

## *Summary*

# Sex and Gender Differences in Achievement Motivation across Cultures

İrem Uz TOBB University	Markus Kimmelmeier University of Nevada	Cansu Paksoy Middle East Technical University	Krum Krumov Sofia University
Ulrich Kühnen Jacobs University	Elena Volkova Herzen State Pedagogical University of Russia	Olga Gluzdova Nizhny Novgorod State Pedagogical University	Andre P. Walton University of Nevada

The present research provides a re-examination of sex differences in achievement motivation across cultures. The general expectation that sex differences would be greater in collectivist cultures (e.g., Williams & Best, 1990) is not supported by the empirical research, demonstrating sex differences to be higher in individualist countries (e.g., see also Costa, Terracciano, & McCrae, 2001; Guimond et al., 2007; Kashima et al., 1995; Watkins et al., 1998; Watkins et al., 1997; Watkins et al., 2003). Yet, other studies failed to reveal any significant sex differences, especially regarding achievement motivation (e.g., Botha, 1971; Jegede, 1994; Maqsdud & Coleman, 1993; Sachs, 2001; Toriki, 1985). Because of these contrasting results, we suggested that sex differences in achievement motivation vary systematically across cultures.

There are some possible reasons concerning greater sex differences in achievement motivation to be more pronounced in individualist societies. First, people in individualist cultures are more likely to make internal attributions for their successes and failures (Spector et al., 2001; cf. Norenzayan, Choi & Nisbett, 1999). However, more favorable outcomes for men compared to women (e.g., United Nations Development Programme, 2005) lead to favorable internal attributions and gendered expectations of success (e.g., Fibel & Hale, 1978; cf. Weiner, 1972). Second, Guimond et al. (2007) argued that existing social inequalities are perceived differently by different societies (cultural differences in power distance; Hofstede, 1980, 2001), and found sex differences to be larger in low power-distance societies than high power-distance societies. Because Hofstede's (1980, 2001) dimensions of power distance and individualism are closely and negatively correlated ( $r = -.70$ ), some of

the differences observed by Guimond et al. might be indeed due to individualism.

In the present research, two studies were conducted to test the hypothesis that sex differences in achievement motivation are larger in individualist countries than in collectivistic countries. Also, it was aimed to replicate previous findings concerning gender roles to be better predictors of achievement motivation than sex (e.g., Carr & Mednick, 1988; Olds & Shaver, 1980; Spence, 1980), and examine whether these findings hold cross-culturally.

### Study 1

In this study, sex differences in achievement motivation were examined, comparing individualist (USA, Germany) and collectivist (Russia, Turkey, Bulgaria) societies (Hofstede, 2001; Oyserman, Coon, & Kimmelmeier, 2002).

### Method

#### *Participants*

A total of 924 undergraduates from Bulgaria, Germany, Russia, Turkey and USA were recruited. There were 104 men and 140 women from Bulgaria (age  $M = 21.91$ ,  $SD = 3.81$  and  $M = 21.25$ ,  $SD = 2.06$ ), 50 men and 99 women from Germany (age  $M = 24.88$ ,  $SD = 4.05$  and  $M = 23.53$ ,  $SD = 4.60$ ), 102 men and 101 women from Russia (age  $M = 19.93$ ,  $SD = 1.47$  and  $M = 19.69$ ,  $SD = 1.09$ ), 90 men and 71 women from Turkey (age  $M = 23.06$ ,  $SD = 1.98$  and  $M = 21.35$ ,  $SD = 1.41$ ), and 52 men and 115 women from U.S. (age  $M = 21.73$ ,  $SD = 7.98$  and  $M = 20.77$ ,  $SD = 5.94$ ).

**Address for Correspondence:** Assoc. Prof. İrem Uz, Washoe County School District Gifted and Talented Advisory Panel, Reno, Nevada, USA

**E-mail:** iremuz@gmail.com

**Table 1.** Reliabilities of the Scales Across Five Samples (Study 1)

	Bulgaria	Russia	Turkey	Germany	USA
<i>Bem Sex Role Inventory:</i>					
Femininity	.83 <sup>a</sup>	.67 <sup>bc</sup>	.67 <sup>ab</sup>	.60 <sup>b</sup>	.77 <sup>ac</sup>
Masculinity	.83 <sup>ab</sup>	.87 <sup>b</sup>	.82 <sup>ab</sup>	.74 <sup>a</sup>	.77 <sup>a</sup>
<i>Achievement motivation</i>					
Work ethic	.61	.66	.67	.76	.66
Acquisitiveness	.64	.57	.61	.54	.69
Dominance	.79	.70	.57	.75	.78
Competitiveness	.69 <sup>ab</sup>	.63 <sup>a</sup>	.54 <sup>a</sup>	.66 <sup>ab</sup>	.79 <sup>b</sup>
Status aspiration	.64	.52	.61	.64	.67
Pursuit of excellence <sup>+</sup>	.49	.40	.22	.42	.25
Mastery <sup>+</sup>	.46	.51	.37	.55	.61

Note 1. <sup>+</sup>Because of their low internal consistencies, these scales were not included in further analyses.

Note 2. Cronbach's alpha coefficients in the same row with different superscripts differ at  $p < .005$  (due to Bonferroni correction for multiple comparisons).

### Materials

**Bem's Sex Role Inventory (BSRI, Bem, 1974).** Masculinity and femininity levels were measured using 20 items for each dimension. Response options were ranged from "1" (*never or almost never true*) to "7" (*always or almost always true*).

**Multidimensional measure of achievement motivation (Cassidy & Lynn, 1989).** This scale taps the following seven facets of achievement motivation: work ethic, acquisitiveness, dominance, competitiveness, status aspiration, pursuit of excellence, mastery. Each construct was assessed using seven items.<sup>1</sup> Participants indicated applicability of each item for them ( $0 = No$ ,  $1 = Yes$ ).

### Procedure

Participants received a booklet containing all study materials in their respective language. They initially worked on BSRI, and then the achievement motivation measure.

## Results

### Preliminary Analyses

First, the reliabilities of all measures within each sample were examined (see Table 1) and a series of

1 Dominance, competitiveness and excellence have fewer items than others because initial screenings either showed no variance on the remaining items or initial screening revealed them to be uncorrelated in at least some of the five samples.

statistical comparisons of the Cronbach's alphas for all measures were performed. The reliabilities were acceptable for all countries.

### Sex Differences in Gender Roles

Analyses across cultures demonstrated that in Bulgaria, Russia, and USA, men were significantly more masculine than women (see Table 2), and women were more feminine than men. In Turkey, although men were significantly more masculine than women, there was no significant sex difference in the femininity scores (Table 2). However, in Germany, men and women did not differ in terms of masculinity, but women were more feminine. This observation is consistent with the idea that the size of gender differences may vary cross-culturally.

### Sex Differences in Achievement Motivation

Multivariate analysis of variance was used to examine the effects of sex on the five achievement motivation variables separately for each country. Accordingly, sex had a significant effect in Bulgaria, Germany, and the USA; and it approached significance in Russia. However, it was not significant in Turkey (see first column of Table 4, Model 1). Subsequently, univariate effects that emerged in the context of multivariate effects were investigated. Contrary to general predictions, Bulgarian women scored higher in work ethic  $F_{1,242} = 13.68$ ,  $p < .001$ , but lower in acquisitiveness than men  $F_{1,242} = 5.29$ ,  $p = .022$ ). German women were also higher than men in work ethic  $F_{1,147} = 9.21$ ,  $p = .003$ ; but men were some-

**Table 2.** Femininity and Masculinity (Study 1)

		Female		Male		Effect size
		<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>d</i>
Bulgaria	Femininity	5.70	(.67)	5.06	(.86)	.84
	Masculinity	4.68	(.79)	5.15	(.85)	-.57
Russia	Femininity	5.01	(.59)	4.66	(.49)	.64
	Masculinity	4.54	(.78)	5.16	(.68)	-.84
Turkey	Femininity	5.10	(.58)	5.04	(.68)	.11
	Masculinity	4.72	(.68)	5.34	(.74)	-.88
Germany	Femininity	5.34	(.59)	5.11	(.55)	.39
	Masculinity	4.56	(.63)	4.64	(.59)	-.13
USA	Femininity	5.51	(.52)	5.01	(.66)	.87
	Masculinity	5.04	(.79)	5.34	(.72)	-.39

*Note.* Positive values of Cohen's *d* reflect a female advantage over males

what more dominant than women  $F_{1,147} = 2.92, p = .09$ . In the USA, men were significantly more competitive  $F_{1,165} = 6.27, p < .001, p = .013$ ; and they marginally significantly scored higher in acquisitiveness compared to women  $F_{1,165} = 3.74, p = .055$ .

Significant sex differences were found on various dimensions of the achievement motivation construct in both collectivist and individualist societies. As significance is a function of statistical power which varied between the samples used here, Cohen's *d* was computed for measuring the effect size of sex differences (see last column of Table 3). Weighted least square regression was used to take into account varying samples sizes on which individual data points were based. Because we did not entertain specific hypotheses concerning the direction of sex differences, this analysis focused on the prediction of absolute values of Cohen's *d*. For competitiveness and status aspiration, increasing individualism appeared to be linked to greater sex differences ( $b = .77, p = .13$  and  $b = .80, p = .10$ , respectively) whereas there was no discernible difference for work ethic, acquisitiveness and dominance, ( $b = .04, .06$  and  $-.33$ , all  $p > .59$ ).<sup>2</sup> Although the power was weak, present tests provided that sex differences increase with greater levels of individualism. Parallel analyses predicting achievement motivation from Hofstede's power distance index did not yield any coefficients approaching significance (all  $p > .30$ ). With smaller

2 Because of the small number of samples ( $k = 5$ ), it is hardly surprising that these coefficients only approached statistical significance.

effect sizes reflecting male advantage, sex difference in competitiveness was greater in individualist societies.<sup>3,4</sup>

### ***Sex versus Gender Differences in Achievement Motivation***

Next, we examined whether gender roles are a better predictor of achievement motivation than sex. Thus, we repeated the above multivariate model including masculinity and femininity as continuous predictors (see Table 4, Model 2). Results showed that the inclusion of masculinity and femininity in the model weakened all previous sex effects in Model 1 favoring males, and it revealed new sex differences favoring females in Bulgaria.

### **Discussion**

Findings revealed a good deal of evidence for the hypothesis indicating that sex differences in achievement motivation are more pronounced in individualist societies (see Table 4, Model 1). Further, regression analysis of effect sizes showed a clear tendency for some sex differences to be greater in individualist societies. Consis-

3 This finding is reminiscent of van de Vliert and Janssen (2002) who found sex differences in competitiveness to be greater in more developed societies.

4 The relationship of sex differences in achievement motivation was also explored with Hofstede's (2001) masculinity index— a variable discussed more extensively in Study 2. However, none of correlations approached statistical significance.

**Table 3.** Sex Differences in Achievement Motivation (Study 1)

	Female		Male		Effect size
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>d</i>
<b>Bulgaria</b>					
Work ethic	.65	(.24)	.53	(.26)	.45
Acquisitiveness	.55	(.26)	.62	(.26)	-.25
Dominance	.48	(.35)	.52	(.32)	-.11
Competitiveness	.52	(.30)	.50	(.31)	.06
Status aspiration	.63	(.26)	.63	(.26)	.00
<b>Russia</b>					
Work ethic	.66	(.26)	.70	(.26)	-.14
Acquisitiveness	.69	(.23)	.73	(.21)	-.16
Dominance	.44	(.29)	.56	(.31)	-.38
Competitiveness	.52	(.27)	.59	(.25)	-.25
Status aspiration	.70	(.20)	.72	(.22)	-.08
<b>Turkey</b>					
Work ethic	.61	(.30)	.61	(.25)	.00
Acquisitiveness	.50	(.28)	.58	(.25)	-.31
Dominance	.57	(.27)	.64	(.26)	-.26
Competitiveness	.53	(.26)	.56	(.26)	-.14
Status aspiration	.72	(.25)	.75	(.23)	-.11
<b>Germany</b>					
Work ethic	.67	(.27)	.52	(.33)	.47
Acquisitiveness	.47	(.23)	.42	(.24)	.19
Dominance	.42	(.33)	.52	(.31)	-.29
Competitiveness	.29	(.24)	.33	(.29)	-.14
Status aspiration	.58	(.24)	.62	(.30)	-.14
<b>USA</b>					
Work ethic	.74	(.24)	.68	(.26)	.22
Acquisitiveness	.54	(.26)	.62	(.28)	-.27
Dominance	.61	(.32)	.63	(.30)	-.06
Competitiveness	.41	(.31)	.54	(.33)	-.39
Status aspiration	.74	(.24)	.70	(.25)	.15

*Note.* Positive values of Cohen's *d* reflect a female advantage over males.

tent with the previous research (e.g., Carr & Mednick, 1988), a pervasive relationship was found between masculinity and achievement motivation. In addition, this relationship accounted for some of the sex differences obtained. In general, masculine gender role was a much better predictor of achievement motivation than sex, and this did not vary across cultures. Critically, sex differences in masculinity tended to be substantially larger in collectivist societies compared to individualist societies (Table 2, last column); yet, the inclusion of masculinity also revealed sex effects (especially for Bulgaria) that

were not observed otherwise. Thus achievement was by no means exclusively linked to notions of masculinity. In line with the previous research, femininity was not consistently related to achievement motivation, suggesting that definitions of femininity might be cross-culturally more variable than definitions of masculinity.

### Study 2

In this study, we aimed to expand our findings by overcoming some of Study 1's limitations. For this pur-

**Table 4.** Sex and Gender Differences in Achievement Motivation (Study 1)

	Model 1		Model 2	
	Sex	Sex	Masculinity	Femininity
Bulgaria (multivariate)	***	***	***	
Work ethic	.23***	.30***	.26***	
Acquisitiveness	-.15 <sup>+</sup>		.24***	
Dominance		.14 <sup>+</sup>	.56***	-.12 <sup>*</sup>
Competitiveness		.15 <sup>*</sup>	.27***	
Status aspiration		.11 <sup>+</sup>	.38***	
Russia (multivariate)	+		***	**
Work ethic			.23**	.14 <sup>+</sup>
Acquisitiveness				
Dominance	-.19**		.57***	
Competitiveness	-.14 <sup>*</sup>		.21**	
Status aspiration			.39***	.17 <sup>*</sup>
Turkey (multivariate)			***	
Work ethic		.16 <sup>+</sup>	.39***	
Acquisitiveness	-.15 <sup>+</sup>		.26 <sup>*</sup>	
Dominance			.46***	
Competitiveness			.25 <sup>*</sup>	
Status aspiration			.21 <sup>+</sup>	
Germany (multivariate)	*	**	***	
Work ethic	.24**	.28***	.28***	
Acquisitiveness		.13 <sup>+</sup>	.42***	
Dominance	-.14 <sup>+</sup>		.44***	
Competitiveness				
Status aspiration			.27***	
USA (multivariate)	*	+	***	**
Work ethic		.15 <sup>+</sup>	.30***	
Acquisitiveness	-.15 <sup>+</sup>		.17 <sup>*</sup>	-.18 <sup>*</sup>
Dominance			.46***	-.17 <sup>*</sup>
Competitiveness	-.19 <sup>*</sup>			-.26**
Status aspiration			.30***	

Note 1. + $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Note 2. Coefficients represent standardized regression coefficients. For Sex, positive coefficients indicate differences favoring females, and negative numbers indicate differences favoring males.

pose, we relied on the World Values Survey 1999-2002 (European Values Study Group and World Values Survey Association, 2004), thus expanded the database dramatically. Based on the Hofstede's (2001) argument that country level masculinity score is a measure of achievement related gender differentiation; it was hypothesized that sex differences in achievement motivation should be aligned with masculinity scores. Additionally, we included both individualism and masculinity to examine

unique contribution of each construct;<sup>5</sup> and we explored whether power distance, as a measure of acceptance of perceived power inequalities in a society, predicted the size of sex differences across countries.

5 Initial analyses also included the GDI, Gender-Related Development Index issued by the United Nations Development Program as well as GDP per capita. Because these predictors did not influence the results reported here, they were dropped from the analyses.

**Table 5.** Average Sex Differences and Effect of Individualism and Masculinity on Sex Differences (Study 2)

	Sex Difference	Regression Coefficients	
		Individualism	Masculinity
		<i>b</i>	<i>b</i>
Importance in a job (sex difference)			
Good pay <sup>a</sup>	.0381***	.0015***	-.0007*
A job respected <sup>a</sup>	-.0129+	.0005+	.0002
An opportunity to use initiative <sup>a</sup>	.0457***	.0003	.0012***
You can achieve something <sup>a</sup>	.0072	-.0005+	.0006+
A responsible job <sup>a</sup>	.0454***	.0008**	.0010**
A job that is interesting <sup>a</sup>	.0139+	.0006*	.0003
A job that meets one's abilities <sup>a</sup>	-.0042	.0000	.0003
Good chances for promotion <sup>b</sup>	.0342*	.0017*	.0001

Note 1. + $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Note 2. Table entries reflect unstandardized regression coefficients obtained from a linear mixed model analysis. Positive numbers indicate differences favoring males.

Note 3. <sup>a</sup>Analysis based on 37 countries. Standard error estimates for individualism coefficient  $se = .000266$  and for masculinity coefficient  $se = .000329$ .

Note 4. <sup>b</sup>Analysis based on 15 countries. Standard error estimates for individualism coefficient  $se = .000727$  and for masculinity coefficient  $se = .000571$ .

## Method

### Data

In the World Values Survey 1999-2002, participants in 77 countries were asked 11 questions concerning the characteristics they considered as important in a job.<sup>6</sup> For all samples, job-related questions were preceded by an initial instruction: "Here are some more aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job?" Responses were recorded as "1" (*yes*) or "0" (*no*).

Eight items that tap aspects of achievement motivation were identified: Good pay (acquisitiveness), a job respected by people in general (status aspiration, dominance), an opportunity to use initiative (excellence, work ethic), a job in which you feel you can achieve something (general achievement), a responsible job (status, dominance), a job that is interesting (mastery), and a job that meets one's abilities (mastery), good chances of promotion (status aspiration). Then average level of agreement for each item was computed separately for men and women within each society. Afterwards, women's agreement score was subtracted from men's score, reflecting sex differences score for each of the eight items. Higher

numbers indicated higher achievement related preferences for men. Next, Hofstede's (2001) individualism, power distance and masculinity scores were obtained for a total of 50 societies. The analysis sample constitutes of data from those 37 countries for which sex difference score, individualism, power distance and masculinity scores were all available.

## Results

An initial analysis of the average size of within-country sex differences revealed that, for six items, men were at least somewhat more likely to score higher than women (see Table 5, first column); yet, men did not tend to outscore women on job-related achievement motivation measures.<sup>7</sup> Linear mixed modeling was used to examine the impact of individualism, power distance and masculinity on the sex differences for each of the items. Our first model included the first seven items (second and third column of Table 5) which were available for all 37 countries. Items served as repeated measures factor. Also individualism and masculinity served as between-groups

6 Respondents from a subset of 33 countries received an additional 5 or 7 items beyond the basic set of 11 questions.

7 Two items showed the reverse pattern, but in neither case was the average sex difference reliably different from 0. In absolute terms, the differences are never very large: on average less than 5% more men agree with any particular achievement item than do women.

factor.<sup>8</sup> The model also included two interaction terms to account for possible differential effect of the later variables on each item. These terms involve items, on the one hand, and individualism and masculinity on the other hand. Finding an omnibus effect for individualism indicated that, across the seven items, it affected the size of the observed sex difference ( $F_{1,34} = 7.06, p < .02$ ). The significant “item x individualism” effect, however, showed that the impact of individualism varied across items ( $F_{6,204} = 7.58, p < .001$ ). Similarly, a marginally significant omnibus effect of masculinity ( $F_{1,34} = 3.79, p = .06$ ) was qualified by an interaction ( $F_{6,204} = 4.88, p < .001$ ).

Table 5 summarizes the simple-slope coefficients and their significance levels. Results showed for three of the seven items that higher individualism was linked to achievement motivation differences favoring men, supporting that individualism is related to greater male advantage in achievement motivation. For only two items, sex differences in achievement motivation were reliably larger in more masculine societies; thus, the masculinity results were clearly different from those for individualism.

Finally, the mixed model analysis was repeated by including power distance. Similar to individualism, there was an omnibus main effect for power distance ( $F_{1,34} = 4.76, p < .04$ ), and the “item x power distance” interaction was also significant ( $F_{6,204} = 5.15, p < .001$ ). It was concluded that individualism was the better predictor of cross-cultural sex differences in achievement motivation because of two reasons. First, in no instance, did power distance predict a variable that was not predicted by individualism. In addition, individualism coefficients were generally higher than power distance coefficients.<sup>9</sup>

## Discussion

The second study provided good evidence for the prediction that sex differences in achievement values vary by cultural individualism although not all dependent variables reached the statistical significance. Consistent with previous research, results also showed considerably

weaker link between masculinity and sex difference in achievement motivation (e.g., Lynn, 1991). However, results contradicted with Hofstede’s (2001) contention. Further, cross-cultural sex differences in achievement motivation were found to be more closely linked to a society’s level of individualism than to its level of power distance.

## General Discussion

Two studies produced evidence through both individual and aggregate level analyses that achievement-related sex differences are greater in individualist societies. Consistent with the previous research, sex differences in achievement motivations were found in individualist societies (e.g. Steinkamp & Maehr, 1984), but few such differences were present in collectivist societies (e.g., Botha, 1971; Jegede, 1994; King-Fun Li, 1974; Toriki, 1985; Wan & Fan, 1994). However, our findings seem to contradict earlier findings by Williams and Best (1990). In the Study 2, we found individualism to be a better predictor of cross-cultural sex differences than power distance, thus Guimond et al.’s (2007) hypothesis was not supported. Moreover, Study 1 showed that gender roles were more potent predictors of achievement motivation than that of sex. Therefore study 1 replicated earlier studies (e.g., Spence, 1980; Olds & Shaver, 1980). Yet, this pattern did not vary between the collectivist and individualist societies; hence, gender roles cannot explain differential sex difference patterns in achievement motivation. Also, the finding that gender roles themselves seem to be unrelated to cultural individualism does not jibe with Williams and Best (1990).

Principally, present research is limited by its correlational nature. Besides, important aspects of social inference process could not be documented by this study. Critically, implications of sex differences in achievement motivation for the gendered structure of a society are remained to be unanswered. Moreover, longitudinally, it is unclear why, there seems to be a positive correlation between gender inequality and a gender gap in achievement motivation.

In conclusion, present research extends previous research by demonstrating that sex differences in psychological characteristics are more pronounced in individualistic societies. Yet, this research cannot address a central social-psychological issue. Namely, the fact that individuals’ are not only being shaped by their social environments, but that they are also actively involved in shaping their environments and, through, this their own characteristics and outcomes (Snyder & Cantor, 1998). Because individual agency has clear implications for the life outcomes of men and women and the equality between them, research should continue to address this issue.

8 Based on Hofstede (2001), individualism and power distance are highly correlated, which was also found in the present data,  $r = -.68$ ; thus, excessive collinearity did not allow the inclusion of both predictors into the same model.

9 Despite of the presence of collinearity stemming from the high correlation between individualism and power distance, we included both country-level predictors in our model, again controlling for masculinity. Neither the main effect or the interaction effect for power distance approached significance, whereas the “item x individualism” interaction was significant,  $F_{1,33} = 2.83, p < .02$ , though the individualism’s main effect was only a statistical tendency,  $F_{1,33} = 2.28, p = .14$ ; supporting that individualism outperforms power distance as a cross-national predictor of sex differences in achievement motivation.