BIOLOGICAL AND ENVIRONMENTAL DETERMINANTS
OF SELF-CONCEPTION: IMPLICATIONS
FOR EMPATHY

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Caroline Curlin, M.S.

Denton, Texas

August, 1991
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The purpose of this study was to determine if two elements of self-conception, environment and biology, influenced trait and dyadic measures of empathy. Constructivist theory and measures were utilized to conceptualize this process. Subjects were separated into same and opposite gender pairs, and cognitive empathy was measured after 20-minute interactions. Subjects completed trait measures of empathy as well as a self-determination scale and constructivist measures of understanding of their peers.

Consistent with expectations, biologically endorsing individuals and those endorsing either determinant in an extreme direction were less empathic upon both trait and cognitive measures. Contrary to prediction, higher constructivist measure of construct organization was correlated with higher biological determinism. This was explained as a similar developmental stage in which subjects were no longer receptive to new information. No superiority for same gender pairs was realized, and although there were some gender differences upon trait measures, they did not consistently indicate superior empathic skills for females. Degree of rating extremity tended to predict lesser empathy, consistent with predictions. Lastly, females evidenced self-determination and extremity changes corresponding to menstrual
cycle. Implications for premenstrual syndrome are therefore discussed.
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Psychologists and philosophers have argued for centuries over the extent to which behavior is determined by biological and environmental factors. Some purport that people are born with predispositions toward certain personality styles and temperament. Others argue that the mind is a "tabula rasa" upon which experience can virtually write any potential behavior or personality (Kagan & Havermann, 1980). Most psychologists would agree that humans are multiply influenced by both nature and nurture. Nature may set the upper and lower boundaries of behavior; within that framework environment determines the degree to which one reaches one's potential. However, the relative importance or value of each factor is still debated. This issue was viewed by Coan (1979) as an important dimension upon which to classify psychological theorists. He asked leading psychologists with specialties in history and systems to rate the major historical figures on several theoretical values. Their responses factored into six dimensions upon which theorists could be meaningfully compared; two of these dimensions relate to the nature/nurture issue. Sigmund Freud, Carl Jung, Francis Galton, among others, were considered to evidence a biological or
constitutional emphasis in their psychological theorizing. B. F. Skinner, Carl Rogers, C. L. Hull, and John B. Watson were considered examples of the environmental perspective. Both viewpoints seem viable in today's practice.

The nature/nurture issue has been particularly salient in the psychology of women. Perhaps due to women's capacity to reproduce, their monthly biological cycles, or their ability to produce life-giving substance, women have represented the material, earthly, and corporeal aspects of humanity. Psychologists have tended to perceive women as more rooted than men in physiology (Wehr, 1987). This may have been influenced by the prevalence of male theorizing in psychology since its conception. One clear example is Ernst Becker (1973, cited in Wehr, 1987) describing how children grow fearful of the physical aspects personified in their mothers. "He sees her tie to the earth, her secret bodily processes that bind her to nature... the child expresses his horror at his complete dependency on what is physically vulnerable" (p. 39). Both sexes identify with their father because he is more "neutral physically, more cleanly powerful, less immersed in body determinisms, more 'symbolically free'")(p. 39). Wehr concluded that Becker distanced himself from his own sense of frailty by projecting it upon the opposite sex (Wehr, 1987). He seems unable to empathize with the object of his fear or to experience his own probable fear of growing old and dying.

Although on the surface, Carl Jung claimed both the anima and animus are present in everyone, Wehr, 1987, notes that his thinking
evidences projection of this universal experience of being human as well. In his writings, Jung noted the linguistic connection between mother and physical matter; both words stem from the Latin "mater" and are semantically bound in the phrase Mother Earth. Jung noted "the characteristic relation of the mother image to the earth, darkness, the abysmal side of the bodily man" (1921, cited in Wehr, 1987, p. 112). Although Jung technically stated that materialism existed in both sexes, Wehr points out that his use of symbolic feminine language indirectly shows his sexual preference. The anima is the object of much fear and awe and is seen as powerful and frightening. Placing the embodied side of human experience within the female serves to alienate and distance males from their own sense of vulnerability and frailty. By incorporating this defensiveness into their explanation of human behavior, these psychologists are perpetuating, entrenching, and authenticating misogyny in our society.

Sigmund Freud overtly based his theory on the idea that "anatomy is destiny" and developed particularly undesirable applications towards women. He took separatism between the sexes further by valuing male genitalia above female. From this assumption arises the perception of normal femininity as passive, dependent, receptive and nurturant (Knox, 1985). Similarly, Freud proposed the ideal that mature adult women focused upon vaginal orgasms rather than the clitoral orgasms of childhood. Penis envy, the norm in all women, was overcompensated by the yearning to have children, thereby symbolically taking in the father's penis (Matlin, 1987).
Freud also evidenced his preferences by deemphasizing the psychology of women in this theorizing. Although Freud was a prolific writer, his thoughts regarding women were contained in only three articles. Freud's view could easily lead to a pessimistic outlook for change in either sex, but leads to particularly unfavorable outcomes for women. Because anatomy is unchangeable, women are limited in the amount of development they can achieve.

Freud has been critiqued for his phallocentrism (Horney, 1926), his overgeneralizations from female patients to normal women (Janeway, 1971), and for the inconsistency within his theory (Marmor, 1968). Later followers of Freud, Karen Horney and Clara Thompson, suggested that his theory confused frustration with a paternalistic society in which males assume most of the social, economic, and political power with envy of an innately superior genital (Frieze, Parsons, Johnson, Ruble, & Zellman, 1978).

More recent developments in psychoanalytic thought have deemphasized Freud's original determinism. Kohut's Self Psychology (Baker & Baker, 1987) is less fatalistic, allowing for the possibility of growth and change. Rather than focusing on unconscious, fatalistic determinisms of behavior, he emphasizes the experience of self as central. Early parental successes and failures with the child create deficits in the developing self. The "nuclear self," the core structure, must be reflected and valued by parental figures for future development. This self optimally develops the potential for meeting its own needs so that it does not have to rely upon others. Although the
interpersonal environment is always important throughout the adult life and we always need interpersonal contact, our nuclear self may have to survive on its own at times. People may become overly dependent upon others due to an undeveloped sense of self. Kohut's therapeutic goal is "to complete a cohesive sense of self (through a mirroring or idealizing transference), so that [people] can feel whole and energized, even in the absence of another" (Knox, 1985, p. 65). Although Kohut did not specifically address women, his theory can be particularly helpful to women who complain of relationship difficulties. The depression and low self-esteem common in women (Weissman & Klerman, 1981) can be viewed as self disorders. By treating the underdeveloped nuclear self, therapists encourage women to sustain a high level of autonomy while continuing to maintain a fulfilling intimate relationships, thus increasing their sense of self-worth (Knox, 1985).

For the purposes of this discussion, two current streams of feminist thought shall be identified, based upon Maureen O'Hara's work (1989). The first stream shall be labelled "essential feminism" and is exemplified by Mary Daly in *Gyn/Ecology* and Mary Belenky and Carol Gilligan in *Women's Ways of Knowing*. The second stream shall be labelled "constructivism" and is exemplified by Chris Weeden (1987) in *Feminist Practice and Poststructuralist Theory*. The first stream posits an "essential feminine nature determined by and manifest through the female body, with its possible multiple orgasms, its internal sex organs, and its capacity for pregnancy, and..."
milk-nursing" (O'Hara, 1989, p. 5). Accordingly, there is a common feminine nature in all women that is characterized by intuition, feeling, art, and communal relationships. Some women may not be in touch with this essential part of their being, due to the constrictions of being raised in a male-dominated world, but it exists in all of them. Feminine nature is overlooked, misunderstood, and negated because it does not fit our paternalistic society's preference for logic, reason, science and law.

Mary Belenky and Carol Gilligan in *Women's Ways of Knowing* (1988) studied how women come to realize and accept knowledge. Our culture's early childhood practices prompt girls to stay bonded with others while boys separate and individuate. This leads women to identify knowledge through an inner sense of connection and communion, rather than through objective, logistical, and unemotional ways. Although they state that this type of knowing is determined by upbringing, it occurs at such an elemental level that our society would have to be greatly changed for men to develop the same type of knowing. Only until men share equally in child care shall they understand and acknowledge the different, but valid way women intuitively process information.

Mary Daly in *Gyn/Ecology* (1986), continuing in the first stream of essential feminism, takes a more extreme position regarding the effects of paternalistic society upon women. She posits that masculine society has misdirected, restricted, and compromised femininity so that women in today's culture cannot identify what was inherent at
birth. In order to get in touch with their lost "sacred femininity," women must cut contact with all forms of masculine society and establish their own government, symbols, and mores - in their own image. This line of thinking leads to personal growth geared toward peeling off layers of masculine consciousness to reaffirm what is innately feminine (O'Hara, 1989). The established religions, law, heterosexual marriage and other remnants of the alien male culture must be rejected in order to claim what is purely feminine.

The second stream of feminist thought is represented by Chris Weeden (1987) in Feminist Practice and Poststructuralist Theory. This position does not endorse an essential feminine nature but views femininity as plastic and malleable. Anatomy is not destiny, but our consciousness determines what we identify as our own. According to poststructuralist theory, language plays an essential role in determining societal norms. Rather than merely reflecting our perception of reality, language actively determines reality. The language that we use is influenced by our culture's institutions, but not inevitably. "These codes of conduct feel so basic to us that we experience real anxiety if we try to go against them, thus reinforcing the belief that it is against our 'nature' to not want to mother or have no sexual relations with men" (O'Hara, 1989, p. 5).

Different ways of viewing reality arise from distinct cultural institutions, each with varying agendas. Institutions of religion, science, media, and medicine propose very specific viewpoints upon how reality is understood. By endorsing the language of a particular
institution, we are inherently accepting their position. Although people have a choice in determining which position they will endorse, each "discourse," or institution, assumes that their perception of reality is truth. They overlook the subjectivity inherent in judgment and portray themselves as the sole authorities.

Positions that employ biological sex differences to justify existing social structures imply that because there is a real anatomical difference between the sexes, present societal values are inevitable. Sociobiology, for example, is represented by The Selfish Gene (1976) by Richard Hawkins. He proposed that all human behavior is determined by the desire to see one's genes survive in the next generation. Men and women behave dissimilarly in relationships because the tactics most facilitative for continuation of their genes vary according to sex. For males it is most beneficial to become sexually active, spreading their genetic seeds indiscriminately to increase the likelihood of producing offspring. Women are best served by investing more time in screening potential mates to ensure quality genetic contributions and sufficient future support so that her few children have a greater chance to survive. This position has validated existing social and sexual differences by establishing them as natural, innate, and most facilitative of the species. "The effect of sociobiology, and discourses like it, is to determine in advance what constitutes normal femininity and masculinity, to fix subjectivity, by insisting that certain meanings are the true ones, because they are determined by natural forces beyond our control" (Weeden, 1987, p. 130).
This is similar to the view that because women are capable of bearing children, it is their naturally most fulfilling role. Women who choose not to fulfill their biological destiny are viewed as misdirected and confused. The subjective values being placed on childrearing in this viewpoint are overlooked because the argument is supposedly based upon irrefutable facts. By linking social differences to supposedly innate differences, lifestyle values become an unquestionable reality. This thinking assumes that scientists are impartial observers reporting unrefutable truth, uninfluenced by personal values or preferences. The relativeness of truth and the influence of culture is negated (Weeden, 1987).

Poststructuralist thought indicates that we may choose what is correct for ourselves rather than accepting a universal feminine nature. Weeden (1987) doesn't assume that deeply felt values are innate, or even in our best interest (O'Hara, 1989). We must carefully analyze what lifestyle best fits our needs, without assuming that others know what is natural for us. This also leads to a more challenging, but more hopeful, route to change. We are not puppets helplessly following our culture's mainstream, but we can effect social and cultural change that will be reflected in the language that construes reality for all of us.

Essential feminism does not appear to provide insight into this process of enacting social change, but it attempts to switch hierarchical differences within the same system that caused the problem. This is known as first order change, (Watzlawick, Weakland
& Fisch, 1974), an attempt at change that stays within the provided system. Second order change goes beyond the given structure to change the rules governing the internal order. Watzlawick et al. (1974) compare these two types of change to ways of adapting to a frightening dream. While dreaming one may run, hide, or scream to avoid the scary figure, but this only partially solves the problem. Only by waking from the dream and moving to another state altogether, does one enlist second order change. Essential feminism does not question the provided structure of separating people upon the category of sex. It continues to distinguish between male and female anatomy but switches the hierarchical positioning. Although the value and content is different, preferring and endorsing an essential feminine nature is very similar to a paternalist society endorsing the "correct" feminine role and life style.

Sandra Bem (1987), a leading researcher in the psychology of women, admitted this flaw in her theory. In the Bem Sex Role Inventory (Bem, 1974) she measures two orthogonal personality constructs, masculinity and femininity. Androgynous persons, those that endorse masculine and feminine characteristics equally, are thought to have greater behavioral flexibility, appropriately adapting to a broader range of situations. Sex-typed or sex-reversed individuals, those who endorse more of one characteristic than the other, were hypothesized as being less adaptable to change. Bem noted, however, that the concept of androgyny contained inner contradictions. She initially proposed androgyny as a means to
overcome culturally imposed definitions of masculinity and femininity, but her theory does not go beyond the original masculine/feminine distinction. When society has transcended the dichotomy of sex roles, androgyny will be an archaic concept. Sex role transcendence is achieved by going beyond the polarized, supplied definitions of gender appropriate behavior to a continuous, dynamic view of the world (Rebecca, Hefner, & Oleshansky, 1976). This transition occurs by being confronted with contradictions to the original stereotypic thinking, leading to a paradigm shift, not unlike second order change.

Dorian Ullian (1984) presents a constructivist explanation of how girls assimilate the culturally stereotypic ways of behaving. She states that girls exhibit traditional feminine goodness, concern, helping, and nurturance due to confusing physiological attributes with psychological attributes. In a series of interviews, 5- to 7-year-old children described men as having bigger brains, thicker skin, and stronger bones than women, besides more accurate differences. "Women were thought to get hurt more easily and to cry more often, because 'their skin is thinner' or 'their head is not as hard'" (Ullian, 1984, p. 247). Girls were attributing the behavioral characteristics of femininity to physiological attributes of adult women. Already at that age, girls identify with women, since they are also small, soft-skinned, and weaker than others. Some girls even believe that they carry some form of baby within them (Bernstein & Cowan, 1975, cited in Ullian, 1984). Girls behave in a stereotypically feminine manner since they have the same physiological attributes that "cause"
these behaviors in adults. Girls also behave noncompetitively and nonaggressively because they perceive themselves as physically vulnerable and frail. Their identifications with adult women's physiology bring about consistent changes in personality to ensure consistency with their self-perceptions. Although boys are also small, frail, and weak, they have greater physiological changes to undergo before they identify themselves as men. Of course, as girls mature their constructs become less concrete as they realize that stereotypically non-feminine behaviors may coexist.

Individuals who continue to attribute psychological characteristics on the basis of anatomical or physiological differences may be considered by others to be concrete, rigid, simplistic, and reductionistic in their thinking. Persons endorsing positions that rigidly support one position without adequately considering alternative or conflicting information, such as sociobiology or essential feminism, may fit this description. Thus, individuals who endorse rigid environmental determinants of behavior may appear as inflexible and concrete as those that espouse a purely biological position. Although dissimilar in the content of their opinions, extremists of both positions stubbornly maintain an overly simplistic view of the world by disregarding nonsupportive information.

Within the constructivist field of psychology, Personal Construct Theory, established by George Kelly (1955), attempts to provide second order change. He considered humans as scientists who hypothesize personal meanings, or constructs, of their world and then test and
adapt them according to their further experiences. Each person's reality is contingent upon the meaning they give their own experiences in order to understand and predict future happenings. Constructivist theory has attempted to identify individuals who evidence inflexible, impermeable thinking. Bieri (1955, cited in Landfield & Barr, 1976) first coined the term "cognitive complexity" to refer to the use of unrelated, independent constructs. A person with only few uncomplicated constructs could merely deal effectively with situations congruent with his or her existing system. Anything outside that person's limited range of convenience would be seen as complicated, mysterious, and too different to be understood. A person displaying cognitive complexity would have a choice of ways to conceptualize conflicting, confusing events.

In addition to a broad range of constructs, a method to organize and prioritize information is also helpful in making sense of the world. Kelly (1955) postulated that assigning superordinate and subordinate status to constructs produces a more functional, orderly, and easily accessed system. An individual with adequately complicated and diverse constructs may be unable to use them practically if his or her constructs are not well organized. Landfield and Barr (1976) define hierarchical organization, or Ordination, as the ability to differentiate and meaningfully use gradients within a construct; that is, when evaluating others, a person has the ability to finely distinguish high and low measures of the descriptor. The ability to discriminate levels within a construct is one task necessary to use
them effectively. Both complexity and organization of constructs is necessary to make sense of experiences outside our usual frame of reference.

Landfield and Barr (1976) categorized subjects into four quadrants based upon cognitive complexity, or number of Functionally Independent Constructs (FIC), and Ordination (O). Subjects classified as having low integration and low differentiation were hypothesized as having few ways of understanding their worlds and having limited ability to understand others very different from themselves. In a study of four ten-person groups who interacted for several sessions, Landfield and Barr (1976) supported this hypothesis. Individuals with low FIC and low Ordination were impaired in understanding those more complicated than themselves, but their group-members had little difficulty understanding them.

Organizational similarity is another constructivist measure used to predict understanding among people. Loos (1986) proposed that the content of constructs is not as important as the way in which people organize and use their constructs. To measure organizational similarity, subjects who rated two constructs in the same manner, either as similar to one another or as polar opposites, were considered organizationally similar. Using this measure for supplied selves rather than constructs, Fogle (1988) found that adolescent clients were more likely to characterize their therapeutic relationships in terms of mutual respect, affection, helping, and identification when Organizational Similarity was higher in the therapeutic dyad. This
measure accounted for 18% of the total variance in relationship construal. Other researchers (Adams-Webber, 1979; Loos, 1986; Neimeyer & Neimeyer, 1987) have reported that organizational similarity is necessary in beginning and maintaining relationships.

The last measure utilized to predict interpersonal understanding is extremity, or polarity of ratings. Much attention has focused upon the relationship between extreme response style and personality traits and interpersonal interactions. In reviewing the literature, Hamilton (1968) cited three explanations of extreme response style: 1) the need to reduce ambiguity and achieve certainty; 2) increased emotionality or anxiety; 3) decreased developmental maturation. He concluded that more extreme ratings often indicated more maladjustment. Landfield (1968) concluded that persons who frequently suffer from inner conflicts tend to rate elicited personal constructs extremely. In another review, O'Donovan (1965) concluded that in addition to pathology (e.g. neuroticism, poor adjustment, authoritarianism), another consistent correlate to extremity was increased meaningfulness of the task. Supporting this theory was a series of studies conducted by Bonarius (1976) which concluded that subjects used extreme ratings more upon intimate friends compared to acquaintances and also when using personal constructs compared to provided constructs. These results have been supported by others (Koltuv, 1962; Bender, 1969, cited in Bonarius, 1976; Mogar, 1960; Isaacson & Landfield, 1965, cited in Bonarius, 1976). It might be difficult to determine which of these disparate causes are responsible
for extremity in ratings. O'Donovan (1965) further proposed that pathology and meaningfulness could be distinguished by a lack of differentiation between two dissimilar situations. Selective use of extremity is associated with meaningfulness, and indiscriminate use of pathology. Thus, when rating new acquaintances upon supplied constructs, one may expect rating extremity to reflect reduced empathy rather than meaningfulness.

Kelly's Sociality Corollary (1955) theoretically accounts for FIC, Ordination, Organizational Similarity, and extremity impacting interpersonal understanding. Kelly stated that "to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person" (Kelly, 1955, p. 104). Interpersonal connectedness relies upon the ability of individuals to make sense of the other person based upon the other person's construct system. As Epting and Amerikaner stated,

For optimal functioning in relation to another person, one must strive to see the world from the point of view of the other. The ability to take the role of the other and really to comprehend what things are like from the other's perspective places a person in a very special relationship to the other" (cited in Landfield & Leitner, 1980, p. 68).

For this empathic ability to be accurate, one must be able to make meaningful discriminations among situations and persons.

Constructivist researchers have reported that organizational similarity, or commonality in how constructs are utilized and relate to one
another, impacts interpersonal understanding (Loos, 1986). Thus, FIC, Ordination, Organizational Similarity and extremity all play a role in enabling persons to empathize with how others understand their world.

Although researchers agree that empathy is an important interpersonal tool for communication, the empirical study of empathy has been plagued by problems since its inception (Shuwall, 1988). Each measure of empathy seems to be tapping a different construct. Correlations among empathy measures vary widely, with some measures correlating negatively with one another. Self-ratings of trait empathy have even been reported to correlate negatively with behavioral measures (Jarski, 1985, cited in Choplan, McCain, Carbonell, & Hagen, 1985). Theorists have consistently divided empathy into two separate components: an affective component of the ability to feel the same way another person is feeling; and a cognitive component of role-taking or perspective taking (Chlopan, et al., 1985; Gladstein, 1983; Shuwall, 1989; Schantz, 1975). More recently, multi-dimensional approaches have been favored (Davis, 1983; Barrett-Lennard, 1981; Gladstein, 1983). Barrett-Lennard (1981) proposed a multi-stage process that can be condensed into three sequential phases. The first stage is characterized by listening and understanding another person; the second stage involves expressing how one person understands the other; and the third stage involves the person who is being empathized with sensing the extent of the empathizer's message. Hopefully the empathizer is receptive to any
feedback provided about the accuracy of his or her understanding as the cycle of empathy continues. Barrett-Lennard (1981) posited that conceptualizing empathy as a multi-stage process may help explain poor interrelationships between different measures of empathy.

Redmond (1989) proposed decentering as a more global, overarching concept subsuming empathy, role-taking, and perspective-taking. He refers to decentering as a process by which people respond to information about others in a way that produces emotional consonance between them. Piaget (1926) first used the term "decentering" to refer to the process by which children overcome egocentrism by becoming aware of other peoples' points of view. Redmond (1989) states that the reason so many researchers find conflicting results using different measures of empathy is because they are measuring valid but distinct aspects of a more global term. This is similar to six blind men touching different portions of an elephant. Depending upon the body part they are in contact with, they may describe an elephant as a rope (the tail), a tree (the leg) or as a snake (the trunk). Although all views are accurate, a complete understanding of empathy can only be made with a broad perspective.

Researchers have reported fairly consistent gender differences in empathy. In a review of the literature, Hoffman (1977) concluded that females evidence superior empathy skills when defined as the affective component of vicariously experiencing another's feelings. Slight female superiority has been reported upon a trait measure, the Hogan Empathy Scale (Hogan, 1969), and consistent female superiority of
clinical and counseling psychology graduate students has been found using ratings of written responses to videotaped counseling sessions (Abramowitz, Abramowitz, & Weltz, 1976). Dalton (1983) reported that female undergraduates were rated slightly higher in empathy than males, but not at a statistically significant level. However, Petro and Hansen (1977) found no gender differences in school counselor using the Affective Sensitivity Scale (Campbell, Kagan, & Krathwohl, 1971).

Dyadic approaches to empathy have also produced differences in same/opposite gender pairings. Olesker and Balter (1972) reported greater empathic ability in undergraduate students when interacting with someone of the same sex than the opposite sex. Dalton (1983) found that in an empathy training experience, male undergraduates rated male trainees higher in empathy than female raters did. There was no gender preference in the ratings of female trainees. However, two studies (Breisinger, 1976; Petro & Hansen, 1977) did not find any gender differences for same/opposite sex pairs. Gender could be functioning similarly to the way Organizational Similarity is hypothesized to operate; people are likely to better understand others who are similar to them in important dimensions.

This study is concerned with empathy as it relates to the ability to establish a beginning interpersonal relationship. Empathy has been referred to as a fluid, dynamic process occurring between individuals which leads to an increase in interpersonal understanding (Shuwall, 1989). Interpersonally, empathy seems to be essential in
gaining the emotional and cognitive consonance that is the hallmark of highly intimate, valuable relationships. Although all aspects of empathy may eventually gain prominence at some point during the relationship, cognitive perspective-taking is hypothesized to be more prominent at the initial stages of getting acquainted with another person. Emotional empathy would likely follow at a later point in time.

The purpose of this study is to determine the effect of rigid endorsements of behavioral determinants upon perspective-taking.

**Hypotheses**

**Hypothesis One**

Individuals endorsing biological views of behavioral causality will be less able to empathize with others compared to those endorsing environmental determinants. Similarly, individuals endorsing extreme views of either biological or environmental determinism will be less able to empathize with others compared to individuals endorsing moderate views of behavioral causality. These empathic differences are thought to exist whether by constructivist or trait measures.

**Hypothesis Two**

Individuals endorsing biological determinants shall also evidence lower FIC and Ordination than those endorsing environmental determinants. Similarly individuals endorsing more extreme determinants are predicted to evidence lower FIC and Ordination than those endorsing moderate determinants.
Hypothesis Three

Same-sex dyads shall evidence higher totalled levels of empathy than mixed-sex dyads.

Hypothesis Four

Organizational Similarity will increase as dyadic empathy increases.

Hypothesis Five

Rating extremity will increase as empathy decreases.

Hypothesis Six

Position in the menstrual cycle may relate to empathy and self-determination scores. The use of birth control pills may also be reflected in empathy and self-determination scores.
CHAPTER II

METHOD

Subjects

One hundred subjects, fifty-one females and forty-nine males, were recruited from undergraduate psychology courses to participate in the experiment in return for extra credit. Informed consent was obtained from all subjects before testing began (see Appendix A).

Procedure

Subjects participated in pre-arranged groups of eight people consisting of four males and four females; one group consisted of three females and one male. The last four digits of their social security number identified them. The experimental procedure was divided into two sections. Initially, subjects were tested as a group using the Curlin Self-Determination Scale, the Community of Selves Repgrid, the Hogan Empathy Scale and the Interpersonal Reactivity Index (found in Appendixes C, G, I and I). They were then given instructions regarding the remaining procedure which included a description of the ice breaker task and an explanation of how to draw a family genogram. Any questions about their tasks were answered.

During the second section, subjects interacted for two twenty-five minute intervals, once with a same sex subject and again with an
opposite sex subject. The order of same-sex and opposite sex pairing was counter-balanced to control for any order effects. Subjects were assigned two cooperative tasks to occupy themselves. The first task, designed as an ice breaker, was a drawing charades game. Each subject was provided a markable board, pens and a stack of printed phrases or words. They took turns drawing clues to each phrase or word until their partner guessed correctly. After ten minutes, they were interrupted and instructed to begin drawing their family genogram (see Appendix J). This task was designed to allow disclosure of a more personal level. Subjects were instructed to draw their family’s genogram while explaining it to their partner. Interactions were ended after twenty-five minutes, and subjects rated how they experienced themselves during the previous interaction using the 14 point scale of their own Reptest constructs. They were then given their partners' Reptest constructs to predict how their partner had just reported themselves. After the rating tasks were completed, a second partner was assigned for a repetition of the same routine.

Watson (personal communication, 1990) reports using a similar technique of establishing empathic prediction by having group members rate one another on supplied dimensions and testing for accuracy. This methodology is also similar to that used in Dymond's Rating Test B (1950). The current measure, however, uses self-relevant constructs provided by the subjects themselves and is elicited immediately after interpersonal interactions.
Measures

The Self-Determination Scale was pilot tested upon ninety-eight undergraduates, thirty-seven males and sixty females. A full explanation of pilot testing is contained in Appendix B.

The initial item pool consisted of two orthogonal scales, twenty-six environmental items, twenty-five biological items, and twenty-six social desirability items. Subjects were administered the Self-Determination Scale, the Attitudes Towards Women Scale and the Bem Sex Role Inventory (available in Appendixes C, D, and E). Sixty of the subjects were readministered the Self-Determination Scale two weeks later. The intercorrelations between the Self-Determination Scale and the other pilot items can be found in Table 10 of Appendix B. Items were selected from the item pool that permitted the most psychometrically sound measure. Due to the intercorrelation between the two scales ($r (98) = -0.35, p <.01$), rather than two orthogonal scales, one bipolar dimension was constructed so that low scorers endorsed an environmental self-determination and high scorers indicated a biological self-determination. Item-total Spearman correlations are listed in Table 5. Test-retest reliability was ($r (98) = 0.67$) and the Cronbach alpha was ($r (98) = 0.73$). These scores were deemed acceptable for this study but not optimal.

The Community of Selves Repgrid (Doster & Watson, 1987) consists of two sections. First, constructs are elicited by Landfield's (1971) modification of Kelly's (1955) Role Construct Repertory Grid (see Appendix G). Fifteen constructs are elicited by a series of
interpersonal comparisons; the subject is asked to determine a similarity and difference between him- or herself and two other people.

Secondly, these constructs are applied to a series of potentially relevant self-experiences. The subject rates him-or herself on each construct using a 13 point scale (-6 to +6). Fransella and Bannister (1977) report adequate reliability and validity of the original test, varying for the eight different measures within the test. The stability of elicited constructs (.80) and pattern of construct relationships (.69-.80) appear to be the most reliable measures; intensity appears to be the least reliable measure (.35-.62). Doster and Watson (1987) report a test-retest reliability of .70 - .94 for the structural or organizational measures of their Community of Selves modification.

The Hogan Empathy Scale (1969) is a 64-item trait measure of an individual's ability to put himself in someone else's shoes (see Appendix H). Test-retest reliability has been established at .84, although alpha reliability was measured at .61, which was considered unsatisfactory (Cross & Sharpley, 1982, cited in Chlopan, et al., 1985). High scorers were described as less anxious, less depressed, more likable, and generally better adjusted than low scorers (Chlopan et al., 1985). It identified people that had interest in helping others, were less likely to repeat criminal conduct and experienced vicarious anxiety arousal (Chlopan et al., 1985). Johnson, Cheek, & Smither, 1983, conducted a factor analysis yielding four factors, Social Self Confidence, Even Temperedness, Sensitivity and Nonconformity. The
Sensitivity and Nonconformity factors contributed slightly more than the other factors. This is congruent with the three factors proposed by Greif and Hogan (1973). One possible disadvantage to the Hogan Scale is there is indication the it may be more valid for males than for females. Chlopan et al., 1985, reported that although adult male marijuana users were found to be more empathic than nonusers, women who used marijuana were not identified in any consistent manner; abusive mothers were not distinguished by the scale (Chlopan, et al., 1985). To control for this possible source of bias, a second empathy test was also administered.

Interpersonal Reactivity Index (Davis, 1983) is a multidimensional self-report measure of empathy (see Appendix I). It consists of 28 items that produce four scales: (1) Perspective Taking (PT), (2) Fantasy Scale (FS); (3) Empathic Concern (EC); and (4) Personal Distress (PD). Factor analysis supports the maintenance of four separate scales (Carey, Fox, Spraggin, 1988). Davis (1983) reports satisfactory test-retest (.62-.71) and internal reliabilities (.71-.77). He also provided evidence of validity by positively correlating the IRI with indexes of social competence, self-esteem, emotionality, sensitivity to others (Davis, 1983) and relationship satisfaction (Davis & Oathout, 1987). The PD scale measures vulnerability, uncertainty and fearfulness and correlates negatively with the overall IRI score (Davis, 1983) and Hogan's Empathy Scale (Chlopan et al., 1985).
CHAPTER III

RESULTS

The means and standard deviations of the dependent measures are listed in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Variables(^1)</th>
<th>Males (n=47)</th>
<th>Females (n=49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>43.45 12.96</td>
<td>42.72 11.74</td>
</tr>
<tr>
<td>B</td>
<td>4.91 3.05</td>
<td>5.59 3.56</td>
</tr>
<tr>
<td>C</td>
<td>36.14 5.53</td>
<td>36.60 5.25</td>
</tr>
<tr>
<td>D</td>
<td>3.61 1.72</td>
<td>4.21 1.38</td>
</tr>
<tr>
<td>E</td>
<td>5.08 1.35</td>
<td>5.72 1.94</td>
</tr>
<tr>
<td>F</td>
<td>1.88 1.22</td>
<td>3.16 1.67</td>
</tr>
</tbody>
</table>

Con't
Table 1 Con’t

Means and Standard Deviations of Dependent Variables Split by Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=47)</td>
<td>(n=49)</td>
</tr>
<tr>
<td>G</td>
<td>5.02</td>
<td>4.90</td>
</tr>
<tr>
<td></td>
<td>1.77</td>
<td>1.80</td>
</tr>
<tr>
<td>H</td>
<td>7.45</td>
<td>5.80</td>
</tr>
<tr>
<td></td>
<td>3.05</td>
<td>3.60</td>
</tr>
<tr>
<td>I</td>
<td>16.63</td>
<td>16.68</td>
</tr>
<tr>
<td></td>
<td>5.11</td>
<td>4.52</td>
</tr>
<tr>
<td>J</td>
<td>3.01</td>
<td>3.16</td>
</tr>
<tr>
<td></td>
<td>.92</td>
<td>.90</td>
</tr>
<tr>
<td>K</td>
<td>46.63</td>
<td>44.32</td>
</tr>
<tr>
<td></td>
<td>7.25</td>
<td>7.06</td>
</tr>
<tr>
<td>L</td>
<td>6.03</td>
<td>5.48</td>
</tr>
<tr>
<td></td>
<td>4.48</td>
<td>4.43</td>
</tr>
<tr>
<td>M</td>
<td>16.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.53</td>
</tr>
</tbody>
</table>

1 A = Average congruence; B = Organizational Similarity; C = Hogan EM; D = IRI-Fantasy; E = IRI-Empathic Concern; F = IRI-Personal Distress; G = IRI-Perspective Taking; H = FIC; I = Ordination; J = Extremity; K = Self-determination; L = Deviation Self-determination; M = Date of last menstrual cycle.
Table 2
Means and Standard Deviations of Dyadic Dependent Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congruence M/M (n=45)</td>
<td>44.71</td>
<td>20.65</td>
</tr>
<tr>
<td>Congruence F/F (n=48)</td>
<td>50.44</td>
<td>43.20</td>
</tr>
<tr>
<td>Congruence M/F (n=49)</td>
<td>44.61</td>
<td>17.97</td>
</tr>
</tbody>
</table>

The constructivist measure of empathy was defined as the congruence between self and other ratings of experience on reptest constructs. For each person, the congruence score of empathy consisted of the totalled difference between how one rated one's partner upon the partner's constructs and how the partner rated him- or herself upon his or her own constructs. If their partner rated him- or herself +6 on a construct and one rated one's partner -6, the congruence score would be 12. If the partner rated him- or herself 0 and one rated one's partner +3, the congruence score would be 3. The total across all 15 scales constituted that person's congruence score. Thus, the lower the congruence score, the more intellectually empathic that subject is considered in that interaction. Congruence scores ranged from 19.00 to 84.00 with a mean of 43.08.

Another constructivist measure, organizational similarity, was computed from the Rep-test. Loos, 1986, first devised organizational similarity as a measure of how two persons' construct systems
differed structurally rather than by content. Fogle, 1988, used this score in his study of client-therapist interaction and the perception of therapeutic outcome. Rep-tests are considered structurally similar when their selves are organized in a similar or polar opposite manner. For example, if two subjects both experienced their "usual selves," "protective selves," and "vulnerable selves" as alike, they shared organizational similarity. A series of fifteen comparisons were made of the structure of three constructs; the total organizational score consisted of the total of all fifteen combinations. Organizational Similarity is explained in greater detail in Appendix L. Organizational Similarity ranged from .00 to 13.00 with a mean of 7.93; higher scores indicated greater organizational similarity.

Hogan Empathy scores ranged from 24.00 to 47.00 with a mean of 36.38. Within the IRI, the Perspective Taking subscale ranged from .00 to 7.00 with a mean of 4.96; the Fantasy subscale ranged from .00 to 6.00 with a mean of 3.92; the Empathic Concern subscale ranged from 2.00 to 7.00 with a mean of 5.41; and the Personal Distress subscale ranged from .00 to 7.00 with a mean of 2.53.

Hypotheses

**Hypothesis One**

It was hypothesized that empathy would be reflected by extreme self-determination scores, whether highly environmental or biological. Table 3 contains Pearson Product-moment correlations between the empathy measures, self-determination and the deviation score of self-determination. This last score was computed by subtracting each
individual score from the median score (44.56) for the total population. The Hogan Empathy Scale correlated significantly with several subscales of the IRI; the Fantasy subscale ($r (100) = .17, p < .05$), the Empathic Concern subscale ($r (100) = .19, p < .05$) and the Perspective Taking subscale ($r (100) = .31, p < .001$). There was also a tendency for the Hogan to negatively correlate with the Personal Distress subscale ($r (100) = -.15, p < .10$). Those individuals identified as more empathic by the Hogan were identified as more empathic on the Fantasy, Empathic Concern, and Perspective Taking subscales of the IRI. The Personal Distress subscale indicates a similar tendency, for this subscale contraindicates empathy.

The Self-determination Scale correlated significantly with the Hogan Empathy Scale ($r (100) = -.21, p < .05$), the Empathic Concern subscales ($r (100) = -.18, p < .05$) and evidenced a tendency to correlate positively with the Personal Distress subscale of the IRI ($r (100) = .16, p < .05$). Individuals identified as more biologically determined on the Self-determination scale were less empathic on two measures and tended to evidence more personal distress to other people's negative feelings. This is in support of the hypothesis. The deviation scoring of the self-determination scale evidenced a tendency to correlate with the Empathic Concern subscale of the IRI ($r (100) = -.14, p < .10$). Thus, individuals that were more extremely deviant, either in the biological or environmental direction, tended to be identified as less empathic as well.
Table 3
Correlations Between Empathy Measures and Unipolar Scoring of the Self-Determination Scale

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.17</td>
<td>.19</td>
<td>.15</td>
<td>** .31</td>
<td>-.21</td>
<td>.12</td>
</tr>
<tr>
<td>B</td>
<td>.08</td>
<td>.01</td>
<td>.07</td>
<td>.03</td>
<td>-.07</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>.02</td>
<td>** .23</td>
<td>.18</td>
<td>-.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>** -.26</td>
<td>.16</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>-.01</td>
<td>-.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>** .25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1A = Hogan Empathy Scale; B = Fantasy Subscale of IRI; C = Empathic Concern of IRI; D = Personal Distress Subscale of IRI; E = Perspective Taking Subscale of the IRI; F = Unipolar scoring of Self-Determination Scale; G = deviation score of the unipolar scoring.

+ p < .10; * p < .05; ** p < .01.

These same correlations between the Hogan EM, IRI, self-determination and deviation self-determination were computed for both genders separately (see Tables 16 and 17 contained in Appendix K). Some small differences were found between genders; there were several more significant correlations found for males than for females. However, because all of the correlations were in the same
positive/negative direction, there appears to be few practically
significant differences between the genders.

To further explore the relationship among constructivist measures
of empathy and self determinism, two separate multiple regressions
were computed, using self-determination and deviation scoring of self-
determination to predict congruence. Both gender of subject and
gender of partner were added to the computation. However, both
factors caused suppression of the explanatory model for self-
determination, so the analyses were re-examined without using either
gender of subject or gender of partner. Self-determination
successfully predicted congruence ($F (1,88) = 3.96, p < .05, R^2 = .05$),
but deviation self-determination did not. Thus, individuals who were
more biologically determined evidenced significantly less cognitive
empathy, regardless of gender of subject or gender of partner. Five
percent of the variance in cognitive empathy was predicted by self-
determination. Individuals who were more extreme in either biological
or environmental determinism did not vary in cognitive empathy.
This is in partial support of the hypothesis for biological
determination, but not supportive of the hypothesis for extremity of
determination.

In order to distinguish any differences between trait and
constructivist measures of empathy, Pearson product-moment
correlations were computed between empathy measures and
congruence scores (see Table 4). Congruence scores were computed
separately for males interacting with other males, females interacting
with other females, subjects interacting with persons of opposite gender. None of the correlations are significant, indicating that the cognitive measure of empathy measured by the Reptest is distinct from trait measures.

Table 4

**Correlations Between Empathy Measures and Dyadic and Total Congruence**

<table>
<thead>
<tr>
<th>Variables</th>
<th>M/M Congruence (n=45)</th>
<th>F/F Congruence (n=48)</th>
<th>M/F Congruence (n=49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hogan EM</td>
<td>-0.04</td>
<td>0.05</td>
<td>-0.00</td>
</tr>
<tr>
<td>IRI-Fantasy</td>
<td>-0.10</td>
<td>-0.16</td>
<td>-0.12</td>
</tr>
<tr>
<td>IRI-Empathic Concern</td>
<td>-0.00</td>
<td>0.21</td>
<td>-0.02</td>
</tr>
<tr>
<td>IRI-Personal Distress</td>
<td>-0.11</td>
<td>-0.10</td>
<td>-0.07</td>
</tr>
<tr>
<td>IRI-Perspective Taking</td>
<td>0.06</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Hypothesis Two**

It was hypothesized that extreme self-determination scores would be reflected in lower FIC and ordination scores, two Rep-test measures. Table 5 lists Pearson product-moment correlations between self-determination and deviation scoring of self-determination with Ordination and FIC. Self-determination correlated significantly with
Ordination \( r (100) = .27, p < .01 \). Deviation self-determination was not significantly correlated with rep-test measures. Thus subjects identifying themselves as biologically determined evidenced greater hierarchical organization in their construct systems. This is in direct contradiction to the hypothesis.

Table 5

<table>
<thead>
<tr>
<th>Variables</th>
<th>Self-determination</th>
<th>Deviation Self-determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIC</td>
<td>.01</td>
<td>-.01</td>
</tr>
<tr>
<td>Ordination</td>
<td>**.27</td>
<td>-.08</td>
</tr>
</tbody>
</table>

** \( p < .01 \).

Hypothesis Three

It was hypothesized that same gender dyads would evidence greater dyadic empathy than opposite gender dyads. The means and standard deviations of congruence split according to gender of rater and gender of ratee are listed in Table 6. To determine if same/mixed gender was related to dyadic empathy, an anova was computed between gender of rater and gender of ratee upon the congruence within each dyad. Results of the anova were that neither the main effects of sex of rater \( F (1,1) = .01, p < .93 \), sex of ratee \( F (1,1) = .01, p < .90 \), nor the interaction effect were significant \( F (1,1) \)
=.83, \( p < .36 \)). Thus, cognitive empathy was not related to either the gender of the rater or the gender of the ratee. This finding is non-supportive of the hypothesis.

Table 6

Means and Standard Deviations of Congruence by Gender of Rater and Gender of Ratee

<table>
<thead>
<tr>
<th>Variables</th>
<th>Gender of Rater</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Gender of Ratee</td>
<td>Mean</td>
</tr>
<tr>
<td>Male</td>
<td>44.25</td>
</tr>
<tr>
<td>Female</td>
<td>41.54</td>
</tr>
</tbody>
</table>

In order to determine if there were any gender differences upon the trait empathy measures, a series of \( t \) tests were conducted comparing the Hogan EM and the four subscales of the IRI by gender. Results are contained in Table 7. Significant gender differences were found upon the IRI Empathic Concern subscale \( (t (52) = -2.76, p < .01) \) and the IRI Personal Distress subscale \( (t (52) = -4.40, p < .001) \). A tendency for gender difference was found on the IRI Fantasy subscale \( (t (52) = -1.93, p < .10) \). Females scored significantly higher than males upon the empathic concern, personal distress subscales and evidenced a tendency to score higher upon the fantasy subscale.
These results do not consistently indicate greater capacity for empathy for females, for while empathic concern and fantasy subscales indicate higher empathy skills, personal distress is a negative indicator of empathy. While gender differences were found, they were not consistent ones.

Table 7

T-Test Results of Trait Measures Compared by Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Male</th>
<th>Female</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Hogan EM</td>
<td>49</td>
<td>36.14</td>
<td>5.53</td>
</tr>
<tr>
<td>IRI-Fantasy</td>
<td>49</td>
<td>3.61</td>
<td>1.72</td>
</tr>
<tr>
<td>IRI-EM</td>
<td>49</td>
<td>5.08</td>
<td>1.35</td>
</tr>
<tr>
<td>IRI-PD</td>
<td>49</td>
<td>1.88</td>
<td>1.22</td>
</tr>
<tr>
<td>IRI-PT</td>
<td>49</td>
<td>5.02</td>
<td>1.78</td>
</tr>
</tbody>
</table>

+ p < .10; ** p < .01; *** p < .001.

Hypothesis Four

It was next hypothesized that the more cognitively similar subjects' constructs were, the more cognitively empathic they would be. A Pearson product-moment correlation was conducted between Organizational similarity, described earlier, and dyadic congruence.
The result was not statistically significant ($r (192) = -0.06, p > .19$) and thus non-supportive of the hypothesis.

**Hypothesis Five**

As an exploratory hypothesis, the average degree of extremity subjects used when rating their two partners was thought to be related to trait measures of empathy. Specifically, it was predicted that higher trait measures of empathy would indicate less extreme ratings upon constructivist measures. The extremity score was computed by averaging the absolute deviation from the midpoint of the fifteen ratings used upon each partner. Extremity ranged from 1.07 to 5.10 with a mean of 3.09. Table 8 contains Pearson product-moment correlations between extremity scores and the trait measures of empathy, the Hogan Empathy scale and the IRI. The Hogan EM tended to correlate with the IRI Personal Distress subscale ($r (94) = 0.16, p < .10$). Since Personal Distress is a negative indicator of empathy, this suggests that as empathy increases, extremity decreases.

**Table 8**

**Correlations between Extremity and Trait Empathy**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hogan EM</th>
<th>IRI-Fantasy</th>
<th>IRI-EM</th>
<th>IRI-PD</th>
<th>IRI-PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremity</td>
<td>.11</td>
<td>-.06</td>
<td>.11</td>
<td>+.16</td>
<td>.05</td>
</tr>
</tbody>
</table>

$+ p < .10$. 
Hypothesis Six

As an additional hypothesis, the date of last menstrual cycle and the use of birth control pills were thought to be predictive of self-determination. It was proposed that if females were physically experiencing effects of their menstrual cycle, they may respond in a more biological direction upon self-determination. Initially, the date of last menstrual cycle was correlated with the empathy scales, ordination, FIC, and extremity, congruence and self-determination. These results are listed in Table 9. Two of the correlations were statistically significant: date of last menstrual cycle correlated significantly with self-determination ($r (49) = .31, p < .05$) and deviation self-determination ($r (49) = .34, p < .05$). Date of last menstrual cycle also tended to correlate with extremity ($r (49) = .23, p < .10$). Women who were closer to their next menstrual cycle were more biologically determined, more extremely self-determined in either direction and tended to be more extreme in their ratings.

It was also hypothesized that women experiencing the effects of their menstrual cycle would respond differently on cognitive empathy. A multiple regression was computed using date of last menstrual cycle to predict congruence, but the results did not reach significance ($F (1,44) = .15, p < .70$). Thus, date of last menstrual cycle did not predict cognitive empathy.
Table 9

Correlations Between Date of Last Menstrual Cycle and Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>.14</td>
<td>-.08</td>
<td>-.01</td>
<td>.15</td>
<td>.09</td>
<td>-.12</td>
<td>-.09</td>
<td>* .31</td>
<td>* .34</td>
<td>-.05</td>
<td>+.23</td>
</tr>
</tbody>
</table>

1A = Hogan EM; B = Fantasy subscale of IRI; C = Empathic Concern subscale of IRI; D = Personal Distress subscale of IRI; E = Perspective Taking subscale of IRI; F = Ordination; G = FIC; H = Unidimensional self-determination; I = deviation unidimensional self-determination; J = congruence; K = extremity.

* p < .05.

Lastly, two t-tests were computed on self-determination and deviation self-determination, both compared by the use of birth control pills. This statistic was significant neither for self-determination (t = .46, p < .65) nor deviation self-determination (t = .45, p < .65). Thus, women did not differ in self-determination or in extremity of self-determination according to their use of birth control pills.
CHAPTER IV

DISCUSSION

The purpose of this study was two-fold: first, it was to devise a valid measure of two elements of self-determination, environment and biology. The second purpose and the major focus of this study was to determine if these elements of self-conception had an influence upon cognitive and trait measures of empathy. The measurement of self-determination was deemed successful but with further development needed psychometrically and theoretically. Initially, environmental and biological determinants were conceptualized as two independent factors. Persons were thought to be distinguished as high or low upon both scales, and plotted upon a four quadrant system. However, in the development of the self-determination scale, these two subscales were found to be statistically interrelated, and functioned as opposites of one another. Theoretically, it is conceivable to identify these two elements as independent. The problem may lie in the development of items sensitive enough to distinguish these concepts from one another. Further creation of items that tap distinct constructs may facilitate this goal.

Psychometrically, the self-determination scale evidenced adequate internal consistency (\( r (98) =.73 \)) but questionable test-retest reliability (\( r (98) = .67 \)). It appears that the construct tapped by this scale was
not a consistent one, and reflected relative transient opinion rather than trait. Conceptually, this construct is believed to be an underlying constant, not buffeted by circumstance, particularly in adults who are deemed to have resolved such basic theoretical issues regarding influences upon their development and functioning. Perhaps the subjects, mostly late adolescents, were at a developmental stage in which they were still incorporating influences such as those measured upon the scale, and they may not have yet reached a stable position of opinion. This relative inconsistency may also have been due to excess flexibility in the rating scale. A four-point scale was used, perhaps allowing more variance in opinion than was acceptable. A true/false format may have provided enough structure to force subjects to choose one side of the issue. Even though the scoring was statistically coded into such a dichotomy to test this hypothesis, subjects may have ranged between the mid-range of mildly agree (2) to mildly disagree (3). Although this is reflective of a change between positive and negative endorsement and would reduce the reliability within a collapsed true/false rating, it may not have reflected such a degree of opinion change in the subject. Again, rewording and further refining of test questions may lead to a more concise and understandable stimulus eliciting more consistent response.

The second purpose of this study was to determine if the elements of self-conception, either biological or environmental, had an influence upon cognitive and trait measures of empathy. Six hypotheses were
proposed and tested. The first hypothesis, of relating more biological and more extreme self-determination with lower trait and constructivist measures of empathy, elicited support. More biologically endorsing individuals were identified as less empathic upon the Hogan Personality Scale and upon the Empathic Concern scale of the IRI, and tended to be more personally distressed by negative emotion of others. Additionally, more extremely endorsing individuals tended to be less empathic upon the Empathic Concern subscale of the IRI. The rep test measures of empathy, both monadic and dyadic, did not correlate significantly with self-determination nor deviation self-determination. Further testing of this hypothesis was conducted through multiple regressions utilizing self-determination to predict rep test measures of congruence. Partial support was again found in that higher biological determinism was significantly associated with lower cognitive empathy as determined by constructivist measures. Extreme self-determination was not predictive of cognitive empathy. Gender of subject rating and gender of subject being rated did not add to the explanatory model. These results are in support of the conception that more biologically determined individuals are less empathic than environmentally determined, reflected by both trait and constructivist measures. Supportive but less convincing evidence was elicited for superior empathy of extremely self-determined individuals as compared to moderates.
It was thought that extreme self-determination and biological determination would be reflected in lower FIC and Ordination scores upon individual rep tests. However, results of a Pearson product-moment correlation indicated that more biologically determined individuals were found to have higher Ordination scores; similarly, more extremely determined individuals evidenced higher Ordination scores as well. This is in direct contradiction to the hypothesis. Generally, higher ordination is viewed in constructivist literature as a positive trait (Landfield & Barr, 1976). Ordination is thought to reflect a method of discriminating levels within one's construct system so that one is able to meaningfully compare and organize the principles one has available. Ordination would lead to less chaotic responses to new experiences because one's constructs would be well defined and easily utilized. The results of this study suggest that at the extreme, ordination might reflect a rigidity in a belief system impermeable to conflicting information. Interestingly, researchers have noted a decrease in FIC and Ordination in group therapy members as sessions increase (Landfield & Barr, 1975; Barr, 1977, cited in Landfield, 1978). The authors interpreted this change as an invalidation of previous constructs occurring as group members were confronted with new, more intricate understanding of their peers. Perhaps extreme ordination is reflective of systems that are not receptive to new information for consolidation; their understanding of the world has been concretized and is not amenable to change. Depending upon the time of life cycle and the basis for such a
system, it may function either positively or negatively. This may be a positive interpersonal experience when achieved at a mature age and when developed through questioning and exploring, accompanied by curiosity and acceptance of new thoughts. But when based upon provided structure, such as a childhood belief in organized religion that has not been personally explored, and when concretized during an early maturation period such as late adolescence, it may lead to rigidity and poor empathy with events and people not consistent with their stereotypes.

To corroborate previous findings of higher empathy in same sex dyads as opposed to opposite sex dyads (Dalton, 1983; Olesker & Balton, 1972) constructivist measures of empathy were compared dyadically by gender. However, same gender dyads did not significantly differ from opposite sex dyads upon cognitive empathy. In addition, when utilized with self-determination, gender was also not useful in predicting cognitive measures of empathy. Although there were no gender differences in the cognitive measure, trait measures elicited some gender differences. In comparisons among trait measures, females were found to evidence higher Empathic Concern and Personal Distress, and to have a tendency for higher Fantasy than males. The previous finding of slight female superiority upon the Hogan EM (Hogan, 1969) was not corroborated. These results support conceptualization of empathy as a multi-dimensional concept. While the unitary measure, Hogan EM, did not distinguish genders, the IRI was successful. Although the results upon the IRI might
indicate that females have a greater capacity for empathy than males, these results are somewhat contradictory. Personal Distress contraindicates empathy, implicating feelings of vulnerability, fearfulness and uncertainty, that may lead to an inability to separate oneself from negative emotion of others. These results do not indicate clear empathic superiority by females. Functionally, females might have a greater capacity for empathy, but may have difficulty experiencing or expressing it when the affect is more painful.

These results corroborate researchers' distinction between cognitive and affective definitions of empathy. Females are generally found to have greater empathic capacity when measured affectively (Abramowitz, Abramowitz & Weitz, 1976; Dalton, 1983; Hoffman, 1977). The superior decoding skills consistently demonstrated by females (Hall, 1984) may account for greater affective sensitivity. Women have been found to be particularly superior at reading facial expression, with less advantage in voice cues. Since the constructivist empathy measure was purely cognitive, it is not surprising that neither gender nor dyadic gender composition influenced results. However, it may also be useful to utilize a developmental approach in understanding interpersonal empathy. As Barrett-Lennard (1981) suggested, both intellectual and emotional understanding would be essential to relationship formation, but would vary in influence and importance at different stages of growth. Cognitive tasks may be primary at beginning stages and empathic components may become increasingly important as the relationship
continues to mature. Very few studies have concluded that males have superior cognitive empathic ability, except when ratings other males (Dalton, 1983). Thus, while neither gender would be favored in ability to initiate relationships, there may be a difference when emotional topics are breached.

The results of this study suggest that although females may be better able to reflect positive emotional states, they may be vulnerable to negative affect and may have difficulty providing distance from painful experiences. While both genders are equally able to relate cognitively to others, females may have difficulty inhibiting the encroachment of unpleasant states and thus avoid later stages of empathy. The end result of these differences may not differentiate males and females functionally in relationships except in intimate, supportive roles, where females may predominate. In a series of studies exploring the effect of gender role upon behavior, Sandra Bem (1982) found that in comparison to androgynous women, feminine females were less likely to initiate affection toward a kitten, more influenced by peer opinion, and equally responsive to a baby, but were able to employ the stereotypical feminine empathic role when counseling with peers. Bem concluded that gender typed females were concerned with negative consequences of their behavior and were able to exhibit empathy only in those situations in which the expected behavior was clear. Perhaps the results of the present study are another indication that when overwhelmed by painful states of other, and unsure how to be helpful and distance oneself emotionally,
women lacking the "masculine" ability to set boundaries, may withdraw instead.

Based upon Fogle (1988) and Loos (1986), it was thought that greater cognitively similarity between individuals' constructs would indicate greater cognitive empathy. This hypothesis was not supported, however. Previous research on similarity in relationships has been conducted utilizing cognitive as well as non-cognitive variables, such as attractiveness (Duck, 1977). Landfield (1971) related content congruence with therapy maintenance. Landfield & Leitner (1980) found premature termination in therapy related to poorer content congruency. It may be that content similarity is more easily perceived and measured by persons interrelating than organizational similarity. Particularly in initial stages of relationship development, these more concrete differences may be easily monitored and more emotionally relevant than subtle differences in organization, which may take time to be detected and may play a role in later decision making.

Greater extremity in constructivist ratings of empathy was predicted to reflect lower trait measures of empathy. Although none of the correlations were statistically significant, there was a tendency for lower empathy as measured by IRI-Personal Distress to accompany greater rating extremity, supporting the hypothesis. Apparently subjects that reported having difficulty separating from negative affect of others responded in a more extreme manner. This is supportive of the distinction O'Donovan (1965) made between circumstances when
rating extremity reflects pathology and when it reflects meaningfulness. Extremity that is dependent upon situational contexts allows responsivity to change, while indiscriminant extremity reflects nonadaptive rigidity. These subjects may have been overreacting to their perception of others, attending to internal cues rather than moderating their ratings according to situational cues. When polarized responses are based upon such brief interactions as occurred in this study, it is likely that meaningfulness would be minimal.

Lastly, the relationship between position in the menstrual cycle and the use of birth control pills with the dependent measures of self-determination and empathy was explored. Pearson product-moment correlations indicated that as women became closer to their next menstrual period, they endorsed more biological determination, were more extreme in their self-determination endorsements in either direction and tended to be more extreme in their constructivist ratings. However, position in the menstrual cycle was not reflected in ability to cognitively construe others, nor in trait empathy measures. The use of birth control pills did not significantly differentiate women in either a biological/environmental direction, nor in their extremity of endorsement. These biological/environmental differences suggest that women in the late luteal phase of their menstrual cycle may turn their attention inward toward their physical functioning, becoming more responsive to their bodies. Increased perceptual sensitivity has been related to menstrual phase in the literature (Matlin, 1983), but
these changes do not occur consistently in any one phase. Parlee (1983) reported increased sensitivity to pain at menstruation, increased sensitivity to lights and odors at ovulation and improved hearing both at ovulation and at menstruation.

Cyclical variation of extreme endorsements on self-determination and extreme ratings of self and others may be explained either as pathology or meaningfulness (O'Donovan, 1965). Postulating that menstrual changes exacerbate emotional reactivity implies Premenstrual Syndrome, a label that has raised political and ethical ramifications when included in the provisional category of the Diagnostic and Statistical Manual third edition-revised. Estimates at the prevalence of PMS are confounded by poor definition and sampling. Prevalence estimates range from 20 to 90% of the female population (Abraham, 1980, cited in Seigel; Rubinow & Roy-Byrne, 1984). Although empirical studies have consistently failed to find cyclical cognitive changes in women (Matlin, 1987), conclusions regarding affective variation have been less consistent. A mood-cycle correlation has been reported using projective techniques (Paige, 1971) and mothers have been found to be more likely to present their children to pediatricians when they are in the late luteal phase of their cycle (Tuch, 1975, cited in Matlin, 1987). Some retrospective studies of mood have also reported cyclical variation (Parlee, 1973), but more cleanly designed studies have failed to replicate. Instead of relying on recollection, Parlee (1982) gathered daily ratings of mood collected over 90 days upon subjects blind to the purpose of the
study and discovered a "premenstrual elation syndrome" consisting of lower fatigue, confusion and depression. In a review of the literature, Matlin (1987) concluded that some women experience cyclical mood swings, but most women are not functionally incapacitated.

A second explanation of cyclical extremity is that of increased meaningfulness. If women physiologically "turn inward" during their premenstrual phase, they may also attend to emotional cues as well, resulting in greater clarity of self-understanding. Rather than characterizing women as emotionally flighty, this interpretation would imply greater understanding of self and their relationship to others; a rephrase of the some phenomena to include more palatable implications.

These results provide support for further evaluation of self-determination and its effect upon interpersonal processes such as empathy. The extreme-moderate distinction elicited some support, although the biological-environmental distinction was more consistently successful. While the Self-determination Scale was deemed adequate for this study, it lacked some psychometric properties that should be improved prior to further use. The concepts measured in the scale were fairly abstract, and may have added confusion in distinguishing the two scales as independent. Other causes of self-determination may prove more easily tapped; for example the influence of God, one's parents or fate may lend themselves to more concrete measurement. The concept of self-determination could have a variety of applications, particularly for
women. Endorsement of environmental/biological determination may moderate perceptions of pregnancy and childbirth as either pleasant and fulfilling or bothersome. Similarly, women who endorse biological determinants may passively accept gender discrimination existing in our society, accepting it as "natural." Perhaps individuals with external locus of control would endorse less extreme determinants of their behavior, allowing for self-determination and willful change. Further investigation could be made of the relationship between gender role, self-determination and helping behaviors. Lastly, the concept of extremity of determination could be related to political and religious beliefs or the personality trait of authoritarianism.
APPENDIX A

INFORMED CONSENT
Informed Consent

I, ________________________________, agree to participate in a study whose purpose is to provide information about individual differences in interpersonal interactions. My participation will include answering four paper and pencil tests regarding my opinion about myself and others, women in particular, and then interacting with two other people for twenty-five minutes, one at a time. I will play a drawing charades game and then draw my family tree with my partner.

I have been informed that any information from this study will be filed by the last four digits of my social security number, or any four digit number I choose, to ensure confidentiality. I have been informed that my four digit identification number shall not be recorded on this sheet, and that this document and any other document which contains my name and signature shall be kept separate from my test data. I understand that my test data will be destroyed after all of the necessary information has been computed. Under this condition, I agree that any information obtained from this research may be used in any way thought best for publication or education.

I understand that there is no personal risk or discomfort directly involved with this research and that I am free to withdraw my consent and discontinue my participation at any time. A decision to withdraw from the study will not affect my grade in the class.
If I have any questions about this study or if any problems should arise I should contact Caroline Curlin, the project director at (817)565-2671.

______________________________  ______________________________
(Date)  (Signature)

THIS PROJECT HAS BEEN REVIEWED BY UNIVERSITY OF NORTH TEXAS COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
(Phone: (817)565-3946)
APPENDIX B

PILOT STUDY
Pilot Study

Subjects A pilot study was conducted to test and further develop the Curlin Self-Determination Scale. Ninety-eight subjects, thirty-seven males and sixty females, were recruited from undergraduate psychology courses in exchange for extra credit. Informed consent was obtained from all subjects before testing began.

Measures Subjects were administered three scales; the Curlin Self-Determination Scale, the a short version of the Attitudes Towards Women Scale and the Bem Sex Role Inventory (found in Appendixes C, D, and E). Additionally, they were asked to rate the extent of biological and environmental influences on their behavior using a seven-point scale (see Appendix F). Sixty of the original subjects were readministered the Curlin Self-Determination Scale two weeks later.

The Curlin Self-Determination Scale originally consisted of two orthogonal scales designed to measure biological and environmental determinants of self-conception. Of the seventy-seven total items, twenty-six contributed to the environmental subscale, twenty-five contributed to the biological subscale. The remaining twenty-six items were social desirability items from the Marlow-Crowne Social Desirability Scale interspersed to disguise the nature of the measure. The initial pool of sample questions contained some redundant items, either worded in a different manner or negatively phrased, to allow rejection of less powerful items while maintaining a scale of sufficient
length. Subjects were instructed to respond to the statements as opinions rather than facts that are either right or wrong. A four-point scale was given to endorse their level of agreement corresponding to (1) strongly agree, (2) mildly agree, (3) mildly disagree, and (4) strongly disagree. Forty of the items were negatively keyed. The two scales were computed by totalling all of the items in each scale after reversing the negatively scored items (see Appendix B).

The Attitudes Towards Women Scale (Spence and Helmreich, 1978) was originally a fifty-five Likert-item scale measuring conventionality of attitudes towards women (see Appendix D). It was developed to measure attitudes regarding "the rights and roles of women in such areas as vocational, educational, and intellectual activities; dating behavior and etiquette; sexual behavior; and marital relationships." (Spence, Helmreich, & Stapp, 1973). Each positive item is scored from 0 to 3, with 0 representing the most traditional, conservative attitude and 3 representing the most liberal attitude. Negative items are reversed and all the scores are summed. Scores range from 1 to 165 with a high score reflecting more liberal attitudes (Spence & Helmreich, 1972). A shortened version of twenty-five items was published in 1973. Correlations between full-scale and the 25-item version were \( r (286) = .97 \) for male subjects and \( r (241) = .97 \) for females. Factor analysis indicated a unifactorial design, with one factor accounting for 67.7% of the variance for females and 69.2% of the variance for males. The authors concluded that the 25-item
version was highly similar to the original version. Daugherty & Dambrot (1986) have reported adequate measures of internal consistency of the twenty-five item version with a Cronbach's alpha of .89 and split-half reliability of .86. Nelson (1988) reported support for construct validity of a slightly revised 25-item version in that females evidenced more liberal sex role attitudes than males, younger people evidenced more liberal sex role attitudes than older people and individuals of higher social status evidenced more liberal attitudes than those of lower status. Several researchers have similarly found support for the validity and reliability of this scale (Ghaffaradli-Doty & Carlson, 1979, Kilpatrick & Smith, 1974; Lunneborg, 1974; Smith & Bradley, 1980; Stein & Weston, 1976; all cited in Nelson, 1988).

The Bem Sex Role Inventory, (Bem, 1974, 1977; see Appendix E) mentioned earlier, consists of sixty adjectives by which subjects rate themselves from 1 to 7. Based upon the two orthogonal scale, subjects can be placed into masculine, feminine, undifferentiated and androgynous categories. For statistical purposes, subjects' scores were maintained in their raw score form rather than being separated into categories.
### Table 10

**Means and Standard Deviations of Pilot Measures**

<table>
<thead>
<tr>
<th>Variables(^1)</th>
<th>Males (37)</th>
<th>Females (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>A</td>
<td>54.50</td>
<td>5.75</td>
</tr>
<tr>
<td>B</td>
<td>71.32</td>
<td>6.83</td>
</tr>
<tr>
<td>C</td>
<td>47.58</td>
<td>10.98</td>
</tr>
<tr>
<td>D</td>
<td>5.06</td>
<td>.91</td>
</tr>
<tr>
<td>E</td>
<td>4.43</td>
<td>.72</td>
</tr>
<tr>
<td>F</td>
<td>4.08</td>
<td>1.45</td>
</tr>
<tr>
<td>G</td>
<td>6.01</td>
<td>.99</td>
</tr>
</tbody>
</table>

\(^1\)A = Biological Subscale; B = Environmental Subscale; C = Attitude Toward Women; D = Bem Sex Role Inventory Masculine Scale; E = Bem Sex Role Inventory Feminine Scale; F = Biological Rating; G = Environmental Rating.

**Results** Table 10 contains the means and standard deviations of each of the measures separated for gender. Correlations between biological and environmental subscales were computed separately by gender and for both genders combined. These correlations are contained in Table 11. The biological and environmental subscales correlated significantly with one another for females \(r (60) = -.31, p <\)
.01), males (r (37) = -.39, p < .05) and for both genders combined (r (97) = -.35, p < .01). Subjects endorsing greater environmental determinism endorsed lesser biological determinism. This is supportive of recomputing self-determinism into one unipolar scale, with biological self-determinism opposing environmental determinism, rather than two independent scales.

Correlations between the two subscales of self-determinism and the Bem Sex Role Inventory, the Attitudes Toward Women Scale, the Marlow-Crowne Social Desirability Scale and the Biological and Environmental 7-point ratings were also computed both separately by gender and with both genders combined. These correlations can be found in Table 12. The Attitude towards Women scale correlated significantly with biological scores on the Self-Determination Scale for both males (r (37) = .52, p < .01) and females (r (60) = .46, p < .001) as well as for both genders combined (r (87) = .46, p < .001). It also correlated significantly with environmental scores for males (r (37) = -.49, p < .01), females (r (60) = -.43, p < .001) and for both genders combined (r (87) = -.50, p < .001). Both male and female subjects scoring high on biological determinism were more conservative in their attitudes towards women; individuals of both genders scoring high on environmental determinism were more liberal in their views of women. This result is consistent with the intent of the self-determination scale.
Table 11

**Correlation Between Environmental and Biological Subscales Split for Gender**

<table>
<thead>
<tr>
<th>Biological Scale</th>
<th>Males (n=37)</th>
<th>Females (n=60)</th>
<th>Overall (n=97)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Scale</td>
<td>*-.39</td>
<td>**-.31</td>
<td>***-.35</td>
</tr>
</tbody>
</table>

* p < .05; ** p < .01; *** p < .001.

The Bem Sex Role Inventory is separated into two subscales, feminine and masculine. Of both scales, only one significant relationship was found; the feminine subscale correlated significantly with the biological subscale for males only (r (37) = -.49, p < .01). Males endorsing higher biological determinism scored less femininely on the Bem Sex Role Inventory. Females of biological and environmental determinism were not differentiated significantly upon either of the Bem subscales. These results are supportive of the self-determination scale for males, because intuitively individuals more traditionally feminine would be expected to endorse higher biological determinism. However, overall gender effects appear to cancel themselves out, for when using all subjects, neither subscale of the Bem Sex Role Inventory correlates with either biological or environmental self-determinism.
The self-rating of the influence of environmental and biological factors upon subjects did not consistently correlate with scores on self-determinism. Self-rating of environmental determinism correlated significantly with scores upon the environmental subscale for males ($r (37) = .47, p < .01$) and both genders combined ($r (97) = .28, p < .01$). Females subjects' environmental self-ratings did not significantly vary with the environmental subscale. Thus, males and both genders combined that endorsed greater environmental determinism were also identified as more environmentally determined by the self-determination scale. Self-rating of environmental determinism correlated significantly with biological self-determination for both genders combined ($r (97) = -.18, p < .05$). Overall, individuals endorsing high environmental determinism upon the self-rating were less biologically determined upon the self-determination scale. Biological self-ratings did not significantly correlate with either subscale for either genders. It appears that this self-rating was measuring a different level of attitude than the self-determination scale, or a similar construct at a different level of awareness.
Table 12

Correlation Matrix between Biological and Environmental Subscales with Other Measures

<table>
<thead>
<tr>
<th>Variables¹</th>
<th>Biological</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>A</td>
<td>+.26</td>
<td>.15</td>
</tr>
<tr>
<td>B</td>
<td>**.52</td>
<td>***.46</td>
</tr>
<tr>
<td>C</td>
<td>.05</td>
<td>-.15</td>
</tr>
<tr>
<td>D</td>
<td>**-.49</td>
<td>.16</td>
</tr>
<tr>
<td>E</td>
<td>-.08</td>
<td>+.19</td>
</tr>
<tr>
<td>F</td>
<td>+.25</td>
<td>-.14</td>
</tr>
</tbody>
</table>

¹A = Social Desirability; B = Attitudes Towards Women; C = Bem Sex Role Inventory Masculine Scale; D = Bem Sex Role Inventory Feminine Scale; E = Biological Rating; F = Environmental Rating.

+ p < .10; * p < .05; ** p < .01; *** p < .001.

Continuing the exploration of the psychometric properties of the Self-Determination Scale, item-total Spearman Rho correlations were conducted between each of the Self-Determination items and the biological and environmental subscales totalled. Table 13 lists the Spearman Rho correlations between each biological item and the total biological subscale by sex, and Table 14 lists the same correlations between each environmental item and the total environmental
subscale by sex, both found in Appendix L. In order to further refine the scales and ensure that they were statistically orthogonal, 11 biological items and 11 environmental items were chosen that correlated \((p < .05)\) with the same scale and \((p > .10)\) with the opposite scale. However, when separated by gender, some of the items correlated differently with the total subscores according to gender (see Tables 13 and 14). The Cronbach’s alpha computed for each of the scales using these select items was \((r (98) = .62)\) for the biological subscale and \((r (98) = .58)\) for the environmental subscale. These results were considered less than acceptable. The items were recomputed using a true/false dichotomy rather than the original four-point rating, but the test-retest reliability decreased for both the biological \((r (98) = .50)\) and the environmental subscales \((r (98) = .44)\). When computed using only select items from both scales and collapsed into a dichotomous rating, the test-retest correlations decreased to \((r (98) = .49)\) for the biological subscale and \((r (98) = .62)\) for the environmental subscale. This was thought to be due to the reduction in variance due to low item number.

Although originally the Self-Determination Scale was conceptualized as being comprised of two orthogonal constructs, a bipolar dimension was considered as well due to the high correlation between the two scales. Scores were recoded so that low total scores indicated an environmental self-determination, and high scores indicated a biological self-determination. Eighteen biological items and seventeen environmental items were chosen due to their high
correlations with the subscales, despite their negative correlations with the opposite subscale. Item-total Spearman correlations and significance levels separated by gender are listed in Table 15, found in Appendix L. Items that correlate differently according to sex are noted. Using this rescaling of the items, both the test-retest reliability ($r$ (98) = .67) and the Cronbach alpha ($r$ (98) = .73) were raised. Although these scores are not optimal, they were deemed acceptable. The poor test-retest correlation seems to indicate that the construct the Self-Determination Scale was tapping was not a consistent one. Before further use is made of this scale, reliability issues need to be addressed.
APPENDIX C

CURLIN SELF-DETERMINATION SCALE
Attitudes Questionnaire

The statements listed below concern personalities, traits, and attitudes about yourself and other people. There are no right or wrong answers, only opinions. Please indicate beside each item whether you 1) agree strongly, 2) agree mildly, 3) disagree mildly, or 4) disagree strongly.

1. Maternal feelings are innate.
2. Before voting I thoroughly investigate the qualifications of all the candidates.
3. People raised in educated families where reading and learning are encouraged would appear more intelligent on IQ tests.
4. Menstruation is the real start of womanhood.
5. I never hesitate to go out of my way to help someone in trouble.
6. People's personality styles change greatly after adolescence because of the experiences they have.
7. Women's physical size and strength should not keep them from joining the armed services.
8. It is sometimes hard for me to go on with my work if I am not encouraged.
9. People have core personality types that change little over time.
10. Women should not be placed in positions of political power because they may behave inappropriately at different times of the month.
11. I have never intensely disliked anyone.
12. What is considered feminine has remained relatively unchanged for centuries.
13. Sometimes people turn out badly even though they had all the advantages of a good home.
14. On occasion I have had doubts about my ability to succeed in life.
15. I sometimes feel resentful when I don’t get my way.
16. Men and women are born with the same amount of math ability.
17. I am always careful about my manner of dress.
18. Men are not biologically programmed to sleep with more than one woman.
19. The more women of today break stereotypes, the more future generations will be free to do or be anything they please.
20. The reason some men want to have sex with more than one woman because it makes them look masculine.
21. My table manners at home are as good as when I eat out in a restaurant.
22. Mothers are closer to their children than fathers because of the months they spent carrying the child and the pain of labor they endured.
23. Women are naturally better at communicating their emotions than men.
24. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
25. Although superficial customs are different, people are basically the same in other countries.

26. On a few occasions, I have given up doing something because I thought too little of my ability.

27. Men don't express their emotions more because it appears weak to others.

28. If someone were sterile, one of their major reasons for living would be gone.

29. IQ has little to do with heredity.

30. I like to gossip at times.

31. Children raised in the ghetto learn to steal because it is the only way to get by where they live.

32. Even if girls were encouraged to participate in sports, they would probably not be any more interested in them.

33. There have been times when I felt like rebelling against people in authority even though I knew they were right.

34. No matter who I'm talking to, I'm always a good listener.

35. People can have rich and fulfilling lives without raising children.

36. There is no such thing as a personality programmed from birth.

37. I can remember "playing sick" to get out of something.

38. If one were raised in a different home environment, one would still probably turn out to be the same person.

39. Women are naturally dependent upon men because they are physically weaker.

40. There have been occasions when I took advantage of someone.
41. I'm always willing to admit it when I make a mistake.
42. Even if it wasn't expected, men would still behave more aggressively than females.
43. I always try to practice what I preach.
44. Some persons are born with a tendency toward a certain personality type.
45. PMS are not real symptoms; they are all in women's heads.
46. I don't find it particularly difficult to get along with loudmouthed, obnoxious people.
47. Boys perform better in math because teachers and parents expect them to be better.
48. IQ is largely influenced by the home setting, educational opportunities and cultural environment.
49. Menopause has little effect on women's feelings of sexual attractiveness.
50. Some people are born with a tendency toward criminal behavior.
51. I sometimes try to get even, rather than forgive and forget.
52. The type of person one becomes as an adult is relatively unaffected by the experiences one has had while growing up.
53. When I don’t know something I don’t at all mind admitting it.
54. Men in unusual occupations like nursing, elementary education and secretarial work are essentially the same as men in more traditional occupations.
55. Stereotypes are perpetuated because people conform to them and teach them to their children.
56. I am always courteous, even to people who are disagreeable.
57. Women who have no desire to bear and raise children can still lead fulfilling lives.
58. Some women never have maternal instinct.
59. At times I have really insisted on having things my own way.
60. In other cultures, men and women act differently towards one another because the sexual stereotypes are not the same as in the U.S.
61. One's IQ is clearly related to the IQ of one's parents.
62. The phases of the menstrual cycle have little effect on women that can't be overcome easily.
63. I would never think of letting someone else be punished for my wrongdoings.
64. Women are perceived as being more emotional and irrational than men because role models and the media teach us to be that way.
65. The only difference between male and female personalities is due to upbringing.
66. There have been occasions when I felt like smashing things.
67. Men who aren't emotionally strong and dominant make me uneasy.
68. Even if boys and girls were treated in the same way growing up, there would still be differences between the sexes as adults.
69. I never resent being asked to return a favor.
70. More women would have careers if society didn't make it so hard to combine career and marriage.

71. It goes against men's natures to stay with just one woman.

72. The reason more women aren't in positions of high political power is because of society's stereotypes.

73. People behave in relatively the same manner no matter what the situation is.

74. Even if girls were encouraged in math by teachers and parents more than boys are encouraged, they would still not be as good as boys are.

75. I have never been irked when people expressed ideas very different from my own.

76. There are very real differences between the sexes that are not influenced by upbringing.

77. Existing stereotypes have nothing to do with innate tendencies.

For women only:

_____ The date you last started your menstrual cycle.

_____ Are you on birth control pills?
APPENDIX D

ATTITUDES TOWARD WOMEN SCALE
Attitude Toward Women Scale

Instructions:

The statements listed below describe attitudes toward the role of women in society that different people have. There are no right or wrong answers, only opinions. You are asked to express your feeling about each statement by indicating whether you (1) agree strongly, (2) agree mildly, (3) disagree mildly, or (4) disagree strongly. Please indicate your opinion by writing either 1, 2, 3, or 4 beside each item.

1. Swearing and obscenity are more repulsive in the speech of a woman than of a man.
2. Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day.
3. Both husband and wife should be allowed the same grounds for divorce.
4. Telling dirty jokes should be mostly a masculine perogative.
5. Intoxication among women is worse than intoxication among men.
6. Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing the laundry.
7. It is insulting to women to have the "obey" clause remain in the marriage service.
8. There should be a strict merit system in job appointment and promotion without regard to sex.
9. A woman should be as free as a man to propose marriage.

10. Women should worry less about their rights and more about becoming good wives and mothers.

11. Women earning as much as their dates should bear equally the expense when they go out together.

12. Women should assume their rightful place in business and all the professions along with men.

13. A woman should not expect to go to exactly the same places or to have quite the same freedom of action as a man.

14. Sons in a family should be given more encouragement to go to college than daughters.

15. It is ridiculous for a woman to run a locomotive and for a man to darn socks.

16. In general, the father should have greater authority than the mother in the bringing up of children.

17. Women should be encouraged not to become sexually intimate with anyone before marriage, even their fiancés.

18. The husband should not be favored by law over the wife in the disposal of family property or income.

19. Women should be concerned with their duties of childbearing and house tending, rather than with desires for professional and business careers.

20. The intellectual leadership of a community should be largely in the hands of men.
21. Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set up by men.

22. On the average, women should be regarded as less capable of contributing to economic production than are men.

23. There are many jobs in which men should be given preference over women in being hired or promoted.

24. Women should be given equal opportunity with men for apprenticeship in the various trades.

25. The modern girl is entitled to the same freedom from regulation and control that is given to the modern boy.
APPENDIX E

BEM SEX ROLE INVENTORY
ATTITUDE QUESTIONNAIRE

INSTRUCTIONS: Indicate on a scale of 1-7 how well each of the following characteristics describes you using the following scale: 1) never or almost never true; 2) usually not true; 3) sometimes but infrequently true; 4) occasionally true; 5) often true; 6) usually true; 7) always or almost always true.

1. self-reliant
2. yielding
3. helpful
4. defends own beliefs
5. cheerful
6. moody
7. independent
8. shy
9. conscientious
10. athletic
11. affectionate
12. theatrical
13. assertive
14. flatterable
15. happy
16. strong personality
17. loyal
18. unpredictable
19. forceful
20. feminine
21. reliable
22. analytical
23. sympathetic
24. jealous
25. has leadership abilities
26. sensitive to the needs of others
27. truthful
28. willing to take risks
29. understanding
30. secretive
31. makes decisions easily
32. compassionate
33. sincere
34. self-sufficient
35. eager to soothe hurt feelings
36. conceited
37. dominant
38. soft spoken
39. likable
40. masculine
41. warm
42. solemn
43. willing to take a stand
44. tender
45. friendly
46. aggressive
47. gullible
48. inefficient
49. acts as a leader
50. childlike
51. adaptable
52. individualistic
53. does not use harsh language
54. unsystematic
55. competitive
56. loves children
57. tactful
58. ambitious
59. gentle
60. conventional
APPENDIX F

BIOLOGICAL AND ENVIRONMENTAL SELF-RATING SCALE
Some people feel that the genes that they have inherited from their parents have played a large role in who they have become as adults. Consider the effect the genes and heredity you received at birth have had upon who you are today. Please rate the degree of influence these inborn determinants have had by placing an "X" on the scale below. According to this scale, 1) = very little or no influence, 4) = moderate influence, 7) = very strong influence.

1 2 3 4 5 6 7

Similarly, some people have felt that the experiences they had growing up and since adulthood have had a large impact on who they have become as adults. Consider the degree of influence the circumstances you have experienced have had upon your development. Rate the degree of influence environment has had by placing an 'X' on the scale below. According to this scale, 1) = very little or no influence, 4) = moderate influence, 7) = very strong influence.

1 2 3 4 5 6 7
APPENDIX G

THE COMMUNITY OF SELVES REPERTORY GRID
The Community of Selves Repertory Grid

Find the slanted lines in the upper left-hand corner of your answer sheet. Enter the names of persons who fit the descriptions provided spaces. Do not use the same person more than once. Below your list of names, find the highlighted square in ROW A. Using the names above the highlighted squares, think carefully about yourself and these two people. As you think about the three of you, try to find one way in which two of you are alike and different from the other. Write the way in which two of these three people are alike in the space provided at the right under SIMILARITY. Write the way in which one of these three people is different from the tho who are alike in the space provided at the right under DIFFERENT. After you finish ROW A, complete ROW B, ROW C, etc. in the same manner.

Turn the answer sheet over to the reverse side. Fold the top of the page along the dotted line. A new list of titles should cover the names of your acquaintances. The NEW TITLES are a list of the various ways you may have of experiencing yourself. At times you may find yourself to be a "vulnerable" person, at times a "dreaming" person, and so on. The descriptions you have written under comparisons can now be used as rating scales to describe the various ways you experience yourself. For COLUMN 1 try to recall times in you life when you have experienced yourself as a vulnerable person. Using each of the 15 rating scales under comparisons, rate yourself as a vulnerable person. Ratings should appear in each square under
column 1. Use a zero (0) rating when neither description fits your experience of yourself or when you are unsure about your experience. Continue on to each of the other columns. Try to describe the various ways you may have of experiencing yourself.
APPENDIX H

HOGAN PERSONALITY SCALE
Hogan Personality Scale

A series of statements follows. Read each one, decide how you feel about it, and then mark either true or false. If you agree with the statement and feel it is true about you, answer true. If you disagree with a statement or feel it is false about you, then answer false.

1. A person needs to "show off" a little now and then.
2. I like Alice in Wonderland by Lewis Carroll.
3. Clever, sarcastic people make me feel very uncomfortable.
4. I usually take an active part in the entertainment at parties.
5. I feel sure that there is only one true religion.
6. I am afraid of deep water.
7. I must admit I often try to get my own way regardless of what others may want.
8. I have at one time or another in my life tried my hand at writing poetry.
9. Most of the arguments or quarrels I get into are over matters of principle.
10. I would like the job of a foreign correspondent for a newspaper.
11. People today have forgotten how to feel properly ashamed of themselves.
12. I prefer a shower to a bathtub.
13. I always try to consider the other person's feelings before I do something.
14. I usually don't like to talk much unless I am with people I know very well.

15. I can remember "playing sick" to get out of something.

16. I like to keep people guessing what I'm going to do next.

17. Before I do something I try to consider how my friends will react to it.

18. I like to talk before groups of people.

19. When a man is with a woman he is usually thinking about things related to her sex.

20. Only a fool would try to change our American way of life.

21. My parents were always very strict and stern with me.

22. Sometimes I rather enjoy going against the rules and doing things I'm not supposed to do.

23. I think I would like to belong to a singing club.

24. I think I am usually a leader in my group.

25. I like to have a place for everything and everything in its place.

26. I don't like to work on a problem unless there is the possibility of coming out with a clear-cut and unambiguous answer.

27. It bothers me when something unexpected interrupts my daily routine.

28. I have a natural talent for influencing people.

29. I don't really care whether people like me or dislike me.

30. The trouble with many people is that they don't take things seriously enough.

31. It is hard for me just to sit still and relax.
32. I feel that it is certainly best to keep my mouth shut when I'm in trouble.

33. I am a good mixer.

34. I am an important person.

35. I like poetry.

36. My feelings are not easily hurt.

37. I have met problems so full of possibilities that I have been unable to make up my mind about them.

38. Often I can't understand why I have been so cross and grouchy.

39. What others think of me does not bother me.

40. I would like to be a journalist.

41. I like to talk about sex.

42. My way of doing things is apt to be misunderstood by others.

43. Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world."

44. I like to be with a crowd who play jokes on one another.

45. My mother or father often made me obey even when I thought that it was unreasonable.

46. I easily become impatient with people.

47. Sometimes I enjoy hurting persons that I love.

48. I have sometimes felt that difficulties were piling up so high that I could not overcome them.

49. I am apt to pass up something I want to do when others feel that it isn't worth doing.
50. People have often misunderstood my intentions when I was trying to put them right and be helpful.

51. I am usually calm and not easily upset.

52. I would certainly enjoy beating a crook at his own game.

53. I am often so annoyed when someone tries to get ahead of me in a line of people that I speak to him about it.

54. I used to like hopscotch.

55. I have never been made especially nervous over trouble that any members of my family have gotten into.

56. As a rule I have little difficulty in "putting myself into other people's shoes."

57. I have seen some things so sad that I almost felt like crying.

58. Disobedience to the government is never justified.

59. It is the duty of a citizen to support his country, right or wrong.

60. I am usually rather short-tempered with people who come around and bother me with foolish questions.

61. I have a pretty clear idea of what I would try to impart to my students if I were a teacher.

62. I enjoy the company of strong-willed people.

63. I frequently undertake more than I can accomplish.

64. Once in a while I think of things too bad to talk about.
APPENDIX I

INTERPERSONAL REACTIVITY INDEX
Interpersonal Reactivity Index

1. I daydream and fantasize, with some regularity, about things that might happen to me.
2. I often have tender, concerned feelings for people less fortunate than me.
3. I sometimes find it difficult to see things from the "other guy's" point of view.
4. Sometimes I don't feel very sorry for other people when they are having problems.
5. I really get involved with the feelings of the characters in a novel.
6. In emergency situations, I feel apprehensive and ill-at-ease.
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.
8. I try to look at everybody's side of a disagreement before I make a decision.
9. When I see someone being taken advantage of, I feel kind of protective towards them.
10. I sometimes feel helpless when I am in the middle of a very emotional situation.
11. I sometimes try to understand my friends better by imagining how things look from their perspective.
12. Becoming extremely involved in a good book or movie is somewhat rare for me.
13. When I see someone get hurt, I tend to remain calm.
14. Other people's misfortunes do not usually disturb me a great deal.
15. If I am sure I am right about something, I don't waste much time listening to other people's arguments.
16. After seeing a play or a movie, I have felt as though I were one of the characters.
17. Being in a tense, emotional situation scares me.
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.
19. I am usually pretty effective in dealing with emergencies.
20. I am often quite touched by things that I see happen.
21. I believe that there are two sides to every question and try to look at them both.
22. I would describe myself as a pretty soft-hearted person.
23. When I watch a good movie, I can very easily put myself into the place of a leading character.
24. I tend to lose control during emergencies.
25. When I am upset at someone, I usually try to "put myself in his shoes" for awhile.
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
27. When I see someone who badly need help in an emergency, I go to pieces.
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.
APPENDIX J

INSTRUCTIONS FOR GENOGRAM
A genogram is a way of drawing a family tree that records information about family members and their relationships. It is a map of figures representing people and lines showing their relationships. Each family member is represented by a box for a male or a circle for a female. Two people who are married are connected by lines that go down and across, with the husband on the left and the wife on the right. One slash on the line represents separation and two represent divorce. Multiple marriages are characterized by the following:

If a couple has children, then each child's figure hangs down from the line connecting the couple. After the skeleton has been drawn, additional information can be added regarding the types of relationships between family members.

= distant relationships
= close relationships
= conflictual relationships.

The following is a diagram of Sigmund Freud's family. It indicates close relationships between Sigmund and both his daughter, Anna, and his mother Amalia, and a distant relationship with his father, Jakob.
Table 13

Spearman Correlations Between Biological Items and Subscales By Sex

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Spearman Correlations Between Biological Items and Subscales By Sex

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# = item chosen by overall correlation with appropriate subscale <.05; correlation with opposite scale >.10.

$ = item that is statistically problematic for males

@ = item that is statistically problematic for females
Table 14

Spearman Correlations Between Environmental Items and Subscales

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# = item chosen by overall correlation with appropriate subscale < .05; correlation with opposite scale > .10.

$ = item that is statistically problematic for males

@ = item that is statistically problematic for females
Table 15
Correlations Between Items and Total Bipolar Score

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<td>E8</td>
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<td>**.36</td>
<td>E9#$</td>
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<td>.11</td>
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<tr>
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<td>.05</td>
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<td>E11#</td>
<td>**.46</td>
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<tr>
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<td>E12#</td>
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<tr>
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<td>**.37</td>
<td>E13#</td>
<td>*.39</td>
</tr>
<tr>
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<td>E14#</td>
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<tr>
<td>B15</td>
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<td>-.09</td>
<td>E15#</td>
<td>.07</td>
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<td>.16</td>
<td>E16#</td>
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<tr>
<td>B17#</td>
<td>**.58</td>
<td>*.25</td>
<td>E17#$</td>
<td>.24</td>
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</table>

con't
Table 15 Con't

<table>
<thead>
<tr>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
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<tr>
<td>B18#§</td>
<td>-.00</td>
<td>* .26</td>
<td>E18#</td>
<td>*.32</td>
<td>** .45</td>
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<td>E19#</td>
<td>*.36</td>
<td>.16</td>
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<td>.05</td>
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<td>* -.23</td>
<td>E21</td>
<td>-.02</td>
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</tr>
<tr>
<td>B22#§</td>
<td>.01</td>
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<td>E22#§</td>
<td>.12</td>
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</tr>
<tr>
<td>B23#</td>
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<td>E23#§</td>
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</tr>
<tr>
<td>B24#</td>
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<td>E24#</td>
<td>** .49</td>
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</tr>
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<td>E25#</td>
<td>** .54</td>
<td>*.24</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>E26</td>
<td>.17</td>
<td>-.12</td>
</tr>
</tbody>
</table>

# = item chosen by overall correlation with appropriate subscale <.05.

$ = item that is statistically problematic for males

@ = item that is statistically problematic for females
Table 16

Correlations Between Empathy Measures and Unipolar Scoring of the Self-Determination Scale for Females

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.18</td>
<td>.14</td>
<td>-.14</td>
<td>*.25</td>
<td>.12</td>
<td>+.19</td>
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<td>B</td>
<td>.08</td>
<td>-.14</td>
<td>.09</td>
<td>-.02</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>+.22</td>
<td>+.22</td>
<td>.14</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>*.29</td>
<td>*.24</td>
<td>+.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>-.04</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1A = Hogan Empathy Scale; B = Fantasy Subscale of IRI; C = Empathic Concern of IRI; D = Personal Distress Subscale of IRI; E = Perspective Taking Subscale of the IRI; F = Unipolar scoring of Self-Determination Scale; G = deviation score of the unipolar scoring.

+ p < .10; * p < .05; ** p < .01.
Table 17

Correlations Between Empathy Measures and Unipolar Scoring of the Self-Determination Scale for Males

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.16</td>
<td>+.21</td>
<td>*-.25</td>
<td>**.38</td>
<td>*.28</td>
<td>*.30</td>
</tr>
<tr>
<td>B</td>
<td>.00</td>
<td>-.01</td>
<td>.08</td>
<td>-.03</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>.02</td>
<td>*.28</td>
<td>.16</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td>*-.26</td>
<td>+.23</td>
<td>+.18</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td>.11</td>
<td>-.06</td>
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</tr>
</tbody>
</table>

1A = Hogan Empathy Scale; B = Fantasy Subscale of IRI; C = Empathic Concern of IRI; D = Personal Distress Subscale of IRI; E = Perspective Taking Subscale of the IRI; F = Unipolar scoring of Self-Determination Scale; G = deviation score of the unipolar scoring.

+ p < .10; * p < .05; ** p < .01.
APPENDIX L

ORGANIZATIONAL SIMILARITY
Organizational Similarity

1. Fifteen sets of three self-constructs per set were chosen from the Rep grid (Appendix E). The fifteen sets of self-constructs were labelled "A" through "O" sequentially. Set "A" was comprised of the first three self-constructs, "vulnerable me," "spiritual me" and "protective me." Set "B" was comprised of "spiritual me," "protective me" and "inventive me." The remaining sets of "C" through "M" were determined sequentially in a like manner. Set "N" was comprised of "sexual me," "usual me" and "vulnerable me" and set "O" was comprised of "usual me," "vulnerable me" and "spiritual me", thus completing the circle.

2. Dyadic ratings for each set were compared in regard to whether they were identical or not in the way they had scored themselves. If both subjects rated themselves in an identical or exactly opposite manner upon these three selves, the dyad received a score of one point, indicating organizational similarity. If the sequence was not identical or not exactly opposite, no point was given. Actual numbers were not taken into account; only the signs (+ or -) were considered. All three signs must be in the same or the opposite order for the dyad to be a match. For example:

Self 1  Self 2  Self 3  Self 1  Self 2  Self 3
Set A  -1  -5  +6  -3  -1  +4  = 1 point

Selves 1 and 2 are alike and different from Self 3.
<table>
<thead>
<tr>
<th>Self 1</th>
<th>Self 2</th>
<th>Self 3</th>
<th>Self 1</th>
<th>Self 2</th>
<th>Self 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set B</td>
<td>+1</td>
<td>-1</td>
<td>+4</td>
<td>+3</td>
<td>-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selves 1 and 3 are alike and different from Self 2.

<table>
<thead>
<tr>
<th>Self 1</th>
<th>Self 2</th>
<th>Self 3</th>
<th>Self 1</th>
<th>Self 2</th>
<th>Self 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set C</td>
<td>-4</td>
<td>-5</td>
<td>+3</td>
<td>+4</td>
<td>+5</td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

All three Selves are opposite of the other three Selves.
REFERENCES


