5) adolescents with higher scores from the Decentering Q-sort Scale (derived from adolescent Q-sorts) will have higher Age 12 Decentering scores; and (6) participants who have higher Age 12 Decentering scores will self-report higher CPI Empathy scale scores at Age 30. A repeated measures ANOVA tested Hypothesis 1. Pearson product-moment correlation coefficients tested Hypotheses 2-6. Age and Decentering scores were unrelated, as was birth order; social class findings were mixed. Parents' bonds with child and Age 12 Decentering were negatively correlated (closer bonds predicted higher Decentering), as were Age 12 Decentering and Age 30

Empathy (higher early Decentering predicted lower adulthood Empathy). Girls (age 12) tended to decenter more consistently and had higher Decentering scores than boys.

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CHAPTER 1

INTRODUCTION

Decentering, or the ability to take another person's perspective, has been viewed as an essential process of social development (Keller, 1976). Piaget developed the concept of decentering activity from his investigations of children's cognitive structuring of the physical world around them. Feffer expanded on Piaget's work by extending his analysis of decentering to the cognitive structuring of social content (1959; Feffer & Gourevitch, 1960; Feffer & Jahelka, 1968; Feffer & Suchotliff, 1966).

An individual's ability to decenter in social interactions has implications for the success of interpersonal relationships and overall effectiveness in daily interactions with others. It is clear that the ability to decenter as well as the tendency to use this ability can vary from one individual to the next and across situations (Leeper, Dobbs, & Jenkins, 2008). It is the variation in this developmental skill that is of particular interest for the present study as well as the factors that may impede or hasten an individual's development of decentering.

The purpose of the present study is to further the research in the developmental field by utilizing the Interpersonal Decentering scoring system (Feffer et al., 2008) for the Thematic Apperception Test (TAT) to identify factors that are related to one's tendency to take the other's perspective. More specifically, the purpose is to explore whether variables such as age, gender, socioeconomic status, parent-child relationships, and birth order are related to one's decentering. Moreover, other variables such as social perceptiveness and empathy are of particular practical interest in this study, as is how they might be related to an individual's formation of decentering skills.

Piaget's Theory of Intellectual Growth

Structures of Cognitive Development

Jean Piaget was a pioneer in understanding the growth and stages of cognitive development. His views on how children's minds develop and work have been extremely influential. According to Piaget (1972), the period between birth and 12-15 years is when the intellectual structures in the stages of development slowly mature. He categorized cognitive development into four stages: sensorimotor (0-2 years), preoperational (2-7 years), concrete operational (7-12 years) and formal operational (12+ years). Piaget posited that the stages of intellectual development are consistent in their order of succession. However, the speed of development can vary from one individual to the next. Therefore, some children may advance more rapidly through the stages, but the order in which each child passes through the stages is the same.

The stage between ages 7-8 and 11-12 marks the development of stable logic systems, such as perspectives, measurement of surfaces, and understanding general types of causality. These operations are concrete in nature, meaning that the individual continues to reason in terms of objects rather than hypothetical conditions. Therefore, this logic stage is different from that which is developed in the preadolescent period (age 12-15) (Piaget, 1972), in which individuals develop a more comprehensive logic.

The period from 11-12 years to 14-15 years is mainly characterized by the ability to reason in terms of hypotheses, instead of simply in concrete objects. The ability to reason hypothetically and consider consequences from such hypotheses implies a formal reasoning process. This is different from previous stages because the child can apply a specific value to their deductions and begins to abstract meaning from the world around them. Whereas in

previous stages the focus is on concrete objects and the present time, this stage opens up the possibility of going beyond the here and now (Piaget, 1972).

In this stage of development, it is also important to consider the child's cognitive acquisitions from the social point of view. First, the individual is able to adopt the perspective of the other person by using hypotheses and understanding the logical consequences of their actions and social interactions. Second, interest in problems that go beyond the immediate field of experience begins to develop. Thus, the individual's capacity to understand and construct theories emerges, as well as the desire to participate in society and adopt a more adult world view (Piaget, 1972).

More recent studies have extended Piaget's research to address cognitive development from adolescence to adulthood (Frankenberger, 2000; Lapsley, 1993). Results suggest that "adolescent" egocentrism may extend at least into early adulthood. Frankenberger's (2000) results lend support to Lapsley's (1993) assertion that the imaginary audience affords adolescents the ability to maintain interpersonal relations and the personal fable allows them to retain feelings of self. Furthermore, Frankenberger asserts that these characteristics (i.e., imaginary audience and personal fable) continue to be important to individuals as they exit adolescence and enter young adulthood.

Another extension of Piaget's initial research on cognitive development has been the study of the theory of mind (ToM), the set of knowledge that allows an individual to understand unobservable mental states, such as belief, desire, and knowledge (Samson & Apperly, 2010). The research findings form a considerable consensus that children become proficiently better at ToM tasks during preschool age and by the end of this age they are able to reason correctly about most mental states (Doherty, 2008; Wellman, Cross, & Watson, 2001). Similar to the

chronological nature of Piaget's cognitive development theory, ToM is believed to continue to improve as an individual moves through childhood into adolescence (Apperly & Robinson, 2003; Chandler, Boyes & Ball, 1990; Wellman, 1990).

Effect of External Factors

In his later studies, Piaget discovered that subjects from differing social environments yielded results that varied from the norms that he had indicated. Other experiments performed to replicate Piaget's findings indicated that some participants remained at the concrete operations stage past the age of 12. Observation of adolescents from different socioeconomic backgrounds in New York also indicated that Piaget's stages may not be generalizable to all individuals and suggests that his original results were based on participants from a privileged population (Piaget, 1972).

Piaget (1972) concluded that the speed of development may vary through the stages, but the order in which one moves through the stages of cognitive development appears to be fairly constant. He asserted that each stage is necessary to build on for the next to develop. Thus, the average age in which one develops the stages may vary markedly due to social environment (e.g., poverty, education, parental stimulation) but the order of succession of the stages is fixed.

Piaget formulated three hypotheses to account for the variation in age at which participants entered each stage. First, he stated that the difference could be due to variations in the quality and occurrence of intellectual stimulation received from adults in an individual's environment (Piaget, 1972). Therefore, those with less stimulation move more slowly through the cognitive developmental stages. Piaget also argued that an unenriched social environment (e.g., lack of play with caregivers, lack of parental involvement in early education, etc.) may actually severely delay the development of formal thought or prevent the stage from developing

altogether. His second hypothesis concluded that the differences could be attributable to diversification of aptitude. Those individuals with aptitudes in fields that are more cognitive in nature develop the last stage (formal thought) whereas others may not. Third, it was hypothesized that “normal” participants acquire formal thought by at least 15 and 20 years of age and may reach the stage at different ages based on their aptitude and/or professional field (i.e., what type of career they pursue). He also postulated that the experimental situations used in the initial study may not have taken into account the differences in how the formal structures may be used for different chosen career fields. Piaget reasoned that his third hypothesis was the most probable (1972).

Egocentrism

Piaget’s theory of intellectual growth refers to egocentrism as the inability to differentiate in some areas of subject-object interaction (Elkind, 1967). Gourevitch and Feffer (1962) asserted that studying egocentrism may bridge the research between cognitive structure and personality dynamics. Specifically, they studied two areas of cognitive activity, the structuring of the physical world and one’s ability to take different social perspectives. The conquest of the object is the main cognitive task in infancy. The infant regards objects as if their existence is dependent on the child’s present perception. In other words, if it is not perceived then it must not exist.

In the preschool stage, the child’s main cognitive task is the conquest of the symbol. In this stage the child strictly grounds the object with linguistics (e.g., symbolic play and dream symbols). For school-aged children, the main cognitive task is “mastering classes, relations, and quantities” (Elkind, 1967, p.1027). Attaining concrete operations allows the child to execute simple reasoning and formulate hypotheses about concrete matters. In this stage of cognitive development the mental operations performed are simply tools and not a result of experience.

The egocentrism of the school-age child is marked by difficulty distinguishing between cognitive constructions and perceived givens (e.g., stating answers as factual rather than probabilities). Near the end of childhood, formal operational thought slowly emerges. The main task of early adolescence is the conquest of thought. The formal operations stage of cognitive development allows the adolescent to conceptualize both his thoughts and the thoughts of other people. However, in early adolescence individuals often adopt a belief that everyone is as preoccupied with their behavior and appearance as he or she is (Elkind, 1967).

Elkind (1967) asserts that the egocentrism of early adolescence generally diminishes by age 15 or 16. The late adolescent is able to distinguish between their own preoccupations and the thoughts of others, while also being able to integrate their feelings with others' emotions (Elkind, 1967). This multidimensional thinking or ability to differentiate between one's own and someone else's thoughts and feelings is what Piaget (1972) referred to as decentering.

The majority of Piaget's work addressed aspects of cognitive development that were impersonal. Piaget (1950) found that children's ability to take varying perspectives in viewing a physical stimulus increased with chronological age. In other words, older children are able to look beyond concrete operations, and make inferences about motives and attitudes where younger children are not. Feffer (1959) extended this logic by taking a closer look at decentering as an interpersonal process, which is the driving force for the first hypothesis of this study; Decentering scores should improve with chronological age.

Decentering

Piaget (1972) named decentering as a feature of operational thought. He defined decentering as the ability to conceptualize multiple perspectives simultaneously, or being capable of observing a situation from more than one point of view. Piaget alleged that as children interact

with the world and practice representing what they observe, their ability to decenter would improve. Piaget observed that young children see the world around them sequentially. Because children develop multidimensional thought as they grow older, they become able to observe social situations not only from their own perspective, but also from the viewpoints of those around them. Once this capacity for thinking and perspective-taking develops, they are able to decenter. It is at this point in development that individuals are able to differentiate between their own and others' feelings and thoughts (Leeper, Dobbs, & Jenkins, 2008).

Deysach et al. (1975) described decentering as the "ability of an individual to accommodate the point of view of others as well as his own perspective" (p. 230). The ability to manage dissimilar perspectives has been found to be related to chronological age (Feffer & Gourevitch, 1960; Wolfe, 1963) and success of social interactions (Feffer & Suchotliff, 1966). Within the developmental framework, Feffer and Gourevitch (1960) found that performance on a role-taking task used to investigate children's ability to take different perspectives paralleled performance on Piaget's perceptual and cognitive tasks. Elkind (1967) suggested that the emergence of more intimate peer relationships in adolescence contributes to the development of a more mature social cognitive awareness, or decentering.

Enright and Lapsley (1980) examined social role-taking by psychometrically reviewing the constructs, measures developed to represent the constructs, and the reliability and validity of the measures. Enright and Lapsley also concluded that the affective measures of role-taking developed by Rothenberg (1970) and Flapan (1968) were related to age. Furthermore, it was found that Rothenberg's affective role-taking measure was related to cognitive scales, but found no support for a relationship with affective scales (Enright & Lapsley, 1980).

Melvin Feffer's Role-Taking Task and TAT Scoring System

Feffer (1959) built on Piaget's concept of decentering by applying it to the cognitive structure of social content. Feffer's (1959) theory posited that interpersonal decentering is a form of operational thought, specifically, that interpersonal decentering requires an ability to take the role of the other; in other words to observe, respond to, and anticipate another person's thoughts, feelings, and behaviors. He used a storytelling role-taking task to investigate children's ability to take different social perspectives. The Role-Taking Task (RTT) was developed by Feffer as a measure of interpersonal decentering. In the RTT, the researcher asks the participant to tell a story about a picture showing several characters. The participant is then asked to tell the story again from each character's perspective (Lowenhertz & Feffer, 1969). The analysis of the data involves comparing the stories and evaluating the degree of abstraction of the description of characters and the content consistency when describing the views of different characters (Feffer, 1959).

Feffer and Gourevitch (1960) found that within the ages of 6-13 years, an individual's ability to decenter was positively correlated to performance on Piaget's decentering tasks, chronological age, and intelligence. Wolfe (1963) found similar results, concluding that an individual's conceptual level and performance on cognitive activities were positively related to age and intelligence. As children mature in their ability to decenter, they are able to gather information from their environment more accurately. It is through interpersonal decentering that people can more accurately adapt their behavior based on their understanding of a social situation (Feffer, 1967).

Several studies have been conducted using the RTT measure (Feffer, 1959; Feffer & Jahelka, 1968; Lowenhertz & Feffer, 1969; Selman, 1971; and Turnure, 1975). Feffer (1959)

found that interpersonal decentering was significantly related to developmental indices (Brooks & Phillips, 1958) from the Rorschach for white men in their mid-30s. College women exhibited more difficulty with role-taking perspectives when the characters they were describing were assigned traits that were viewed as undesirable (Lowenhertz & Feffer, 1969). Using the RTT, Selman (1971) found a significant correlation between participants' role-taking levels and chronological age within the range of three age levels, 4, 5, and 6 years. In another study, similar results were found indicating that performance on the RTT generally increased with age between three age levels [7, 9, and 12 years] (Turnure, 1975). Enright and Lapsley (1980) reviewed eight studies that utilized Feffer's Role-Taking Task. Results indicated that the Feffer scale was related to age (Feffer & Gourevitch, 1960; Kurdek, 1977; Turnure, 1975). Kurdek (1977) was cited for reporting adequate temporal stability ($r = .60$). Overall, Enright and Lapsley listed several issues with Feffer's Role-Taking Task including: a poorly defined construct and limited validation criteria. Enright and Lapsley also concluded that there was partial support for a relationship with the cognitive scales due to Kurdek (1977) finding the RTT related to sociomoral dilemmas.

Feffer and Jahelka (1968) found that the more that participants were able to depict mature social interactions (i.e., decenter) in their initial story, the better they were at coordinating viewpoints of the characters in the second part of the RTT. Since then, their initial story scoring system has been related to the diagnosis of schizophrenia in adolescents who scored lower than controls without this diagnosis (Strober, 1979). The scoring manual developed by Melvin Feffer (1966) was further elaborated for use with other pictures along with training materials by Feffer et al. (2008). Stories are scored by determining the social interaction units, then scoring the decentering level of each. Social interaction units are those that include at least two characters. This can be two or more characters present in a scene or a single character internalizing another.

Each social interaction unit receives a separate Decentering score that is based on a scale of 1-9 (see Table 1).

Dobbs et al. (2004) looked at the relationship of interpersonal decentering with social network interaction (i.e., frequency of seeing friends, family, and participating in organizational activities). Those that scored higher in Decentering were moderately more involved with their social network. Additionally, those who were high in Decentering endorsed more difficulties with assertiveness while those who decentered less acknowledged problems with being domineering. In a study by Nixon, Jenkins, and Labrie (2011), Q-sort items for the Guidance Study participants that were correlated with Decentering cross-sectionally at the age 30 wave were subjected to principal component analysis with varimax rotation. Three factors (Factor 1: Articulate, Charming, Perceptive; Factor 2: Conventional Power-Oriented Repressors (negatively correlated); Factor 3: Calm, Cheerful, Easy Going) explained 56% of the matrix variance.

The scoring categories of the Interpersonal Decentering System have been shown to have high content validity in that they represent a hierarchy of developmental levels. With respect to stories, interpersonal decentering can be conceptualized at two main levels of maturity organized by increasingly complex differentiation of characters and coordination of their activities. The first is characterized by one-dimensional thinking in which people act and react with one another, or preinternalization. The second category is internalization, or multidimensional thinking (Leeper, Dobbs, & Jenkins, 2008). Within the two main categories, nine subcategories were formed. These range from the characters being involved in the same activity (undifferentiated) to an internalized interactive relationship with self and another person (internalized differentiation and coordination).

Thus, Feffer extended Piaget's developmental theory of decentering by using role-taking

tasks to apply it to social content. Studies using the RTT have found Decentering scores positively correlated to cognitive performance (Feffer & Gourevitch, 1960; Wolfe, 1963). Moreover, other studies have concluded that RTT scores and chronological age are positively correlated (Selman, 1971; Turnure, 1975). Decentering has also been found to correlate with social interaction (Dobbs, et al., 2004) and social presentation (Nixon, et al., 2010). In sum, Feffer's Decentering scoring system has paved the way to examine the developmental aspects of this construct (decentering) and how it matures with respect to one's chronological age.

Thematic Apperception Test as a Measure of Decentering

According to Murray (1938), unconscious needs, expressed in themes through storytelling, provide a unique insight into the core of a person's personality. The Thematic Apperception Test (TAT) requires the respondent to narrate a brief story in response to a number of picture cues. The original assumption was that the respondent would project onto the image in the TAT card, thus expressing unconscious needs that he/she may not be able or is unwilling to acknowledge (Anderson, 1999). Modern uses of such storytelling techniques view them as sampling operant thought that may be conscious or unconscious (McClelland, 1980), reflecting implicit processes (Bornstein, 2002; Jenkins, 2008; Winter et al., 1998). The complete version of the test contains 31 picture cards. Some of the cards show men and/or women alone or together, some are of ambiguous gender, some children, and some show no human figures at all. One card is completely blank in order to elicit both a scene and a story from the storyteller. The TAT offers flexibility in the cards that are given, in that practitioners can choose cards that will encourage the subject's expression of emotional conflicts relevant to their specific history and situation.

Mature decentering involves predicting another person's behavior which requires internalization. A high level of decentering ability in the Interpersonal Decentering categories requires differentiation of the characters and maintaining a relationship between them at the same time. Therefore, interpersonal decentering is postulated to be a considerable factor in the development and maintenance of relationships (e.g., familial, friend, romantic, and business). Specific situations that may affect one's actual use of interpersonal decentering ability relate to the type of relationship one has with the other person. For example, Cortina (1999) found that secure attachment with parents related to higher levels of decentering compared to those with insecure attachment. This would suggest that higher levels of interpersonal decentering would be expected with those with whom the individual has a stronger attachment, such as parents, spouses, and close friends.

The Present Study

The present study used the Berkeley Guidance Study longitudinal data collected by the Institute of Human Development at the University of California, Berkeley. The initial study was a 6-year prospective study with the purpose of assessing (a) behavior problems in preschool children, (b) biological and environmental factors contributing to reported behavior problems, and (c) "influence of intensive discussions with parents about child-rearing practices on children's problem behavior" (Eichorn, 1981, p. 33). Data collection continued annually through age 18. Three adulthood follow-ups were also conducted. TAT stories were gathered annually from ages 9.5 to 13.5 and at 18. Of particular interest for this study is the data concerning TAT stories coded for Decentering. These data, along with other variables such as socioeconomic status (SES), gender, age, social perceptiveness, parental relationship, and empathy are of particular importance for this study.

Leeper, Dobbs, and Jenkins (2008) suggested that future research with children and adolescents should explore whether “Interpersonal Decentering scores increase in parallel with other aspects of Piagetian cognitive development and with the development of a theory of mind” (p. 155). This study addressed such a comparison between interpersonal decentering and other aspects of cognitive development. First, it was hypothesized that Melvin Feffer’s Decentering scoring system for the TAT would follow the developmental trends asserted by Piaget and Feffer. As chronological age increases, the participant’s ability to decenter was hypothesized to increase. Specifically, a significant increase in decentering should be observed in the period from age 10 ½ to late adolescence (age 18). Piaget’s cognitive theory asserts that as one develops in chronological age, cognitive development also increases to more complex ways of conceptualizing the world around them. Feffer and Gourevitch (1960) found that performance on Feffer’s Role-Taking Task paralleled performance on Piaget’s perceptual and cognitive tasks. Additionally, chronological age has been found to be related to one’s ability to manage dissimilar perspectives (Feffer & Gourevitch, 1960; Wolfe, 1963) and success of social interactions (Feffer & Suchotliff, 1966).

Second, lower socioeconomic status should be associated with lower Decentering scores. Piaget addressed social class differences discovered in the ages at which participants developed the cognitive stages. Piaget postulated that an unenriched social environment could account for the delayed development of formal thought. Piaget also asserted that social stimulation was crucial for the development of formal thought and plays an important role in the development of the initial stages as well (Piaget, 1972).

Third, the effect of birth order was examined. Studies have shown that birth order is positively correlated with language development (Oshima-Takane, Goodz, & Derevensky, 1996)

and IQ scores (Zajonc, 2001). Oshima-Takane, Goodz, and Derevensky (1996) studied a group of first born and second born children at 21 months. They did a follow-up study three months later at 24 months using the same procedures. Results indicated that second born children were more advanced in their use of pronouns at both ages than their first-born counterparts. Oshima-Takane, Goodz, and Deverensky (1996) concluded that conversations between caregivers and older siblings as well as child-directed speech are important factors for second born children learning personal pronouns.

Since birth order seems to have an effect on language development, in particular the production of personal pronouns, it stands to reason that this could also impact an individual's ability to decenter. Decentering, as mentioned earlier, has a very social component (i.e., being able to take another person's perspective). Likewise, Elkind (1967) suggested that the emergence of more intimate peer relationships in adolescence contributes to the development of a more mature social cognitive awareness, such as decentering. Birth order is likely to be associated with decentering due to the exposure to more social experiences with older siblings. As birth order increases, so will Decentering scores.

Fourth, early positive relationships with family members, specifically parents, should be associated with one's ability to decenter in early adolescence. As stated above, the social components of decentering lend support to the assumption that early social interactions and relationships could have a positive influence on developing the ability to decenter. Moreover, the quality of these early interactions should be considered. Keller (1976) studied 7th graders' performance on the RTT and their perception of parent behavior. Perceived supportiveness and severity of each parent were found to relate to social-cognitive ability in the expected positive or negative direction. Keller (1976) also concluded that role-taking ability is crucial for social

interaction. Likewise, Kenny and Gallagher (2002) found that maternal and paternal attachment was associated with a range of instrumental and social competencies.

The fifth hypothesis addressed the Decentering Q-sort Scale (derived from the adolescent Q-sort) and TAT-measured Decentering. The Decentering Q-sort consists of five items. Nixon, Jenkins, and Labrie (2011) found a significant positive cross-sectional relationship between age 30 Decentering and the Decentering Q-sort Scale for Guidance Study participants at ($r = .33, p < .01$). Feffer and Suchotliff (1966) found evidence that effective social interaction is a function of an individual's ability to consider his/her behavior from more than one perspective simultaneously. If an adolescent appears socially adept and perceptive to interviewers then this may be due to being better at decentering.

Finally, it is hypothesized that adolescent participants' Decentering scores are positively correlated to their age 30 California Psychological Inventory (CPI) Empathy scale scores. This hypothesis differs from hypotheses 2-5 in that it is a longitudinal analysis from adolescence to adulthood with Empathy scores on a self-report inventory as the outcome. Kurtz and Eisenberg (1983) found that individuals with high empathy scores and high role-taking ability as measured by a standard resistance-to-temptation task after exposure to one of four prohibitions were more responsive to subtle disciplining (e.g. prohibitions) than those who were low in these areas. Bengtsson and Johnson (1992) found that participant perspective-taking was positively related to affective empathy in both boys and girls. Moreover, intuitively it seems that empathy could involve adding an emotional component to the decentering process (Hoffman, 2008). As such, those that are able to empathize with others should be able and willing to take the other person's perspective as well. When considering a developmental perspective, one's ability to decenter as an adolescent may be related to one's ability to empathize later in adulthood.

In summary, six hypotheses were tested for the present study.

1. Chronological age will be positively correlated to Decentering scores.
2. Children born into higher class homes would have higher Decentering scores as adolescents.
3. Children that are higher in birth order will have significantly higher Decentering scores.
4. Children whose parents were observed to have closer bonds and friendliness toward the children (in infancy) will have higher Decentering as adolescents.
5. Adolescents with high Decentering Q-sort Scale scores will have higher Decentering scores.
6. Participants with high CPI Empathy scale scores at age 30 will have higher adolescent Decentering scores.

CHAPTER 2

METHOD

Participants

The participants in this research study originate from the Berkeley Guidance Study, which is a longitudinal sample of more than 200 individuals followed for more than 60 years by the Institute of Human Development at the University of California, Berkeley. This data set targeted every third birth in Berkeley between January 1, 1928 and June 30, 1929. The participants were primarily Caucasian (97%) and were representative of the Berkeley community at that time, with slightly more than 60% born into middle class families and slightly over 33% coming from “working-class homes” (Eichorn, 1981). The Guidance Study continued beyond the original planned six years with the intent of addressing interactions of biological (Jones, 1936; Shock, 1939), social (Jones, 1946; Jones, 1948) and psychological factors in personality development (Cameron, 1938; Frenkel-Brunswick, 1939; Frenkel-Brunswick, 1942).

Because of lack of data collected at critical age waves on specific measures, some of the original 248 participants could not be included in these analyses, resulting in a final *N* of 202 for the present study. The sample for the present study included 96 males and 106 females. For a sample of this size, power of .80 using a Spearman's rho can detect an effect size of .20 (Howell, 2002).

It is important to note that the Guidance Study participants entered difficult economic times in early development (the Great Depression) and were entering adolescence during World

War II. Due to these significant historical markers the participants' socioeconomic data were rechecked annually and revealed high variability.

Design and Procedures

The participants were assessed every six months from ages 2 to 4 and annually from ages 5 to 18 years at age 30, and at two later points not considered here. The participants were seen individually for each assessment. Half of the participants' mothers were offered guidance by the principal investigator about childhood behavior and development. This group was termed the guidance group. The half that did not receive any guidance was termed the control group. Of the 248 participants in the original sample, 124 were placed in the guidance group and 124 were in the control group. The two subgroups were matched for gender, size of family, socioeconomic status, ethnicity, and occupation of the father (Eichorn et al., 1981).

This study used two measures of perspective-taking, Feffer's Interpersonal Decentering scored from TAT stories in adolescence (Feffer, Leeper, Dobbs, Jenkins, & Perez, 2008) and the Decentering Q Sort Scale (Nixon, Jenkins, & Labrie, 2011) composed of adolescent Q sort items at age 13. Four other measures were assessed: socio-economic status (at birth), birth order (age 18), relationship with parents (age 21 months), and California Psychological Inventory (CPI) Empathy scale (age 30).

Participants in the present study were administered an early version of the TAT. The TAT was administered to Guidance Study participants at multiple ages. Participants told stories annually from ages 9½ to 13½, and at age 18. For the purpose of this study TAT stories from ages 10.5, 11.5, 12.5, 13.5, and 18 were examined for Hypothesis 1 and those at age 12.5 were used for Hypotheses 2-6. Age 12.5 was selected for use because this age group had the highest number of participants. The TAT requires you to prompt the participant if the details of the story are not given; however, few prompts were noted in the original data. This could be due to

prompts not being needed (i.e., the participant gave elaborated story) or that the prompts simply were not noted in the original paperwork.

Socio-economic status was measured by the Berkeley Socio-Economic Scale. These ratings were collected from Guidance Study members' families at the time of the participants' birth between 1928 and 1929. Birth order was derived from data collected at age 18.

Relationship with mother/father (bond with mother/father and friendliness with mother/father) was collected from interviews of the parents of Guidance Study members when the study members were approximately 21 months old. The participants and their parents participated in lengthy interviews about multiple topics at each assessment. Q sort data was then provided on each participant by the interviewer and another assessor. Similar to the TAT stories, Q sort data was collected at several age waves. Data collected at age 13 were used for this study to compare to the cross-sectional sample of age 12.5 TAT stories. The California Psychological Inventory (CPI) was administered at all three adult waves. This study will utilize the data of participants at 30 years old, at the first adult data collection.

The Guidance Study participants were given the parent interview (parents' bond and friendliness), and the Adolescent Q-sort. This data was not collected for the control group participants, yielding a lower N for these variables. Both Guidance and control group participants were given questionnaires for birth order, socioeconomic status, the California Psychological Inventory, and TAT cards.

Measures

Thematic Apperception Test (TAT)

The TAT is a free-response storytelling measure intended to evaluate the examinee's thoughts, attitudes, observations, and emotional responses to pictures. The materials consist of a

set of cards that portray human figures in a variety of settings and situations. The examinee is asked to tell the examiner a story about each card that includes: what is observed in the picture, what events led up to the picture, what the characters are feeling and thinking, and what the outcome will be.

TAT stories were collected at six age levels: 9 ½ (a smaller subsample not used for this study), 10 ½, 11 ½, 12 ½, 13 ½ and 18, as well as at age 30. Participants were given the standard instructions for telling stories to the Thematic Apperception Test (TAT) cards (Murray, 1943), but as the card set had not been finalized, a variety of pictures was used, some not included in the published version. Within each age, the same set of pictures was presented to all participants. At 9 ½, 10 ½, and 11 ½ the following cards were administered: M17, F13, F16, 3, 2, M18, F15, and F17 (set I). At age 12 ½ the following card set was used: M16, 4, 1, 5, M18, F15, 9, and M11 (set II). At age 13 ½ the following cards were given: FA, MB, F15, C, FD, M18, FF, and M15 (set III). At age 18, participants were administered two cards, M18 and F15, which had been included in each previous year.

Since the original stories were collected in a time when carbon typing was the primary method of documentation, the stories were transcribed from the original format into a Word document with the help of undergraduate volunteers. The stories were checked after transcription to eliminate errors. A team of undergraduate and graduate volunteers was assembled to score the stories using the Interpersonal Decentering scoring system. The stories were reorganized by picture for consistent scoring. All other participant information was eliminated before the transcribed stories were presented to the scorers for scoring.

Interpersonal Decentering

Decentering scorers first identify the interaction units in the story, and then assign each

unit a Decentering score. Interaction units are defined as instances of “two or more characters who are interacting in the same time and place” (Feffer, Leeper, Dobbs, Jenkins, & Perez, 2008, p. 159). Each interaction unit receives one Decentering score. The highest possible category score is used when there are multiple possible scores within a unit.

Scores are assigned on a scale of 1-9, with the lowest level of Decentering receiving a score of 1 and the highest level being assigned a score of 9. The nine categories used in the Decentering scoring system are as follows: (1) undifferentiated relationship; (2) nonreactive directional relationship; (3) reactive directional relationship; (4) interactive directional relationship; (5) internalized other, simple representation; (6) internalized other, surface characteristics; (7) internalized other, internalized state; (8) internalized others; and (9) internalized self-other. Undifferentiated (scored 1) and action-reaction responses (categories 2-4) are considered a more primitive sequential decentering statement and as such are assigned lower scores because they are concrete and do not require abstract, formal operational functioning. Responses that recall, contemplate, or anticipate another character’s behavior can be categorized as internalization (categories 5-9), which shows that the participant is able to think in less egocentric and more abstract terms. The participant’s ability to not only differentiate characters but also integrate the character’s interactions in an abstract way represents a high level of decentering (Leeper, Dobbs, & Jenkins, 2008).

A score of 1 represents an undifferentiated relationship where both characters are engaged in the same activity (e.g., “They like movies.”). The next three categories involve sequential decentering. A score of 2 requires no stated or implied reaction from the receiving character (e.g., “She gives him a movie ticket.”). If there is a reaction from the receiving character, then a score of 3 is given (e.g., “She gives him a movie ticket which he appreciates.”).

If the reaction of the receiving character causes a response from the character with the original response, then a score of 4 is applied (e.g., “She gives him a movie ticket which he appreciates. She is glad.”) (see Table 1).

The scores 5-9 represent the higher, more advanced levels of interpersonal decentering, which involve the character(s) internalizing the attributes of the other character(s) (Feffer, Leeper, Dobbs, Jenkins, & Perez, 2008). A score of 5 is applied when one character is the simple object of the main character (e.g., “He plans on telling her later.”). When the object character is described with external attributes/behaviors, it is given a score of 6 (e.g., “He plans on telling her that she looks nice.”). If the main character elaborates on his/her internal state, then a score of 7 is given (e.g., “He plans on telling her when she is feeling happy.”). A score of 8 is given if the main character internalizes multiple characters, there is an internalized state occurring between two of the object characters (e.g., “He plan on telling her that Suzy does not want to be her friend anymore.”). At the highest level of decentering, a score of 9 is applied when there is an internalized self in conjunction with an interactive relationship with another (e.g., “He felt guilty for telling her that.”) (see Table 1).

Undergraduate student scorers were trained by the methods described in Jenkins (2008b) using standardized practice scoring materials. Stories told about each picture, were scored by a pair of scorers who worked independently, then conferred to compare their scores and reconcile their scoring discrepancies at the level of the interaction unit. Interactions for which consensus could not be reached were discussed and resolved in weekly scoring council meetings.

Regarding reliability, Carberry (1982) found reliability ($r = .85$) between the author and a clinical graduate student in a random sample using 20 stories. Feffer and Jahelka (1968) achieved interscorer reliability of $\rho = .71$ with both scorers being trained in the utilization of

the Interpersonal Decentering scoring system. Likewise, Strober (1979) found adequate interscorer reliability ($r = .78$) between the author and a trained research assistant using 20 stories.

Table 1

Scoring Categories for Interpersonal Decentering

Category	Name	Example
1	Undifferentiated relationship	“They like sports.”
2	Nonreactive directional relationship	“She gives him food.”
3	Reactive directional relationship	“She gives him food which he appreciates.”
4	Interactive directional relationship	“She gives him food that he likes. She is glad.”
5	Internalized other, simple representation	“He plans on telling her later.”
6	Internalized other, surface characteristics	“He plans on telling how she looks.”
7	Internalized other, internalized state	“He plans on telling her when she feels better.”
8	Internalized others	“He plans on telling her that Bill likes her.”
9	Internalized self-other	“He felt he was wrong in telling her that.”

Note. Scored once for each interaction segment (same characters, same time and place) in the story. Used by permission (Leeper, Dobbs, & Jenkins, 2008).

All stories were scored independently by pairs of scorers who had previously attained a reliability criterion of $\rho = .85$ with expert scores on standard practice materials. Scorers conferred weekly to compare their scores and reconcile scoring discrepancies, and stories for which they could not reach consensus were discussed in weekly scoring council meetings. For the present study, per set interscorer reliabilities for the last 50 stories of each story set ranged from .69 to .93 for the highest score, averaging .85, and ranged from .64 to .92 for the average score, averaging .83. The consensus scores were used in all analyses.

For the present study, the highest score for each participant across all stories from the same age and the across-card average of the average scores across interactions from each TAT story were used. The average of each participant's scores for a story was calculated by dividing the sum of category scores by the number of interactions in that story. The average of per story average scores was calculated for age 12.5 yielding an average of the averages score for each participant. The highest score represents maximum spontaneously used decentering ability, which may be used only on rare occasions. The average represents the typical level of functioning, or how much of the time across situations the person typically exerts the effort to decenter at higher levels.

Socioeconomic Status

Ratings were collected describing the socioeconomic situation of the Guidance Study members' families at the time of the study members' births in 1928-29. The social class of the Guidance Study parents was quantified by using the formulation of an Index of Status Characteristics (ISC) (Warner, W., Meeker, M. & Eells, K, 1949). Investigators at the beginning of the study in 1929 wanted to measure a given home with reference to its effect on the physical, mental, and character development of the child.

There are three steps in obtaining an ISC for the participants: (1) Make the primary ratings on the four status characteristics which comprise the Index, occupation, source of income, house type, and dwelling area, (2) Calculate the Index of Status characteristics, which is a weighted total of the four ratings, and (3) Convert the Index into a form indicating social-class equivalence. Each of the four status characteristics is rated on a 7-point scale which ranges from a rating of 1, very high status value, to 7, very low status value. The Index of Status Characteristics (ISC) is obtained by tallying the ratings after they are weighted by the following

factors: Occupation x 4, Source of Income x 3, House Type x 3, and Dwelling Area x 2. The range of the resulting (ISC) is 12 to 84. Finally, the Index is converted to a form in which indicates social-class position. The ISC was used for this study yielding social-class predictions on a 15-point scale ranging from 1, Upper Upper Class, to 15, Lower Lower-Lower Class.

Birth Order

Data was collected on childhood family constellations of the Guidance Study members at age 18. Birth order is represented by the participants' ordinal position in the family. For example, 1 = first born, 2 = second born, 3 = third child born in the family and so on.

Parental Relationships

Parents, usually mothers, of the Guidance Study members were interviewed by a research team member and a social worker when the study members were approximately 21 months old. Information was collected on both the parents' background and the present family. For this variable the following items will be used: close bond of mother to participant and close bond of father to participant. These items were scored on the following scale: 1 = Extremely close relationship, friendly or hostile; 2 = Closer than average; 3 = Taken for granted; 4 = Little real attachment, few confidences; and 5 = No attachment or interest. Friendliness to mother/father was also examined. The following scale was used: 1 = Exceptionally friendly; 2 = Easy, friendly relationship; 3 = Friendly for most part, occasional friction, no chronic tension; 4 = Chronic tension or hostility, distrust or disapproval; and 5 = Extreme hostility or distrust, open friction.

Decentering Q-Sort Scale

There are 104 items in the adolescent Q-sorts using the early case materials, and 100 item adult Q-sorts were done using adult interviews for the Guidance Study. Items each written on a single card were sorted in a forced normal distribution of 9 categories (1-3 least characteristic, 4-

6 somewhat (un)characteristic, and 7-9 most characteristic). Three psychologists, one the interviewer, the other two staff, sorted the Q-sort items to describe each participant. The inter-rater reliability for individual items was calculated by intraclass correlation for the 90 items common to adolescent and adult sorts. The average reliability for early adolescence was .63 (Eichorn et al., 1981).

The Decentering Q-Sort Scale was based on the cognitive processes addressed in the Interpersonal Decentering scoring system (i.e., more internalization characterized by introspection, aware of others' and your own internal states and motives, and attentiveness to interpersonal cues). The five items selected for in the Decentering Q-Sort Scale were chosen to describe these processes, and are listed in Appendix. At the age 30 wave, the theory-based scale was significantly related to Decentering cross-sectionally ($r = .33, p < .01$) and showed good internal consistency ($\alpha = .85$). In the present study, this scale composed of the same items from the age 13 Adolescent Q sort also showed good internal consistency ($\alpha = .70$).

Empathy

The California Psychological Inventory (CPI) contains 480 items which were administered to the participants, their spouses, and children at Guidance Study adult follow-ups. The CPI is a structured self-report true/false questionnaire that requires a fourth grade reading level to complete. It is scored on 18 scales that have been divided into four groups to aid interpretation (Megargee, 1972).

The Empathy scale on the California Psychological Inventory (CPI) has a test-retest reliability of .84 and the internal consistency as determined by K-R Formula 21 was .71 (Megargee, 1972). In a sample of medical school applicants, a correlation of .39 was reported between Empathy scale scores and Q-sort empathy ratings (Megargee, 1972). Additionally, the

Empathy scale was found to correlate ($r = .42$) with social acuity (Megargee, 1972). Hogan and Dickstein (1971) found a significant correlation ($r = .48$) between a measure of mature moral judgments and the Empathy scale.

CHAPTER 3

DATA ANALYSIS PLAN

Descriptive correlations were conducted to determine what statistical controls might be necessary. Tukey's exploratory data analysis was conducted for the independent variables to detect outliers/anomalies. As is to be expected in long-term studies, not all individuals participated in the study at all five ages of interest. As such, the data was analyzed in two ways to make use of all available data. First, the results were studied in a cross-sectional analysis showing the use of decentering at age 12.5 and the following independent variables: gender, socioeconomic status, birth order, quality of relationship with parents at age 21 months, Decentering Q-Sort Scale at age 13, and CPI Empathy Scale at age 30. Second, a longitudinal analysis that includes only the participants for whom data are available (TAT card F15 and M18) at all five ages was conducted. Six hypotheses were tested for the present study.

First, it was hypothesized that as children's chronological age increases, their Decentering will also increase. Decentering scores from stories told about cards F15 and M18 for ages 10.5, 11.5, 12.5, 13.5, and 18 were used to test age effects over time. A repeated measures ANOVA was utilized for this hypothesis with the highest Decentering score and the average of averages at each age as the repeated measures.

Second, it was hypothesized that there would be a positive correlation for early familial socioeconomic status (coded 1 = upper upper class to 15 = lower lower-lower class) and age 12.5 Decentering scores. A correlational analysis was used to test this hypothesis. Specifically, a Pearson product-moment correlation coefficient test was conducted for each of the two Decentering scores.

Third, it was hypothesized that individuals that are ordinally later in birth order will have

higher Decentering scores. The age group with the most TAT data (age 12.5) was utilized to test this hypothesis. Two Pearson product-moment correlation coefficient tests were conducted to test the third hypothesis.

Fourth, it was hypothesized that positive early relationships to family members, specifically parents, will be positively correlated to one's age 12.5 Decentering. Relationships to family members were tested by the closeness to mother/father and friendliness to mother/father as assessed at age 21 months. Two Pearson product-moment correlation coefficient tests were used to test this hypothesis.

Fifth, it was hypothesized that if a child is socially adept and perceptive they should likewise show higher Decentering scores. The Decentering Q-Sort Scale was used to determine a participants' social manifestation of decentering processes. Two Pearson product-moment correlation coefficients were used to test this hypothesis.

Finally, it was hypothesized that empathy would be positively correlated to Decentering scores. Empathy was measured by the California Psychological Inventory (CPI) Empathy Scale collected at age 30. Two Pearson product-moment correlation coefficients were used to test this hypothesis.

CHAPTER 4

RESULTS

Descriptive Statistics

Descriptive statistics were measured for each TAT card given at age 12.5 (see Table 2) and TAT cards F15 and M18 given at each age wave between 10.5 and 18 years of age (see Table 3). The sample size for each TAT card given at age 12.5 varied due to child leaving the testing session early, the examiner not presenting the card, malfunction of recording equipment, and (most often) stories with no scoreable interaction units. The overall number of participants for Decentering scores for age 12.5 was $N = 142$ using the criterion of a minimum of two stories with at least one scoreable interaction. Similarly, the variable sample size for each age wave for the repeated measures analyses was most likely due to the same reasons listed above.

Table 2

Thematic Apperception Test (TAT) Decentering Scores Descriptive Statistics for Age 12.5 by Card

Card #	<i>n</i>	Highest <i>M</i>	<i>SD</i>	Average <i>M</i>	<i>SD</i>
Card 1	66	4.24	2.02	3.49	1.47
Card 4	58	4.00	2.45	2.67	1.44
Card 5	86	3.33	2.25	2.54	1.56
Card 9	75	2.35	1.66	1.76	.86
Card M11	108	5.00	2.75	3.50	1.99
Card F15	133	3.64	2.15	3.03	1.82
Card M16	59	2.73	1.70	2.24	1.02
Card M18	96	3.72	2.28	2.92	1.68
Highest Decentering Score	142	9.00	2.37	6.08	2.37
Average of the Average Decentering	142	6.00	.93	2.78	.93

Note. The variation in sample size is due to the variation in administration of the card set. Some cards were not given due to participant fatigue or time constraints. Additionally, those with no interactions lowered the sample size.

Associations of demographic variables with variables of interest showed that birth order ($M = 1.98$, $SD = 1.29$) was not significantly correlated with any other variable in this study. Socioeconomic status (SES) was significantly correlated with father's bond with child ($M = 2.88$, $SD = 1.21$; $r(97) = -.23$, $p < .02$ (see Table 7), suggesting that the higher the SES, the stronger the father's observed bond with the child. Socioeconomic status was also correlated with age 30 CPI Empathy scores, $r(101) = -.25$, $p < .01$ (see Table 8).

Table 3

Descriptive Statistics for Decentering Scores of TAT cards F15 and M18 Across All Ages

Age Group	<i>n</i>	Highest <i>M</i>	<i>SD</i>	Average <i>M</i>	<i>SD</i>
Age 10.5	118	4.60	2.40	3.15	1.55
Age 11.5	133	4.33	2.53	3.02	1.56
Age 12.5	143	4.32	2.29	3.04	1.67
Age 13.5	86	4.42	2.59	3.10	1.75
Age 18	98	4.59	2.68	3.12	1.86

Note. The variation in sample size is due to the variation in administration of the card set. Some cards were not given due to participant fatigue or time constraints. Additionally, those with no interactions lowered the sample size.

Gender Effects

Independent samples t-tests were conducted to compare Decentering for boys and for girls at all TAT cards given at age 12.5. There was a significant difference in the highest Decentering score at age 12.5 for girls ($M = 6.50$, $SD = 2.28$) and boys ($M = 5.70$, $SD = 2.40$); $t(140) = -2.02$, $p < .05$. Similarly, girls were significantly higher in the average of the average Decentering scores at age 12.5 ($M = 2.95$, $SD = .96$) than boys ($M = 2.63$, $SD = .88$); $t(140) = -2.12$, $p < .04$ (see Figure 1). Independent samples t-tests were also conducted to test gender differences on average and highest Decentering scores for the separate TAT cards and no significant effects were found, all $ps > .05$.

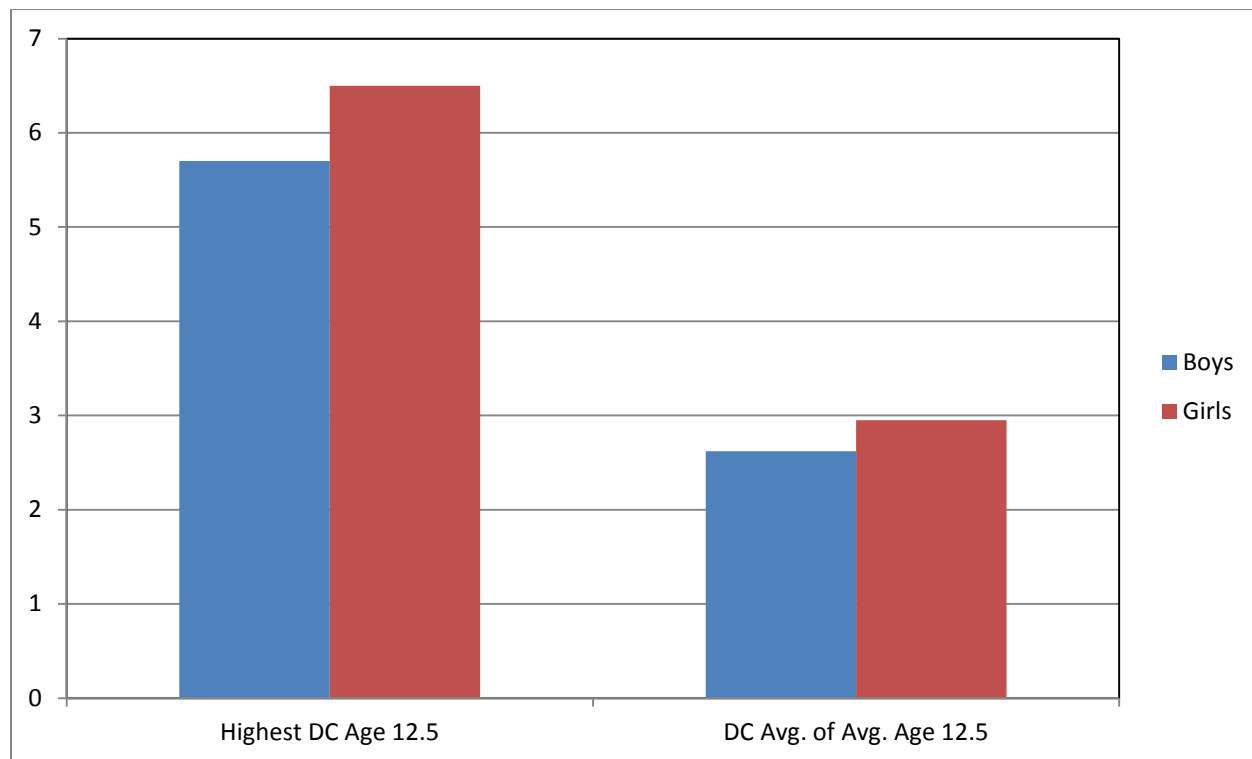


Figure 1. Mean differences values for boys and girls for age 12.5 highest Decentering scores and the average of the averages for Decentering scores at age 12.5.

Regarding gender differences in associations between Decentering scores and variables of interest, there was not a significant correlation with socioeconomic status for boys, $r(71) = .15, p < .22$, for highest Decentering scores; however, a gender difference for girls, $r(65) = .27, p < .03$, was found. There was not a significant correlation with socioeconomic status for boys, $r(71) = .04, p < .77$, or girls, $r(65) = .21, p < .09$, for overall Decentering scores. Likewise, there was not a significant correlation with birth order for boys, $r(74) = .11, p < .35$, or girls, $r(68) = -.10, p < .42$, for highest Decentering scores or overall Decentering scores $r(74) = .07, p < .54$ (boys), $r(68) = -.01, p < .96$ (girls) (see Table 4).

There was not a significant correlation with mother's friendliness toward child for boys, $r(39) = -.22, p < .17$, or girls, $r(37) = .13, p < .46$, for highest Decentering scores or overall Decentering scores $r(39) = -.31, p < .06$ (boys), $r(37) = .13, p < .46$ (girls). Likewise, there was not a significant relationship found between father's friendliness toward child for boys, $r(39) = -$

.19, $p < .26$, or girls, $r(37) = .06, p < .71$, for highest Decentering scores or overall Decentering scores for girls, $r(37) = -.02, p < .90$. There was a significant correlation found between father's friendliness toward child for boys, $r(39) = -.34, p < .04$, with overall Decentering scores (see Table 4). This suggests that the more friendliness of father toward child (for boys), the higher the boy's Decentering scores.

Table 4

Intercorrelations for Decentering Scores and Other Variables by Gender

Variable	N	Boys		N	Girls	
		Highest	Average		Highest	Average
Socioeconomic Status ^a	71	.15	.04	65	.27*	.21
Birth Order ^b	74	.11	.07	68	-.10	-.01
Mom Friendliness ^c	39	-.22	-.31	37	.13	.04
Dad Friendliness ^c	39	-.19	-.34*	37	.06	-.02
Mom Bond ^d	39	-.19	-.18	37	-.17	-.31
Dad Bond ^d	39	-.07	-.32*	37	-.07	-.13
Q-sort Decentering Scale	28	-.06	.26	29	.15	.02
Empathy Age 30	36	-.17	.05	39	-.20	-.36*

Note. * $p < .01$, ** $p < .001$. ^aCoded 1 = Upper upper class to 15 = Lower lower-lower class. ^bCoded 1 = firstborn, 2 = second born, 3 = third born, and so on. ^cCoded 1 = Exceptionally friendly; 2 = Easy, friendly relationship; 3 = Friendly for most part, occasional friction, no chronic tension; 4 = Chronic tension or hostility, distrust or disapproval; and 5 = Extreme hostility or distrust, open friction. ^dCoded 1 = Extremely close relationship, friendly or hostile; 2 = Closer than average; 3 = Taken for granted; 4 = Little real attachment, few confidences; and 5 = No attachment or interest.

There was not a significant correlation with mother's bond with child for boys, $r(39) = -.19, p < .26$, or girls, $r(37) = -.17, p < .33$, for highest Decentering scores or overall Decentering scores $r(39) = -.18, p < .28$ (boys), $r(37) = -.31, p < .07$ (girls). Likewise, there was not a significant relationship found between father's bond with child for boys, $r(39) = -.07, p < .67$, or girls, $r(37) = -.07, p < .70$, for highest Decentering scores or overall Decentering scores for girls, $r(37) = -.13, p < .46$. There was a significant correlation found between father's bond with child

for boys, $r(39) = -.32, p < .05$, with overall Decentering scores (see Table 4). These findings suggest that the stronger the bond of father toward child (for boys), the higher the child's Decentering scores.

There was not a significant correlation with adolescent Q-sort Decentering scale for boys, $r(28) = -.06, p < .76$, or girls, $r(29) = .15, p < .43$, for highest Decentering scores or overall Decentering scores $r(28) = .26, p < .18$ (boys), $r(29) = -.02, p < .92$ (girls). Likewise, there was not a significant relationship found between the CPI Empathy Scale for boys, $r(36) = -.17, p < .32$, or girls, $r(39) = -.02, p < .22$, for highest Decentering scores or overall Decentering scores for boys, $r(36) = .05, p < .77$. There was a significant correlation found between the CPI Empathy Scale for girls, $r(39) = -.36, p < .03$, with overall Decentering scores (see Table 4). This suggests that as girls age 30 self-report empathy scores increase, their overall age 12 Decentering scores decreased.

Hypothesis 1: Age and Decentering for Card F15 and M18

A one-way repeated measures ANOVA was conducted to test the relationship between participant age (ages 10.5, 11.5, 12.5, 13.5, and 18; a within subjects independent variable) and Decentering scores (highest and overall average). The omnibus ANOVA for highest Decentering scores was not statistically significant, $F(4,88) = .49, p < .74$. Similarly, the omnibus ANOVA for overall average Decentering scores was not statistically significant, $F(4,88) = .43, p < .79$.

Since the a priori assumption was that the youngest and oldest would differ, pairwise comparisons were examined between each age. Results for pairwise comparisons for highest Decentering scores were not statistically significant; all p values $> .17$ (see Table 5). Results of the pairwise comparisons for the overall average Decentering scores were not significant; all p values $> .12$ (see Table 6).

Table 5

Paired Samples Test for Highest Decentering Scores of Cards F15 and M18 Across All Ages

Age Pairs	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
10-11	.48	3.24	1.38	87	.17
10-12	.29	3.30	.85	92	.40
10-13	-.02	3.33	-.04	48	.97
10-18	.55	3.77	1.20	66	.23
11-12	.15	2.98	.51	108	.61
11-13	-.52	3.26	-1.27	63	.21
11-18	-.01	3.22	-.04	78	.97
12-13	.18	2.98	.50	65	.62
12-18	-.19	3.12	-.54	78	.59
13-18	-.40	3.05	-.90	47	.37

Note. * $p < .01$, ** $p < .001$.

Hypothesis 2: Socioeconomic Status

A Pearson product-moment correlation coefficient was computed to assess the longitudinal relationship between early socioeconomic status (coded 1 = Upper Upper Class to 15 = Lower Lower-Lower Class) and the later highest and overall average Decentering scores. There was not a significant correlation with socioeconomic status, $r(136) = .12, p < .18$, for overall average Decentering scores. However, there was a significant relationship with socioeconomic status and the highest Decentering scores, $r(136) = .20, p < .02$ (see Table 7).

Hypothesis 3: Birth Order

A Pearson product-moment correlation coefficient was computed to assess the relationship between birth order (coded 1 = first born, 2 = second born, 3 = third born, and so on) and the highest and overall average Decentering scores. There was not a significant correlation

with birth order, $r(142) = .01, p < .93$ and overall average Decentering scores. No significant relationship with birth order and highest Decentering scores were found (see Table 7).

Table 6

Paired Samples Test for Overall Average Decentering Scores of Cards F15 and M18 Across All Ages

Age Pairs	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
10-11	.27	.20	1.35	87	.18
10-12	.04	.23	.18	92	.86
10-13	-.07	.36	-.20	48	.85
10-18	.42	.26	1.58	66	.12
11-12	.19	.21	.88	108	.38
11-13	-.23	.26	-.89	63	.38
11-18	.01	.25	.04	78	.97
12-13	-.14	.25	-.54	65	.59
12-18	-.02	.27	-.09	78	.93
13-18	-.25	.39	-.66	47	.52

Note. * $p < .01$, ** $p < .001$.

Hypothesis 4: Relationship with Parents

A Pearson product-moment correlation coefficient was computed to assess the longitudinal relationship with father and mother and the highest and overall average Decentering scores. There were no significant correlations found between the highest Decentering score and these independent variables (see Table 7). There was a negative correlation between the early bond with father (coded 1 = extremely close relationship, friendly or hostile to 5 = no attachment or interest) and later overall average Decentering scores, $r(76) = -.26, p < .03$. Likewise, there was a negative correlation between the bond with mother (coded similarly) and overall average Decentering scores, $r(76) = -.24, p < .04$. Thus, the greater the bond the parents expressed with their children, the more mature Decentering the child engaged in later in pre-adolescence. There

was no significant relationship found between friendliness with mother and father, $r(76) = -.17, p < .13$; $r(76) = -.18, p < .11$ respectively and overall average Decentering scores.

Hypothesis 5: Social Manifestation of Decentering

Pearson product-moment correlation coefficients were computed to assess the cross-sectional relationship between the highest and overall average Decentering scores and social manifestation of Decentering (as measured by the Q sort Decentering Scale). Decentering scores (highest and overall average) were not significantly related to social manifestation of Decentering (the Q sort Decentering Scale), $r(57) = .03, p = .82$; $r(57) = .08, p = .57$ respectively (see Table 8).

Hypothesis 6: Empathy

Pearson product-moment correlation coefficients were computed to assess the longitudinal relationship between age 12 highest and overall average Decentering scores and age 30 Empathy (measured by the CPI). There was a significant negative correlation between both the highest and overall average Decentering scores at age 12.5 and self-rated empathy 18 years later, $r(75) = -.30, p < .01$; $r(75) = -.25, p < .03$ respectively. Contrary to the hypothesis, participants high in Decentering as children reported less Empathy as adults than those lower in Decentering (see Table 8).

Table 7

Summary of Intercorrelations, Mean, and Standard Deviations on Family Independent Variables with age 12.5 TAT Interpersonal Decentering Scores

Measure	1	2	3	4	5	6	7	8
1. Birth Order ^a	–	.11	-.18	.04	-.12	.16	-.01	.01
2. Social Class ^b	.11	–	-.04	-.10	.03	-.23*	.20*	.12
3. Mom Friendliness ^c	-.18	-.04	–	.53**	.69**	.46**	-.10	-.17
4. Dad Friendliness ^c	.04	-.10	.53**	–	.33**	.76**	-.08	-.18
5. Mom Bond ^d	-.12	.03	.69**	.33**	–	.43**	-.18	-.24*
6. Dad Bond ^d	.16	-.23*	.46**	.76**	.43**	–	-.10	-.26*
7. Highest Decentering Score	-.01	.20*	-.10	-.08	-.18	-.10	–	.66**
8. Average of the Average Scores	.01	.12	-.17	-.18	-.24*	-.26*	.66**	–
M	1.98	2.88	2.24	2.37	2.20	2.36	6.08	2.78
SD	1.29	1.21	.73	.84	.61	.79	2.37	.93

Note. * $p < .01$, ** $p < .001$. ^aCoded 1 = firstborn, 2 = second born, 3 = third born, and so on. ^bCoded 1 = Upper Upper Class to 15 = Lower Lower-Lower Class. ^cCoded 1 = Exceptionally friendly; 2 = Easy, friendly relationship; 3 = Friendly for most part, occasional friction, no chronic tension; 4 = Chronic tension or hostility, distrust or disapproval; and 5 = Extreme hostility or distrust, open friction. ^dCoded 1 = Extremely close relationship, friendly or hostile; 2 = Closer than average; 3 = Taken for granted; 4 = Little real attachment, few confidences; and 5 = No attachment or interest.

Table 8

Summary of Intercorrelations, Mean, and Standard Deviations on Self Variables with Age 12.5 TAT Interpersonal Decentering Scores

Measure	1	2	3	4	5	6	7
1. Gender ^a	–	-.01	-.13	-.14	-.62**	.17*	.18*
2. Social Class ^b	-.01	–	.11	-.09	-.25*	.20*	.12
3. Birth Order ^c	-.13	.11	–	-.01	-.02	.01	.01
4. Q Sort Decentering Scale	-.14	-.09	-.01	–	.00	.03	.08
5. Empathy Age 30	-.62**	-.25*	.02	.00	–	-.30**	-.25*
6. Highest Decentering Score	.17*	.20*	.01	-.03	-.30**	–	.66**
7. Average of the Average Scores	.18*	.12	.01	.08	-.25*	.66**	–
M	1.52	2.88	1.98	4.42	16.05	6.08	2.78
SD	.50	1.21	1.29	.86	2.83	2.37	.93

Note. * $p < .01$, ** $p < .001$. ^aCoded 1 = boys, 2 = girls; correlations are point biserial. ^bCoded 1 = Upper Upper Class to 15 = Lower Lower-Lower Class.

^cCoded 1 = firstborn, 2 = second born, 3 = third born, and so on.

CHAPTER 5

DISCUSSION

Overall, the results indicated that age was not related to highest or overall Decentering scores for the two TAT cards (F15 and M18) used in this study. Socioeconomic scores were significantly related to highest age 12 Decentering scores but were not related to overall Decentering scores; adolescents born into middle class families used higher spontaneous decentering ability (highest Decentering scores) than did those born into upper class families. Birth order was not related to highest or overall Decentering scores. Father's and mother's bond with child at age 21 months were both correlated to overall Decentering scores, with closer-bonded parents' children scoring higher on overall average Decentering, but not with highest Decentering scores. There was no significant relationship found with friendliness of parent with highest or overall Decentering scores. Likewise, there was no significant relationship found between adolescent Q-sort Decentering Scale scores and highest or overall Decentering scores. Contrary to what was hypothesized, a negative correlation was found between age 30 CPI Empathy scale scores and age 12 highest and overall Decentering scores with higher scoring adolescents describing themselves as less empathic 18 years later. Lastly, results indicated that girls had higher Decentering scores than boys at age 12.

It was hypothesized that Melvin Feffer's Decentering scoring system for the TAT would follow the developmental trends asserted by Piaget and Feffer. Specifically, a significant increase in Decentering would be observed in the period from age 10 ½ to late adolescence (18 year old age group). This study was driven by Leeper, Dobbs, and Jenkins' (2008) suggestion that future research with children/adolescents should explore whether Interpersonal Decentering scores parallel the assertions made of Piagetian cognitive development. This study attempted to address

such an association between Interpersonal Decentering and aspects of cognitive development related to chronological age. Piaget's cognitive theory asserts that cognitive development increases in more complex ways as chronological age increases (Piaget, 1950). Feffer and Gourevitch (1960) found that performance on Feffer's Role-Taking Task paralleled performance on Piaget's perceptual and cognitive tasks. Additionally, chronological age has been found to be related to one's ability to manage dissimilar perspectives (Feffer & Gourevitch, 1960; Wolfe, 1963) and success of social interactions (Feffer & Suchotliff, 1966).

The results of this study did not indicate a significant relationship for highest or overall average Decentering scores across all age groups (ages 10, 11, 12, 13, and 18). This is contrary to what was hypothesized and found in previous studies (Feffer & Gourevitch, 1960; Feffer & Suchotliff, 1966; Wolfe, 1963). The current results may be due to limitations of the data (see Limitations section below). It may be that cognitive development is more individualized instead of generalizable in fixed stages or age categories. In Feldman's (2004) paper on Piaget's stage theory, he asserts that the stages may be more fluid than originally proposed. For example, in Piaget's original theory, formal operations stage is achieved during adolescence; however, Siegler et al., (1981) found that some adolescent individuals were not able to achieve typical tasks used to assess this stage. Due to these findings Siegler et al. suggested that formal operations may not be universal.

Although there was no significant relationship found between socioeconomic status (SES) and overall average Decentering scores, there was a significant relationship with SES and highest Decentering scores. Therefore, participants' highest spontaneous Decentering was correlated with lower SES (coded 1 = Upper Upper Class to 15 = Lower Lower-Lower Class) while typical level of Decentering or overall average scores were not. This is contrary to the

hypothesized relationship that the higher the SES reported would result in higher Decentering scores. Upon closer inspection of the data, the frequency distribution of SES is mostly in the “Upper Upper” to “Middle Upper Middle” range (see Figure 2). This distribution may account for the results in that there were no participants in the Lower Middle to Lower Lower range and therefore the environments represented in this data set may have been sufficient with enrichment for decentering.

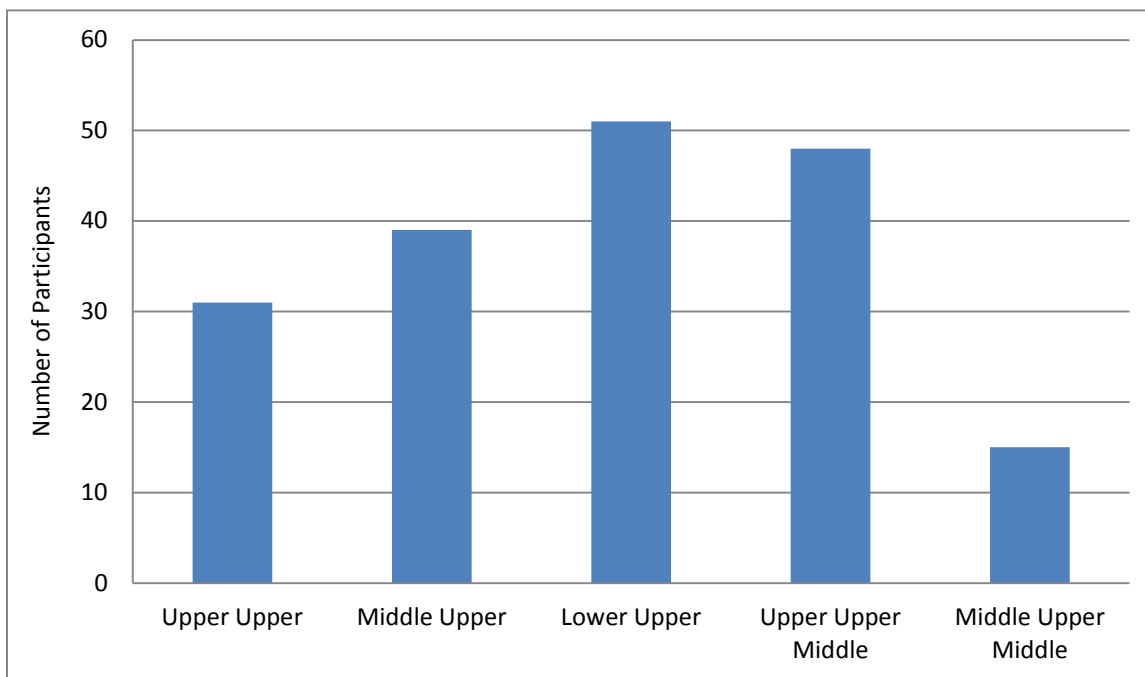


Figure 2. Frequencies for socioeconomic status for participants.

There was no significant relationship found between participants’ birth order and Decentering scores (highest or overall average scores). This may indicate that the ordinal number of birth order may not be as important as the type of relationship with siblings and the environment of childhood or that the effect may be more strongly related to first born children versus all later born children. Additionally sibling level of Decentering may play an important part in modeling this effectively for the participant to benefit from birth order.

Results indicate a closer bond with father and mother predicted more mature participant Decentering scores 10-11 years later. Keller (1976) found similar results, indicating that perceived parental support and severity of each parent were found to relate to social-cognitive ability. Likewise, Kenny and Gallagher (2002) found that attachment to father and mother was correlated with competency in social interactions. Although bond with parents correlated with Decentering scores, friendliness of mother and father to the child did not. This may suggest that constructs such as attachment to and bond with the child may be better predictors of the development of decentering in the child than affective character traits (i.e., friendliness) of the parent. Regarding gender effects, father's bond and friendliness toward boys were both significantly related to Decentering scores. This suggests that the relationship of the father with male children in particular is significant to those children developing traits or abilities such as decentering.

There was no significant relationship found between the social manifestation of Decentering, as measured by the adolescent Q sort, and Decentering scores (highest and overall average). The Decentering Q-sort consists of five items and was first used by Nixon, Jenkins, and Labrie (2011), who found a significant positive relationship between Decentering and the Decentering Q-sort Scale for Guidance Study participants at age 30. These findings may be due to the variables involved in adolescent social behavior compared to adulthood. Such influences might include peer relationships (Beal et al., 2001; Potard, et al., 2008) and/or environmental factors like neighborhood, church involvement, and media (Griffin et al., 2003).

Another significant finding is that adolescent Decentering scores were negatively correlated to scores on the CPI Empathy scale 18 years later. This is contrary to the hypothesized direction and to the findings of Bengtsson and Johnson (1992) who found that participant

perspective-taking was positively related to empathy (as measured by a 22-item self-report measure developed by Bryant, 1982) for both boys and girls. Additionally, Kurtz and Eisenberg (1983) found a relationship between empathy (measured by Mehrabian and Ebstein's (1972) self-report empathy questionnaire), role-taking and resistance to deviation in children. The California Psychological Inventory (CPI) data were collected after participants became adults (30 year old). Theoretically, it could be assumed that those with high Decentering scores should grow into more empathic adults; however, they might not self-report that way. This may be due to lack of intrapersonal insight or a variety of understandings of the empathy construct. Additionally, development over the 18 year span may affect not only levels of Decentering but also one's use of empathy. Positive and negative environmental and social influences may contribute to one's use of empathy more or less in their lifetime. Moreover, self-report, story-telling, and interviewer-rated methods may be measuring different processes (Bornstein, 2002; McClelland, 1980; Winter et al., 1998), which may have resulted in findings that were opposite of what was hypothesized.

A further issue with this hypothesis concerns the measurement of empathy in regards to Decentering. Specifically, that Decentering is a cognitive construct that could be positive or negative depending on the emotional component (e.g., attachment versus Machiavellianism). Nixon et al. (2011) found that adult CPI scores for Socialization were negatively related to adult Decentering scores. In the era that this data was collected (1950s) high socialization could be more a measure of conformity than one's social effectiveness. Decentering is very different from conformity, thus may be an explanation for the negative relationship between these constructs. Additionally, a close examination of the CPI Empathy scale correlates may be warranted to determine if the Empathy scale is indeed measuring empathy as it is being defined for this study.

The variable, gender, yielded interesting results as well. One unhypothesized significant finding was that girls were found to Decenter more often and at higher levels than their boy counterparts. These results may suggest that girls spontaneously decenter more than boys and may do so more frequently than males at age 12. This is not surprising, since other studies on perspective taking have had similar results. Dunn et al. (1991) found girls to be more successful than boys in understanding feelings. Hinnant and O'Brien (2007) found the relation between cognitive inhibitory control and empathy to be moderated by gender. Father's bond and friendliness toward boys were also found to be significant in boys' levels of Decentering. This result suggests that the father's early relationship (bond and friendliness) with sons, in particular, is significantly related to the child's use of Decentering later in childhood.

Limitations of the Present Study

The findings of this study were not statistically significant for chronological age and Decentering scores. However, this is not surprising given the limitations of the TAT longitudinal data for this hypothesis. Only two TAT cards (M18 and F15) were administered longitudinally, giving a limited sample of social situations. Specifically, there was a low sample size ($N = 23$) for participants with TAT stories on cards F15 and M18 across all age groups (10.5, 11.5, 12.5, 13.5, and 18). For example, card M18 depicts a man lying face down on a bed in a room with bedroom furniture versus a card that depicts two characters. Card F15 shows a woman standing in a doorway with a man lying on a bed in the next room.

Another limitation is the cultural and temporal constraints to generalizability. The data were collected from participants in the 1930s and late 1950s. Therefore there may have been different cultural expectations for gender and ways of interacting socially, which may have led to different reactions to events. Gender roles and expectations of individual in the 1930s and 1950s

might have shaped the behavioral manifestations of Decentering. For example, a situational influence in that time period was the World War. This was seen in the stories told by participants in that the content contained this situational event. The assumption is that the underlying psychological processes would be the same regardless of the era that data was collected; however this could be an area for further research.

Future Research

Measurement method issues should be considered in future research along these lines, including using non-self-report measures to assess for empathy, such as observational ratings. Enright and Lapsley (1980) assert that future research should focus on defining the domain and the constructs of the domain. Using multi-method measures may aid in doing just that. Enright and Lapsley (1980) also suggest that future research include an item analysis for test for homogeneity. They state that this may be difficult due to different questions being asked in role-taking tasks. However, collecting stories with the same 10-12 cards across age groups in order to increase the power of the longitudinal component may yield more comparable thought samples and thus increase the likelihood of statistically significant findings.

Future research should aggregate across years and situations to reduce and study situational effects, especially for adolescents. Another question for future study is whether decentering is more trait-like or to what extent do individuals change due to situation. Each TAT card depicts a situation that may pull for more or less mature decentering processes. Considering this in the selection of the TAT cards used in future research is important.

Future research should also duplicate sampling from a different population to eliminate results that are sample specific. The sample of the Berkeley Guidance Study was relatively

homogeneous in socioeconomic status, education, and ethnicity. Future studies should aim at gathering a more heterogeneous sample so that the generalizability to the population is increased.

Piaget's (1972) cognitive developmental model is one of the most important models of human cognitive development. According to Piaget's model, thinking progresses through a series of stages and then stops at formal operations during adolescence. Many researchers have built upon this framework by extending the model into adulthood (Erikson, 1968; Kohlberg, 1969, 1984). These models either have expanded Piaget's model by adding higher cognitive stages such as post-formal operations, or they have extended it by including more cognitive domains such as moral reasoning and self-understanding. Future research should incorporate these extensions by including intermediate age waves of TAT stories from adolescence into adulthood (e.g., ages 20, and 25).

In sum, although the results of this study were not statistically significant for all of the hypotheses, it is likely that the above mentioned limitations contributed to these findings. Future research should focus on a broader scope of story collection and should consider spanning across adolescence into early adulthood.

APPENDIX
DECENTERING Q SORT SCALE

Q-Sort Item #	Item
16.	Is introspective; self-observing; concerned with self as an object. (N.B.: Introspectiveness per se implies neither insight nor narcissism nor brooding.)
32.	Aware of the impression he makes on others; accurately perceives his social stimulus value.
44.	Evaluates the motivation of others in interpreting situations. (N.B.: Accuracy of evaluations is not assumed. N.B.: Again, extreme placement in one direction implies pre-occupation with motivational interpretation; at the other extreme, the item implies a psychological obtuseness; S does not consider motivational factors.)
60.	Has insight into own motives and behavior.
64.	Is socially perceptive of a wide range of interpersonal cues.

Note. Items from Present and Past in Middle Life, Edited by D.H. Eichorn, J.A. Clausen, N. Haan, M.P. Honsik, and P.H. Mussen, 1981, p. 268-270. Copyright 1981 by Academic Press Inc.

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