2006

Examining problem-solving interpretations: The role of age, sex, and femininity

Jennifer A. Flinn
West Virginia University

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Examining Problem-Solving Interpretations: The Role of Age, Sex, and Femininity

Jennifer A. Flinn

Thesis submitted to the
Eberly College of Arts and Sciences
at West Virginia University
in partial fulfillment of the requirements
for the degree of

Master of Science
In
Psychology

JoNell Strough, Ph.D., Chair
Jennifer Margrett, Ph.D.
Barry Edelstein, Ph.D.

Department of Psychology

Morgantown, West Virginia

2006

Keywords: Problem Solving, Age Differences, Sex Differences, Femininity

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ABSTRACT

Examining Problem-Solving Interpretations: The Role of Age, Sex, and Femininity

Jennifer A. Flinn

The current study examined age and sex differences in communal interpretations (statements focusing on the needs of others), and whether participants' femininity mediated these differences. One hundred and ninety six participants, 121 younger adults ($M=19.26$, $SD=1.31$: 53 M, 68 F) and 75 older adults ($M=73.74$, $SD=7.65$: 36 M, 39 F), were given a vignette regarding a hypothetical job relocation problem that involved either a male or female protagonist. To assess interpretations, participants were asked to indicate all the issues to be considered. The degree to which interpretations reflected communal concerns was coded. Results showed that women had higher communal interpretation scores and higher femininity means than did men in the study. Femininity was not demonstrated as a mediator of age and sex differences in communal interpretations. Implications for understanding how interpretations may affect the problem-solving process and implications for future research are discussed.

Dedication

I would like to dedicate this thesis to my family. To my brother, Jason, for graciously and patiently answering all of my computer questions. To my father, Bill, for always valuing my education and supporting me in every new endeavor. To my mother, Carolyn, for her endless patience and encouragement...and because she always wanted to be mentioned in a dedication. I love you all.

Acknowledgements

I would like to thank my advisor and committee chair, Dr. JoNell Strough, for all of her support, encouragement, and advice during the process of writing this thesis. I would also like to thank my committee members, Dr. Barry Edelstein and Dr. Jennifer Margrett, for their time and their valuable suggestions. Finally, I would like to thank Kelly Schuller, Loriann Sonntag, Jenny Hartley, and Clare Mehta for their support and encouragement over the past few years as I worked on this project. My thanks to all of you.

This study was funded through the Alumni Fund grant provided through the West Virginia Department of Psychology.

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Examining problem-solving interpretations: The role of age, sex, and femininity

Everyday problem solving often occurs within a social context (Berg & Calderone, 1994, Denney & Pearce, 1989). Within that social context, multiple issues can be involved, multiple solutions are possible, and the presence of other people within the problem situation is an important consideration (Berg & Klaczynski, 1996). Much of the research in the area of everyday problem solving has focused on the outcomes or solutions of problem-solving. (Blanchard-Field, Chen, & Norris, 1997; Cornelius & Caspi, 1987; Diehl, Coyle, & Labouvie-Vief, 1996; Walker, Irving, & Berthelson, 2002; Watson & Blanchard-Fields 1998). An aspect of the everyday social problem-solving process that has received less research attention is the role of individuals' interpretations of problems in the problem-solving process.

Interpretation, as examined in this study, involves the way in which a situation is viewed by an individual and the issues considered by the individual to be important when evaluating the problem situation (Berg & Calderone, 1994; Berg, Strough, Calderone, Sansone, & Weir, 1998). Interpretations have the potential to greatly affect the problem-solving process, because solutions might be generated based on what the individual believes to be the problem. In real world scenarios, different individuals may look at the same situation and yet believe two very different things about the problem. Differences in interpretations may be affected by such factors as age, sex, and femininity. It is also possible that factors such as level of femininity might account for differences in problem-solving interpretations which are typically attributed to age and sex. The purpose of this study was to examine the role that interpretation plays in problem solving, specifically

how age and sex may affect interpretations, and whether femininity mediates age and gender differences in problem-solving interpretations.

In the problem-solving literature, researchers use the terms “sex” and “gender” somewhat interchangeably to refer to men and women. Some researchers opt to use the term sex differences (e.g., Diehl, Coyle, Labouvie-Vief, 1996) in describing their results, while many other researchers use the term gender difference (e.g., D’Zurilla, Nezu, & Maydeu-Olivares, 1998; Rubin & Krasnor, 1983; Strough & Berg, 2000) to describe any differences between men and women. The difficulty of distinguishing what differences are due to biology (“sex”) or due to social and cultural learning (“gender”) may possibly account for researchers selecting only one term to describe all of these factors. The current study will primarily use the term sex over the term gender to describe differences between men and women, as the idea of a distinction between sex (male and female) and femininity (a gender characteristic not necessarily tied to biological sex) for problem interpretations is one of the research questions to be addressed.

The Problem-Solving Process

There is a large body of research that has examined problem solving in different areas and contexts. Numerous studies have focused on problem-solving strategies in the area of mathematics, often examining gender differences in performance and application of strategies for mathematical problem-solving (Quinn & Spencer, 2001; Vermeer, Boekaerts, & Seegers, 2000). Many other problem-solving studies have focused on interpersonal areas of problem solving. Stress and coping literature focuses on the role of problem solving as it relates to dealing with stressful situations, such as avoiding confrontation or using social support, coping with daily hassles, or in the actual coping

strategies individuals utilize, such as positive appraisal or internalizing (Diehl, 1996; Folkman, Lazarus, Pimley, & Novacek, 1987; Labouvie-Vief, Hakim-Larson, & Hobart, 1987). Finally, research on aggression has also examined how problem-solving strategies are used by individuals when confronted with a conflict situation and how aggressive problem-solving strategies relate to actual aggressive behavior (Keltikangas-Järvinen, 1997; Walker, Irving, & Berthelson, 2002).

The process of problem solving has been described by many different researchers, but the main aspects remain the same. The steps of the process involve defining the problem and goal setting, followed by generation, evaluation, and selection of effective solutions, and finally implementation of the chosen solution and evaluation of the results (e.g., Crick & Dodge, 1994; McMurran, Fyffe, McCarthy, Duggan, & Latham, 2001). D’Zurilla and colleagues (2004, p. 12) define problem solving as “...the self directed cognitive-behavioral process by which an individual, couple, or group attempts to identify or discover effective solutions for specific problems encountered in everyday living”. They go on to discuss the differences between demands presented in problems, and mention interpersonal problems are special because the focus of such problems are “...aimed at identifying or discovering a resolution to the conflict that is acceptable or satisfactory to all parties involved” (D’Zurilla et al., 2004, p. 13). These definitions speak to the importance of determining solutions for problems, interpersonal and otherwise. However, the first step of the problem-solving process – defining the problem – is thought to precede the selection of strategies, which might suggest that it is important to understand this definition process so as to better understand problem solving.

The Role of Interpretation

This study focused on differences in interpretations of an everyday problem, specifically whether there were age and sex differences in interpretations. There is little empirical research that directly examines the influence of interpretations on everyday problem solving, however problem-solving researchers have commented on its possible importance.

In considering everyday problem solving, Berg and Calderone (1994) point out the importance of considering interpretations in the problem-solving process, and the idea that an individual's interpretation of a problem will result in selecting different types of strategies to employ. They suggest that "...difference in performance may be due to individuals of various ages interpreting problems in a disparate fashion" (Berg & Calderone, 1994, p 114). Berg and Calderone go on to explain why differences in interpretations have important consequences for problem-solving research. They state that many researchers assume that all participants interpret problems in the same way, as well as interpret the problem in the same way as the researcher (Berg & Calderone, 1994). Berg and Calderone also state that such differences in problem-solving interpretations could lead to differences in problem-solving strategies. In their work examining problem-solving strategies in varying domains, Blanchard-Fields, Chen, and Norris (1997) also describe a connection between interpretations and strategies, stating "...the way in which the individual defines a problem influences the strategies perceived to be effective and the desirability of these strategies, as well as the strategies actually selected to solve the problem"(p. 686). If problem interpretation does indeed influence

the selection of strategies, then it merits further investigation as a key aspect of the problem-solving process.

Sansone and Berg (1993) propose a model for everyday problem solving that illustrates the relationship between interpretations and problem-solving strategies (see Figure 1.). In this model, interpretations arise from the transaction between contextual and individual factors, and factor into the process of generating strategies and goals for the problem presented. As defined in the model, context involves aspects of place (e.g. physical environment) and interpersonal constraints; individual aspects include age, gender, experience, and abilities. Sansone and Berg (1993) state that although these aspects are important, their relevance may vary depending on developmental factors and the problem situation. In this study, three aspects of the individual (age, sex, femininity), and one aspect of the context (sex of actor in the vignette) were considered to determine their impact on interpretations of everyday social problems.

Although many studies focus on strategies in problem-solving, Berg and Calderone (1994) conducted a study that specifically examined problem interpretations along with strategies, and found both age and sex differences in adolescents' problem interpretations. The researchers presented middle and high school students with a questionnaire containing 16 everyday problems, and the students were asked what the "real" or "main" problem was and to select an answer that they believed dealt with the problem (Berg & Calderone, 1994). The responses were then examined to see if the students used a task-oriented interpretation or an interpersonally-oriented interpretation (Berg & Calderone, 1994). The researchers found that females were more likely to use interpersonal interpretation than male students. They also found that students' strategies

matched their interpretations, whether both were task-oriented or interpersonal, and that students reported strategies matching their interpretation to be more effective than strategies that did not match their interpretations. In order to expand upon the finding that individuals can differ in their understanding of the primary aspect of a problem, the current study examined what issues participants consider when evaluating a problem.

Family as a Social Context

A number of studies have looked at the importance of context or domain in the selection of problem-solving strategies (Berg, et al, 1998, Berg & Klaczynski, 1996, Cornelius & Caspi, 1987). Examining intelligence and problem-solving, Berg and Klaczynski (1996) state that everyday problem solving can be viewed from a contextual perspective. Their perspective examines the importance of "...social, motivational, and cultural factors" in problem-solving, and how context might account for differences in problem-solving (Berg & Klaczynski, 1996, p 339). One context that includes all of these factors, and is familiar in some way to nearly all participants, would be the context of family.

Studies from other areas of research illustrate the practical importance of understanding problem solving in everyday family life. In a study examining distress among caregiving family members, Elliott and Shewchuk (2003) stated that ability to solve everyday problems was associated with adjustment to stressful situations, and that women who reported negative perceptions of their ability to solve social problems also reported higher levels of distress. In another study, marital conflict, as measured by the couples' problem-solving ability, was found to be a predictor of physical punishment of children (Kanoy, Ulka-Steiner, Cox, & Burchinal, 2003), illustrating the importance of

problem solving in the family domain. Finally, a study by Cox and colleagues (1999) found that problem-solving competence and good problem-solving communication was important in maintaining marital satisfaction during the transition to parenthood after the birth of a first child. All of these studies indicate that problem solving is an important aspect of family life.

Additional studies have chosen to use the family domain in life-span research because situations within that domain are usually familiar to individuals of all age groups, and it is a context in which interpersonal interactions are salient (Berg & Calderone, 1994, Berg et al., 1998, Watson & Blanchard-Field, 1998). Participants in Berg and Calderone's (1994) study received vignettes of hypothetical everyday problem-solving situations, half of which were framed in a family context, the other half in a school context. Berg and colleagues (1998) included 'family' as one of six selected contexts for their examination of problem definitions and goals. Finally, Watson and Blanchard-Fields (1998) selected four vignettes within the domain of family for their study using the rationale that individuals of various age groups would be familiar with such problems. These studies show that the family domain is a relevant context in problem-solving research.

In the current study, everyday problem solving was investigated within the domain of family, due to the familiarity most individuals have with family situations. Specifically, the problem individuals were presented with was the possibility of a job relocation for a dual-income family. The problem was based, in part, on similar problems used by Smith and Baltes (1990). This problem is explained in greater detail in later sections, and a full version of the problem vignette appears in Appendix A.

Agency and Communion

When interpreting everyday social problems, individuals may focus on issues involving self-interest concerns, such as independence and individual achievement or other people and roles within a group (Berg et al., 1998). Bakan (1966) conceptualized this difference as being between the individual alone (agency) and the individual as part of a larger group (communion). When problems pit agentic self interests against communal interests of the larger group or social unit, and issues such as support, cooperation and interdependence are involved, gender may be important for understanding individual differences in interpretations.

Agentic qualities are generally considered to be more masculine and involve being active, decisive, aggressive, dominant, and reflect concern with independence or concern for the needs of self, (Abele, 2003; Bakan, 1966; Moskowitz, Suh & Desaulniers, 1994; Strough, Berg, & Sansone, 1996). Communal qualities are generally considered to be more feminine and include being emotional, caring, supportive, agreeable, and reflect a higher level of concern with interdependence or concern for the needs of others (Abele, 2003; Bakan, 1966; Moskowitz et al., 1994; Strough et al., 1996).

Sex differences. Gilligan's (1982) work suggests that females are generally more focused on interpersonal concerns when presented with moral reasoning problems. Additional studies also suggest a relation between women and communality. Examining agentic and communal traits in the workplace, Moskowitz and colleagues (1994) found that while agentic behaviors were affected by social roles (i.e., supervisor or employee), communal behaviors were more dependent on the sex of the individual, specifically that women exhibited more communal behaviors than men. Similar findings were obtained by

Abele (2003), who surveyed 2,000 university graduates at the time of graduation and a year and a half later. In the study, women had higher self-reported communal traits than men, regardless of occupational roles. Finally, when asked to generate self-representation attributes, women used more communion-related terms than men (Diehl, Owen, & Youngblade, 2004). Overall, the literature indicates that women are more likely than men to report communal traits and behaviors. It was expected that in the current study, women's relatively greater concern with communal issues would be reflected in their interpretations of problems. An example of a communal interpretation for a problem involving possible job relocation would include consideration of the family moving away from loved ones and uprooting the children in the family. This example illustrates the communal quality of concern for others (versus concern with self).

When examining everyday problem solving, Strough and colleagues (1996) found that females were more likely than males to include other people as central to the problem and to report goals that concerned desired outcomes for other people. However, this study also found that when males reported other people as central to the problem, they too reported other-focused goals (Strough, et al., 1996). This finding may indicate that sex alone may not be the only factor to consider when looking at how a problem is interpreted, an assumption that was also examined in the present study by looking at a potential mediator of such differences.

Although there is evidence that women, as compared to men, report greater concern with communion, the connection between sex and agentic traits and behaviors is less clear. As mentioned previously, the Moskowitz et al. (1994) study showed that social roles in the workplace (i.e. supervisor or employee) were more predictive of agentic

behaviors than sex. On the other hand, in their study, Diehl and colleagues (2004) found that men used more agentic attributes when describing themselves than did women. There is also some evidence to suggest that women's changing roles in the last 20 years may have lessened the relation between agentic behaviors and sex (Abele, 2003; Spence & Buckner, 2000; Twenge, 2001). Twenge (2001) found that women's ratings of assertiveness between 1931 and 1993 rose and fell in relationship to social role changes, and that many of recent studies found no differences between male's and female's assertiveness. In addition, when reevaluating the Bem Sex Role Inventory (BSRI), Auster and Ohm (2000) found higher desirability ratings for masculine items, by both males and females, in their 1999 sample as opposed to Bem's original 1972 sample, indicating a shift in the desirability for women to possess agentic qualities. In summary, while agentic qualities have traditionally been attributed to men, research indicates that in recent samples these qualities may now be seen to the same degree in men and women. Because the literature presents a stronger argument to expect a relation between sex and communion, the present study will focus only on communal interpretations of an everyday problem.

Age differences. Age also may be important for understanding communal problem interpretations. In their study, Diehl et al. (2004) found age differences in the use of agentic and communal attributes in self-representations. They found a negative correlation between age and agentic attributes and a positive correlation between age and communal attributes. Although their study was cross-sectional, Diehl and colleagues' study provides support for the idea that as people age, they might be more likely to describe themselves as possessing communal qualities as opposed to agentic qualities.

Higher communality in older adults might affect the way in which they understand problems. The current study examined whether age differences in communality was reflected in interpretations of the everyday problem.

Strough and colleagues (1996) found age differences in other-focused everyday problem solving. College students were less concerned with these goals than were older adults. The authors suggested that roles and life tasks may account for these age differences (Strough et al., 1996). Zirkel and Cantor (1990) found that independence was considered by young adults in college to be an important life task, suggesting that a self-focused orientation may be an aspect of younger adulthood. An additional study also seems to indicate that as individuals age, goals shift from internal focus to external focus (how much of the problem involves self factors vs. other factors), and concerns for other people increase (Nurmi, Pulliainen, & Salemela-Aro, 1992). If independence and self-orientation are prominent in college-aged adults and concern for other people increases in older adults, it was expected that in the present study, the self-orientation of younger adults would mean they would be less likely to mention communal interpretation for the problem than older adults.

Protagonist Sex as a Contextual Variable

In Sansone and Berg's (1993) model, contextual factors contribute to the process of problem solving. As discussed earlier, one aspect of context is the domain in which the problem occurs. When a problem scenario presents information about other people's problems, features of those other people, such as their sex, are a potentially important aspect of the context that may influence problem interpretations. Studies examining social problem solving in children have already found the sex of a protagonist in a

vignette to be important in understanding strategies (Rubin & Krasnor, 1983; Walker, Irving, & Berthelson, 2002). Rubin and Krasnor found that girls' strategies differed depending on whether the main character in the problem was male or female. This difference occurred when girls were asked to consider what they themselves should do or what another (girl) character in the story should do. Walker and colleagues (2002) also found that the sex of the main actor in hypothetical vignettes had an effect on the strategies generated by males and females for the situation. Although these studies deal primarily with children's problem-solving strategies, it is possible that the same influence of protagonist sex will be seen for participants' responses in the current study. It may be important to consider whether the sex of the protagonist in a problem vignette will affect the participants' concerns regarding the problem. In this study, to account for sex as an important situational variable, a problem-solving vignette was given to participants with either a male or a female as the protagonist in the vignette.

When individuals are presented problems and asked to interpret the situation from the problem-solver's point of view, the sex of the actor in the problem may also affect the problem-solving process via stereotype activation. Prescriptive stereotypes address the qualities that a person or group should have, as opposed to what the person or group already have, or a descriptive stereotype (Burgess & Borgida, 1999). Burgess and Borgida (1999) found that women can be penalized for being too feminine (descriptive) or for not being feminine enough (prescriptive). They also found women who violated gender stereotypes (e.g. displaying agentic traits) were evaluated more negatively. Cooper and Blanchard-Fields (2003) found age to be an important factor in their examination of gender-related schematic beliefs in a cross-section of younger (18-24

years) and older (60-74 years) adults. In their study they found that older adults placed more blame on females in vignettes that portrayed females in non-traditional schemas, as compared to males in similar vignettes. In the present study, we used a vignette that presented a decision regarding job relocation; detailed information (e.g. information about each spouse's occupation and salary) was not included. Thus, individual's judgments about what the main actor should do might be based on the sex of the protagonist (e.g., a female has more responsibility towards her family than to her job). Thus, we examined whether interpretations of problem vignettes reflected prescriptive stereotypes.

Another view of stereotype activation is offered by Hoffman and Hurst (1990), and suggests that stereotypes are partially the result of people trying to explain the different percentages of sexes in certain roles by attributing corresponding traits to those individuals. In this view, women would be more likely to be stereotyped as possessing communal qualities than men, due to the higher percentage of women who are caretakers, a role which requires many communal traits. In the current study, we presented the vignette in such a way that all aspects of the presented problem were identical, but the sex of the actor varied, in order to determine whether differences in interpretations occurred when the sex of the actor was altered.

Femininity as a Mediator

A final consideration for this study was the relation between Bem Sex Role Inventory (BSRI) scores, specifically femininity scores, and communal interpretations. Traits listed on the femininity scale of the BSRI have been described as being communal or expressive in nature (Spence, 1991) and have been used to assess communal traits in

various studies (Abele, 2003; Diehl et al., 2004). In the current study, we expected differences in interpretations, specifically that women would be more likely than men to report communal interpretations. It might also be the case, however, that a male participant with a high femininity score on the BSRI would respond to the problem-solving vignette with a more communal interpretation than other males, or that a low-femininity score female would be less likely to report communal interpretations as other females.

If this is the case, femininity may in fact mediate age and sex differences in problem-solving interpretations. In other words, age and sex differences in interpretations might be accounted for by an individual's femininity. Other studies outside of the problem-solving field have explored femininity as a potential mediator of sex differences. Karniol, Grosz, and Schorr (2003) examined sex differences in ethical orientation (caring versus justice) on an ethics questionnaire. After determining that females had higher caring ethic scores than males, a regression analysis then revealed that feminine gender orientation accounted for more variance in the caring ethic scores than sex alone. A study by Francis and Wilcox (1998) examining sex differences in religious attitudes found that for older adolescents, sex was no longer a predictor of positive religious attitudes once femininity was taken into account. These studies indicate that differences seen between males and females may be better accounted for by a factor such as femininity as opposed to biological sex alone.

In the current study, it was expected that femininity scores would be associated with communal interpretations. This study then examined whether the relation between femininity and interpretations fully accounted for observed differences in communal

interpretations, mediating the influence of age and sex, or if age and sex accounted for differences above and beyond what femininity predicted.

Statement of the Problem

Research has examined age and gender differences in strategies and goals for problem solving (Berg et al., 1998; Blanchard-Fields, Jahnke, & Camp, 1995; Diehl, Coyle, & Labouvie-Vief, 1996; Strough, Cheng, & Swenson, 2002; Thornton & Dumke, 2005). Although many models of problem solving include interpretations as an important part of problem-solving process (Crick & Dodge, 1994; Sansone & Berg, 1993), few studies have actually examined how individuals interpret a problem, how age and sex might influence this process, and possible factors that might mediate differences in problem-solving interpretations. Research on age and sex differences in individual concerns with communion suggests that problem interpretations might differ systematically on this dimension (Abele, 2003; Moskowitz, et al., 1994; Strough, Berg, & Sansone, 1996). However, age and sex differences in communal interpretations of interpersonal everyday problems have not been examined. This study examined age and sex differences in communal problem-solving interpretations. In addition, this study examined femininity scores, as measured by the BSRI (Bem, 1974) as a possible mediator of age and sex differences in problem-solving interpretations.

Design and Variables

The categorical subject variables for this study included age (young adult, older adult), sex (male, female), and the manipulated independent variable of protagonist sex in the vignette (male, female). A continuous femininity score from the BSRI (Bem, 1974) was analyzed, as well as a continuous score for communal interpretations. Scores for

communal interpretations served as a dependent variable. Depending on the specific research question being addressed, femininity scores served as either an independent or dependent variable.

The protagonist sex in the vignette was a between-subjects factor in this study.. The vignette questionnaire consisted of two forms. Each form contained the same problem solving vignette (job relocation), however the protagonist's sex in the problem varied between forms.

Research Questions and Hypotheses

Research Question 1: Do individual (age, sex) and contextual (protagonist sex) factors influence adults' problem-solving interpretations?

Hypotheses

- 1) Older adults will be more likely to report communal interpretations than will younger adults.
- 2) Women will be more likely to report communal interpretations than will men.
- 3) Participants receiving a vignette with a female as the protagonist will be more likely to report communal interpretations than will participants receiving a vignette with a male protagonist.
- 4) Older adult men will be more likely to report communal interpretations than will younger adult men when responding to a vignette with a female protagonist.

Older adult women will be more likely to report communal interpretations than will younger adult women when responding to a vignette with a female protagonist.

Research Question 2: Are there individual differences (age, sex) in adults' femininity scores, as measured by the BSRI?

Hypotheses

- 1) Older adults will have higher femininity scores than will younger adults.
- 2) Women will have higher femininity scores than will men.

Research Question 3: Are femininity scores related to problem-solving interpretations?

Hypothesis

- 1) Participants with higher femininity scores will be more likely to report communal interpretations than will participants with lower femininity scores.

Research Question 4: Are age and sex differences in problem-solving interpretations mediated by femininity scores?

Hypothesis

- 1) Age and sex differences in problem-solving interpretations will be mediated by femininity. That is, participants who have a higher femininity score will be more likely to interpret problems in a communal manner, regardless of age or gender.

Methods

Participants

The sample for this study consisted of 196 participants, 121 younger adults (53 men and 68 women) and 75 older adults (36 men and 39 women). Younger adults in the sample ranged from 18 to 27 years old ($M=19.26$, $SD=1.31$) and older adults were between 60 and 91 years old ($M=73.74$, $SD=7.65$). Age group ranges in this study were comparable to age group ranges in other related studies (Diehl et al., 2004; Strough et al.,

1996; Watson & Blanchard-Fields, 1998). A sample size of at least 136 participants was determined to be needed based on a power analysis of .81 power to detect a medium size three-way effect (Keppel, 1991). Originally, 223 participants were recruited; however 16 younger adults (5 men and 10 women) and 11 older adults (7 men and 4 women) did not adequately complete the questionnaire, and were subsequently dropped from the analyses. The decision to drop these participants was based on the fact that the participants' response to the question of primary interest was missing. Therefore, these participants' problem interpretations could not be examined.

The sample was primarily Caucasian (98.7% for older adults, 90.1% for younger adults), which is representative of the population in the primary geographical area where the data was collected. The majority of participants were from either Pennsylvania or West Virginia; however 25% of older adults and 23% of younger adults indicated residence in locations other than those two states. Other demographic characteristics of the sample are presented in Table 1 and described below.

Older adult participants were highly educated, with 32% having completed a bachelors degree, 14.7% with a completed masters degree, and 4% holding PhDs. Just over 30% of older adults reported they had completed high school and only 1.3% of the sample had less than a high school education. Because the younger adult sample consisted primarily of college age students, nearly 98% of that group had high school as their highest degree earned, with only two participants indicating completion of higher degrees (associates and bachelors). For annual yearly income of older adult participants, 5.3% reported incomes below \$10,000, 41.4% between \$10,000 and \$30,000, 32.0% between \$40,000 and \$60,000, and 17.3% reported incomes above \$60,000. Fourteen

older adult participants did not answer the income question, compared to only two missing responses among the younger adults. Although most of the young adults reported incomes below \$10,000 (80.2%), others indicated incomes ranging from 20,000 (5.8%) to over 60,000 (6.6%). It is likely that these students reported the annual income of their parents' household rather than their own. Finally, the majority of younger adults in the sample were not married (95.9%), with the remaining 5 individuals (4.2%) indicating long-term, cohabitating relationships. In comparison, 72% of older adults indicated that they were currently married, 24% were widowed and 4% were divorced.

Younger adult participants were recruited from West Virginia University through email announcements and advertisement postings in the Psychology department. Older adult participants were recruited primarily from the Morgantown and Pittsburgh area through study advertisements, personal contacts, and visits to senior centers, community centers, and independent-living facilities. Addresses of a random sample of older adults age 60 and older living in West Virginia and Pennsylvania was purchased and was used to recruit participants. Referral of participants (i.e. snowballing) from other participants also was used as a means of recruiting participants. Ultimately, 45% of distributed packets went to personal contacts and referrals, 39% to contacts at senior centers and participants from another study, and 24% were sent to mailing list names. Of the packets that were returned, 66% were from personal contacts and referrals, 31% were from people contacted through senior centers and another study, and 3% were from individuals on the mailing list.

Measures

Demographic information. A demographic questionnaire was given to each participant, and included questions regarding age, sex, race, education, residency, income, number and sex of siblings, number and sex of children, religious affiliation, marital status, living arrangements, occupation, parents' occupation, and spouse's occupation.

Problem vignette. The problem for this study was presented using a vignette. Interpretations of the everyday problem were elicited by having participants respond to a specific question about the issues that should be considered by the protagonist. The problem presented in the vignette occurred within the domain of family, in that the vignette addressed a problem that might occur within a family context. The problem involved the decision to relocate a family due to a job change. This vignette was based on a prior study containing problem-solving situations set in a family context (Smith & Baltes, 1990). Smith and Baltes presented their participants with four vignettes involving conflicts between work and family. One vignette dealt with a women being offered a promotion at work and deciding whether to take the job at the expense of having children. A second vignette dealt with a man with two children losing his job and considering moving to a new city for employment, even though his wife was currently employed in the current location. Aspects of these two problems (i.e., job promotion, two children, spouse's job, moving to a new city) from Smith and Baltes' work were incorporated into the vignette used for this study.

There were two forms of the vignette, one form where the protagonist was a female, and the second form where the problem was identical, but the protagonist was a

male. For example, when the protagonist was male, the vignette presented a situation where a man, Joe, must decide whether or not to take a job in Chicago, even though he has grown up in Philadelphia and his wife Susan and their children have always lived in that city. The alternate form of this question presented the same problem, however Susan became the protagonist of the vignette. A full version of the vignette appears in Appendix A. The problem vignette was pilot tested on a small group of younger and older adults the summer prior to data collection. Pilot testing revealed that the vignette elicited responses sufficient for analysis. Additionally, the vignette and pilot responses to the vignette were examined by a research group comprised of undergraduate and graduate students.

Experience, Importance, and Seriousness of the Problem. Participants were asked to indicate their experience with the problem, and their opinion of whether the problem was important or serious. Experience was determined by a yes or no response to the question, “Have you ever faced a problem similar to the one described?”. For the importance question, participants responded to the question, “How important is this problem?” by selecting a response on a seven point scale from 1 “*very unimportant*” to 5 “*very important*”. For the seriousness question, participants were asked, “How serious is the problem?”, and responded to a five-point scale from 1 “*very trivial*” to 5 “*very serious*”.

Interpretations. Participants were asked to read the vignette and respond in writing to the question “Please describe all of the issues that Joe/Susan must consider in dealing with this problem.” Pilot testing of this question indicated that it elicited responses sufficient for analysis. Answers were open-ended and not limited in form or length. The bottom half of the problem vignette page was left blank for participants’

responses. Participants' responses were transcribed for coding purposes and 20 transcripts were checked for accuracy. Responses to the question were then coded using the coding scheme described below.

Coding. Interpretations were coded either as communal, non-communal, or if no response was given, as a non-response. Coding first consisted of determining meaning units (Delmore-Ko, Pancer, Hunsberger, & Pratt, 2000) within the written response. Each meaning unit answered the question "what is being considered?", or what factors were being considered in the response to the problem situation. Each participant's response was first evaluated for total number of meaning units, and then each meaning unit was determined to be either communal or non-communal. Meaning units were coded by the principal investigator and a research assistant (a recent psychology graduate).

Transcribed copies of participants' responses were used in the coding process. Both coders were blind to the participant's sex while coding. A training period for coding took place over four weeks until 80% agreement was achieved. During this time the guidelines for coding were discussed, discrepancies were resolved between the two coders through discussion, and relevant examples were added to the guide to assist in future coding.

Reliability was established over a four week period by individually coding data provided by 20% of the participants, and the result was a Kappa coefficient of .79. Over the next three weeks, the research assistant completed approximately one-third of the remaining data, while the majority (two-thirds) of the remaining responses were coded by the principal investigator.

As mentioned previously, meaning units were coded as either communal or non-communal. *Communal interpretations* were those that indicated care and/or concern for

others, and non-communal interpretations indicated a focus on the rights and concerns of the individual. An interpretation indicating that the protagonist was taking into account the needs of others, specifically his/her family, was coded as communal, whereas an interpretation indicating that the protagonist was concerned for his/her own needs was coded as *non-communal*. A meaning unit was considered to be non-communal even if a family member was mentioned in the statement, as long as concern for the needs of those family members were not being considered (e.g. “Joe and his family should move to Chicago because the new position is better for Joe”). Also, a statement was considered to be communal if the participant indicated that the protagonist should consider the needs of the family members. For example, if a participant responded by stating that “Joe’s wife would be forced to find a new job” or that “His family would have to leave their extended family and friends”, these units were coded as communal interpretations. Other examples of interpretations coded as non-communal included “The job in Chicago is better and Joe shouldn’t turn down a good career opportunity” or “Joe should consider how rejecting the job offer will affect his career”. Additionally, when participants’ responses included repeated information, it was only counted once when one statement qualified the other (i.e. “the kids – the kids would have to leave their school”); otherwise all units were coded and counted. Feedback from the pilot testing and the research group was used in the development of the coding manual for interpretations (See Appendix B). Additional information on the coding procedure, the coding manual, and examples of statements can be found in Appendix B.

The total number of meaning units for participants ranged from 1 to 37 units, with an overall mean of 8 units ($SD=4.14$). Older adults had a significantly higher number of

total units, $F(1,196) = 23.30, p < .01$, primarily because older adults typically wrote longer responses than did younger adults. Meaning unit means by age, sex, and sex of the participant are displayed in Table 2. The proportion of communal meaning units was used as the dependent variable in the analyses for this study. To obtain this score, the number of communal meaning units was divided by the total number of meaning units in each participant's response in order to obtain a proportion score for each participant. This allowed for an examination of communal responses that was not influenced by how much a participant wrote, as there was a large variability in the total number of meaning units for participants in the study. Scores ranged from .25 to 1.00 ($M = .65, SD = .19$).

Bem Sex Role Inventory. The Bem Sex Role Inventory (BSRI, Bem, 1974) was used to assess masculinity and femininity. For this measure, participants rated 60 adjectives on a seven-point scale from 1 "*never or almost never true*" to 7 "*always or almost always true*". Of the 60 adjectives included on the BSRI, 20 are considered stereotypically masculine (e.g. dominant, independent), 20 are stereotypically feminine (e.g. sympathetic, gentle), and 20 are considered to be gender-neutral (e.g. truthful, happy). Typically, BSRI scores are assessed and participants are determined to be either feminine, masculine, androgynous, or undifferentiated (Bem, 1974), however, for this study, a continuous score was obtained for participants (see also Pickard & Strough, 2003). In other words, rather than designate participants as either feminine or masculine, a femininity score was generated for each participant, which fell along the range from high femininity to low femininity. Scores ranged from 3.40 to 6.45 ($M = 5.06, SD = .621$).

Bem (1974) found the BSRI to have a high test-retest reliability over one month. Recent reassessments of the BSRI have shown it to have a high internal consistency,

from .75 to .95 (Auster & Ohm, 2000; Holt & Ellis, 1998; Hoffman & Borders, 2001), as have other studies using the BSRI in their measures (Brems & Johnson, 2001; Pickard & Strough, 2003). For the participants in the current study, a reliability analysis showed that the BSRI measure had high internal consistency (Cronbach's $\alpha = .81$) as well. The BSRI was selected over a similar test, the Personal Attributes Questionnaire (PAQ, Spence, Helmreich, & Stapp, 1975, from Spence, 1993). The BSRI has been used in many studies of gender differences, and so use of this measure in the current study was preferred in order to allow for results to be compared to other studies. In a comparison of the BSRI and the PAQ, Spence (1991) found that both tests assess instrumentality and expressivity more so than masculinity or femininity per se. Spence and colleagues also suggest that the items of "masculine" and "feminine" on the BSRI are better able to measure participants' gender identity than instrumental or expressive traits of the individual (Spence, 1991; Spence & Buckner, 2000). Despite these concerns, the BSRI was selected for its generalizability as a measure of femininity.

Procedure

Older adult participants in this study were either given or mailed a packet containing the consent forms, instructions, and the questionnaire. After completing the questionnaire, participants returned the packet in a prepaid envelope addressed to the principal investigator. Younger adult participants picked up packets from the researcher's lab in the Psychology Department of West Virginia University, took the packet home to fill out, and returned the packet to the same lab room. The procedure for the younger adults was put into place to mirror the conditions of the mailed packets given to older adult participants. Complete directions for the measures were given in writing, and

informed consent was obtained for each participant. Participants were also told to complete the packet on their own, and were asked to sign a form indicating that they had completed the packet independently.

Participants were asked to complete the questionnaire containing the problem-solving vignette, the BSRI, and demographic information, in that order. There were two forms of the questionnaire and participants were randomly assigned to each condition. Form A presented the vignette with a male as the protagonist of the story. Form B included the exact same vignette, but with a female as the protagonist instead. In other words, half of the participants in each group (younger adult men and women, older adult men and women) were to receive the problem where Joe was the protagonist, whereas the other half of participants were to receive the problem in which Susan was the protagonist. Although equal distribution of form type was intended, the actual distribution of form type in the returned packets was not exact, especially for younger adults. This was a function of younger adults waiting until the last week of the semester to return packets. Because it appeared that the conditions were not being filled, more packets were handed out than originally planned. However, more packets were returned in the last week of data collection than in the previous two weeks, resulting in a much larger sample size for younger adults than anticipated. Distribution of form type for returned questionnaires is displayed in Table 3.

Results

Missing Data

As mentioned previously, a number of participants were eliminated from the study due to inadequate completion of the questionnaire packet. Specifically, these

individuals did not give any response to the question designed to assess interpretations. As interpretations scores were critical to the analyses for this study, and other questions on the form were not appropriate for substitution, the best solution was to eliminate these participants. The revised sample number allowed enough participants in each cell to retain power as set out in the power analysis (Tabachnick & Fidell, 2001).

An additional missing data concern involved participants' responses to the BSRI scale. Tabachnick and Fidell (2001) suggest that a small number of missing data in a random pattern are not a concern for a large data set, but do not suggest how much missing data is a concern for smaller studies. Most of the missing data for the BSRI measure consisted of participants failing to circle a response for only one item in the sixty question scale (younger adults: 3 men and 2 women; older adults: 2 men and 7 women). Five other participants missed 6 items (younger adults: 1 man and 1 woman; older adults: 1 man and 2 women), however an examination of the pattern of missing data indicated that these participants skipped a page (different pages), resulting in the missing data. Missing data was replaced using mean replacement, with items from the relevant subscale used to replace the missing values. Specifically, the mean of the items on the individuals' femininity subscale was used to replace the one (skipped item) or two (skipped page) missing items on the femininity scale. Mean replacement is a commonly used, conservative means of dealing with missing data (Tabachnick & Fidell, 2001).

Normality of Data and Outliers

A test of normality was conducted for each of the dependent variables in the study (i.e., communal interpretation proportion scores and continuous femininity scores). Visual inspection of histograms indicated that both communal proportion scores ($M = .65$,

$SD = .19$) and femininity scores ($M = 101.2$, $SD = 12.43$) appeared normally distributed. However, further analyses indicated skewness (communal proportions = .211 and femininity = -.326) and kurtosis (communal proportions = -.715 and femininity = -.529) values were not equal to zero. Although negative kurtosis typically results in an underestimation of variance, Tabachnick and Fidell (2001) state that this variance is negligible when sample size reaches 200, as is nearly the case in the current study ($N = 196$).

A multivariate test for outliers was conducted using Mahalanobis distance. Tabachnick and Fidell (2001) state that the criterion for outliers using this test is $p < .001$. Based on the analyses used in this study and a chart provided by Tabachnick and Fidell, any value greater than $\chi^2(2) = 13.816$ would be considered a multivariate outlier. None of the values listed in the output were higher than 8.283, therefore there were no multivariate outliers in this study.

Univariate tests for outliers were conducted for both dependent variables. Results indicated that there were no overall outliers for communal proportions scores and one outlier for femininity scores. In that case, one older woman responded to the scale using only the numbers with labels (i.e. 1, 4, and 7). She was not eliminated from the study, however, as she was not an outlier for communal proportion scores. Univariate tests were also conducted for age and gender for both dependent variables. There were no outliers for communal proportion scores. For older adults' femininity scores, there were no outliers among males. For older adult females, an additional female joined the previous female outlier from the initial analysis. For younger adults' femininity scores, there were no male outliers and two female outliers. The three additional female outliers all had a

score of 3.8, as opposed to the 3.4 score of the original outlier. All participants were retained because they were not outliers for communal proportions scores.

Preliminary Analyses

Participants were asked to respond as to whether they personally had ever had an experience similar to the one described in the vignette, whether they thought the problem was important, and to rate the seriousness of the problem. For younger adults, 28 indicated experience with the problem (18M, 10F) and 93 (35M, 58F) indicated they had not experienced the problem. For older adults, 37 participants indicated experience with the problem (17M, 20F) and 38 indicated no experience with the problem (19M, 19F). There was no significant difference between participants with experience and those without experience on communal interpretations, ($p < .364$). Regarding the importance of the problem, 94.3% of young males and 86.8% of young females indicated that the problem was important or very important, as did 77.8% of older males and 97.4% of older females. There was a significant interaction between age and sex ($F = 7.19$, $p < .008$, $\eta^2 = .04$), with older females rating the problem as more important than older males and younger males rating the problem as more important than the younger females. Regarding the seriousness of the problem, 83% of younger males and 77.9% of younger females considered the problem to be serious or very serious. Of note, 15.1% of young males and 16.2% of young females indicated a neutral response to this question. For older adults, the majority of male and females considered the problem to be serious or very serious (94.5%M, 97.4%F). There was a main effect of age for seriousness of the problem ($F = 12.38$, $p < .001$, $\eta^2 = .06$), indicating older adults were more likely to consider the problem serious than younger adults.

To check that random assignment had prevented individuals of high (or low) femininity from receiving only one type of vignette (male or female protagonist), an ANOVA with protagonist sex as the independent variable and continuous femininity score as the dependent variable was conducted. The main effect of protagonist sex was nonsignificant ($p=.55$), indicating that random assignment of the forms was successful.

A Chi-square test was conducted to assess whether experience with the problem situation differed significantly by age groups. Overall results for the Chi-square test were significant $\chi^2(1, N=196) = 14.33, p<.001$, indicating that the proportion of older adults who had experience with the problem was higher than that of younger adults. For older adults, 49.3% indicated experience with the problem and 50.7% reported no related experience. For younger adults, 23.1% indicated experience with the problem and 76.9% reported no experience with the problem. As the problem vignette for this study addressed a situation regarding a couple with children considering job relocation, it is not surprising that many younger adults indicated no experience with the problem themselves. However the fact that there were also students who reported personal experience with the problem would appear to indicate that the problem situation was not exclusive to older adults.

Primary Analyses

To test the hypothesis that there would be age, sex, and protagonist sex differences in communal interpretations (Research Question 1), a univariate analysis of variance (ANOVA) was conducted. The ANOVA was a 2 (age: young, old) x 2 (sex: male, female) x 2 (protagonist sex: male, female) design, with the proportion score for communal interpretations as the dependent variable. Of the main effects in the analysis,

there was a significant difference only for sex of the participant, $F(1,196) = 6.29, p < .013$, partial $\eta^2 = .032$. Overall, women had a higher proportion of communal responses to the problem than did men, which supports the second hypothesis for this research question. Results for the three-way and two-way interactions were nonsignificant, although the three-way interaction was marginal ($p = .053$). The other two hypothesis were not supported, as there was no main effect of either age or protagonist sex. Results of this analysis are displayed in Table 4 and means are displayed in Table 5.

To test the hypothesis that there would be age and sex differences in femininity scores (Research Question 2), a univariate analysis of variance (ANOVA) was conducted. The ANOVA was a 2 (age: young, old) $\times$ 2 (sex: male, female) design with continuous femininity score as the dependent variable. As in the previous analysis, results indicated nonsignificant results for the three-way and two-way interactions. Again, there was a significant main effect for sex of participant $F(1,196) = 51.78, p < .001$, partial $\eta^2 = .21$. Women had higher femininity scores than did men, supporting the second hypothesis for this research question. Additional hypotheses were not supported as the main effects for age and protagonist sex were not significant. Results of this analysis are displayed in Table 6 and means are displayed in Table 7.

In order to determine whether femininity was related to problem-solving interpretations (Research Question 3), a Pearson correlation was conducted to assess the association between continuous femininity scores and communal interpretation proportion scores. Results indicated that the correlation between these two variables was not significant $r(194) = .11$. A scatterplot graph confirmed that there was no indication of linear or curvilinear trends between the two variables.

Finally, to analyze whether age and sex differences in interpretations were mediated by femininity (Research Question 4) and to test the mediation model, a multiple regression analysis was conducted that included age, sex, and continuous femininity scores as predictors, and communal proportion scores as the criterion variable. The linear combination of the three predictors was significantly related to communal proportion scores, $F(3,192) = 3.74, p < .012$. Of the three predictors however, only sex of the participant was statistically significant ($p < .015$), suggesting that only the sex of the participant was an important predictor of communal proportion scores. Results for this analysis are displayed in Table 8.

Analysis of femininity as a mediator of age and sex differences in communal interpretation was contingent on meeting the requirements for demonstrating a mediation model (Baron & Kenny, 1986). Using the variable of sex to illustrate the requirements for a mediation model, first an association between sex and interpretations needed to be established. Second, an association between sex and femininity rating must be shown. Third, an association between femininity ratings and interpretations also needed to be demonstrated. Finally, when controlling for femininity ratings, there should either not be an association between sex and interpretations, or the association should be reduced. The first two requirements for demonstrating femininity as a mediator of sex were met, as there was a significant relation between sex and communal proportion scores, as well as gender and femininity scores. However, because communal proportion scores and femininity scores were not related, the third condition of the model was not met. Therefore an analysis of femininity as a mediator was not merited. For age, none of the requirements were met in order to demonstrate femininity as a mediator of age

differences, as there was no significant relation between age and communal proportion scores or between age and femininity scores.

Exploratory Analysis

The three-way interaction for age, sex, and protagonist sex was marginal ($p=.053$), however it was examined further for exploratory purposes. Pairwise comparisons indicated that for males, there was a significant difference between younger and older males on the male protagonist problem ($F(1,196) = 3.80, p<.01$). When the protagonist of the problem was male, younger adult males had a significantly lower mean for communal interpretations than did older adult males. There were no significant differences indicated for younger and older female participants for either the male or female protagonist form (See Figure 2).

Discussion

This study set out to examine how individuals interpret a problem, the influences of age and sex on the process, and whether femininity mediates the relation between age and sex and participants' communal interpretations. Using the model proposed by Sansone and Berg (1993), it was expected that the contextual characteristic of protagonist sex and individual characteristics such as age and sex would be important influences on the interpretation of problems. Although the hypotheses for the present study were not fully supported, the results offer important insights into the problem-solving process, specifically the importance of considering individual differences, such as age and sex, in how individuals understand a problem. Additional considerations for understanding problem interpretations and future directions for research are also discussed.

Sex and Communal Interpretations

It was expected that participants' communal interpretations would differ by age, sex, and protagonist sex. Of the three hypotheses proposed, the hypothesis for sex was supported. Overall, a greater proportion of women's interpretations were communal as compared to men. Women stated more concerns regarding the needs of others when considering Joe or Susan's job relocation than did men. So, although men and women in the study examined the same problem situation, they expressed different concerns while evaluating the problem. This result was consistent with previous research indicating a significant relation between females and communal traits (Abele, 2003; Diehl et al., 2004; Moskowitz et al., 1994). These previous studies have shown that women are more likely to endorse communal attributes and express communal behavior than men. This study adds to the knowledge of a relation between females and communion by demonstrating that women are also more likely to report communal concerns than men when presented with a problem situation. Sex differences in communal interpretations were consistent among both older and younger individuals, regardless of the sex of the protagonist.

Results of the analysis for communal interpretations indicate individual differences in problem interpretations. Findings of sex differences support statements by Berg and Calderone (1994) that researchers should not assume that participants will always view problems in the same way as other participants, or in the same way as a researcher. These findings indicate that interpretation of a problem, although limited to sex differences in the current study, should be a consideration in future problem-solving studies. It would benefit researchers to be conscientious of how questions are constructed,

to understand how participants are viewing their questions, and how individual differences in interpretation might impact other results, such as rating of effective strategies

There was no significant difference between older and younger adults in this analysis, although age differences in communal responses were predicted based upon previous research by Diehl and colleagues (2004). In Diehl et al.'s study, the reported age differences indicated that older adults were more likely to report communal attributes in self-representations than younger adults. In the current study, it was expected that older adults would report more communal responses than younger adults. However, Diehl and colleagues specifically asked participants for self-representations, instructing participants to list attributes that best described themselves as "honestly and accurately"(p 5) as possible, using both positive and negative descriptions. Although their study demonstrated that older adults are more likely to describe themselves in terms of communal attributes, such a result may not be directly related to the concept of communal interpretations being examined in this study. Participants in the current study were not asked to describe aspects of themselves, but instead were asked to consider a hypothetical problem for another person. Although participants' own communal attributes were expected to be present in their interpretations, they were not asked to specifically report their own attributes or the importance of those attributes. This could be one explanation as to why no significant age differences were found for communal interpretations.

Another possible explanation for the lack of age differences could revolve around experience with the problem. As mentioned previously, older adults indicated that they

had more experience with the problem than younger adults. However, the job relocation problem in this study was constructed so that there were three possible “roles” (grandparents, parents, children) that participants might identify with. It is possible that younger adults could relate to the children in the problem, but not consider that to be “experience” as it was addressed in the questionnaire. Additionally, recency of moving might also account for the lack of age differences. All of the younger adults in the study were in college, and it can be assumed that many of them had to deal with relocation issues in the past few years as they moved to school. However, many of the older adults in the sample reported living in their current residence for 20 or 30 plus years, and all but one older adult who indicated experience with the problem stated the experience occurred over five years ago. It is possible that recency of experience with moving made younger adults more aware of the issues involved with the process, resulting in a lessening of age differences between the two groups.

The three-way interaction for age, gender, and protagonist sex on communal interpretations was nonsignificant, but an interesting finding emerged when an exploratory analysis was examined. There was a significant difference between younger and older adult males in their communal responses to the problem. However, this difference only emerged when participants were responding to the vignette with the male protagonist. This result was surprising, as the hypothesized difference between younger and older males was for the female protagonist vignette. Although unexpected, one possible explanation for the finding could be that older men had more experience in the male role described in the problem, as opposed to the female role described in the other vignette, while younger adult males did not have had such experience. As a result, older

adult males might have been more aware of the various issues, including communal considerations, involved in dealing with a job move. It is possible that older men were better able to imagine themselves in Joe's position than younger men, and than they were better able to relate to Joe, rather than Susan, as the protagonist and respond with more communal interpretations. Because this finding was marginal, interpretations of the results are limited, however a replication of the analysis with additional older adult participants might yield more robust findings.

Sex Differences in Femininity

The second research question dealt with age and sex differences in femininity scores obtained from the BSRI. It was expected that there would be age differences in femininity, however no significant difference was found for participants in the current study. Although Hyde, Krajinik, and Skult-Niederberger's (1991) work suggests increases in femininity in older adults, other studies have only found age differences for masculinity or instrumental concerns (Fultz & Herzog, 1991; Twenge, 1997), which were not examined in the current study. It is possible that, in the case of the current sample, age is not an important factor in examining femininity. The concept of gender role crossover (Guttman, 1975) was also not supported by the current study, since older men were not more feminine than their younger counterparts. However, the current study used only the BSRI measure to examine femininity, as opposed to other methods used to assess gender role (e.g. James, Lewkowicz, & Libhaber, 1995), which may limit conclusions regarding older adults' femininity. The use of only one measure to assess femininity may also account for why no age differences were found. As the above analysis of communal interpretations suggests, older men did differ in their responses

compared to their younger counterparts. Perhaps using different measures would allow for better examination of age differences in femininity,

As expected, women had significantly higher femininity scores than did men, which suggests that the BSRI measure does distinguish between the sexes. Other studies using the BSRI have found consistent sex differences (Auster & Ohm, 2000; Francis & Wilcox, 1998; Karniol et al., 2003; Spence & Helmreich, 1980). However, debate continues as to what, specifically, the BSRI measures. The original intent of the measure was to determine sex-role orientation (Bem, 1974). Participants were categorized as either high or low on a scale of traditionally feminine and masculine adjectives, and four different sex-role types could then be determined. Spence (1992; Spence & Helmreich, 1980) has repeatedly offered the idea that the BSRI is a better measure of expressive and instrumental qualities, and that only the items of “feminine” and “masculine” really address sex typing. More recent work by Hoffman and Borders (2001) resulted in similar conclusions to Spence’s work. The current study did not set out to determine the actual nature of the BSRI measure, however the finding that there was a main effect for sex would indicate that whatever the BSRI femininity scale ultimately measures – feminine sex-role orientation or expressivity – men and women differ in that quality.

Association between Communal Interpretations and Femininity

The third research question addressed whether there was a correlation between communal interpretations of an everyday problem and femininity. It was expected that there would be a correlation between these variable, considering that significant differences between the sexes were found for each variable. However, there was no correlation and the hypothesis was not supported. It appears that although sex differences

in communal interpretations and femininity scores exist, this difference is not reflected in an association between the two scores. Work by Twenge (1999) may help to explain why such results were found. She states that while researchers such as Bem (1974) believed that knowing one type of gender characteristic would help to predict other gender characteristics, others like Spence (1993), ascribe to a multifactorial approach where such characteristics are not always strongly associated. Twenge examined the idea that gender characteristics are multifactorial, and found that many of these characteristics, such as feminine self-ratings and occupation/leisure interests for women and instrumentality and occupation/sports interests for men, were not correlated. In other words, possession of one type of gender characteristic did not necessarily lead to possession of other such characteristics. Spence and Buckner (2000) also found a lack of significant correlations between their measures, including PAQ and BSRI items, a stereotype measure, and a sexist attitude measure. They attributed this lack of correlation to a multifactorial understanding of gender. In the current study, greater femininity was not associated with a higher proportion of communal responses. Although an association between femininity and communality was expected, the multifactorial theory of gender suggests that the presence of gender differences in femininity and communal interpretations may not necessarily lead to a relation between the two variables.

The lack of correlation between communal scores and femininity scores is also surprising considering Spence's (1992) argument that the BSRI is a better measure of expressivity and instrumentality than sex-role orientation. If the femininity scale of the BSRI is indeed a measure of expressivity, it would be expected that there would be a strong relation between BSRI femininity scores and communal interpretations, as the

qualities of expressiveness and communality are similar. It may be that instead of accessing communal aspects of problem interpretation as was expected, this study instead accessed other related distinctions, such as distinguishing between instrumental concerns (e.g., money, moving, job advancement) and interpersonal concerns (e.g., feelings of spouse, children's social relationships, parents' adjustment). Although these interpersonal concerns are communal, interpersonal relationships and communal concerns are not exactly the same construct. For example, interpersonal concerns for the protagonist in the problem could include concern for the protagonist's relationship with the employer (i.e. "Will Joe's boss be upset if he refuses the promotion"), which would not be considered communal in this study because the focus of concern is the protagonist. Differences in how communal interpretations were defined in the current study could account for the lack of correlation between interpretations and femininity scores.

Another reason for the lack of correlation between femininity and communal interpretations could be the result of how participants were asked to respond to the study questionnaire. For problem interpretations, participants were asked to consider what the protagonist would do, and they described what they thought would be concerns for either "Joe" or "Susan". On the other hand, the BSRI measure asked participants to report their own assessment of how well each item described themselves. It was not expected that answering the question for "Joe/Susan" or for "you personally" would affect participant responses for the interpretation measure itself. Crawford and Channon (2002), for example, gave participants sixteen everyday problems and asked them to select a solution they thought to be best considering the perspective of the main character in the situation, as well as what they themselves would select for the situation. The researchers reported

that ratings of the solutions for both the main character and the individual were not different enough to merit separate analyses in their study. However, the Crawford and Channon study was focused on strategies rather than interpretations. It is possible that when considering interpretations the difference between responding for the protagonist and responding for oneself might have limited the ability to compare results with the participants own BSRI femininity score.

Femininity as a Mediator of Age and Sex Differences in Interpretations

Finally, this study sought to determine if femininity mediated age and sex differences in participants' communal interpretations of the everyday problem. The requirements for mediation, as outlined by Baron and Kenny (1986) were not met since there was no correlation between communal interpretations and femininity scores.

Femininity was the only mediator of age and sex differences considered in this study. It is possible that other variables might function as mediators. One consideration might be other sex-role classifications (i.e. masculinity, androgyny). In this study, however, exploratory analyses for masculinity indicated that it did not mediate gender differences in communal interpretations. Another consideration might be experience, especially considering that there was a difference in the experience with the situation between age groups. However, analyses determined that there was no significant difference between participants with experience and those without experience when considering communal interpretation scores. Qualitative analyses of eight selected cases from this study found differences between married and unmarried older adult men in the classification of their responses to the vignette (Mehta & Flinn, 2006), suggesting that

other factors such as marital status, number of children, or occupation might also be considered in an examination of mediation.

Another consideration is the classification system used in this study and how that might have affected the influence of femininity. In the current study, differences in interpretations were examined using a dichotomous classification system (communal/noncommunal). It was expected that by using this system, differences would be found, based on studies regarding communion differences discussed previously (Abele, 2003; Bakan, 1966; Moskowitz, et al., 1994). However, if another classification system had been used to examine problem interpretations, different results may have emerged, opening up the possibility that femininity might still function as a mediator. An example of a different classification system could include one where more specific concerns are identified. Responses could be classified into categories such as *concern for others*, *occupational considerations*, *financial concerns*, and *social considerations*. A recent qualitative analysis examining a small number of responses (N=8) from this study used such a classification system, and results indicated differences between married and unmarried older men, specifically for responses addressing *concern for others* and *financial concerns* (Mehta & Flinn, 2006). Additionally, breaking down the classification of *concern for others* into categories of spouse's adjustment, children's adjustment, impact on family, and concern for extended family, married and unmarried men greatly varied in their mention of concern for extended family. These results suggest that the way in which interpretations are classified may be important in distinguishing why differences between groups are found and whether factors such as femininity could function as a mediator of observed differences.

Limitations of the Study

There are a number of limitations to be considered for this study. In addition to the individual differences already discussed in the study, it is possible that other individual variables might also play a role in the way participants interpreted the problem. One such example might be the amount of education an individual has. In a recent re-evaluation of an everyday problem assessment for older adults, Diehl and colleagues (Diehl, Marsiske, Horgas, Rosenberg, Saczynski, & Willis, 2005) found that their measure was significantly correlated with education. They concluded that this finding seemed to indicate that "...a higher level of education...[was] associated with better everyday problem solving." (Diehl et al., 2005, p 225). In another study examining everyday problem solving in African American older adults, Whitfield and Wiggins (2003) also found that problem solving was positively correlated with years of education. However, other problem-solving studies, such as Cornelius and Caspi (1987), have not found a relation between education and everyday problem solving. It is difficult to compare this study directly to the previous work on problem solving because so few studies have considered problem interpretations in their design. However, although participants in this study were generally well educated, there was no significant correlation between education and problem interpretation. A final note: although no cognitive variables were included in this study, it is possible that a relation between those measures and problem interpretations might exist, as Diehl and colleagues (2005) found correlations between problem solving and measures for verbal ability and memory. Cognitive factors, including verbal ability and memory, might have been important to assess in the current study. The way interpretations were assessed required participants to

use cognitive abilities, such as memory to remember relevant life experiences, in order to consider what issues were important in the vignette. Responding to the problem in writing might also have required writing and verbal abilities that could have varied by participants.

It is important to consider the nature of the problem as a limitation as well. Although the problem presented in this study is one that can occur in real life, it is also not a problem that is likely to occur frequently in an individual's life. It may perhaps be more appropriate to consider the problem as a social problem (D'Zurilla & Nezu, 1990) or as a "highly salient rare-event problem" (Patrick & Strough, 2004, p 9) as it deals with the infrequent, but important issue of relocation. Another issue with the problem presented in this study might be that it limited communal responses. It was possible that because of the more practical issues that may be addressed in a relocation problem (i.e., moving, expenses, when to move, how to go about finding new jobs and schools, etc.) that participants were able to consider multiple practical or noncommunal concerns and only a limited number of communal concerns. However, there was an overall mean of 5.15 ($SD=3.06$) for communal responses with responses ranging from 1 to 25, but only a mean of 2.86 ($SD=1.99$) for noncommunal responses with a range from 0 to 12, which seems to indicate that the practical aspects of the problem did not result in over-reporting of noncommunal responses.

Finally, there was only one problem analyzed in this study. As a result, the findings for the study are focused only on one problem involving relocation, thus limiting the generalizability of the results. Although not analyzed, the participants were also given one additional vignette. In this vignette, a man (or woman) is faced with a decision

regarding an older parent in need of caregiving that would necessitate a move for either the adult child or the parent. Future work regarding problem interpretations would benefit from comparing this additional problem situation to the problem described in the current study, so as to compare responses. In addition to examining whether sex differences are maintained in the second problem, it is possible the femininity may also play a role, as the problem deals with a different aspect of caring behavior. It is also possible that the lack of age differences in this study might have been different as well if another problem was considered, although the additional problem may not be as salient to younger adults as it might be to older adults.

An additional problem encountered in this study involved the way in which participants were instructed to respond to the problem situation. Although the form had been pilot tested, 27 people did not correctly follow the instructions on how to respond to the problem. A more specific set of instructions indicating where to write responses would be a modification for any future research using the questionnaire. A second problem encountered with participants' responses involved the intention of participants' statements. Although responses were coded based on what was actually written by the participants, there was no way to evaluate what participants "really meant" in their responses. For example, the response, "Joe would make more money in the new job" would be considered a self-concern study using the coding scheme employed in the current study, but it may be that the individual's intention of the statement was the idea that if Joe makes more money, he could use it to help his family. Two possible recommendations for dealing with this issue are: first, provide participants with the coding categories for the study and ask them to code their own interpretations and

second, approach the data collection as a clinical or Piagetian interview. In a Piagetian interview, children are asked follow-up questions after the initial question (i.e. “which glass holds more water”) in order to better understand the initial response (Ormrod & Carter, 1985). The goal of such an interview is to understand the logic the child has used to come to their conclusion (Ormrod & Carter, 1985). Applied to the current study, an interview format would allow the researcher to ask follow-up questions in order to better determine how to code participants’ responses, such as “Why do you think Joe needs to consider the additional money he would get with the new job”. This method, however, would necessitate that the study be conducted one on one, rather than by mail, and would also involve training the interviewer. However, the added work to the data collection process would also allow for more sophisticated understanding of participants’ problem interpretations.

An effort was made to match the method of delivery for all participants, and a mailed packet system was seen as an advantage since participants did not have to leave home to participate in the study. Additionally, the packets were randomly assigned to participants as they were mailed or given out. However, response rates were such that it was difficult to maintain equal sample sizes for each group within the study. Data collection for younger adults took place over five weeks, and up until the last week, many packets were still needed, especially for males. However, since extra credit was not due until the end of the semester (the last week of data collection for young adults), many packets were not returned until that week, resulting in a much larger number of younger adults than anticipated. Although efforts were made to gain additional older adult participants, it was not possible to obtain equivalent numbers of older and younger adults

in the time frame available. While the current data set includes sufficient participants for power, the study would benefit from the addition of more participants in the older adult age group. In particular, the three-way analysis for communal interpretations in this study was marginal, and it would be interesting to see if the inclusion of additional older adult participants would yield a significant difference.

Although sex was included in the model used for this study, its inclusion could be debated based on the concept of sex as a proxy variable. Sex is often used to categorize individuals in research studies as either male or female. However, other studies have used categorization by sex as a proxy for gender, since the two are considered to be strongly related (Reevy & Maslach, 2001). Just as numeric age serves as a proxy for cohort or developmental differences (Baer, 1970), sex may serve as a proxy for a number of other qualities such as femininity, masculinity, expressiveness, and instrumentality, to name a few. In studies hoping to examine “gender” differences, it may be beneficial to consider both biological sex as well as aspects of gender. Without examining the difference between sex and gender, researchers are limited in their ability to determine the true nature of the differences they observe, and may unfairly perpetuate stereotypes of gender differences.

As was previously mentioned, there have been few studies that have examined problem-solving interpretations (Berg & Calderone, 1994; Berg et al., 1998), and the field lacks empirical studies specifically examining interpretation in the manner presented in this study. The power analysis for this study was for a medium effect size, but there was no real basis for this expected effect size because it could not be directly calculated from other similar studies. This study was also limited to a cross-sectional design and

therefore cohort differences might be confounded with age differences (Schaie & Caskie, 2004). It is a possibility that cohort differences in the study might be masking age differences, resulting in the lack of age as a significant factor in the analyses for this study, however without a longitudinal design such maturational differences cannot be determined.

An additional note regarding sample characteristics is the education level of participants. Older adult participants in this study were highly educated, with 32% having completed a bachelor's degree, and an additional 19% with completed graduate degrees. Compared to the average education of adults in the general location of the study (bachelors degree: PA – 14%, WV – 8.9%; graduate degree: PA – 8.4%, WV – 5.9%; US Census Bureau, 2000), these older adults have more education than would be expected. This could be due in part to the fact that although the majority of older adult participants resided in the local area (West Virginia, Pennsylvania), some were from a variety of locations with different populations (i.e. Florida, Georgia, Indiana). It is also possible that participants with higher education are more likely to appreciate the value of research and are more willing to participate in research studies as a result. Older adults were also significantly more educated than the younger adults in the sample, although the recruitment of primarily college-age young adults accounts for the difference. Although it is possible that the higher average education of the older adults in this study might have affected the way in which they viewed the problem situation and reduced any potential age differences in problem interpretations, correlational analyses for education and communal interpretations did not show a relation between the variable, as was discussed earlier.

Future Directions

An important next step in this line of research is to assess the solutions participants generated for the problem presented, and to examine correlations between communal interpretations and communal strategies. Models of problem solving have considered the possible importance of individuals' interpretation of a problem (Berg & Calderone, 1994; D'Zurilla and Nezu, 1990) and other studies have discussed the importance of interpretation as it relates to strategy selection (Blanchard-Fields et al., 1997). For example, Berg et al. (1998) assessed how problem definitions, as reflected in participant's goals, affected the type of strategies used in problem solving. These authors defined problem definitions as the "...individuals' own subjective experience...[which] may not contain all aspects of the context that an outside observer might perceive" (Berg, et al, 1998, p. 30). Utilizing goals as an aspect of problem definition, the study included two types of goals: interpersonal/social or competence/achievement. The results of the study indicated that those participants who included interpersonal/social aspects in their problem definitions were more likely to report strategies that involved social aspects (such as including others in the solution), while those with competence/achievement aspects in their problem definitions were more likely to report self-oriented strategies (Berg, et al., 1998).

As results in the current study indicated that, overall, women were more likely to report communal interpretations than were men, it would be interesting to explore whether this sex difference would also be seen in the solutions that they generate for the problem. If a relation exists between the way people interpret a problem and the types of solutions they generate, this would be a valuable insight into the problem-solving process

and a consideration for future researchers constructing everyday problems. Another consideration for future work in this area would be to link communal interpretations to the ultimate outcome of the problem. One drawback of the questionnaire used in this study was that participants were not asked what ultimate decision they would make regarding Joe or Susan's relocation.

This study set out to examine individuals' interpretations of an everyday problem and to determine one possible mediator of the differences found for these interpretations. Although the hypotheses for this study were not wholly supported, the results do indicate that differences in participants' interpretation of the problem do exist, are related to factors such as sex, and that this aspect of the problem-solving process merits further attention in the problem-solving literature.

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Appendix A

Problem Vignette:

Joe version: Joe and Susan both hold full-time jobs in Philadelphia. They both grew up in the local area, and both their parents live in nearby communities. Joe and Susan also have two children, one in 5th grade and one in 10th grade. Then Joe's boss offers him a new position, a promotion from his current place in the company. The job would provide more money and some additional benefits compared to the job position Joe currently holds. The new position, however, is located at an office in Chicago.

Susan version: Susan and Joe both hold full-time jobs in Philadelphia. They both grew up in the local area, and both their parents live in nearby communities. Susan and Joe also have two children, one in 5th grade and one in 10th grade. Then Susan's boss offers her a new position, a promotion from her current place in the company. The job would provide more money and some additional benefits compared to the job position Susan currently holds. The new position, however, is located at an office in Chicago.

Appendix B

Coding for Interpretation

Number of Interpretations

-Identify how many separate interpretations are included in each participants' response. Some entries will be naturally divided into thoughts, while others will consist of one continuous paragraph. Either way, divide the response using the following system:

Participants' responses will be divided into "meaning units"

- Each meaning unit answers the question "what is being considered"?
- Responses should be broken down according to how many different things are being considered by Joe/Susan

Example 1 - participant response:

"He [Joe] must also consider his wife. She has a job in Philadelphia, she grew up around there, and her parents live in the area."

Example 1 - meaning units:

He must also consider his wife / She has a job in Philadelphia / she grew up around there / and her parents live in the area

What is Joe considering?

- his wife
- that his wife has a job
- that she grew up in the area
- that her parents still live in the area

Example 2 – participant response:

"How often will her [Susan], her husband, and her children get to see their parents/grandparents?"

Example 2 – meaning units:

How often will her / her husband / and her children get to see parents /grandparents

What is Susan considering?

- how often will she see her parents
- how often will her husband see his parents
- how often will her children get to see their grandparents

*Note – in this case the participant's label of "parents/grandparents" can be assumed to refer to the same people and are not considered separate (there is no mention of grandparents for Susan and Joe in the problem – only parents, and the children would only have grandparents to leave behind)

Coding for statements with conjunctions should follow these guidelines:

If the word “and” is included in a response, consider it to be ONE idea unit if the word(s) “to” or “in order to” can be used to replace “and” so that the response still makes sense.

Example: For Susan question – “Her husband would have to quit his job and find another one” - have to quit his job in order to find another one

If the word “and” is used to link together a relationship, consider it to be ONE idea unit.

Example: “what about the separation of children and grandparents?”
“Joe and Susan’s children...”

If replacing “and” with “to” or “in order to” results in the response no longer making sense, then TWO meaning units are present.

Example: For Joe question – “Leaving his / and his family’s hometown”
Leaving his hometown is one unit
Leaving his family’s hometown is another

If multiple people are listed, consider each one separately.

Example: For Susan question - “uprooting her children from their family, friends, community, and school”
Uprooting her children from their family / from their friends/ from their community / from their school

Record the number of communal, non-communal and total number of interpretation meaning units in the appropriate box on your coding form.

Coding as Communal or Non-communal

Definitions:

Communal Interpretations

- Reflect a higher level of concern for the needs of others
- Considering the thoughts and/or feelings of other people
- Other qualities include: being emotional, caring, supportive, agreeable, and concerned with interdependence

Non-communal Interpretations

- Anything not considered as communal
- Reflect a higher level of concern for the needs of self
- Other qualities include: decisive, aggressive, dominant, concern with independence

In this study, participants' responses will be coded as either communal or non-communal.

Examples of communal interpretations:

- “Joe’s family would have to leave their extended family”
- “Joe’s family would have to leave their friends”
- “Susan’s husband would have to quit his job”
- “Joe’s wife must get a new job”
- “Susan must consider her husband’s job status”
- “The children would have to leave their school”
- “Making the children switch schools”
- “Moving from the town they lived in all their lives”
- “What is best for the kids?”
- “The older child would miss graduating with friends from high school”
- “Will Susan still be able to spend as much time with her children?”

Examples of non-communal interpretations:

- “Joe shouldn’t worry about his family”
- “Susan should do what’s best for her career”
- “If she refuses to take the offer it might affect her career with her company”
- “Is the firm taking care of moving expenses?”
- “Finally, they might be in a higher tax bracket”
- “Buying an new house”
- “What are the benefits [of the new job]?”

-“Susan has to consider if she would like to move”

*Note – Although there is an indirect connection to the family in responses mentioning money, any meaning unit that mentions money, without specifically mentioning concern for family members, should be considered as non-communal.

Examples:

“Is the firm taking care of moving expenses?” – non-communal

“The pay raise will help to provide for her children” - communal

Deciding between Communal and Noncommunal

Test with the question “What is being considered in the response?”

-“Can they find a safe and effective neighborhood with good schools in Chicago?”

-communal – can be classified as such because there is a consideration of the children’s needs in the new location

-“His wife would have to find a new job in Chicago, and the children would have to change schools”

-Any mention of other family member (leaving school, changing jobs) – don’t over interpret – count as communal unless it clearly states a self-concern

-“Leaving family and community”

-If no one specific person is named, assume it means the family unit as a whole and count as communal

-If opening statement is a restatement of the question, count as comment, not unit

-If statement such as “the grandparents” is made with nothing after, count as communal, but if the same statement is made with a qualifying statement, count only the qualifying statement (if it seems they are only writing “the kids” “the grandparents” as a restatement of who is in the question)

-Look for pronouns if you have a question about a statement

-“Where would they live in Chicago” – communal

-“Where to live in Chicago” – noncommunal

Figure Captions

Figure 1. Model for everyday problem-solving (adapted from Sansone & Berg, 1993).

Figure 2. Sex and Protagonist Sex Differences at Age Group

Figure 1. Model for everyday problem-solving (adapted from Sansone & Berg, 1993).

Figure 2. Sex and Protagonist Sex Differences at Age Group

Table 1

Demographics: Education, Income, and Marital Status

	Young Adults	Older Adults	Total
Education			
Less than high school		1.3%	1.3%
High School	97.5%	30.7%	128.2%
Associates	.8%	2.7%	3.5%
Bachelors	.8%	32.0%	32.8%
Masters		14.7%	14.7%
PhD		4.0%	4.0%
Income			
Below \$10,000	80.2%	5.3%	85.5%
\$10,000-30,000	7.5%	41.4%	48.9%
\$40,00-60,000	3.3%	32.0%	35.3%
Above \$60,000	6.6%	17.3%	23.9%
Marital Status			
Married		72.0%	72.0%
Not married, living together	4.2%		4.2%
Widowed		24.0%	24.0%
Divorced		4.0%	4.0%
Never married	95.9%		95.9%

Table 2

Average Number of Meaning Units by Age, Sex, and Sex of Actor

Age	Protagonist Sex	Sex of Participant		
		Male	Female	Total
Young adults	Male Protagonist	7.10	6.20	6.64
	Female Protagonist	6.32	7.92	7.29
	Total	6.74	7.16	7.00
Older adults	Male Protagonist	10.83	8.78	9.81
	Female Protagonist	9.72	9.43	9.56
	Total	10.28	9.13	9.68
Total	Male Protagonist	8.57	7.17	7.85
	Female Protagonist	7.74	8.46	8.16
	Total	8.17	7.88	8.01

Table 3

Distribution of Protagonist Sex for Returned Questionnaires by Age and Sex

Age	Protagonist Sex	Sex of Participant		Total
		Male	Female	
Young adults	Male Protagonist	28	30	58
	Female Protagonist	25	38	63
	Total	53	68	121
Older adults	Male Protagonist	18	18	36
	Female Protagonist	18	21	39
	Total	36	39	75

Note. Medium power required at least 17 participants per cell.

Table 4

Analysis of Variance Results for Main Effects and Interaction Effects of Age, Sex, and Protagonist Sex on Communal Proportion Scores

Variables	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Partial η^2</u>
Age	1	.114	3.165	.017
Sex	1	.226	6.294*	.032
Protagonist Sex	1	0.03294	.917	.005
Age x Sex	1	0.04214	1.174	.006
Age x Protagonist Sex	1	0.00953	.265	.001
Sex x Protagonist Sex	1	0.00887	.247	.001
Age x Sex x Protagonist Sex	1	.136	3.797 ⁺	.020
Error	188	0.03591		

⁺p=.05 *p< .05.

Table 5

Communal Proportion Scores by Age, Sex, and Protagonist Sex

Age	Sex	Protagonist Sex	Mean	Std. Deviation
Young Adults	Male	Male Actor	.5215	.1925
		Female Actor	.6313	.2102
		Total	.5733	.2066
	Female	Male Actor	.6906	.2029
		Female Actor	.6634	.1831
		Total	.6754	.1911
	Total	Male Actor	.6090	.2139
		Female Actor	.6506	.1933
		Total	.6307	.2037
Older Adults	Male	Male Actor	.6707	.2050
		Female Actor	.6424	.1476
		Total	.6566	.1766
	Female	Male Actor	.6700	.1781
		Female Actor	.7230	.1776
		Total	.6985	.1775
	Total	Male Actor	.6703	.1892
		Female Actor	.6858	.1673
		Total	.6784	.1771

Table 5 continues

Table 5 continued

Age	Sex	Protagonist Sex	Mean	Std. Deviation
Total	Male	Male Actor	.5799	.2086
		Female Actor	.6359	.1847
		Total	.6070	.1983
	Female	Male Actor	.6829	.1923
		Female Actor	.6846	.1819
		Total	.6838*	.1858
	Total	Male Actor	.6325	.2060
		Female Actor	.6641	.1838
		Total	.6489	.1949

*p<.05.

Table 6

Analysis of Variance Results for Main Effects and Interaction Effects of Age and Sex on Femininity Scores

Variables	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Partial η^2</u>
Sex	1	15.712	51.779*	.212
Age	1	0.03422	.113	.001
Sex x Age	1	0.04487	.148	.001
Error	192	.303		

*p< .05.

Table 7

Femininity Scores by Age and Sex

Sex	Age	Mean	Std. Deviation
Male	Young Adult	4.715	.569
	Older Adult	4.773	.528
	Total	4.739	.551
Female	Young Adult	5.331	.529
	Older Adult	5.327	.583
	Total	5.329*	.547
Total	Young Adult	5.061	.625
	Older Adult	5.061	.619
	Total	5.061	.621

*p<.05.

Table 8

Regression Analysis Summary for Variables Predicting Communal Proportion Scores

Variables	<u>B</u>	<u>SEB</u>	<u>β</u>
Age	0.05093	.028	.127
Sex	0.07644	.031	.196*
Femininity score	0.00418	.025	.013

*p< .05.