

The hypothesis was tested that generalized self-related cognitions concerning sex-role orientations and locus of control beliefs are more strongly associated with cultural membership than with morphophenotype sex. In addition, it was expected that differences in generalized locus of control orientations between the morphophenotype sexes can be duplicated by psychological sex-role orientation variables. Questionnaire data on normative sex-role orientations (SRO scale), gender-related self-concepts (masculinity, femininity, and androgyny; BSRI), and three dimensions of locus of control (internality, powerful others control, and chance control; IPC scales) were obtained from 98 Southern Italian and 98 West German university students. The samples were matched for age, sex, education, and student status. The hypothesis that morphophenotype sex differences in control beliefs can be duplicated by psychological sex-role orientation measures, and its corollary that these psychological variables explain more variance than morphophenotype sex, were confirmed by the data. In addition, the findings show that national and cultural differences exceed markedly morphophenotype sex differences in locus of control and sex-role orientations. The results are discussed with reference to an action-theoretical approach to human development, which focuses on the efforts of individuals to regulate and to control their own development within a given cultural context.

## **SEX-ROLE ORIENTATIONS AND CONTROL ORIENTATIONS OF SOUTHERN ITALIAN AND WEST GERMAN UNIVERSITY STUDENTS**

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**The action-theoretical framework to human development** (see, e.g., Brandtstädter, Krampen, & Heil, 1986; Lerner & Busch-Rossnagel, 1981) focuses on the individual's own efforts to regulate and to control his or her own development within a given cultural context. Therefore, specific and

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240

generalized control orientations are of special relevance in empirical analyses of human development. Within the social learning theory of personality (Rotter, 1982), it is assumed that these control orientations are results of the generalization of specific expectancies brought about by an individual's experiences during in his or her socialization and acculturation. The same is true for other generalized self-related cognitions, that is, self-concept and subjective sex-role orientation variables. However, large proportions of personality and developmental research neglect these culturally transmitted individual contributions in analyses of self-related cognitions and focus instead on gender differences in these variables. Within an action-theoretical framework to human development and personality it is assumed that individual sex-role orientations and generalized control beliefs are the results of learning processes in a given culture. Cultural norms and traditions as well as individuals' efforts to regulate their own development influence the evolution of these self-related cognitions. It is assumed that both factors exceed the influence of morphophenotype sex, that is, the common indicator variable of biological sex.<sup>1</sup>

The results of the literature on gender differences in locus of control beliefs are contradictory: Either no sex differences are found (e.g., Barling & Fincham, 1978; Galli, Nigro, & Krampen, 1986; Phares, 1976; Scaturro & Smalley, 1980) or the results – mainly those founded on large data sets and large samples – point to small or medium differences indicating an increased externality in women (e.g., Marks, 1972; Parsons & Schneider, 1974; Yuchtman-Yaar & Shapira, 1981). It is reported that especially those women who experience discontinuity in their development (see Maccoby & Jacklin, 1974; Marks, 1972) and those who conform to traditional sex-role orientations of a culture (see Brehony & Scott, 1983; Erdwins & Mellinger, 1984; Romer, 1981) show external control beliefs. These findings are explained by cultural factors that differently influence the education and socialization of girls and boys, that is, cultural, normative sex-role orientations that include proscriptions and prescriptions about the right and wrong behavior for girls/women and boys/men. The hypothesis of culture-specific sex-role orientations and norms implies that psychological gender variables (e.g., normative sex-role orientations and gender-related self-concepts), which result from the dynamic interaction between biogenetic and cultural developmental factors and reflect the individuals' own efforts to control their development, will explain a greater proportion of the variance of control beliefs than morphophenotype sex.

In the present study the hypothesis that morphophenotype sex differences in locus of control can be reproduced by psychological sex-role orientations measures, and its corollary that psychological gender variables explain more variance in control orientations, was tested in Southern Italian and Western

German university students. Despite the fact that both cultures are modern Western and industrial with very similar political (democratic) structures, significant differences in value orientations, lifestyles, and sex-role orientations exist on the phenomenological level (although they have not been analyzed empirically or systematically). The Southern Italian culture is much more traditional and is characterized by more rigid and explicit norms for socially appropriate behavior and development of women and men. Therefore it offers fewer possibilities for individual efforts to regulate and to control one's own development. It is expected that this is also true for the modernized segments of the Southern Italian society (e.g., university students).

The cross-cultural design of the study presented here allows not only testing of the aforementioned hypothesis about the relative importance of morphophenotype sex and (psychological) sex-role orientations for personality differences in control beliefs, but it also allows for the relative significance of cultural membership that determines the development of sex-role orientations and control orientations. Thus we have carried out (a) empirical tests of the relative importance of morphophenotype sex and nationality (as an indicator of cultural differences) for the development of gender-role orientations as well as (b) empirical tests of the relative importance of morphophenotype sex, different subjective gender-role orientations, and nationality for locus of control beliefs.

The psychological gender-role variables, which represent the interaction of biogenetic, cultural, and psychosocial factors, are specified as (a) normative sex-role orientations (liberal versus traditional valuations of behaviors as right or wrong for women and men; see Brogan & Kuttner, 1976; Krampen, 1979, 1983) and (b) gender-related self-concept variables (self-perceptions of masculinity, femininity, and androgyny; see Bem, 1974; Cook, 1985). Construct differentiations are considered also in locus of control expectancies, which will be measured multidimensionally following Levenson's (1974) approach, who differentiates between internality (i.e., internal locus of control), powerful others externality (i.e., external control beliefs resulting from subjective social dependency and powerlessness), and chance control (i.e., external fatalistic control expectancies).

## METHOD

### SUBJECTS

The analyses reported are based on questionnaire data obtained from 98 Southern Italian and 98 Western German university students beginning their

social science studies. Both national samples consisted of 67 women and 31 men. The mean age of the Italian sample was  $M = 21.3$  years ( $SD = 2.65$ ), that of the German sample was  $M = 21.8$  years ( $SD = 2.58$ ). The national samples were matched for age, morphophenotype sex, education, and student status (field of study and years of schooling). Data were collected anonymously in group sessions. All subjects participated voluntarily in the study.

#### METHODS OF DATA COLLECTION

Normative sex-role orientations were measured on the dimension of liberal versus traditional valuations of the appropriate behaviors of women and men with a 10-item short version of the SRO scale (Brogan & Kuttner, 1976), which has proved to be a reliable and valid measure in previous work (Krampen, 1979, 1983). Masculinity, femininity, and androgyny were measured with a new standardized short version of the Bem Sex-Role Inventory (BSRI; Bem, 1974), which consists of 30 items—10 of which measure masculinity, femininity, and social desirability, respectively. The androgyny score is computed by the simple difference between masculinity and femininity scores (Bem, 1974). German and Italian equivalents of the SRO-S and BSRI-S (S = short), which were produced by means of the back-translation technique, were used. Generalized locus of control orientations were measured with (pretested and retranslated) German and Italian translations (Galli et al., 1986; Krampen, 1981; Nigro & Galli, 1988) of the IPC scales from Levenson (1974), which measure internality (IPC-I), powerful others' externality (IPC-P), and chance control (IPC-C).

#### METHODS OF DATA ANALYSIS

Data analyses were done either by nonorthogonal analyses of variance (ANOVA; involving the variables nationality and morphophenotype sex) or by correlational analyses (involving the different dimensional sex-role and locus of control scales). The level of significance was fixed at .05. With reference to the literature on sex differences, low to medium effect sizes—as specified by Cohen (1977)—were expected. Given the number of statistical tests applied to the data, we controlled for chance findings within each family of analyses by using binomial tables to determine the number of significant findings likely to arise by chance for the number of statistical tests employed (see Field & Armenakis, 1974).

TABLE 1  
Proportions of Variance of the Sex-Role Orientation Variables

Variable	Statistical Parameter	Masculinity (BSRI-M)	Femininity (BSRI-F)	Androgyny (BSRI-A)	Normative Sex-Role Orientation (SRO-S)	
Nationality (Nat)	$\omega^2$	16*	07*	13*	18*	
Morphophenotype sex (Sex)	$\omega^2$	08*	05*	07*	09*	
Interaction Nat $\times$ Sex	$\omega^2$	01	00	02	01	
<i>Sample</i>	<i>N</i>	<i>Internal Consistency</i>				
Italian	98	$r_{tt}$	.81	.67	.80	.94
German	98	$r_{tt}$	.83	.68	.79	.91
Total	196	$r_{tt}$	.82	.67	.79	.92

NOTE: The significance level refers to the ANOVA effects.

\* $p < .05$ .

## RESULTS

Checks of internal consistency for all measures confirm the reliability of the scales used in the present samples. The reliability coefficients are presented in Table 1 (BSRI-S and SRO-S) and Table 2 (IPC) for the Italian and the German samples as well as for the total sample.

Table 1 shows the proportions of variance of the sex-role orientation scales explained by nationality, morphophenotype sex, and the interaction of these two independent variables. The values in Table 1 refer to the percentage of variance (omega square) explained by the ANOVA main and interaction effects—thus presenting direct measures of the effect size. In addition to these effect sizes, the significance of the underlying ANOVA main or interaction effect is reported. The number of significant findings obtained in these analyses can only be attributed to chance with a probability of  $p < .001$ .

The first line of Table 1 gives the proportions of variance of the sex-role orientation measures explained by the factor “nationality.” The results show that there are significant nationality differences in (a) masculinity (Italians score higher), (b) femininity (Italians score higher), (c) androgyny (Italians score higher, i.e., the difference between masculinity and femininity is greater), and (d) normative sex-role orientations (Italians have—on average

— more traditional sex-role orientations). Thus for all dependent variables there are significant differences, which are in conformity with our hypothesis of cultural differences and with Hofstede's (1980) results concerning international differences in work-related values. The effect sizes of nationality reach medium to large values indicating the importance of cultural factors for differences in the sex-role orientations under investigations.

The effect sizes of "morphophenotype sex" (see second line in Table 1) are lower. However, significant main effects are observed for (a) masculinity (women score lower), (b) femininity (women score higher), (c) androgyny (women score lower, i.e., the difference between masculinity and femininity is smaller), and (d) normative sex-role orientations (women's normative sex-role orientations are on the average more liberal). However, all effect sizes are low to medium. The comparison of the effect sizes of nationality and morphophenotype sex for the dependent variables shows very consistently that cultural membership explains markedly higher proportions of the variance in the dependent variables than biological gender. None of the interaction effects (nationality  $\times$  morphophenotype sex; see Table 1) are significant.

Correlational analyses of the four sex-role orientations measures revealed only weak relationships between these different dimensional measures. The correlation between masculinity and femininity is low and negative ( $r = -.17$ ), indicating the relative independence of these two aspects of gender-related self-concept. This is an accordance with the findings of Bem (1974), Taylor and Hall (1982), and Cook (1985). There are also only weak relations between the normative sex-role orientations (SRO-S) and the three BRSI-S scales. There is only one significant, but low correlation ( $r = .20, p < .05$ ), between masculinity and (traditional) normative sex-role orientations. It must be added that neither BSRI masculinity, femininity, nor androgyny, nor the normative sex-role orientations (SRO-S) are significantly correlated with the social desirability measure included in the BRSI-S ( $r < .10$ ). These results confirm the usefulness of the applied dimensional sex-role orientation measures for further analyses.

Table 2 provides the results of the ANOVAs for nationality and morphophenotype sex for the three indicators of generalized locus of control beliefs. There are significant national differences in powerful others control and in chance control (both higher in Italian students). This is also in accord with our hypothesis, as is the result that females have higher average scores in powerful others externality than males. Again, no interactions are found for locus of control between nationality and morphophenotype sex (see Table 2).

TABLE 2  
Proportions of Variance of the Locus of Control Variables

<i>Independent Variable</i>	<i>Statistical Parameter</i>	<i>Dependent Variable</i>			
		<i>Internality (IPC-I)</i>	<i>Powerful Others Control (ICP-P)</i>	<i>Chance Control (IPC-C)</i>	
Nationality (Nat)	$\omega^2$	02	07*	05*	
Morphophenotype sex (Sex)	$\omega^2$	01	04*	02	
Interaction Nat $\times$ Sex	$\omega^2$	00	01	00	
Masculinity (BSRI-M)	$r^2$	20*	-05*	-07*	
Femininity (BSRI-F)	$r^2$	00	07*	04*	
Androgyny (BSRI-A)	$r^2$	10*	-03*	-04*	
Normative sex-role orientation (SRO-S)	$r^2$	-04*	12*	06*	
<i>Sample</i>	<i>N</i>	<i>Internal Consistency</i>			
Italian	98	$r_{tt}$	.72	.70	.71
German	98	$r_{tt}$	.75	.75	.68
Total	196	$r_{tt}$	.74	.73	.69

NOTE: The significance level refers to the ANOVA effect with respect to the correlation coefficient. The sign refers to the sign of the correlation coefficient.

\* $p < .05$ .

Table 2 also provides information on the relative importance of the different sex-role orientations measures applied to the three variables of locus of control. To make possible direct comparisons with the percent-values of omega-square, the results are presented in terms of squared correlation coefficients (i.e., coefficients of determination). These findings refer directly to our hypothesis that morphophenotype sex differences in control orientations can be duplicated by psychological gender variables. The percentages of variance of the control orientations explained by the dimensional sex-role orientation measures are markedly higher. It can be seen that (a) internality in generalized locus of control is determined by masculinity, androgyny, and liberal sex-role orientation, (b) powerful others (external) control is determined by traditional sex-role orientation, femininity, low masculinity, and low androgyny, and (c) chance (fatalistic-external) control is determined by low masculinity, traditional normative sex-role orientation, femininity, and low androgyny. The comparison of these effect sizes with those of morphophenotype sex confirms consistently the extended version of our hypothesis that psychological gender variables explain somewhat more variance of control orientations than morphophenotype sex.

## DISCUSSION

The hypothesis that morphophenotype sex differences in personality variables of generalized locus of control can be reproduced by psychological sex-role orientation measures, and its corollary that these psychological variables explain more variance than morphophenotype sex, are confirmed by our data from two national samples that differ in their cultural membership and acculturation. Although effect sizes of morphophenotype sex remain low, normative sex-role orientations and gender-related self-concepts reach medium to large effect sizes for the three variables of control beliefs considered. We expect that our hypothesis would be confirmed even more decisively in less modernized segments of the two societies.

Future research should employ dimensional psychological gender-role orientation measures such as scales of masculinity, femininity, androgyny, and normative sex-role orientation, which are consonant not only with psychosocial theories about the development of gender identity (see, e.g., Richmond-Abbott, 1983; Worell, 1981), but also with recent continuous definitions of gender in biology and physiology (see, e.g., Dörner, 1977). The results obtained confirm the independence of such sex-role orientation measures. In contrast to implicit personality theories in which masculinity and femininity are construed as the extremes of one dimension (see Foushee, Helmreich, & Spence, 1979), masculinity and femininity can be measured reliably and independently with psychological methods, instead of the one-dimensional measures of femininity versus masculinity. Our results further show that normative sex-role orientations are relatively independent of gender-related self-concept variables.

The expectation that morphophenotype sex is nothing more than a weak substitute variable for the dynamic interaction of biogenetical, cultural, and psychosocial factors in the development of the individual (which is psychologically more adequately assessed by sex-role orientation measures) is further confirmed by the fact that national and cultural differences exceed morphophenotype sex differences in locus control and sex-role orientations. Thus, in the study of personality differences and structures, the relative importance of cultural factors is higher than that of biological sex. This is in accordance with an action-theoretical approach to human development that focuses on individuals' own efforts to control and to regulate their own development within a given cultural context. Development-related control orientations, efforts to regulate one's own development, and subjective developmental goals are more relevant for the development of self-related cognitions in their interaction with cultural norms than is the morphopheno-



type sex. Our data confirm this for differences in the locus of control and sex-role orientations between two rather limited samples of Southern Italian and Western German university students matched for age, sex, and education, who were working and — partly — living in functionally equivalent institutions. Cross-validation of our results in other subcultural samples is, of course, necessary.

## NOTE

1. The term “morphophenotype sex” is used throughout the article because we refer — in conformity with most psychological and sociological literature — to this (simple) dichotomous variable of biological gender that is, however, only one aspect of biological gender. Modern endocrinology differentiates other indicators of biological gender (e.g., Dörner, 1977), which refer to endocrinological and neurological parameters that are defined as continual, dimensional variables.

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