Female and Male Postformal Reasoning in Relation to Feminine and Masculine Characteristics

Sharon A. Braun
Rickard A. Sebby *

Southeast Missouri State University

For several decades, researchers investigated how adult reasoning develops (e.g., Basseches, 1984; Kramer, 1983, 1989; Labouvie-Vief, 1982; Pascual-Leone, 1983; Perry, 1970; Riegel, 1973) and how one’s level of reasoning influences behavior (e.g., Kramer, 1983, 1989; Kramer & Melchior, 1990). Other researchers investigated the development of sex role characteristics (e.g., Bem, 1974, 1975, 1981, 1984; Block, 1973; Condry, 1984; Emmerich, 1973; Golombok & Fivush, 1994; Kagan, 1964; Katz, 1979, 1987; Maccoby & Jacklin, 1974; Ullian, 1976) and how sex role orientation influences behavior (e.g., Bem, 1974; Brems & Johnson, 1988; Megargee, 1969; Spence & Helmreich, 1980). Only a few studies investigated the relationship between reasoning and sex role. This study examined whether paths or links exist between reasoning types, sex role characteristics, and particular environmental factors.

Thoughts and perceptions of self are forever changing or being rearranged over the course of our development. Reasoning and sex role orientation may develop simultaneously and/or run parallel (to some degree) throughout the maturational process. Reasoning and sex role orientation appear to be cohesive, complementary, and compatible with one another. A person’s reasoning and identity are likely shaped and/or influenced (to some degree) by beliefs and attitudes of a particular culture. If this is the case, then a greater understanding of how reasoning and gender identity formation work together to foster the development of the unique self would be beneficial.

Development of Reasoning

Kramer, Kahlbaugh, and Goldston (1992) posit three general levels of organization, proceeding from an absolute, universalistic mode of thought through an extreme relativistic mode of thought, and culminating in a dialectical mode of thought.

During absolute thinking “there are fixed universal truths waiting to be discovered and . . . there is a universal order to things” (Basseches, 1984, p. 10). At this stage of formal operations, thinking operates according to black-and-white principles. In order to understand the world, the absolute thinker attempts to reduce it to its basic elements, either by reflecting on its ideal forms (via categorization), or by experimenting to determine antecedent causal linkages. Such a view holds that the world is stable and fixed, that when change occurs, it is due to external forces, making the concepts of change and development derived rather than intrinsic categories of explana-
tion. Contradiction is seen as incorrect or undesirable, resulting in absolute, dualistic conceptions of right versus wrong, truth versus falsehood, weak versus strong, etc. Thus, thought is highly egocentric, and people are seen as fitting into neat traits that cannot be changed.

This period of formal operations is followed by a period during which individuals expand their knowledge of the world to include new perspectives, thereby resulting in relativism. According to Kramer (1983, p. 92) “post-formal operational thought describes a shift toward the realization of the relativistic, non-absolute nature of knowledge.”

Relativism involves an acceptance of mutually incompatible systems of knowledge (Labouvie-Vief, 1980; Perry, 1970; Riegel, 1973) and an awareness that conceptual abilities influence the knowledge obtained about the world (Koplowitz, 1978; Riegel, 1973). The adult’s expanding social world, which includes differing viewpoints and potentially incompatible roles (Sinnott, 1983), and the necessity of committing oneself to a chosen course from among a multitude of possibilities (Labouvie-Vief, 1980), fosters such a view.

Unlike absolute reasoning, relativistic thinking does not construe the universe as an inherently orderly machine. Any order that exists is externally imposed via one’s cognitive framework. The universe is seen as a bed of chaos, disorder, contradiction, and change. Relativistic thinking rests on the concepts of change, subjectivity, and novelty. Knowledge is seen as highly individual and subjective, resulting in irreconcilable contradictory positions. All knowledge is influenced by context, and contexts are continually changing. As one’s standpoint, or context, changes, so too does one’s knowledge (Pepper, 1942). “Knowledge continues to undergo reorganization in order to achieve an understanding that integrates continuity and discontinuity, change and stability, etc.” (Kramer, 1983, pp. 92–93). This reorganization results in dialectical thinking.

Dialectical reasoning is sometimes referred to as postformal operational reasoning or mature thought and is considered by many psychologists to be the final period of cognitive development. Riegel (1973) suggests when cognitive reasoning continues to develop beyond the stage of formal operations during late adolescence and adulthood, it involves the achievement of a dialectical stage of cognitive organization. However, controversy exists as to when, and if, individuals actually develop dialectical reasoning (Kramer, 1989). Supposedly, dialectical reasoning results when an individual is exposed to conflicting viewpoints and an awareness of contradiction emerges. In the dialectical framework all phenomena are in continual movement, and contradiction is seen as an inherent feature. Forward movement (i.e., growth) and the contradictions are interrelated—part of the same whole, rather than simply shifts in perspective—and are more apparent than real (Basseches, 1984; Kramer, 1989). All phenomena are believed to develop as a result of an ongoing tension between events, their negation, and the resolution of that negation into momentary structures that soon give way to new tensions, initiating the cycle anew (ad infinitum).

Differences in Women’s and Men’s Perceptions and Reasoning of Self

There are major distinctions between the way women and men develop perceptions of themselves. One’s perception and reasoning fosters self-evaluations throughout the life span. Furthermore, how one subjectively experiences her or his self-evaluation is substantially different for women and men (Labouvie-Vief, Orwoll, & Manion, 1995). For example, the man is perceived and attributed with such traits as powerful, aggressive, and achieving; thus, he can derive a positive sense of self-worth from his identification. The woman is perceived and attributed with such traits as powerless, nurturing, and nonachieving; she is degraded and devalued by those around her and by society in general.

Labouvie-Vief et al. (1995) point out that “gendering of intellectual activity continues to have implications for how the individual is able to integrate intellectuality and creativity into a sense of developing self” (p. 245). For example, studies have indicated sex differences in intellectual performance and one’s self-concept regarding performances (Beyer, 1990). Men use self-enhancing strategies (Dweck, Davidson, Nelson, & Enna, 1978) and attributional patterns that bolster self-esteem (Roberts, 1991). They are inclined to overestimate their performance and remain unaffected by negative evaluations, whereas, women are just the opposite. They underestimate their performance and react to others’ positive (and negative) feedback as if it were objective (Labouvie-Vief et al., 1995).

Family patterns play a major role in cognitive development and in shaping gender identity. Beal (1993) suggested that gender role development varies according to such family patterns as the employment status of the mother and the presence or absence of the father in the home. Beal pointed out that a girl seeing her mother employed and earning wages expands the girl’s own ideas about the future and makes her less stereotyped. Although the mother is a less salient role model for boys, Beal suggests boys’
perceptions of the father are changed when their mother works. Flanagan (1990) and Katz (1987) found that boys tend to view their mother’s employment as a failure by the father; thus, they may see him as an inadequate role model. Some men may compensate by “adopting exaggerated stereotypes by insisting that women should remain at home with their children and that their future wives will not have to work” (Beal, 1993, p. 81). “Contemporary popular literature suggests that such rigid sex-role stereotypes tend to restrict emotional and intellectual growth” (Craig & Kermis, 1995, p. 127).

Sex Differences and Types of Reasoning

To date, scant evidence allows an evaluation of sex differences in types of postformal reasoning. Kramer et al. (1992) found that more college men than college women were absolute reasoners. Blanchard-Fields (1986) and Kramer and Melchior (1990) also reported more relativistic and/or dialectical thinking in women. Braun and Sebby (1996) found that men who scored high in absolute reasoning and men who scored high in masculine characteristics reacted in a manner opposite to men who scored high in feminine characteristics when presented with real-life dilemmas. In contrast to these studies, other studies (Kitchner & King, 1981; Kramer & Woodruff, 1986) have failed to find a sex difference related to reasoning.

Empirical Research on Reasoning, Sex Roles, and Behavior

It is presumed that individuals continue to refine, reshape, and reorganize their reasoning throughout their lives as a result of increased differentiation and integration of formal structures. According to Kramer and Melchior (1990), each level of the reorganized structure is followed with the adoption and application of a new or modified set of paradigm beliefs about social reality. As Kramer and Melchior suggest, it is assumed there will be continued opportunities for developing and applying relativistic and dialectical modes of thinking to new domains during adulthood. For example, learning to negotiate in inherently conflictual and complex interpersonal relationships may be one such domain. Within this same framework, continued opportunities for expansion, reshaping, and development of one’s sex role identity (orientation) also occur in connection with these very same new adult domains. Thus, both our reasoning and sex role identities are continually being reshaped and/or redefined.

Kramer and Melchior (1990) suggest that a person’s level of reasoning may influence how he or she perceives, experiences, and manages role conflict. They theorize, for instance, that women, as adulthood approaches, experience more role conflict than men because they have more role choices. Women’s experience of greater role conflict may foster the development of more advanced thinking (e.g., relativistic and/or dialectical) earlier in a woman’s cognitive development, thus facilitating resolution of the conflict. It is supposed that men do not experience role conflict because they focus on the single role of occupation.

In an effort to examine factors that are possibly related to the nature of role understanding experienced by men, Braun and Sebby (1996) focused on men’s perception of role conflict and men’s satisfaction and happiness with resolutions to conflicts regarding occupation, societal demands, intimate relationships, and familial goals. Results indicated there was a relationship between types of reasoning and participants’ perception of conflict. For example, men having higher absolute reasoning scores perceived more conflict when presented with a dilemma requiring relocation (to his or to his romantic partner’s location with a better job offer). Participants also rated the intensity of conflict experienced in the same situation. Results indicated that men having higher absolute, mechanistic, and relativistic reasoning scores perceived more intense conflict. In contrast, no correlation was found between men having higher dialectical reasoning scores and their perception of conflict. Conflict perception varied depending on the type of reasoner and the particular situation; absolute/mechanistic reasoners expected more conflict in situations concerning job offers and relocation. The results also indicated a relationship between one’s sex role and the perception of role conflict in relation to specific situations to which participants responded. These data would lead one to believe that some kind of a relationship might exist between one’s level of reasoning and one’s sex role characteristics.

Sex Role Orientation and Reasoning

The question still remains: does one’s sex role orientation influence one’s level of reasoning or vice versa? Would not one’s level of reasoning also facilitate perception, organization, and, ultimately, behavior and resolution of problem-solving situations and enhance interrelationship communication?

Although previous research has assessed perceptions and appraisal of role conflict, the use of coping skills with problem solving, gender and sex roles, and how particular environmental factors influence performance on IQ tests and academic achievement, few
studies have focused on the relationships among these factors. The present research assessed the relationship between one’s reasoning type and one’s sex role orientation, and whether particular environmental factors were linked to reasoning and sex role identity. Specifically, the present study determined whether individuals who score high in androgyny were more likely to score high in dialectical reasoning; whether individuals who score high in feminine or masculine characteristics were more likely to score high in absolute reasoning; and whether particular environmental characteristics influence or relate to the participants’ background and to the development of sex role and/or reasoning. Androgy nous individuals and individuals who were dialectical reasoners were expected to share a common relationship: both were expected to be more flexible in their thinking and behavior. This flexibility should facilitate resolution of problem-solving situations and enhance interpersonal relationships. Androgy nous individuals were expected to engage in both masculine and feminine behaviors that should expedite their problem-solving resolutions. Likewise, dialectical reasoners were expected to engage in more flexible thinking patterns and behaviors (probably including masculine and/or feminine perspectives) that expedite problem resolutions in problem-solving situations. In addition, particular environmental factors (e.g., family income, etc.) were expected to mediate whether an individual becomes an androgy nous individual and/or a dialectical reasoner. Individuals who grow up in more affluent environments (as opposed to lower income environments) may have greater opportunities, more exposure, and more choices with regard to more diversified situations. Such exposure and experiences may influence thinking, behavior, and even perception of the self.

Method

Participants

Thirty-two female and 29 male undergraduate college students ranging in age from 18 to 45 (M = 21.67, SD = 5.70) volunteered to participate in the study.

Materials

Demographic questionnaire. Participants answered questions concerning age, sex, marital status, family structure (e.g., was the participant reared in a single-parent environment or in a two-parent environment), level of family income when growing up, number of female and/or male siblings, year in college, expected occupation upon graduation, expected salary upon graduation, and racial or ethnic background.

Social Paradigm Belief Inventory (SPBI). The SPBI (Kramer et al., 1992), a forced-choice preference measure assessing absolute, relativistic, and dialectical paradigm beliefs was administered. Each of the 27 items consists of three statements representing a particular social domain. Participants rate each statement on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). Greater weight is given to statements representing developmentally more advanced worldviews. Scores are summed across the 27 items for a possible total of 81 points. In addition, participants are assigned a score for the number of absolute, relativistic, and dialectical responses chosen.

The SPBI has good reliability, with internal consistencies of .60, .83, and .84, respectively, for absolute, relativistic, and dialectical statements, and test-retest correlations ranging from .77 to .82 (Kramer et al., 1992). The SPBI, which also is age sensitive, correlates with an in-depth interview of absolute, relativistic, and dialectical assumptions and shows both convergent and discriminant validity (Kramer et al., 1992).

Bem Sex Role Inventory (BSRI). The BSRI (Bem, 1974) consists of 60 socially desirable “feminine” (e.g., shy and warm), “masculine” (e.g., aggressive and self-reliant), and “neutral” (e.g., happy and sincere) adjectives. Participants indicate the extent to which each item is true for themselves in terms of a 7-point scale ranging from 1 (never or almost never true) to 7 (always or almost always true). The BSRI test gives separate femininity and masculinity scores that can be combined into one of four types: (a) androgy nous (high on both the feminine and masculine); (b) feminine (high on the feminine items and low on the masculine ones); (c) masculine (low on the feminine items and high on the masculine ones); and (d) undifferentiated (low on both the feminine and masculine). On the basis of each individual’s responses, each individual receives three major scores: a Masculinity score, a Femininity score, and an Androgy nous score.

Bem (1974) found high levels of internal consistency for the Masculinity (.86), Femininity (.80), and Social Desirability (.75) items. Test-retest reliability was .90 for Masculinity, .90 for Femininity, .93 for Androgy nous, and .89 for Social Desirability.

Procedure

The same female experimenter administered the tests to four groups of participants on four different occasions either on a Tuesday, Wednesday, or Thursday at 1:00 p.m. Each test was conducted in the same classroom and in the same manner. On each testing day, after all participants completed an informed
consent form, the experimenter handed out packets containing the questionnaires and demographic sheet. Upon completion of these instruments, the participants were allowed to leave.

Results

The demographic data are summarized in Table 1. In order to study patterns of relationships among the variables, path analyses were performed. A series of multiple regression analyses were used to determine what type of linear relationships among the three sets of variables (demographic, sex roles, reasoning) existed. The data obtained from the BSRI were scored according to the procedure outlined by Pedhazur and Tetenbaum (1979). Pedhazur and Tetenbaum identified a four-factor solution for each sex when the BSRI data were analyzed. Accordingly, the same two sets of factor solutions were used. A correlation matrix that reflects relationships among the demographic variables and the BSRI and the SPBI variables is presented in Table 2.

Path analysis

Path analysis was developed by geneticist Sewall Wright as a method for studying the direct and indirect effects of variables taken as causes of variables taken as effects. The goal of path analysis (or structural equation analysis) is to provide plausible explanations of observed correlations by constructing models of cause-and-effect relations among variables. In cases in which the causal relations are uncertain, the method can be used to find the logical consequences of any particular hypothesis in regard to them. However, path analysis is not a method for discovering causes. An observed correlation can never be used as proof of a causal relationship. Yet very convincing arguments for causality can be constructed from statistical inference, together with postulated relationships developed from knowledge of subject matter and common sense. (For further details see Johnson & Wichern, 1992, pp. 345–346.)

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Means and Standard Deviations of All Demographic Variables</strong></td>
</tr>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Demographic</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Sex Role</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Postformal reasoning</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlation Matrix of Demographics, Social Paradigm Belief Scale (SPBI), and the Bem Sex-Role Inventory (BSRI)</strong></td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Marital</td>
</tr>
<tr>
<td>Single Parent</td>
</tr>
<tr>
<td>Sister(s)</td>
</tr>
<tr>
<td>Brother(s)</td>
</tr>
<tr>
<td>Salary</td>
</tr>
<tr>
<td>Masculine</td>
</tr>
<tr>
<td>Feminine</td>
</tr>
<tr>
<td>Absolute</td>
</tr>
<tr>
<td>Mechanistic</td>
</tr>
<tr>
<td>Relativistic</td>
</tr>
<tr>
<td>Dialectical</td>
</tr>
</tbody>
</table>
Pedhazur and Tetenbaum Four-Factor Scoring Procedure

Pedhazur and Tetenbaum (1979) performed separate factor analyses for male and female groups and found that four interpretable factors emerged from each analysis: Assertive, Interpersonal Sensitivity, Self-Sufficiency, and Masculine/Feminine. Masculine/Feminine factor is bipolar; items that loaded on the Masculine/Feminine factor were different for the male and female groups. For the female groups, this factor consisted of only two traits having meaningful loadings: feminine, with a positive loading, and masculine, with a negative loading. Females who rated themselves high on feminine rated themselves low on masculine. For the male groups, in addition to the masculine and feminine items, two additional items loaded on this factor: gullible and childlike. These two items had negative loadings. Males rated themselves high on masculine and rated themselves low on feminine, gullible, and childlike, implying that they perceive these traits as related to their conception of feminine. (For further details see Pedhazur and Tetenbaum, 1979, pp. 996–1016.)

Path Analysis Using Female Factor Solution

The data in this study were analyzed using the factor solution obtained for women and the factor solution obtained for men. Path analysis using Pedhazur and Tetenbaum’s (1979) Female factors solution failed to reveal any significant pathways among demographic, BSRI factors, and SPBI Reasoning factors. However, the study found several other specific relationships (see Figure 1). An inverse relationship between age and absolute reasoning was obtained. As individuals aged, they were less likely to be absolute reasoners. Results indicated a positive relationship between an individual’s level of family income when growing up and being Assertive (Factor 1) and Self-Sufficient (Factor 3). The higher an individual’s level of family income when growing up, the more assertive and self-sufficient the individual tended to be. There were no significant results found for Sensitivity (Factor 2) or for Masculinity/Femininity (Factor 4).

Path Analysis Using Male Factor Solution

Significant pathways were found to connect demographic variables, gender role, and reasoning when the Male factors were used in the analysis. Figure 2 reflects a significant pathway connecting family income while growing up to the Masculine/Feminine factor and to absolute and relativistic reasoning. Individuals with family income above $30,000 a year were more likely to be relativistic reasoners; individuals from lower income families were more likely to be absolute reasoners. Individuals who had high relativistic reasoning scores were more likely to describe themselves as feminine, relative to individuals with low relativistic reasoning scores (Ms = 3.45 and 3.81, respectively). A similar pattern was observed when gullible and childlike items were examined. Individuals with high relativistic reasoning scores were more likely to describe themselves as being more gullible (M = 3.48) and more childlike (M = 3.52), relative to individuals with low relativistic reasoning scores (Ms for gullible and childlike were 2.97 and 2.69, respectively). Conversely, high relativistic reasoners were less likely to describe themselves as masculine, relative to low relativistic reasoners (Ms = 3.48 and 3.91, respectively).

Individuals who scored high in absolute reasoning described themselves as masculine (M = 3.79), rather than feminine (M = 3.63). Individuals who scored high in absolute reasoning saw themselves as being less gullible and childlike (Ms were 3.03 and 3.00, respectively).

Similar to the results found using Female factors, an inverse relationship between age and absolute reasoning was found. A positive relationship was found for “salary expected upon graduation from college” and the Assertive gender role factor. The higher the salary one expected, the more assertive the individual tended to be. There were no significant results found for the Sensitive factor.

Discussion

The principal objective of this study was to examine the relationships among three sets of variables (viz., types of postformal reasoning, sex roles, and demographic/environmental factors) utilizing path analysis. The major hypotheses advanced for testing in this study concerned androgyny and were, therefore, predicated on the identification of androgynous individuals. Individuals with androgynous sex roles (regardless of their sex) were expected to be more likely to use dialectical reasoning; conversely, individuals with stereotypically masculine or feminine sex roles were expected to use absolute reasoning. Unfortunately, no individuals in this study were identified as having an androgynous sex role.

Pathways were found that connected demographic variables, sex role, and reasoning. Individuals with family income higher than $30,000 a year agreed more strongly with the feminine items (i.e., feminine, childlike, gullible). Income was also found to influence reasoning. Higher income leads to greater endorsement of the feminine items, to lower absolute reasoning, and to higher relativistic
reasoning. In contrast, lower income leads to greater endorsement of masculine items (i.e., aggressive, dominant) and, correspondingly, lower relativistic reasoning.

Significant paths were particular to the analysis utilizing the factors Pedhazur and Tetenbaum (1979) obtained from male participants’ responses on the BSRI. None of the other path analyses that were performed (viz., using Pedhazur and Tetenbaum’s factors derived from female’s BSRI responses) produced significant pathways across the three sets of variables. However, these latter analyses were successful in identifying pathways between two sets of variables. These pathways are discussed subsequently.

Examination of Figure 2 reflects a pathway connecting one’s environment while growing up (viz., family income) with the Masculine/Feminine sex role factor and relativistic reasoning and absolute reasoning; pathways connecting age to absolute reasoning, salary expected upon graduation from college to Assertive factor, and family income while growing up to Assertive and Self-Sufficient factors.
derived from one’s financial environment may influence the way the person reasons. The present study found that sex role orientations lead to particular types of reasoning, namely, absolute reasoning or relativistic reasoning. For example, individuals who were highly masculine also tended to be absolute reasoners. Because absolute reasoners are assumed to think in black-and-white terms, individuals who are high in masculine characteristics and high in absolute reasoning would more likely see themselves as aggressive (rather than shy); dominant (rather than yielding); and self-sufficient (rather than childlike). We would expect highly masculine, absolute reasoning individuals to be locked into stereotypical patterns of thinking and behavior, thus endorsing masculine traits rather than feminine traits. In addition, their world would be as fixed as their reasoning.

In contrast to absolute reasoners, relativistic reasoners see people and events as novel, unique, and continually changing in unsystematic ways because they have not yet developed a mechanism that allows them to integrate across contexts and time frames. This may be why relativistic reasoners identified with the feminine items gullible and childlike. Because their world is somewhat unstable, they may be more aware of gullible and childlike tendencies. It may be that relativistic reasoners (on the verge of dialectic reasoning) tend to be open-minded, ready and willing to accept several and various alternatives because they no longer have the answers or solutions to situations and relationships (as they previously assumed they did when they were absolute reasoners). Relativistic reasoners are beyond absolute reasoning, a reasoning type that is no longer a workable or an effective process for them. Relativistic reasoning is a transitional period in which individuals may be open and willing to consider just about any scenario that may be potentially effective in solving problems or in reaching resolutions. Their open-mindedness and willingness to consider alternatives may be a pre-

---

**FIGURE 2**

For Female factors, pathways connecting age to absolute reasoning, Self-Sufficient factor to mechanistic reasoning, and level of family income while growing up to Assertive and Self-Sufficient factors.

- **AGE**
  - B = 0.25
  - B = 0.27
  - B = 0.30

- **SALARY EXPECTED**
  - B = 0.23

- **FAMILY INCOME**
  - B = 0.26

- **SEX ROLE**
  - Self-Sufficiency
  - Assertive
  - Masculine-Feminine

- **REASONING**
  - Absolute
  - Relativistic

For male factors, pathways connecting age to relative reasoning, Self-Sufficient factor to relativistic reasoning, and level of family income while growing up to Assertive and Self-Sufficient factors.
requisite to dialectical reasoning. These characteristics may be the driving force that spurs the relativistic reasoner into dialectical reasoning.

Path analysis also identified several other pathways that connected variables in the demographic/environmental set with either sex role variables or reasoning variables. The strongest path was between age and absolute reasoning. As age increased, the use of absolute reasoning decreased. We would expect this to be the case. Throughout the life span, individuals are exposed to new and different situations and interactions within their own worlds; these new experiences should foster higher levels of reasoning. This is a logical and comprehensible conclusion that has been found by other research studies (i.e., Kramer & Melchior, 1990).

The study also indicated that individuals with higher family income described themselves as being assertive and self-sufficient. In addition, individuals who expected to earn more salary upon graduation from college described themselves as being more assertive than those individuals who expected less salary. Possibly there is a relationship between one’s family income while growing up and the salary one expects upon graduation from college. This relationship between finances and assertiveness and self-sufficiency is not surprising because having money in today’s world is one main ingredient for being self-sufficient. Being self-sufficient is a form of security that affords individuals the opportunity to be assertive. Money is power, and assertiveness is an expression of power. Financial affluence is a power by which individuals are “carefree” and “freed up” to pursue their own interests, goals, and aspirations. They are not restricted by financial boundaries that set constraints or limitations for others, thereby, inhibiting their assertive expression and sense of self-sufficiency.

The results of the other two path analyses conducted in this study offer little additional information with respect to the relationship between the three sets of variables examined here. Examination of the results of the analysis using Pedhazur and Tetenbaum’s (1979) factors derived from men only offers the additional finding that individuals who perceived themselves as being more self-sufficient were less likely to use mechanistic reasoning. Having some belief in one’s ability to resolve issues or to be independent may be related to having less of a need to rely upon external guidelines or structure for solving issues or conflicts.

The results using the factor structure Pedhazur and Tetenbaum (1979) derived from women provides little information about the relationships between sex role and postformal reasoning as that relationship is influenced by characteristics of the participants. Although reliability analyses conducted on all three methods of scoring the BSRI indicated high levels of agreement among items composing each scale factor (coefficient alpha levels ranged from .85 to .89), only one path analysis obtained significant pathways across all three sets of variables. Undoubtedly, the inclusion of gullible and childlike as items on the Masculine-Feminine factor influenced the ability to detect a significant pathway across the three sets of variables when the factor structure obtained by Pedhazur and Tetenbaum from men was used in one of our analyses.

Whether the factors identified by Pedhazur and Tetenbaum (1979) are truly reflective of one’s perception of the role one is to play in society (as related to one’s biological sex) remains unclear. The relationship reported in this study for the Masculine-Feminine factor in the path analysis indicated that participants with different relativistic reasoning scores (high vs. low) see themselves differently when responding to the masculine, feminine, childlike, and gullible items composing the Masculine-Feminine factor. However, the fact that individuals who use relativistic reasoning are more likely to describe themselves as childlike and gullible may provide an important insight into the means by which one may move from relativistic to dialectical types of thinking.

Although we cannot assume from the results of this study that absolute reasoners are more stereotypically masculine and that relativistic reasoners are more stereotypically feminine, we can assume that a relationship does exist between one’s reasoning and certain sex role characteristics. For example, we tend to view individuals who appear to us as displaying more stereotypical masculine characteristics versus stereotypical feminine characteristics (i.e., aggressive, self-sufficient, assertive, dominant, acts as a leader versus childlike, sensitive to the needs of others, gullible, shy, yielding) as “getting their own way” or “having things done their way.” This attitude appears to be conducive to absolute reasoning: thinking and behaving in black-and-white terms, which is often analogous to not taking others’ desires or wishes into consideration. On the other hand, we tend to view individuals who appear to us as displaying more feminine characteristics as “doing things to help others” or “taking others’ wishes into consideration.” This attitude is conducive to high relativistic reasoning (verging on dialectical reasoning) because their world includes differing viewpoints and alternative perspectives, even though they may not have yet mastered integration and synthesis of contradictions and knowledge.
Although the present study revealed relationships between reasoning, sex role characteristics, and environment, the study was weakened by several factors. For example, the number of participants (61), most of whom were relatively young and never married, may have limited an identification of androgynous or dialectical reasoners. Because of their age, their exposure to confrontational situations or roles (e.g., marriage, career) is limited. Exposure to these types of situations often forces individuals to consider varying viewpoints and/or more than one perspective (i.e., dialectical reasoning). In addition, having to deal with such situations often decreases stereotyping in situations and relationships. The absence of such experiences may inhibit the formation or development of finer or more effective ways of relating, or other skills and behaviors considered to be characteristic of androgynous individuals and dialectical reasoning. It could be, too, that because they are still relatively young and less experienced, some of the items on the BSRI were not meaningful to these participants. In any case, various factors such as the number of participants and their young ages, lack of experience, and marital status may all have been of consequence as to why this particular participant pool might have set limitations or constraints on the present research.

In addition to these considerations, the reliability of the SPBI is of concern because our analysis of this instrument indicated low alpha coefficients for each type of reasoning. The low alpha scores may be an indication that the statements on the SPBI do not consistently measure particular types of reasoning. If this is the case, then the findings with respect to this instrument are questionable. It is suggested that the reliability of the SPBI be tested again using a larger and more appropriate sample. Furthermore, it is suggested that this particular study be repeated with participant pools comprised of men and women, consisting of a range from 18 to 70 years old. A study designed as such may provide more information related to specific paths connecting environmental factors and sex role characteristics with types of reasoning.

Conclusions

The financial environment in which a person is raised influences perceptions of self, specifically, perceptions of assertiveness and self-sufficiency. Financial environment also influences one’s sex role orientation which, in turn, influences reasoning type. It is the belief of this researcher that other paths exist that connect or link sex role characteristics to reasoning types. It is suggested that further studies be directed toward investigating and understanding how sex role and reasoning influence one another, and how these two entities converge to form the unique self.

References


