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Changes in Masculine and Feminine Traits Over Time: A Meta-Analysis[1]

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Sixty-three samples providing single-sex means on the Bem Sex-Role Inventory [BSRI; S. L. Bem (1974) "The Measurement of Psychological Androgyny," Journal of Consulting and Clinical Psychology, *Vol. 42, pp. 155–162] and 40 reporting similar data on the Personal Attributes Questionnaire [PAQ; J. T. Spence and R. L. Helmreich (1978)* Masculinity and Femininity, *Austin University of Texas Press] for American undergraduates were located and analyzed. Women's scores on the BSRI-M and PAQ-M (masculine) scales have increased steadily over time (*r*'s = .74 and .43, respectively). Women's BSRI-F and PAQ-F (feminine) scale scores do not correlate with year. Men's BSRI-M scores show a weaker positive relationship with year of administration (*r* = .47). The effect size for sex differences on the BSRI-M has also changed over time, showing a significant decrease over the twenty-year period. The results suggest that cultural change and environment may affect individual personalities; these changes in BSRI and PAQ means demonstrate women's increased endorsement of masculine-stereotyped traits and men's continued nonendorsement of feminine-stereotyped traits.*

When the Bem Sex-Role Inventory (BSRI) and Personal Attributes Questionnaire (PAQ) were first published in 1974, the effects of the women's movement were only beginning to be felt. Since then, record numbers of women have entered the professions, mothers of small children are increasingly in the work force, and the average age of first marriage for women has risen considerably. There has also been a generational shift: the majority of undergraduate students who participate in studies today were born

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after the BSRI and PAQ were written. Yet it is not known how much mean BSRI and PAQ scores have changed over the cultural shifts of the past twenty years.

Cultural changes over time may lead to personality changes (Schubert & Wagner, 1975; Southern & Plant, 1974; Stewart & Healy, 1989), and different generations of young people experience cultural events at different points in their lives. Longitudinal studies of women's lives have illustrated the impact of social expectations on individual experience; for example, Helson, Stewart, and Ostrove (1995) found that themes of self and achievement were more salient for Baby Boomer women than they were for an earlier cohort of women. Stewart and Healy (1989) argue that "broad values and expectations about the world form during childhood," and point out that different generations are exposed to radically different gender role norms. For example, 1950s children grew up in a world of "Father Knows Best" and traditional gender roles, while 1970s children were born after the re-emergence of the feminist movement and in an era characterized by gender-role permissiveness. During these twenty years Americans have also increasingly accepted a woman's right to work outside the home, get a college education, and even run for President (Higher Education Research Institute, 1993; Niemi, Mueller, & Smith, 1989; Thornton, Alwin, and Camburn, 1983; Twenge, 1997). This same period also saw a large increase in mothers working outside the home and in women entering male-dominated professions, two other changes which may have influenced masculine and feminine trait scores.

As the most widely used measures of gender-stereotyped personality traits, the Bem Sex-Role Inventory (Bem, 1974) and Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1974, 1975; Spence & Helmreich, 1978) provide indexes of masculine and feminine traits which may be examined over time. Though it is not apparent to the respondent, the BSRI and PAQ consist of two scales: traits considered more socially desirable/typical for men (the BSRI-M and PAQ-M) and traits considered more socially desirable/typical for women (the BSRI-F and PAQ-F). The M scales consist of instrumental traits such as "assertive" and "independent;" the F-scale contains expressive traits such as "understanding of others" and "gentle."

Several individual studies have analyzed differences in gender-stereotyped personality traits over time. Heilbrun and Schwartz (1982) found that both men and women showed an increase in androgyny scores on the Adjective Check List over several samples between 1958 and 1978; they did not examine the M and F scales separately. Pedersen and Bond (1985) compared two 1984 samples of students to Bem's two 1973 samples and found that both men and women showed an increase in androgynous sex roles; scores on both the masculine (M) and feminine (F) scales increased

between 1973 and 1984. Frank, McLaughlin, and Crusco (1984) discovered a time difference in PRF Andro scores: compared to a sample taken in 1974-75, men and women tested in 1979 scored higher on the masculine scale; the change was especially pronounced for the women's scores. Feminine scale scores, however, did not differ between the two samples.

Although these studies examined some aspects of change over time in gender roles, neither fully addressed the larger question. The Heilbrun and Schwartz (1982) study used the ACL, a less popular measure of gender-stereotyped personality traits; it also examined only androgyny scores, leaving the question of change in masculine and feminine scale scores unanswered. Both Pedersen and Bond (1985) and Frank et al. (1984) compared only two or three samples, a method which does not illuminate a broader pattern of change over time. In addition, these studies collected data at only one or two different campuses. Thus these studies' results could be unique to their particular measure, unique to the particular period which they studied, or unique to the campuses on which they did their research. In addition, the literature is silent on differences since 1984, and no studies have examined changes in PAQ scores. Looking at changes in PAQ scores is especially important considering the methodological critiques of the BSRI (e.g., Pedhazur & Tetenbaum, 1979). In particular, the BSRI-F contains several socially undesirable items (e.g., "gullible" and "childlike") which are not included on the PAQ-F; thus, replicating results across both measures would suggest that effects were not caused by social desirability alone.

Despite the PAQ's better control of social desirability, both measures are still based on self-report. Thus, any changes over time in scores on the BSRI or PAQ could be caused either by true changes in personality or by respondents' greater willingness to describe themselves using masculine or feminine terms. For example, Johnson (1981) distinguishes between the "self-disclosure" and "self-presentation" theories of self-report personality measures. Self-disclosure theory holds that respondents describe their actual behavior, while self-presentation involves adhering to the image one wishes to present to others (e.g., Goffman, 1959). Johnson (1981) presents some indirect evidence to suggest that self-presentation may be more accurate in describing respondents' answers on self-report personality measures. Thus it is important to keep in mind that men and women completing measures such as the BSRI and PAQ may be influenced by self-presentation demands. However, both interpretations of change over time in traits would suggest that social change occurred.

This study examines changes in both BSRI and PAQ scores over time through a meta-analysis, using data reported in the literature for 63 samples of undergraduates on the BSRI and 40 samples on the PAQ. These samples were collected since 1973 in all regions of the country and on more than 50

different campuses (total n for the BSRI = 16,774: 7,579 males, 9,195 females; for the PAQ = 12,146: 6,103 males, 6,043 females). The methodology used here is a time-lag study of cohort differences, examining subjects of the same age (college students) at different points in time (the year of data collection for each study). A study of cohort differences must limit subjects to a single age group; otherwise, age becomes a confounding variable, and the cohort begins to include people born over too large a range of years. I selected college students as the age group for this meta-analysis because the majority of studies employing the BSRI and PAQ use undergraduates as subjects. By using established samples from many sources throughout twenty years, a meta-analysis has the advantage of examining cohort effects with a large, diverse sample and undertaking a scientific review of the literature.

METHOD

Studies were located using two computer databases: the PsycLit database of the American Psychological Association, and the Social Sciences Citation Index (SSCI). On PsycLit, the keywords searched were "Bem Sex-Role Inventory" and "Personal Attributes Questionnaire." I searched the SSCI for studies which cited any of the original sources for the long BSRI or the PAQ (Bem, 1974; Spence & Helmreich, 1978; Spence, Helmreich, & Stapp, 1974, 1975). To be included in the meta-analysis, a study had to meet the following criteria: 1) subjects were not preselected on any relevant variable (e.g., academic major, athletic participation); 2) subjects described their "true" selves on the measure, not an "ideal" self or the ideal for men or for women; 3) subjects were undergraduates at conventional two- or four-year institutions; 4) subjects were attending college in the United States [thus Canadian, British, and Australian samples were eliminated; samples from these countries traditionally show lower means than American samples (e.g., Feather, 1984; Ho & Zemaitis, 1981; Sochting, Skue, & Marcia, 1994; Stoppard & Paisley, 1987; Whetton & Swindells, 1977)]; 5) the study included at least 20 male or 20 female subjects; 6) the study used the most common form of the measure: the 60-item long form of the BSRI, or the 24- or 16-item short form of the PAQ; and 7) the study provided BSRI or PAQ means broken down by sex on the masculine (M) and feminine (F) scales. Most studies met the first six criteria (for example, very few studies were eliminated for pre-selecting students, and most studies use college students as subjects). However, many studies did not report means, reflecting the widespread use of the two measures and the popularity of methods (such as the median split or subtraction) which do not retain the BSRI and PAQ scales as continuous variables.

Fifty-nine studies using the BSRI and 39 studies using the PAQ met all seven criteria (see references; studies providing datapoints for the analyses are marked with an asterisk). Two of these studies (Bem, 1974; Pedersen & Bond, 1985) collected samples at two different campuses; these were considered separate samples. Also included are two samples collected by the author at the University of Chicago in 1992 (BSRI only, n = 78 males, 72 females; total n = 150) and the University of Michigan in 1994 (BSRI and PAQ, n = 91 males, 63 females; total n = 154, and PAQ only, n = 92 males, 118 females; total n = 210). Several studies used only men or women as subjects; this resulted in 46 samples for men on the BSRI and 59 samples for women. The PAQ studies yielded 35 samples of men and 35 samples of women.

Several studies located by the PsycLit database provided mixed-sex medians on both scales; however, most of these medians were not weighted to correct for unequal numbers of men and women in the study and were not useful for tracing trends in gender roles for the sexes separately. A number of other studies used the BSRI short form, a measure which produces different means than the original long form (Bem, 1981); only a few of these reported means broken down by sex. Three studies used the 55-item PAQ long form, again a measure which produces different means. The remainder of the studies used the BSRI or PAQ as a measure but did not provide means or medians specific to the sample collected for the study. Unless reported otherwise in the study, year of administration for each sample was estimated as two years prior to the date of publication.

RESULTS

BSRI

Bivariate least squares regressions weighted for the n in each sample were calculated for each of the variables using SPSS. In this technique the samples with higher n's, which are better estimates of the population mean, are weighted more heavily in the regression; these analyses differ from simple correlations only in their weighting by n. The bivariate weighted least squares regressions and the simple Pearson correlations between the year students completed the measure and BSRI-M and BSRI-F scores are shown in Table I. Women's scores on the BSRI-M (masculine) scale showed a clear, linear increase over time, with year of administration explaining 53 to 55% of the variance. Figure 1, the scatterplot of women's masculine scale scores over time, displays the linear pattern and illustrates the magnitude of change over time. The regression line shown is for the unweighted, simple Pearson correlations. The average SD for women's M

Table I. Weighted Bivariate Regressions and Unweighted Pearson Correlations Between Year of Administration (1973–1994) and BSRI Scores[a]

	Males (Samples = 46)		Females (Samples = 59)	
	Weighted	Unweighted	Weighted	Unweighted
BSRI-M (masculine)	.57[c]	.47[c]	.73[d]	.74[d]
BSRI-F (feminine)	.33[b]	.14	.02	−.04
(M + F)−|M−F|	.32[b]	.11	.69[d]	.67[d]
M−F	.24	.33[b]	.58[d]	.63[d]
|M−F|	.24	.33[b]	−.50[d]	−.49[d]

[a]Numbers shown are betas from bivariate regressions weighted for sample size.
[b]$p < .05$.
[c]$p < .01$.
[d]$p < .001$.

scale scores is .7, so scores have shifted about .8 SDs over the twenty years. Women's BSRI feminine scale scores not correlate with year.

Men's BSRI-M scores showed a weaker but still fairly linear positive relationship with year of test administration. The slope of the regression line is not as steep as that for the women's M-scale scores; thus the change in men's scores has not been as large in magnitude. Men also show a small

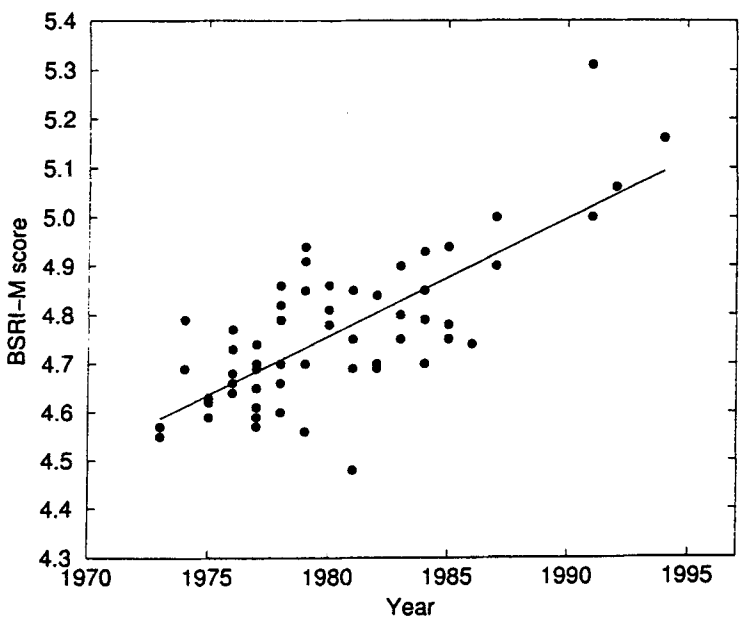

Fig. 1. Women's BSRI-M scale scores over time.

increase in feminine scale scores in the weighted regressions, though this result does not occur in the correlation unweighted for sample size.

Androgyny scores, computed using the formula (M + F)−|M−F|(see Heilbrun & Schwartz, 1982) correlate strongly with year for women and weakly with year for men. The formulas M−F and |M−F| produce similar results (see Table I). Thus women show a strong increase in androgyny over time, and men show a weaker increase.

In order to examine sex differences in BSRI scores over time, I computed the standard meta-analytic effect size *d* for each sample using the difference between the men's and women's means divided by the pooled standard deviation. The mean standard deviation for the appropriate scale was substituted if the study did not report SDs. Using the special weighting procedures for *d* suggested by Hedges and Becker (1986), the *d* for the BSRI-M decreased in sex differences over time (r with year = −.32, $p < .05$; n = 43 samples). The effect size for the BSRI-F showed a small, nonsignificant decrease in sex differences (r = .24; the correlation is positive for the feminine scale because *d* is usually negative.) Splitting the samples in half illustrates the decrease in sex differences. For samples collected between 1973 and 1982, the *d* for the BSRI-M is .66; this decreases to .48 for samples between 1983 and 1994. The *d* for the BSRI-F is −.93 from 1973 to 1982 and −.83 from 1983 to 1994. Thus men and women's scores on the BSRI have become more similar over the last twenty years.

Comparing Bem's original 1973 sample to more recent samples illustrates how much women's masculine scale scores have changed over time. Bem's female Stanford participants scored an average of 4.57 (on a 7-point scale) on the BSRI-M when they completed the instrument in 1973. The author's 1992 University of Chicago sample of females scored an average of 5.06 (a change of .71 standard deviations; difference significant at $p < .0001$), and the 1994 sample at the University of Michigan scored 5.16 (a change of .86 standard deviations; difference significant at $p < .0001$). The change in BSRI-M and androgyny scores meant 50% of the 1992 and 1994 women were classified as "masculine" or "near-masculine" by Bem's original "difference" scoring method, compared to the 20% of women in these categories in 1973 (the difference method involves performing a t-test on the two scales; each category has a t-score cutoff). Since all three samples are composed of undergraduates and the two recent samples from different campuses show the same results, the differences in classification are most likely due to change over time rather than other variables. Using the medians in the scoring manual (1981) also leads to a similar skew in classification for women in both samples. Men in the 1992 and 1994 samples, on the other hand, showed a similar category distribution to Bem's 1973 subjects.

Table II. Weighted Bivariate Regressions and Unweighted Pearson Correlations Between Year of Administration (1975–1994) and PAQ Scores[a]

	Males (Samples = 35)		Females (Samples = 35)	
	Weighted	Unweighted	Weighted	Unweighted
PAQ-M (masculine)	.12	.13	.51[c]	.43[c]
PAQ-F (feminine)	.06	.03	.29	.31
(M + F)–|M–F|	.05	.14	.45[c]	.43[c]
M–F	.00	.08	–.06	–.06
|M–F|	.00	–.11	–.06	.06

[a]Numbers shown are betas from bivariate regressions weighted for sample size.
[b]$p < .05$.
[c]$p < .01$.
[d]$p < .001$.

PAQ

Weighted least squares regressions and simple Pearson correlations between PAQ scores and year of administration are shown in Table II. Although the correlations are not as high as in the BSRI results, they follow the same basic pattern: women's PAQ-M scores are positively correlated with year of test administration, and other correlations are low and non-significant. The average SD for women's PAQ-M scale scores is about 4, so change over time appears to be smaller in magnitude here than in the BSRI samples (see Figure 2). No other weighted or unweighted correlations reached significance. Androgyny scores showed a linear increase for women and no relationship for men. M–F and |M–F| do not correlate with year for either sex. The effect size *d* for sex differences on each scale, again using the Hedges and Becker (1986) weights, did not correlate significantly with year.

DISCUSSION

This meta-analysis shows a very linear increase in BSRI-M scores for women and for men, a smaller change in women's PAQ-M scores, and a possible increase in BSRI-F scores for men. The highly significant rise in women's BSRI-M and PAQ-M scores since the early 1970s demonstrates that women have increasingly reported masculine-stereotyped personality traits as characteristic of themselves. To a lesser degree on each scale, men have also endorsed more masculine personality traits. The decrease in sex differences on the BSRI-M also indicates that men and women have become increasingly more similar in their responses to this measure of masculine personality traits. This rise in masculine scale scores has not been

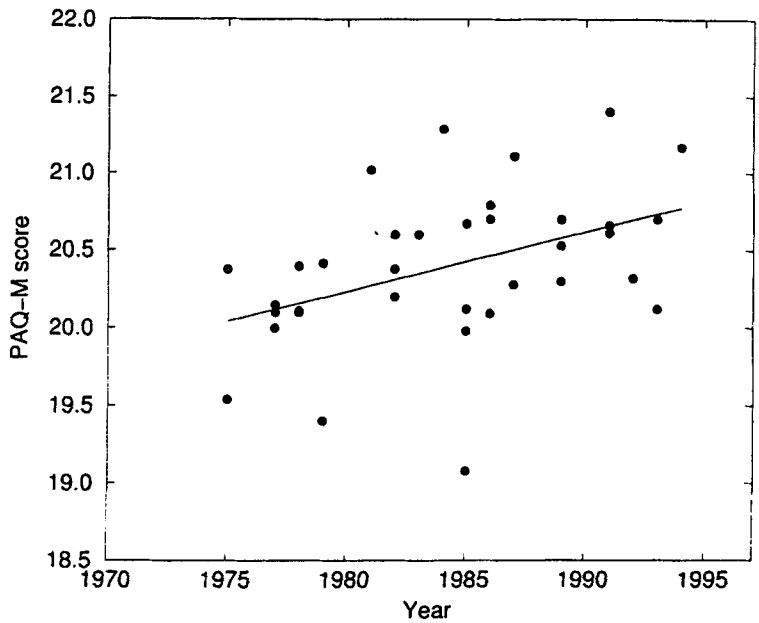

Fig. 2. Women's PAQ-M scale scores over time.

accompanied by an equivalent rise in BSRI-F or PAQ-F (feminine) scores, though there is some evidence that men's BSRI-F scores have increased.

The Effects of Cultural Change

The increase in women's masculine scale scores might be explained by the effects of cultural change on individual personalities. Stewart and Healy (1989) argue that general values and expectations form during childhood and are influenced by the cultural and economic environment of the times. Allowing an age range of 18 to 24, Bem's (1974) students were born from 1949 to 1955 and Spence and Helmreich's 1975 sample from 1951 to 1957, while the most recent participants were born from 1970 to 1976. These two generations experienced radically different social climates for gender roles; the older group received the conservative, highly gendered messages of the 1950s, while the younger group grew up during the "unisex" 1970s.

One cause of the change may be the increasing numbers of mothers who work outside the home. Gilroy, Talierco, and Steinbacher (1981) and Hansson, Chernovetz, and Jones (1977) both report that adolescent daughters of working mothers are more likely to score as androgynous or mas-

culine on the BSRI than daughters of non-working mothers. This affects the samples in question: almost twice as many mothers with children between the ages of 6 and 17 participated in the workforce in 1990 than in 1960 (39.0% in 1960; 49.2% in 1970; 61.7% in 1980; 73.6% in 1990; all demographic statistics reported here are from the *Statistical Abstract of the United States.*) Although sons of working mothers have not been studied using the BSRI, it is possible that the same effect could have worked to increase men's instrumentality scores.

Daughters' own career aspirations may also have influenced BSRI-M or PAQ-M scores. Women's work and professional roles have changed considerably since 1973. Women's labor force participation rate has risen from 43% in 1973 to 58% in 1994; in addition, women earned 44% of college degrees in 1973 while they now earn 54%. More importantly for these samples of college students, women's post-college ambitions have changed significantly. In 1973, women earned only 10% of new medical degrees, 9% of new law degrees, and 17% of new doctorates. In 1992, women were 36% of new M.D.'s, earned 43% of new law degrees, and made up 38% of new Ph.D.'s.

Eagly's (1987) social role theory suggests that men and women develop different traits because they enact roles in the society which require those traits. Thus as college women look forward to career and professional roles with more certainty, it makes sense that they would begin to acquire more of the instrumental traits necessary for success in the professional world. In fact, several studies have reported higher masculine scale scores for women entering male-dominated professions (Clarey & Sanford, 1982; Strange & Rea, 1983; Tyer & Erdwins, 1979; Wertheim, Widom, & Wortzel, 1978). Tyer and Erdwins (1979) found that 41% of females in male-dominated professions scored as masculine on the BSRI—a number which approaches the 50% of women who score as masculine on the BSRI today.

Women and girls have also increasingly participated in high school and college sports. In 1971-72, the male/female ratio in intercollegiate sports was 5.5; by 1986-87 this had dropped to 2.04 (NCAA figures cited in Guttmann, 1991). The change in high school sports participation was even more dramatic—while the male/female ratio in 1970-71 was a staggering 12.46, the comparable figure for 1988-89 was 1.85 (Guttmann, 1991). Athletic participation is another social role which requires instrumental traits. Again, empirical research bears this out: female athletes usually have higher masculine scale scores than their non-participating counterparts (Butcher, 1989; Marsh & Jackson, 1986; Myers & Lips, 1978; Spence & Helmreich, 1978; Uguccioni & Ballantyne, 1980).

It is more difficult to explain why men's scores have shown a linear increase on the BSRI-M. First, although the change is linear, it is not as

large as the shift in women's scores (Bem's sample scored 4.97 on the M scale in 1973; the two most recent samples of men have an average M scale score of 5.21. With an average SD of .68, this is a change of .35 SDs, about half the change in women's scores.) As noted above, some of this increase might be due to later generations' upbringing in dual-earner families, an environment with two parents actively engaged in instrumental tasks. It is also possible that men have become more instrumental in reaction to the increase in women's instrumentality; the direction of causation, however, is difficult to ascertain in the current data.

Men's feminine scale scores, however, do not appear to have changed much over this time period. These results parallel the findings of sociologists, who argue that women's shouldering of traditionally masculine work roles has not been accompanied by a corresponding increase in men taking on traditionally feminine housework and childcare roles. Although there is an upward trend in men's participation in housework and childcare (Pleck, 1985), the change is small in magnitude and women still perform the majority of these tasks even in dual-career couples (Hochschild, 1989; Pleck, 1985). This unequal division appears to hold over a variety of living situations, including cohabiting couples (South & Spitze, 1994). Despite the influx of women into the workforce, Lennon and Rosenfield (1994) note, "the division of labor inside the home remains largely unchanged" (pg. 506).

Eagly's (1987) social role theory suggests that housework and childcare encourage the development of expressive traits. Thus the results reported here may show an age effect on social role enactment: although older men participating in childcare may be developing more expressive traits, this change would not have affected the college-age men included in this meta-analysis. This was most likely true throughout the time period, but it may be even more applicable to the current generation. Young men born in the late 1960s and early 1970s are increasingly distant from the social roles of husband and father which might encourage the development of expressive traits. In 1975, the average man married for the first time at age 23; today most men are almost 27 before they marry. (The corresponding figures for women are 20.8 in 1975 and 24.5 in 1995.) Thus social roles encouraging expressive traits lie in the distant future for most college men; further research, however, might explore the possibility that husbands and fathers in the 1990s possess more expressive traits than their 1970s counterparts did.

Decreasing Sex Differences

Several studies [Lippa, 1991b (cited in Lippa, 1991a); Nix & Lohr, 1981; St. Lawrence, Hansen, Cutts, Tisdelle, & Irish, 1985; Watson, Taylor, & Morris, 1987] report that the BSRI no longer shows strong sex differ-

ences in undergraduate samples. My two recent samples exhibit this trend in the BSRI-M and PAQ-M as well; men and women did not have significantly different mean scores on this measure (although means on the BSRI-F and PAQ-F were still significant at $p < .01$). Of the studies in the analysis which provided standard deviations, all but one showed more significant sex differences on the BSRI-F and PAQ-F than the BSRI-M and PAQ-M.

This result reflects a general trend in gender stereotypes which allows women to adopt masculine roles while prohibiting men from taking on more feminine ones. For example, women can wear both pants and dresses, but men can wear only pants (e.g., Davis 1992); women can work outside the home, but very few men chose to be full-time homemakers. In a longitudinal study, Aube and Koestner (1992) found that males faced harsher consequences for having feminine interests than females did for having masculine interests. Some authors have even discussed men's "fear of femininity" (e.g., O'Neil et. al., 1986).

Changing perceptions of once gender-stereotyped personality traits may explain the shrinking sex differences. Undergraduates may no longer view the traits on the BSRI and PAQ as more characteristic or socially desirable of one sex and not the other. Walkup and Abbott (1978) found that students rated all but three of the original BSRI items as more socially desirable for one sex than the other, a near-replication of Bem's results. More recently, however, students rated only 22 out of the original 40 items as more socially desirable for one sex; more items on the feminine scale than the masculine scale were still considered more appropriate for only one sex (13 versus 9; Tice, 1995). This trend parallels the findings in the current study: if young people no longer perceive the items on the scales as sex-typed, then men will feel more comfortable endorsing feminine items and women will feel more comfortable endorsing masculine items. More feminine items, however, remain sex-typed, which may prevent men from endorsing as many feminine items; in addition, the restrictions on men's feminine behavior as discussed above may prevent them from describing themselves using these feminine traits.

Theoretical and Psychometric Issues

Since the BSRI and PAQ are self-report measures, we do not know if current college women actually possess more masculine-stereotyped traits than earlier generations or if they are simply more willing to describe themselves using these terms. As discussed earlier, Johnson (1981) describes both "self-disclosure" and "self-presentation" theories of self-report personality measures. In this case, self-disclosure theories would maintain that female college students in the early 1970s actually acted less assertively or

instrumentally than female college students do today. Self-presentation theory would posit that the current generation of women feels it is acceptable to self-present as instrumental, whereas the previous generation might have felt inhibited in doing so. If stereotypes are changing (as the studies discussed above suggest), women's possession of instrumental traits may indeed be more acceptable now. Even if the results presented above are due to self-presentation demands, however, it still suggests that social change has occurred.

In this meta-analysis, results were stronger and more consistent for the BSRI than for the PAQ. There may be several reasons for this difference. First, the scales vary in length: the BSRI has 20 items on each scale while the PAQ has only eight. Thus the PAQ may be more vulnerable to chance variations or response styles which might obscure a pattern of change over time. In addition, the scales differ somewhat in content. As noted earlier, the BSRI-F scale contains several socially undesirable items. Although the masculine scales are more similar in content, the BSRI-M contains several items which fall farther from the purer instrumental content of the PAQ-M (e.g., "athletic" and "analytic.") If women's scores have risen more on the BSRI-M than on the PAQ-M, it may be that these two items are driving some of the increase over time. In addition, the BSRI contains the two items "masculine" and "feminine;" as Pedhazur and Tetenbaum (1979) have noted, these two items form their own, bipolar factor. The PAQ does not contain these items. Spence (1993) traced correlations between the BSRI and measures of attitudes toward women to these two items. Several measures of attitudes toward women have become increasingly more liberal/feminist over time (Higher Education Research Institute, 1993; Niemi, Mueller, & Smith, 1989; Thornton, Alwin, and Camburn, 1983; Twenge, 1997), so responses to these items are also good candidates to explain some of the differences in temporal change between the two scales.

Men and women's nearly identical recent scores on the M scales (especially the BSRI-M) also suggest that the scales are not truly a measure of "masculine" traits per se. If the sexes no longer differ significantly on this measure, that is all the more reason to refer to this group of personality traits as "instrumental" rather than "masculine," as Spence and Helmreich (1980) have suggested. The label "instrumental" conveys the true content of this group of traits, emphasizing individual action and assertiveness. With gender stereotypes and self-reports changing, it is important to label these scales as instrumental traits rather than as "masculine," a slippery word laden with diffuse meanings which is perhaps no longer accurate. It also leaves the label "masculine" for the many other behaviors which still show strong sex differences, such as occupational choice and social/dating behaviors (e.g., Lippa, 1991a; Orlofsky, 1981). However, the increasing similarity of men and

women's M-scale scores may reflect a larger trend toward decreasing sex differences in these areas and many other personality and behavior domains.

Limitations

Although every effort was made to locate studies, the results of this meta-analysis are necessarily a product of the datapoints collected here. The PAQ results are especially open to question: there are fewer datapoints for the PAQ than the BSRI, and they cover a shorter range of years. In addition, the correlations are not as linear and the differences between the original means and current samples is not as great. As discussed above, the PAQ and the BSRI differ in several relevant ways; perhaps these differences have made the PAQ more resistant to change over time or more variable by individual administration, campus environment, and other sample characteristics. Another limitation of the current study is the restriction of its sample to college students. This may limit the generalizability of the results, especially to lower-class and minority populations. However, a study of cohort differences must specify a restricted age range, and samples of college students were by far the most numerous in the literature.

Changes in social desirability must also be considered as an explanation. All scales show a trend upward over time in this study; most of the significant and non-significant correlations are positive. Both the BSRI and PAQ were designed to measure only socially desirable traits. Although the results are stronger for the masculine trait scales, it could be that college students have simply increasingly described themselves in socially desirable terms.

It is also important to remember that the BSRI and PAQ are, at base, personality measures. It is possible that scores may be influenced by genetic and other personal variables which do not show large fluctuations over time, limiting the variance over time to a narrower range. In addition, these traits could be set fairly early in childhood and thus lag behind faster-changing attitudes. For example, one would not expect scores on the BSRI and PAQ to change as much as scores on instruments which more directly measure attitudes toward women and feminism. In fact, a meta-analysis of Attitudes Toward Women Scale (Spence & Helmreich, 1978) scores over time found that these scores correlated more strongly with year of scale administration than BSRI or PAQ scores (Twenge, 1997). Analyses of the BSRI and PAQ ten or twenty years from now may find larger changes, perhaps showing a clearer pattern of change in men's feminine scores. Given this lag time behind attitudes and the myriad influences on personality, the results of this study are all the more interesting in discovering the possible beginnings of change in instrumental traits.

In conclusion, this meta-analysis has shown that students born in the 1970s versus those born in the 1950s respond differently to inventories of gender-stereotyped personality traits. In some cases the upward trend in scores is very linear and follows a pattern of change which closely mirrors the changing social climate for women. As Gergen (1973) pointed out, psychology (especially social psychology) studies concepts and ideas which necessarily change in meaning and magnitude over time. Thus the record of BSRI and PAQ scores over the last twenty years is a valuable measure of social change and an addition to the historical record of personality and social psychology. As a barometer of change in gender roles and expectations, the results reported here suggest that the cultural changes of the last twenty years have encouraged the development of instrumental traits in women but have not had as much success in influencing men toward more giving and communal roles.

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