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Some Psychometric Properties of the Bem Sex-Role Inventory

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In Study I responses to the 60 BSRI items from 580 college students were factor analyzed. Four factors were rotated to the Varimax criterion and labeled Emotional Expressiveness, Instrumental Activity, Sex of Subject, and Social Immaturity. These factors were virtually identical to those found earlier by Gaudreau (1977). In Study II, another sample of 600 college students was employed to compare the internal consistency of the three BSRI original scales with that of the four factor scales derived from Study I. Even with their shorter length, the factor scales were more internally consistent than those originally constructed by Bem. Some logical problems in the labeling of the scales in the BSRI are discussed.

Sandra Bem's concept of psychological androgyny and the Bem Sex-Role Inventory (BSRI) which measures this construct have stimulated a considerable amount of discussion and research (Bem, 1975, 1977; Bem & Lenney, 1976; Pleck, 1975; Spence, Helmreich, & Stapp, 1975). Bem (1974, 1975) postulated that socialization practices in which males become masculine and females become feminine result in relatively inflexible, nonadaptive human beings. She suggested that both Masculinity and Femininity referred to certain positive qualities which facilitate adaptiveness in particular situations; the mature, healthy individual was one who could respond adaptively in a variety of situations, unrestricted by such constraints as sex-role appropriateness. Bem used the term "psychological androgyny" to describe such individuals.

Bem (1974) developed the BSRI to measure androgyny. The inventory is composed of 60 Likert-type items describing different personality characteristics which individuals use to describe themselves on a scale ranging from 1 ("Never or almost never true") to 7 ("Always or almost always true"). This instrument treats Masculinity and Femininity as two orthogonal dimensions, rather than as opposite poles of the same dimension (Constantinople, 1973). Of the BSRI items, 20 were judged by male and female judges to be significantly more desirable for a man (Masculine scale); 20 were judged more desirable for a woman (Feminine scale); and 20 were rated as no more desirable for either a man or a woman (Social Desirability scale).

Psychological androgyny refers to a balance of feminine and masculine qualities; it is calculated on the BSRI as the difference between an individual's score on the Feminine scale minus his/her score on the Masculine scale. This difference score is converted to a t-ratio; an androgynous person is defined as one having a t-value between +1.0 and −1.0. Feminine sex-typed individuals are defined as those with t-values $> +1.0$, while Masculine sex-typed per-

sons are defined as those with t-values < -1.0.

Bem (1974) administered the BSRI to 444 male and 279 female college students in order to assess its psychometric properties. She reported alpha coefficients of .86 for the Masculine, .80 for the Feminine, and .75 for the Social Desirability scales. A replication of this analysis with another sample of college students resulted in highly similar values of coefficient alpha (Masculine = .86; Feminine = .82; Social Desirability = .70). Bem concluded that the scales were sufficiently homogeneous to measure the constructs. Moreover, she reported high test-retest reliabilities over a four-week period for each of the three scales.

While Bem's psychometric analyses show that the BSRI has some promise, several other types of information are required before the construct validity of the scales can be adequately assessed. Ideally, on any multidimensional inventory, individual items should correlate more highly with their own scale than with any other scale (Jackson, 1970). In the development of the BSRI, items were originally assigned to their respective scales on the basis of judged differences in their desirability for males and females. Subsequent analyses showed each scale to have some degree of internal consistency. However, Bem did not ascertain whether all of the items assigned to each scale would naturally cluster together in a set of self-descriptions.

Gaudreau (1977) factor analyzed the responses to the BSRI from a non-college sample of 325 subjects. She rotated four factors, which she called Masculinity, Femininity, Sex of Subject, and Maturity. The first factor included 17 of the original 20 Masculine adjectives, but excluded *masculine, athletic,* and *self-reliant.* The second factor included 13 of the 20 Feminine items plus 6 items from the Social Desirability scale; the 7 excluded Feminine items were *feminine, childlike, does not use harsh language, flatterable, gullible, shy,* and *soft-spoken.* The third factor included the subject's sex and the adjectives *feminine, masculine,* and *athletic.* The last factor was composed of the

items *reliable, self-sufficient, self-reliant, sincere, flatterable, gullible, childlike,* and *inefficient.* Gaudreau suggested that the scoring of the BSRI be modified in the future if subsequent studies were to corroborate her results.

The present studies were undertaken in accordance with Gaudreau's recommendation. The purpose of Study I was to evaluate the factor structure of the BSRI in a college sample and to compare the results of this factor analysis with the factor analysis of Gaudreau which used an older, non-college sample. In Study II, a new group of subjects was employed so that the internal consistencies of the factor-analytically derived scales could be compared with those for the original BSRI scales.

Study I

Subjects

Subjects were 293 male and 287 female undergraduate students. Each subject was paid $3.00 to participate in a two-hour group testing session during which the BSRI was administered.

Procedure

Correlations among the 60 BSRI items were factor analyzed using the principal components method of factor extraction. Eigenvalues for the first 10 factors were 9.77, 5.47, 3.25, 2.63, 2.52, 1.67, 1.60, 1.47, 1.38, and 1.29. A scree test suggested rotating the first four factors which accounted for 35% of the variance. Varimax rotation was used.

Results

Table 1 shows the results of the factor analysis following Varimax rotation. The first factor appears to be an Emotional Expressiveness dimension. It is composed of 11 of the 20 items originally assigned to the Feminine scale and 5 items originally assigned to the Social Desirability scale. The Feminine items which did not load

Table 1

Factor Loadings for the 60 BSRI Items, Grouped by their Factor Scale Assignment

Expressive Items	Factor				Instrumental Items	Factor			
	I	II	III	IV		I	II	III	IV
Warm (F)	.73	.13	-.02	-.01	Has leadership abilities (M)	.22	.69	-.04	.03
Compassionate (F)	.69	.09	.07	.16	Acts as a leader (M)	.16	.66	-.11	.08
Sensitive to needs of others (F)	.69	.13	.09	.03	Dominant (M)	-.05	.66	-.05	.17
Understanding (F)	.67	.10	.04	-.09	Assertive (M)	.15	.64	.11	-.04
Gentle (F)	.65	.01	.08	.01	Willing to take a stand (M)	.16	.63	-.06	-.07
Sympathetic (F)	.63	-.00	.05	.14	Strong personality (M)	.26	.62	.11	-.13
Tender (F)	.61	.01	.11	.11	Aggressive (M)	.03	.62	-.13	.19
Helpful (N)	.58	.07	.05	.02	Forceful (M)	-.10	.60	-.03	.20
Eager to soothe hurt feelings (F)	.57	.02	.03	.03	Ambitious (M)	.17	.51	.05	-.16
Friendly (N)	.56	.28	.02	-.08	Defends own beliefs (M)	.25	.50	.02	-.14
Affectionate (F)	.53	.18	.02	.20	Makes decisions easily (M)	.17	.45	-.12	-.16
Likeable (N)	.53	.18	.02	-.12	Independent (M)	.06	.45	.02	-.23
Sincere (N)	.51	.16	.09	-.23	Competitive (M)	-.01	.43	-.21	.04
Cheerful (F)	.48	.24	.09	-.13	Individualistic (M)	.08	.42	-.01	-.17
Happy (N)	.46	.23	.11	-.24	Willing to take risks (M)	.12	.39	-.16	.12
Loves children (F)	.43	.06	.04	.11	Self-reliant (M)	.14	.38	.02	-.33

Sex Items	Factor				Other Items	Factor			
	I	II	III	IV		I	II	III	IV
Masculine	-.17	.15	-.90	.00	Loyal (F)	.39	.11	.04	-.09
Feminine	.25	-.09	.85	.10	Truthful (N)	.32	.06	.09	-.28
Sex of Subject	.23	-.04	.85	.03	Tactful (N)	.30	.23	-.04	-.13
					Adaptable (N)	.30	.23	-.04	-.13
Social Immaturity Items	Factor				Conscientious (N)	.27	.15	.03	-.22
	I	II	III	IV	Yielding (F)	.26	-.21	-.01	.09
					Does not use harsh language (F)	.21	-.06	.10	-.14
Unpredictable (N)	-.09	.14	.04	.47	Shy (F)	-.09	-.38	-.12	.04
Inefficient (N)	-.04	-.28	-.08	.45	Soft-spoken (F)	.10	-.34	.18	-.08
Childlike (F)	.07	-.13	.11	.45	Self-sufficient (M)	.14	.32	.04	-.29
Moody (N)	-.16	-.04	.08	.43	Athletic (M)	.03	.28	-.24	-.03
Jealous (N)	.03	-.05	-.08	.41	Analytical (M)	.03	.26	-.01	-.14
Gullible (F)	.17	-.19	.16	.39	Solemn	-.05	-.04	-.23	.05
Reliable (N)	.34	.16	.17	-.36	Conceited (N)	-.22	.20	.03	.32
					Unsystematic (N)	-.07	-.17	-.13	.29
					Flatterable (F)	.20	.09	.06	.28
					Theatrical (N)	.18	.22	.03	.26
					Secretive (N)	-.05	-.00	-.05	.25
					Conventional (N)	.15	.10	.06	-.06

highly on this factor were *yielding, flatterable, soft-spoken, does not use harsh language, feminine, shy, gullible, loyal,* and *childlike.* The Social Desirability items which loaded highly on this factor were *helpful, happy, sincere, likeable,* and *friendly.* The second factor appears to be an Instrumental Activity[1] dimension. It is composed of 16 of the 20 Masculine items; the 4 original Masculine items which did not load highly on this factor were *athletic, analytical, self-sufficient,* and *masculine.* The third factor was composed only of the subjects' sex and the adjectives *masculine* and *feminine.* The final factor consisted of 2 items originally on the Feminine scale (*gullible* and *childlike*) and 5 items from the Social Desirability scale (*moody, unpredictable, reliable, jealous,* and *inefficient*). In general, there appears to be a remarkable degree of similarity between these four factors and those reported by Gaudreau (1977).

Study II

Subjects

Subjects in this study were 314 male and 286 female students at two different midwestern state universities, who received course credit in introductory-level psychology courses for completing the BSRI.

Procedure

Correlations, corrected for item overlap, were computed between responses to each item and the three original BSRI scale scores. Alpha coefficients for each scale were also obtained. This same procedure was repeated using the scale structure suggested by the factor analysis in

Study I. Correlations were obtained between responses to each item and the score from each of the four factor scales, and the four coefficient alpha values were again calculated.

Results

Table 2 shows the results of the item analysis based upon the original BSRI scales. Of the 20 Feminine items, 15 correlated more highly with the Feminine scale than with either of the two other scales. However, the mean correlation between the Feminine items and the Feminine scale was only .36. Three items were more highly related to the Social Desirability scale (*cheerful, loyal,* and *childlike*), while 2 were more highly associated with the Masculine scale (*shy* and *feminine*). Of 20 of the Masculine items, 19 were more highly associated with the Masculine scale than with either of the other two scales. The item *masculine* had a slightly higher (negative) correlation with the Feminine scale than it had with the Masculine scale. The mean correlation of item responses with total scores for all 20 items assigned to the Masculine scale was .46.

The Social Desirability scale was the least internally consistent. Only 11 Social Desirability items correlated more highly with their own than with either of the other two scales. Three items (*theatrical, adaptable,* and *tactful*) correlated more highly with the Masculine scale, and 6 items (*helpful, conscientious, truthful, sincere, friendly,* and *conventional*) correlated more highly with the Feminine scale. The BSRI Masculine scale was more internally consistent (alpha = .86) than either the Feminine (alpha = .76) or the Social Desirability (alpha = .68) scales.

Table 3 shows the results of the item analyses for the four factor scales. Only the item-total correlations for the Instrumentality and the Emotional Expressiveness items are included in the table. All 16 items on the Emotional Expressiveness factor scale correlated more highly with their own than with any of the remaining three scales. The mean item-total correlation was .55,

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[1] The data in Table 1 suggests that the items *Shy* and *Soft-spoken* load more neatly on the Instrumentality dimension than does the item *Self-reliant.* However, subsequent item analyses revealed the greatest scale homogeneity with the item assignment contained in Table 1. Likewise, adding *Loyal* to the Emotional Expressiveness dimension resulted in no increase in homogeneity.

Table 2

Part-Whole Correlations between Each of the 60 BSRI Items and the Scores
from the Original Three BSRI Scales

Feminine Items	Scales			Masculine Items	Scales			Desirability Items	Scales		
	Fem	Mas	Des		Mas	Fem	Des		Des	Mas	Fem
Warm	.61	.22	.34	Acts as a leader	.68	.07	.25	Happy	.47	.30	.36
Tender	.60	.17	.29	Has leadership abilities	.66	.05	.21	*Friendly	.42	.27	.48
Gentle	.59	.11	.29	Aggressive	.56	.03	-.02	Likeable	.41	.30	.32
Sympathetic	.57	.12	.21	Willing to take a stand	.56	.03	-.02	Moody	.37	.08	.08
Sensitive to needs of others	.56	.20	.32	Dominant	.55	-.05	.00	*Sincere	.36	.23	.49
Compassionate	.53	.22	.27	Competitive	.54	-.03	.10	Reliable	.35	.23	.30
Eager to soothe hurt feelings	.51	.14	.29	Strong personality	.52	.19	.29	*Truthful	.33	.16	.35
Affectionate	.48	.25	.18	Forceful	.47	-.05	-.03	Inefficient	.31	.22	.08
Understanding	.47	.23	.40	Ambitious	.43	.23	.26	Jealous	.30	.02	-.09
Loves children	.32	.11	.20	Self-sufficient	.42	.02	.22	Unpredictable	.29	-.09	-.04
*Loyal	.29	.14	.32	Assertive	.42	.15	.18	Unsystematic	.29	.16	.06
*Feminine	.29	-.33	.10	Makes decisions easily	.41	-.01	.24	*Tactful	.27	.34	.31
*Cheerful	.28	.21	.50	Willing to take risks	.41	.05	-.00	*Helpful	.26	.10	.39
Yielding	.22	-.04	.09	Independent	.40	.04	.16	Secretive	.25	-.06	.00
Does not use harsh language	.22	-.08	.15	Self-reliant	.39	.13	.27	*Adaptable	.23	.32	.17
Gullible	.21	-.13	-.14	Individualistic	.39	.08	.15	*Conscientious	.21	.13	.22
Flatterable	.16	.14	.00	Athletic	.37	-.02	.07	Conceited	.21	-.20	.07
Soft-spoken	.14	-.13	.01	Defends own beliefs	.36	.17	.19	Solemn	.15	-.06	-.05
*Child-like	.10	-.15	-.27	*Masculine	.32	-.35	-.08	*Theatrical	.09	-.20	-.16
*Shy	-.03	-.27	-.24	Analytical	.30	.10	.10	*Conventional	-.11	.00	-.18
Mean	.36	.06	.17	Mean	.46	.04	.13	Mean	.28	.11	.16

*Item correlates more highly with another scale than with the one on which it is scored.

Table 3

Part-Whole Correlations between BSRI Items and the Four Factor Scales
Corrected for Item Overlap

Expressiveness Items	Emotional Expressiveness	Instrumentality	Sex	Social Immaturity
Warm	.70	.26	.19	-.05
Tender	.65	.21	.22	-.00
Sensitive to needs of others	.63	.24	.19	-.02
Compassionate	.62	.27	.16	-.00
Friendly	.62	.31	.08	-.16
Gentle	.61	.15	.14	-.00
Understanding	.61	.26	.13	-.13
Sympathetic	.58	.15	.18	.06
Affectionate	.56	.28	.23	.08
Eager to soothe hurt feelings	.56	.16	.14	-.04
Sincere	.51	.26	.18	-.13
Happy	.50	.32	.08	-.31
Cheerful	.49	.24	.05	-.28
Likeable	.47	.31	.15	-.24
Helpful	.42	.13	.10	.10
Loves children	.34	.13	.10	-.08
Mean	.55	.23	.15	.08

Instrumentality Items				
Acts as a leader	.28	.69	.09	-.14
Has leadership abilities	.27	.67	.08	-.11
Strong personality	.39	.57	.14	-.08
Willing to take a stand	.27	.57	.03	-.04
Dominant	.07	.55	.03	.04
Aggressive	.19	.55	.07	.11
Forceful	.07	.51	.03	.11
Competitive	.12	.48	-.02	.04
Ambitious	.35	.46	.07	-.12
Assertive	.26	.45	.17	-.07
Makes decisions easily	.17	.40	.00	-.26
Individualistic	.16	.40	.09	-.14
Defends own beliefs	.29	.40	.04	-.00
Willing to take risks	.16	.39	.04	.09
Independent	.14	.38	.02	-.07
Self reliant	.21	.37	.05	-.14
Mean	.21	.49	.06	-.05

as compared to .36 for the BSRI 20-item Feminine scale. The alpha coefficient for this factor scale was .89, as compared to .78 for the BSRI Feminine scale. All 16 items from the Instrumentality factor scale correlated more highly with their own than with any of the other three scales. The mean item-total correlation for these items was .49, roughly equivalent to that of .46 for the BSRI Masculine scale. The alpha coefficient for the Instrumentality factor scale was identical to that for the BSRI Masculine scale (.86). The alpha values are strongly influenced by scale length. Although the shorter factor-analytic-derived subscales theoretically should have lower alpha values, this did not occur.

Discussion

The factor analysis reported in Study I suggests that the BSRI contains a cluster of items which can be conceptualized as Emotional Expressiveness and another which can be construed as Instrumentality. Neither of them is related to the third factor composed of subjects' sex and the adjectives *Masculine* and *Feminine*. The factor may be construed as a bipolar "Masculinity-Femininity" factor. However, to do so is to make the same error in judgment evidenced by Bem in her conceptualization of the first two factors. Differential desirability of attributes for men and women does not necessarily suggest that the items tap a masculinity or femininity dimension. Rather, the presence of this third factor may reflect the extent to which people have been socialized to conceptualize masculinity and femininity as bipolar qualities.

The results of the factor analysis in Study I were virtually identical to those reported by Gaudreau (1977). This similarity in factor structure is even more impressive when one considers that Gaudreau's sample was composed of clerical workers, supervisors, middle managers, executives, police officers, and housewives, while the sample in Study I included only college students. The stability of this underlying factor structure is further supported by the results of the item analyses in Study II, which employed the responses of yet another large sample.

Bem assigned items to the Feminine scale if they were judged significantly more desirable for a woman than for a man, rather than on the basis of differential endorsement by the sexes. Items were assigned to the Social Desirability scale if they were judged equally desirable for both sexes. At the time the BSRI was originally constructed, subjects' responses to the final item pool were not analyzed to determine if the items clustered together in self-description in the same manner suggested by Bem's method for item assignment. The factor analysis reported in Study I, as well as that of Gaudreau (1977), suggests that these two methods result in different scales. Future research might be directed at investigating the differential validity of Bem's original scoring system and that of the present investigators.

At the time Bem constructed the BSRI, some of the Feminine scale items were rated higher in desirability than any on the Masculine scale. Therefore, Bem included some items low in desirability in order to equate the Masculine and Feminine scales in their mean desirability. The factor scales may appear to disrupt this control for the effects of social desirability. In a separate study, two of the investigators (Moreland & Montague, 1977) administered the Marlowe-Crowne Social Desirability (MCSD) Scale and the BSRI to 89 male and 111 female college students. For female students the mean correlation between an item assigned to the Emotional Expressiveness factor scale and the MCSD was .09, while for male subjects it was .05. For the Instrumentality factor scale, the mean item correlation with the MCSD was .05 for women and .07 for men. Apparently, then, the two factor scales do not differ in the amount they are influenced by social desirability.

Finally, the present authors prefer using such labels as Instrumentality, Assertiveness, or Dominance for the "Masculine" scale and Emotional Expressiveness or Warmth for the "Feminine" scale. The terms *instrumentality*

and *emotional expressiveness* refer to relatively unambiguous behavioral referents. The terms *masculine* and *feminine* refer to classes of behavioral referents, the composition of which may fluctuate depending upon prevailing social subcultural norms. Over time it makes more sense to define psychological androgyny as a balance of instrumental and emotional expressive qualities. The truly psychologically androgynous individual is one who can respond flexibly and effectively across a variety of situations. Such an individual has transcended the socialized urge to define some behaviors as masculine and others as feminine. It seems a contradiction to define empirically the androgynous person on the basis of his/her endorsement of attributes labeled with the very constructs these individuals have transcended.

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